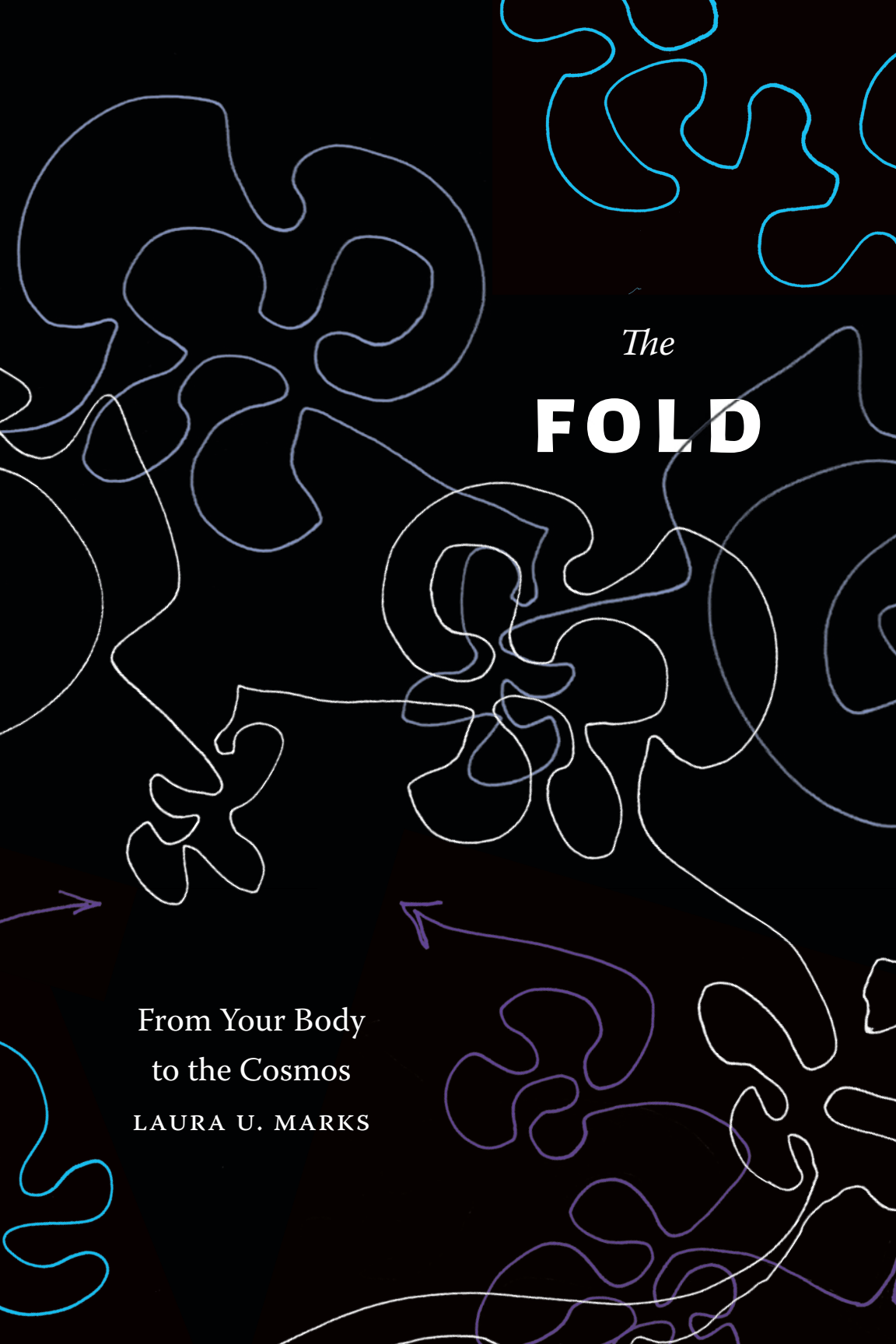
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FOLD
From Your Body
to the Cosmos
LAURA U. MARKS

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From Your Body to the Cosmos

LAURA U. MARKS

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1

LIVING IN A FOLDED COSMOS

In the produce aisle in a Veran supermarket in São Paulo, we hear Francisca Da Silva Gomes before we see her, on the other side of a heaping display of fava beans and fresh corn. She is singing a beautiful song that beseeches the moon to descend and comfort a heartbroken lover. "Dear white moon, please come down from the sky. Please pull this bitterness out of my chest." The camera moves around to discover Francisca, cheerfully singing while mopping the floor. "Give me the moonlight of your compassion," she lilts in her sweet strong voice. "So many times you would reveal yourself to me, up there in the sky, shining in the calm and starry night." In Francisca's mop bucket, a constellation of bubbles trembles and migrates into new formations, each differently reflecting her silhouette and the lights above. A thousand tiny moons, descended.

This is one of many scenes in *Meu Querido Supermercado* (My Darling Supermarket) by Tali Yankelevich (Brazil, 2019) that I love because it finds the vast in the minuscule, the singular in the apparently uniform, and souls everywhere. The supermarket is a cosmos, packed with microcosms. Cinematographer Gustavo Almeida's camera sneaks up like a lover, intensely curious

FIGURE 1.1. Still by Tali Yankelevich from *Meu Querido Supermercado* (São Paulo, Brazil, 2019)

about everything. A well-worn mallet in the hands of an unseen worker taps the floor tiles into place. A generous coat of paint rolls onto a wall in spiky tracks. Water drips from the stack of baking pans that Chico (Ivanildo Saraiva de Freitas), a baker, is washing, and soapy water drifts into shapes on the orange tiles. The structure of muscle and fat in animal flesh reveals itself under the sharp-bladed machine of Rodrigo de Freitas at the meat counter. The foot of store detective Solineide Simões dos Santos, in a shiny black ballet flat, pivots uncomfortably on the plastic base of her chair.

Yankelevich selects all these elements to cherish in their singularity. In so doing she also draws out the folds by which they are connected to one another. Chamber music composed for the film by André de Cillo and Alex Buck enhances the feeling that what we see is just the tip of something imperceptible.

Long tracking shots reveal the gleaming rows of the white supermarket and high-ceilinged stockroom, clean and rectilinear. But there is no uniformity here. Each acoustic tile, we see, is hand-installed by someone and conceals a unique tangle of cables. Every one of the buns Chico bakes turns out a little different, he complains. Stocking the shelves with identical packages, a worker gives each one a little pat so it sits properly. When Francisca sings, "When I die I want a yellow ribbon with her name on it," the movie cuts to a stack of yellow plastic Veran bags that suddenly seem full of emotion.

FIGURE 1.2.

The Veran workers get bored. They collapse into sleep in the break room. They share their problems: loneliness, jealousy, depression, anxiety. They also share their cosmologies. Between serving customers at the deli counter, Rodrigo explains that physics' double-slit experiment—in which the particles separate when not observed but collapse when an observer is present—demonstrates that "every particle that exists in the universe has consciousness. Because when there is a camera or someone watching, it [the particle] takes on the behavior of things from our material world, our dimension. But if no one is watching, there are infinite possibilities." As he speaks you can hear a trembling, warbling sound from a clarinet as the camera glides over the aisles to look up at the fluorescent lights. Solineide confesses that she doesn't believe in an afterlife, and her greatest fear is the unknown. Immediately after, Santo Decio Bitaffa, operating the squeaking forklift in the stockroom, explains his faith warmly: God wouldn't have made us intelligent only to live for sixty to seventy years. We cut to Chico making breadcrumbs from the day's unbought bread. As the golden crumbs course undifferentiated down the chute, the music holds somber and breath-like chords. When we die, those crumbs seem to ask, do our souls remain, or do we become distributed in the universe as matter?

Solineide says she loves detective movies and crime shows, "suspense with some kind of investigation." Her multiple screens capture slices of moving life in blurry detail on the supermarket floor. She's on the radio with Daniel.

"Two suspects near the condensed milk. They are carrying an unsealed white bag. Dessert aisle. . . ." Daniel finally tracks them to the battery aisle. "But I don't think they wanted batteries or razors," he tells Solineide. "They actually wanted to get some condoms." The woman was shy, he explains, so she lingered while "He went away, got some Coke, and came back for the condoms, and he hid them behind the Coke can." It is the tenderest of surveillances.

Solineide loves the adrenaline rush of her job, ever since she actually caught a thief, she says. But we can also sense that she craves the way events reveal themselves to the camera: when she talks on the phone with her kids about things that happen to them, she says, she wishes she had a camera to see "how things actually unfolded and what they felt like."

The supermarket employees consume a lot of media, but each receives them differently: *Meu Querido Supermercado* is not worried that media crush people's individuality. Santo loves to build imaginary cities in *Megapolis* and *Little Big City 2*. Standing at a freezer in the dairy section, Chico and his colleague Caio have a vigorous and drawn-out argument about whether the anime character Goku is a good role model. "If we lived in a multiverse," persists Chico, "would you want to be in our multiverse or Goku's?" Ours, says Caio; "Ours is less likely to be destroyed." They laugh. A very young-looking, bespectacled stocker slowly moves around the store, returning unwanted items to the shelves, and the music dawdles along with her. On her break, she scrolls through her phone: a pregnant friend, lots of pictures of the baby. Then (the quartet accelerates joyously) we get to see a stunning photo of herself in a blue tutu and pointe shoes.

In voice-over, Rodrigo explains that he's read *1984*, and this world is much more surveillant than Orwell imagined. "We're being watched by Facebook and WhatsApp. But that doesn't apply to me. Why would they waste time on me? So, I can say whatever I want, because they don't care." He's confident that he lives under the radar: a joke by the film, because we are seeing him through the surveillance camera's watchful eye. A shot of hamburger meat extruding from a meat grinder adds a sardonic tone to Rodrigo's observations on life in the matrix. "People think they're free, but everyone is bound by something."

Toward the end of the film, over gentle tracking shots of the bright clean store, melancholy sounds from a piano play. Over a big crack in the concrete floor of the stockroom we hear Santo say, "We are eternal, for better or worse. This eternity is a mystery from God, and mystery is mystery." Cut to the slogan on the LED checkout, "Weighing Life for over a Hundred Years." Rodrigo explains a lesson he heard from a rabbi on YouTube. "The Tree of

Life represents God's emanations in this world. The *malkuth* is the lowest part, where we are." From up high the camera pans down, through those tangled cables behind the acoustic tiles, into the store, to show the feet of shoppers queuing, mired in the world of matter.

The checkout's red QR scanner trembles, the piano arpeggiates higher. Through the surveillance camera we see a ninja prowling the aisles. An orange butterfly alights on the surveillance camera, flies off. Sounds of metal and wood resonate as we hear Chico explaining why people wear the ninja mask. "In many mangas I've read, the mask preserves mystery of the character; nobody knows what is in your heart." All this time in the film Chico has been half-disguised by the perky kerchief all the service workers wear, but now, for a beautiful moment, we get to see Chico's whole face, small at the bottom of the screen, for a moment before he masks up.

Then before our eyes, in luminous darkness, the supermarket aisles drift and multiply, the white transformed into stratospheric blues. The music enhances a feeling of magic, with sparkling piano and breathy sounds of the shakuhachi; yearning, slightly discordant chords. The aisles seem to be floating, rotating in space, their colors jewel-like. The supermarket has become, not a matrix, but a multiverse, as in Rodrigo's studies, in which every being has its own world that somehow intersects everyone else's. Every being in the film is individuated, precious, and ready to meet everything else.

This is a book of practical philosophy about living in a folded cosmos. If we think of our cosmos as a single surface that is infinitely folded, we can understand it as a textured continuity, replete with potential points of contact with itself, across its many folds.[1] Because it begins with the body and the senses, this philosophy is an aesthetics, which I call "enfolding-unfolding aesthetics." It proposes a theory of mediation as contact and connection and offers a set of embodied methods for detecting cosmic connections. You can picture these methods as reaching into an event and pulling, hand over hand, unfolding the connections implicit in it. As I will explain, these folds are composed of everything and everyone: all of us living beings, from humans to particles, sandwiches to stars, thoughts and images too, in the present, the past, and the future. Skeins of beings in ever-shifting assemblages. Introducing the concept of the soul-assemblage, the book suggests ways to strengthen connections to the cosmos.

In the cosmology I propose here, every entity mediates across folds. Mediation is necessary; otherwise we would all be one thing. Media facilitate these connections, adding their own folds. As my friend Walid El Khachab

writes, media do not collapse distances but eroticize them.[2] The distances between entities translate to a longing; a desire to unfold.

The audiovisual media of our time differ from other artifacts only in that they are more transparent about the mediating they do. You can reach into the most compressed thing—a rock, an emoji, a preserved lock of hair, a frame of film, a name on a black Zoom screen—to unfold its story. From world to medium to us, unfolding expands and contracts the connective tissue like an accordion. Perceiver, perceived, and the media that connect them all fold together, animated by the tension of constant pushing and pulling.

With enfolding-unfolding aesthetics, a receiver can get a sense of where things come from: the image's material, historical, and cosmic sources. Images, which I define as all perceptibles, cycle through time and space to reach our body and our senses. As they cycle, they collect noise, interference, augmentation, and diminution. In the method of enfolding-unfolding aesthetics, by comparing what you perceive with the interface that shaped it, you can get a sense of where it has come from and what it has passed through. A little part of the universe finally reaches your body! The sensation when the image connects to its source through your body is the feeling or affect of unfolding. It can feel like shock, joy, sorrow, or many other things. It is precious data.

Aesthetics privileges the analysis of perceptibles, what appears to the senses. But as you can see, the senses are portals to what cannot be sensed yet. When we think about where the things we perceive come from, I want us to think about the virtual, the infinite, and also something so physically real that it is utterly unknowable to us. The senses are constantly actualizing latent bits of the cosmos. Most philosophy privileges what actually exists, and who can blame it? However, as Gilles Deleuze, often with Félix Guattari, emphasized again and again, using many different approaches, the relevant category is not Being—what exists—but Becoming—what changes. Enfolding-unfolding aesthetics helps us to be alert to the seemingly nonexistent as it rolls into being.

With its attention to how things unfold from chaos or the infinite, enfolding-unfolding aesthetics can be used to analyze not only images but any phenomenon, including concepts. The method extends to historical and cultural research, and it can be used to unfold many kinds of nodes in many disciplines. Because the arts reflect, model, and reimagine the cosmos, they are especially fruitful media for doing enfolding-unfolding aesthetics. Movies and artworks enter as my thinking and feeling companions.

Riding a Common Wave

A simple cosmology orients the practical philosophy I set out in this book: a model of the folded cosmos. This model is easy to visualize as a multidimensional folded fabric, which you can picture unfolding and enfolding under various pressures. Similarly, we can conceive of the plane of immanence as a manifold existing in space and time, from which virtualities, folding around singular points, condense into actualities.

In the cosmology I sketch in this book, the cosmos can be considered the infinite. It is all of reality, where reality contains what exists and what appears not to exist, the actual and the virtual.[3] It is a unity of constant differentiation, an expressive plane of immanence, a roiling, ever-changing, interfolded, historical whole. Cosmology is a dated term, suggesting medieval notions of an orderly and bounded universe, often pictured as a series of concentric circles. I like the modest confidence of those drawings. And like the medieval understanding of the cosmos, "my" cosmology understands that things on earth—plants, rocks, weather, animals, people, and the things people make—are connected to the Sun and the stars. Just our cosmos! The term also resonates with vital cosmologies in a great many cultural traditions, such as Hindu, Taoist, Haida, and Dogon cosmologies. Cosmology's modern revival includes thinkers such as Alfred North Whitehead who dare to try to conceive of the open chaos, in which we live, as a whole. As in Whitehead's cosmology, in the one I propose here, every entity more or less creatively synthesizes data from its surroundings and contributes to the cosmos in turn.

In "my" cosmology, then, the cosmos is a plenum, continuous, completely full, densely folded, populated by entities that are centers of experience. It is composed of experience; for everything is experienced by something at some time. Matter is composed of experience—as Charles Sanders Peirce said, matter is "crystallized habit." As I will propose, every entity is an organism, which includes, and experiences, the ever-changing cosmos from its unique point of view. In time, the cosmos becomes more crowded, more intense, as experiences pile up.

Experiences that are not yours, not now, are virtual to you, but they are, or have been, actual to something else at some time. These virtualities are enfolded in the cosmos: enfolded, that is, according to a given point of view. So, what's unfolded, or actual, to one point of view may be unfolded to another. Enfolding-unfolding aesthetics help to unfold some of the experience of others, even those distant in space and time.

In this folded cosmos, all of us entities are expressions of a common wave. Literally, we're all in this together. Like corks floating on the ocean, we appear separate, but we all express the action of the underlying waves that move us. Theoretical physicist David Bohm's concept of the implicate order first expressed this understanding of an invisible commonality to me. Bohm uses the term *explicate*, or *unfolded*, for that which is apparent in a given system, and *implicate*, or *enfolded*, for that which is latent in the same system. Bohm's minority strain of quantum physics holds that the universe can be described as a wave equation. According to the many-body wave function, as we will see, every particle is affected by a quantum potential that arises from the wave function of the entire universe.[4] This understanding that a single point can imply a history of relationships is what set me on the path of enfolding-unfolding aesthetics.

Now and then we can get a macroscale feeling of the synchrony Bohm describes at the quantum level. The movements of a crowd in a public square at first seem random but, over time, describe common patterns. When we're dancing in a nightclub, the strobe lights cast us all as a single pulse of motion. In video, slow motion and datamoshing unify the movements of all the figures, as though they were being stirred with a big spoon, replacing the purposiveness of movement with a common temporality in which every entity is suspended.

I discovered that Bohm's concept of the implicate order resonates deeply with the calculus-informed cosmology of Gottfried Wilhelm Leibniz from two centuries earlier. For Leibniz too, a single equation describes the unique situation of each point along it, and in turn each point expresses the equation. An infinitesimal point is not a fixed value but the expression of a function. (You can see this by graphing a simple conic section, such as the vaselike shape of $y = x^2$, and drawing some tangents to points on the curve. Because they share the same equation, each point is singular and yet implies all the others and the whole.) Thus, each point is a unique point of view on the whole that includes, and is connected to, all the others. "This *interconnection*, or this accommodation of all created things to each other and of each to all the rest, means that each simple substance has relations which express all the others, and that consequently it is a perpetual living mirror of the universe."[5] The point in infinitesimal calculus would become Leibniz's monad, which expresses the infinite in the form $1/\infty$.

In short, what appear to be points are not separate entities but folds. Unfolded, they express relations with a larger surface, and ultimately with the entire cosmos. Points are the actual peaks of an enfolded virtual structure.[6]

The cosmic process has two poles. At one pole, everything enfolds into a teeming unity. At the other pole, everything is constantly unfolding, each according to its own manner.[7]

Exploring deeper into the history of these conceptions of the folded cosmos implicit in a point, I found their richest origin in the expansion of Greek Neoplatonism by early modern Islamic thinkers, in which the universe comes into being by unfolding from a One and the smallest entity is a microcosmic reflection of the cosmos. Islamic Neoplatonism's ways of conceiving of the universe as an interconnected multitude that emanates from an infinite One profoundly informed early modern European philosophy. This movement was itself informed by a great many traditions of thought, including the Greek Neoplatonists, Aristotle, the Qur'an, Hindu thought, and the sciences of the time. It echoes into contemporary thought, for example in Deleuze's concept of the univocity of being.[8] Elsewhere, in the company of historians of philosophy, I unfold the history of these conceptions of the folded cosmos into contemporary philosophy.[9]

Each of the thinkers that interest me, historical and contemporary, models a process cosmology. Each characterizes the cosmos (world, universe, nature, being) as an interconnected whole, and for most of them the smallest entities in some way embody the whole. They include Yaqūb ibn Ishāq al-Kindī (801–873), Avicenna, or Abu 'Ali al-Husayn Ibn Sīnā (980–1037), Ṣadr al-Dīn Muhammad al-Shīrāzī (1571–1640), Baruch Spinoza (1632–1677), and Leibniz (1646–1716). These historical cosmic models tend to be transcendental and deterministic; they need quite a bit of adjustment to describe a wholeness that is open to the singularity and unpredictability of life. Modern and contemporary thinkers who model a process cosmology include Henri Bergson, Charles Sanders Peirce, Whitehead, Gilbert Simondon, Bohm, Deleuze, and Édouard Glissant. Most of these thinkers focus on human beings, but importantly to me, all their cosmologies can be tinkered with to accommodate the experience of nonhuman and non-organic entities. They differ in the degree of freedom they assign to entities, and in the relative importance they ascribe to the whole, but these differences too can be accommodated without doing violence to the functionality of the cosmic models within which they are embedded. I acknowledge that many Indigenous cosmologies, as well as cosmologies in other world traditions, resonate with the cosmic models I consider in this book.

Unlike most of the thinkers I've mentioned, I do not argue that the cosmos is progressing or improving, and I am more partial to the cosmologies that privilege the creativity of the parts over the unity of the whole. I am on

the fence as to the eternity of this whole or of the entities within it; that's why I say it's "just a cosmology." More than some of these thinkers, my cosmology includes humanmade entities, which allows for more analysis of culture and of power relations. Thus, I engage extensively with contemporary thinkers of culture and technology, especially in the age of information capitalism.

Yet the sad fact is that in our cosmos, the infinite is getting smaller, or at least not enlarging at the same rate, because of the damage humans have done to it. Now the cosmos we live in is shrinking in its capacity to carry us. Our cosmos, "just our cosmos," the planet and solar system we inhabit, is finite, and ecological devastation is shortening its lifespan and its possibilities. The virtual is not as capacious as it once was.[10] Our room for maneuver is smaller.

Every being, from a person to a particle to a star—and humanmade things too, like spoons, software, and movies—is alive, as I will argue, and has experience: it receives from and acts on the world. Peirce's well-known statement that what appears from the outside as object, feels from the inside as consciousness, is accurate to the situation I'm describing.[11] So is H. Wildon Carr's definition of the *monad* as anything that has experience: his example is a mustard seed.[12] Each of us experiences ourselves from the inside, others from the outside—at least at first—but we may become aware that what appear to be objects are fellow living beings. We're aware of only a few of those infinite other entities, only the ones that are distinct to us. But with care, we may be able to share the experience of others, as I will explain.

"Consciousness" is a freighted term, given its deep connotations of a self-awareness exclusive to humans, which this cosmology doesn't need. It is not necessary to declare an entity to be conscious to say that it has experience. I give deference to panpsychist worldviews, including animism and other Indigenous thought systems, that equate being and consciousness. If we redefine consciousness as enjoying one's own process of being, as Whitehead and Raymond Ruyer do, then yes, all entities are conscious.[13] I substitute indexicality for consciousness, in an apparent step back from Whitehead to Peirce: every being indexes the things that cause its current state of being, whether by thinking about them or being touched by them.[14] This will allow me to assert, later on, that all entities, including humanmade ones, are in some way alive.

The cosmos is composed of an infinite number of experiences, from infinite points of view. I like to watch the rain falling on the roof of the building next door to my apartment. As each drop falls, it creates a concentric ripple, which conjoins with the ripples created by the other raindrops faster than

the eye can see, creating twinkling patterns of dark and light. It is both a model of the cosmos in motion and an actual little piece of the cosmos in motion, as I witness the experience of each raindrop as it creates experiences for others and forms part of a larger, collective experience. We are swimming in experience!

At some point it becomes evident that experience is not mine but ours, as it occurs on the fold that I share with others. Experience expresses us, not the other way around. For us humans, the vast majority of experiences, especially those experiences that make it clear we are living on a shared fold, occur prior to consciousness or cognition. But they are constantly present to be unfolded.

In a chapter titled "Love," Anand Pandian tells a story about encountering a snake on his walk to work through the forest one day. The shock of the gleaming, sinuous creature moving slowly across the path sufficed to turn Pandian's world snaky for the next few hours. "That slithering body, its echo was everywhere with me: winding roots, overhanging branches, vines and stems reaching out into the air, all of this was pervaded by that ophidian movement, by its tingling promise to rupture the limits of my body."[15] The moment of shock mingled him with the world, in a feeling of terror but also "electric delight," which Pandian associates with the way love undoes you. The encounter briefly expanded Pandian's boundaries to join a snaky soul-assemblage in which himself, the snake, the plants in the forest, and even his office shared a gleaming, undulating communion.

All process philosophies conceive of a force of differentiation that flows through individuals from the universe, or at least the larger milieu. Things transform from within in response to a pull from without. The cosmos flows into all beings, and our ever-changing interior infinity connects us with the ever-changing cosmos, as in Pandian's ophidian communion. Entities seen from the outside, erstwhile objects, are dense with enfolded relations. When things appear as objects, it's easy to imagine that they do not change and that all that they are is contained in how they appear from the outside. But beings are constituted from a history of relations. As well as indistinctly enfolding the rest of the cosmos, every being enfolds its own history; the relations that gave rise to it. According to Leibniz's principle of sufficient reason, every entity has a concept that includes all its predicates, thus all its relations with every other entity.[16] For example, you are here today because your parents met, and their parents before them, etc., to the dawn of existence, as well as because of the infinite number of accidents that provoked each of these encounters, most of which are virtual to you. Comparably, *aura*, in Walter

Benjamin's term, is the latent presence of a thing's history that inheres in it. In this way things that appear to be objects are better understood as *fetishes*, where a fetish is a seeming object that is volatile because it is composed of relations to entities and events from "outside."[17] Fetishism (in each of the anthropological, Marxist, and psychoanalytic traditions) is enfoldment of process. Fetishes are intense, where intensification describes the internal relations to the external milieu: the more relations an entity sustains, the more intense it is.

Speaking of fetishes, enfolding-unfolding aesthetics has much in common with Marxist critiques of reification and abstraction, and it is informed by Deleuze and Guattari's analysis of capitalism as a process of striation, especially in what I term the "information fold." It privileges the *flow* by which the products of reification, or abstraction, unfold and re-enfold. It uses a method of triangulation that makes the process of reification less opaque, by comparing the image with the information filter that produced it in order to get a sense of the infinite from which it arose. These are some of the qualities that make enfolding-unfolding aesthetics a fairly optimistic and empowering analysis of life in information capitalism. My pessimism is more concerned with environmental collapse and other kinds of human oppression than oppression by information, though they are linked, as we will see.

Speaking of folded surfaces, you may have remarked the isomorphism between the cosmic monadology that I propose here, with its folds enclosing folds, and the female sexual organs. It's there! The becoming-vulva that Patricia MacCormack advocates in a tour-de-force mapping of Luce Irigaray onto Deleuze is a radically smooth space, an infinite assemblage of folds that unfold, refold, and maintain connection. The terrain of becoming-vulva describes a ceaseless tensile process: "tensions, thresholds, activity-affect-passivity-syntheses, and action-potential, not a project involving a thing."[18] Many of the good qualities of involution, connectivity, and surface contact that MacCormack describes are present in my folded cosmology, although I give more privilege to objects as nodes of processes. Moreover, as we'll see, the monad's boundary is created through invagination, which is also the way a monad encloses or dominates other monads. This denotes a potency to the vaginal metaphor that I quite like. To enfold something can be to protect it while it germinates before it is let loose on the world. It can also be a way to claim power over something else, or as I will suggest with the soul-assemblage concept, to enter into alliance.

There is creativity in enfoldment, some degree of choice, as in Whitehead's concept of the aesthetic moment of concrescence, where the entity

in process reflects on what it will become if it synthesizes certain data. Molecules do not appear to have that much choice, nor do stars like our sun, but who knows? Cells choose what to osmose through their membranes. Trees choose, in the ways they turn their leaves to the sun and rain and interact with the world through their roots. People of course have a lot of choice of the ways they select what to absorb from the world and how to respond to it. Communities, corporations, nations continuously manage what to enfold or "incorporate" from the world—as in energy policies, hostile takeovers, and refugee quotas. All of these enfoldings are future-oriented, toward an imagination of what the entity will become.

The Goal of Life in the Folded Cosmos

The goal of life in the folded cosmos is to unfold or actualize more of what lies enfolded in the infinite: doing this both singly and collectively. There are many ways to describe this goal. For Spinoza, the goal is to better align one's imperfect knowledge and capacity, on one's small territory, with the infinite knowledge and capacity of "God, or nature." For Leibniz, as we will see, the monad perceives distinctly what's in its clear region, indistinctly what is not, and strives to amplify the wavelength of its soul. In Whitehead's cosmology, very similar to that of Leibniz, every actual entity has "perfectly definite bonds" with all other entities in the cosmos, either positive (it actually prehends the other entity) or negative (it doesn't). Like Leibniz's monad, each actual entity seeks to enlarge its positive prehensions of the universe.[19] For Glissant, too, everyone is a monad in a folded cosmos: the goal of life is to become acquainted with the complexity of the world, which requires an attentive closeness to its ever-unfolding surface.

Implicitly in these models, we are all internally infinite. Everything is a microcosm—every person, entity, situation—because it enfolds relations with the whole universe. I propose throughout this book that it is possible to unfold a little more of the cosmos, alone and with others, with care and style, and also to have a sense of what not to unfold. The more a being can actualize its internal infinity, the more real it becomes, the more individuated, and the more intense, as it expresses the cosmos more completely. As we become more real, we gradually become more capable of acting freely. But most of us are dull mirrors (Suhrawardī); the vast majority of our prehensions are negative (Whitehead) or at best dim misgivings (Leibniz). The effects of these relations are not realized in the entity's capacity to act. We are far from perfect.

The goal of life includes knowledge and the power to act, but also something that is more difficult to achieve: ever-greater openness. Perfection is the achievement of infinite points of contact with the universe—and contact is a two-way street. Becoming more real also means becoming more responsive. "A thing has the greater reality or perfection, the greater number of ways in which it can be affected."[20] Becoming more real entails becoming more capable to be affected by others, as well as to affect others. This book's embodied aesthetics emphasizes refining one's capacity to do both those things.

Bus-Stop Philosophy

Like other in-between moments of life, waiting for the bus is an ideal opportunity to practice enfolding-unfolding aesthetics. Many of the perceptible surfaces here—the concrete pavement, the metal structure, the bland signage, the rush of passing vehicles, the smells of the city—at first reflect my inquiry back to me, revealing nothing. That's especially so here in prosperous downtown Vancouver, where urban surfaces are polished to an anodyne informatic smoothness; in another part of the city the infinite would come pouring in more quickly. But there is nothing boring here. At the bus stop the infinite is converging on me from all directions! The infinite is folded into all these surfaces and may unfold to attentive perception, thinking, feeling, and research. Or it may resist my prying.

All of us gathered here at the bus stop express patterns of information, at the same time that we are folds of the infinite. Those squares below my feet have been lightly compressed as information into regulation sidewalk dimensions. How far did stone travel to be crushed into these particles? Who poured the concrete into molds? What were they thinking about as they trowel-smoothed the thick substance? (The movie *Locke* is a must-see for anyone who thinks pouring concrete is not a fraught and dramatic operation.) Between the slabs, valiant plants poke up: tufts of grass, a sprig of nutritious chickweed, a tendril of blackberry. Weeds index nature's strategies for survival in disturbed, unwelcoming soil. It looks like a worker for the city has hacked down the blackberry, but it is already springing back. Who else is living under the pavement, poised to spring from the clayey soil?

The uniformly sized bus shelter is the same as any in my city, but that is already interesting. Who determined the regulation size, and how was the design carried out? Where was the iron mined and processed into steel? Who welded the joints, how well are they paid, what was on their mind that day?

What urban-design committee determined that the little bench should have wedges sticking up, to divide it into the dimensions of slightly ample bottoms but deter those who would recline? The bus-stop bench is evidence that information is infused with politics, here the civic politics of vagrancy management, which performs its own twists in the infinite before extruding itself in wood and metal fixtures of regulation cruelty.

In the fire season, the glaring sun refracts on scratches on the plexiglass. In the flood season, rain beads along their seams. Each scratch tells the history of the hard objects that attach to us, such as a swipe by the zipper on somebody's backpack as they leaned against the shelter. S. K. has taken the trouble to inscribe their initials, giving me a taste of their determination, that particular day, to record their presence.

Other people are joining me at the bus stop. People! Each one a gorgeously individuated, unfathomably complex fold. Sculpted in time by age and experience, each of us is a delicate, endless negotiation between the information patterns of genetics and culture and an infinity all our own. Our hair, for example. One of my fellow mass transit takers has streaked her graying hair a trendy hot pink; another sports a perfect ovoid Afro. Just below the crown of another man's head, twin cowlicks, gifts of nature, spiral in opposite directions in defiance of his slick of hair gel. The ways my bus-stop friends disport their bodies as they stand, sit, and lean also tell of their unique trajectories of gait and injury, their practiced styles of movement, their moods. One bus-stop friend plops down next to me with a gentle groan. Another bounces pertly on his toes. One folds herself over her phone, another announces their presence with large, windy gestures. I find myself sticking out my chest like a flag; I fold in to be less conspicuous.

Going to work or to school, off to the market, returning home, meeting a lover, visiting a friend at the hospital, taking a day at the beach: each of us travelers, in our granular way, both reinforce and diverge from the transit system's planned trajectories. The clothes we wear, the music in our earbuds, even our worries reinforce cultural patterns, yet our personal infinities exceed those limits. Every face affords me a lambent glimpse of the infinite, so intense I must avert my eyes. I'm tempted to ask questions. What music are you listening to that makes you smile so wistfully? How are you enjoying your library copy of *The Bird King*? Those are some handsome leeks you've got; what are you making for supper? (I do ask that one, and my interlocutor shares a friendly recipe.) How did you get that scar? You look so disappointed, what happened to you?

But it's not polite to unfold strangers. I quietly inhale their mystery.

The concepts and exercises in *The Fold* are things I practice in everyday life to enjoy cosmic unfolding—waiting for the bus, listening to a friend, watching a movie—and I hope they can be that for you too.[21]

It was a bit of a surprise to me that they partake in most of the -ologies of philosophy. The exception is aesthetics, which grounds this book and which I treat as the interface between the body and the cosmos. The book also approaches ontology, or the nature of existence, with the model of the unfolding cosmos, and therefore epistemology, of how to think in and with a folded cosmos. I acknowledge that to sketch an ontology entails a certain arrogance, a whiff of totalization, but I do it in the awareness that enfolding and unfolding are always immanent to local conditions. Less totalizing than ontology is cartography, the partial and adequate method that Rosi Braidotti advocates.[22] I suggest that aesthetics is a cartography as it maps a part of the cosmos from the position of the sensing body. *The Fold* also pursues an ethics of how to act in the folded cosmos in ways that amplify the vitality of all beings. This ethics begins from one's one point in the manifold, one's own body: hence back to aesthetics.

Coming from a tradition of nontotalizing thought—the theories, rather than philosophies, in which I was initially schooled, that emphasize local and historical solutions to wade into such deep philosophical waters—thinking about these things feels preposterous and presumptuous. Aiming to keep philosophy open to non-Western thought, and other practices that are often shunned from the category, amplifies the challenge. Luckily for me, these philosophical ambitions and the difficulties they navigate find company and inspiration among a number of contemporary thinkers who are also wading into philosophical waters; many of whom come, like me, from disciplines outside philosophy.

Monism

From the outside, matter; from the inside, consciousness. Or put another way, the difference between thought and matter, as Spinoza argued, is a question of modality. Monism holds that all reality is a single substance. It denies matter-mind dualism but is in tension with the dominant contemporary tendency of materialism. In a nonreductive monism, immaterial forces arise from, respond to, and shape materiality. Explanations of the deep structure of matter can sound idealistic—matter consists of the undifferentiated (Bergson); a standing wave (various interpretations of quantum physics); "mind hidebound with habits" (Peirce).[23] Yet even in process philosophies that dis-

solve all into flows, processes have their own structures, including likely outcomes.[24] Similarly, among Deleuze scholars there is agreement that the virtual has an immanent structure. The concept of the implicate order in Bohm's cosmology corresponds well to Deleuze and Guattari's plane of immanence, an immaterial structure abiding in reality that shapes how things unfold. Enfolding and unfolding are such immanent and incorporeal forces; or, more modestly and accurately, abstractions that try to describe them.

Bohm's cosmology resonates with that of other process philosophers, such as Ṣadrā and Leibniz: "There is a universal flux that cannot be defined explicitly but can only be known implicitly, as indicated by the explicitly definable forms and shapes, some stable and some unstable, that can be abstracted from the universal flux. In this flow, mind and matter are not separate substances. Rather, they are different aspects of one whole and unbroken movement."[25]

Physics reminds us that the physical is composed of energy as well as matter. Even so, attempts to express all immaterial processes, including thought, as energetic seem reductive to me. Although thought is increasingly considered to be attributable to electrochemical processes in the brain, no single field, Bohm contends, can explain intelligence: "Its origin is deeper and more inward than any knowable order that could describe it."[26] Bohm warns against making final determinations of what the universe consists of, arguing that while undivided wholeness will remain both as content and as method of physics, physics must "slowly and patiently" accommodate both its theories and its facts.[27] His humble and gradualist approach respects the mystery of the universe, calling to mind the words of Santo in *Meu Querido Supermercado*: "Mystery is mystery."

It is delicate to maintain a monism that does not reduce either to idealism or to materialism, as Elizabeth Grosz finds in her careful study of the minor tradition of monism in Western thought.[28] In the human world, most entities consist of layers of thoughts and matter kneaded together—clothing, food, books, software, monarchies—and it is difficult to say where one ends and the other begins, but there is no question that the cotton of the fabric and the idea for the loom are equally real. In the nonhuman and non-organic worlds, something like thought takes place in conditions such as striving and enjoying. Certainly enfolding-unfolding aesthetics is a realism in which apparently material and apparently immaterial entities and powers are all real. As Bergson argued, matter is composed by duration: the way it persists, decays, and transforms. "Matter is . . . an infinitely dilated past."[29] At the same time I want to assert that thought is real, and that the difference between

thought and perception is one of degree. Enfolding-unfolding aesthetics shares the new-materialist conviction that matter is in some way alive. Yet, seemingly perversely, it asserts that matter is packed with souls, or bounded interiorities, in order to respect the mysterious internality of life.

The folded cosmos is immanence-friendly. Folding is immanent to what is being folded. Proposing an interdisciplinary model of the fold as both material and operation, Michael Friedman and Wolfgang Schäffner insist that folding is local, as it is adaptive to specific local conditions. They reject the imposition of information theory on biology, such as the concept of DNA and RNA as codes, and insist that there cannot be an external total code. "There is no infinite folding as there is no complete codification of material folded onto the material itself."[30] Even in the same material, different tissues fold differently. In biology, folding is a fractal process, not a codification: kale leaves bend into baroque curls as they grow, developing fractal form.[31] The Borgesian map corresponding to the territory—an example of a total code—is a fiction.

The subtle feat of converting idealism to immanence occupies Deleuze's engagements with many earlier philosophers, Leibniz among them, as we will see. I really enjoy this project and have attempted to carry it out myself with transcendental philosophers such as Ṣadrā: it's fascinating to see what kinds of structure can be retained, what must be jettisoned, in opening up the closed system of idealist philosophy.

Materialism, vitalism, and monism intertwine complexly in Deleuze's philosophy. Some accuse him of idealism, misunderstanding the immanence of forces such as differentiation and individuation. The concept of the univocity of being, in which all things "be" in their own irreducible ways because all things are part of Being, grounds immanent causality. "Being is said in a single and same sense of everything of which it is said, but that of which it is said differs,"[32] Deleuze writes. This means that differentiation is the necessary extension of oneness. Univocity is nonhierarchical.[33] Every entity, from the universe to a crushed beer can, participates equally in being. We can see the attraction of Leibniz's concept that the monad envelops some part of the life force that courses through the universe: it differentiates without becoming separate from the One.

The question remains, at least for me, of how to characterize the energy that appears to course through a monist cosmos, activating movement and differentiation. Is it the virtual itself, the engine of actualization? Is it, as Braidotti affirms, spirit, as *zoë* or life, immanent in matter? Is it an innate tendency to self-differ? Is it vibration? Could it be love? Moreover, do actual

things endure for some time, or are they ever vanishing?[34] Simondon (resonating with Bohm) holds that individuals are simply effects of a individuation, the way a wave is the result of the movement of the sea.[35] "We must begin with individuation, with the being grasped at its center and in relation to its spatiality and its becoming, and not by a realized [*substantialisé*] *individual* faced with a *world* that is external to it."[36] Enfolding-unfolding aesthetics assumes there is some kind of lively force of preservation-through-transformation that makes things happen in the cosmos, but demurs to settle on the details.

Still, it seems impossible not to understand all things, down to the tiniest particles, as alive and striving. Enfolding-unfolding aesthetics thus aligns closely with the philosophical movement of vital materialism of which Braidotti is the articulate and inclusive spokesperson, and which she also calls nontheological spirituality. "The univocity of being means that we have to deal with one matter, which is intelligent, embedded, embodied, and affective."[37] All beings "desire" to express the life of the manifold.

To be more concrete about what flows into us—people, particles, stars. It is easy to see that a being individuates in a milieu of historical and natural events: that our heritage and history inform who we are. But I want to keep this cosmology open to flows that appear unnatural or inconceivable: those relations inexplicable by contemporary science or theories of causality that some call the divinity within each being, though they need not be mystical. We intuit them, as Bergson and Bohm suggest. Intuition opens to us a "vista of experience [that] is as real and concrete as any other experience."[38] This book offers methods to sharpen those intuitions.

This cosmos I'm characterizing is a densely interconnected megafold. One fabric, with body on the outside, soul on the inside, pleated into a labyrinth, in which every being is a fold. My cosmology holds much in common with Thomas Nail's materialist theory of the earth as one massive fold, ever flowing, folding differently, in which matter and life forms constitute temporary folds—except that I like to argue for an infinite population of immanent souls.[39]

For Leibniz, the universe is one folded substance, and a monad is a differential in the cosmic equation. Bohm's theory of the implicate order similarly proposes that entities are interrelated in the quantum field. For both, entities are folds in the cosmic fabric. For Glissant, a being internalizes relations, most of them dim and silted, to the whole chaotic world. All three thinkers in their different contexts propose that every entity unfolds the entire implicit order, parts of it clearly, parts of it dimly.

Knowledge by folds has to begin within the folds, not outside them. Because unfolding occurs from a point of view, each point of view will unfold something different. Every monad has a unique access to the cosmos, which it unfolds via its own labyrinthine path. The common, even clichéd statement "Everything is connected" doesn't explain very much. The idea can paralyze as much as it can exhilarate, but in "Soul-Assemblages" I will explain how all of us folded beings have capacities, alone and together, to select and act on some of those connections.

For Leibniz soul and monad are interchangeable, and I will follow that distinction here. Organic beings, Leibniz writes, must have an internal force, appetition, and some form of perception.[40] These too I adopt and expand, arguing that all ensouled bodies are internally self-organized, have some kind of striving or conatus, and perceive or prehend. Soul in this book is understood not as a transcendental essence that survives the body. I define soul as a capacity immanent to the body, which is made possible by the body's provisional boundedness. After Aristotle, soul is what a body can do.[41]

Leibniz, Carr, Deleuze: Being a Monad, Being a Microcosm

Enfolding-unfolding aesthetics adopts from Leibniz a conception of the cosmos as continuous, pliable, in process, and populated by microcosms. The continuum is like a folded tunic, he writes, whose points may be infinitesimally small but always have some extension, and accordion in relation to nearby monads. "And so although there occur some folds smaller than others to infinity, a body is never thereby dissolved into point or minima. . . . No point in the tunic will be assignable without its being moved in different ways by its neighbours, although it will not be torn apart by them." Leibniz adopted the concept of the fold from Francis Bacon (1561–1626), who argued in the *Novum Organum* that matter is divided into *plicae*, "an elastic contiguum of folding and unfolding bodies of differing degrees of solidity and fluidity."[42]

In this cosmos, every being enfolds the entire world: this is the concept of the microcosm, which crops up in many world philosophies. The idea that all matter is a plenum populated by atoms or "seeds of things" (*semina rerum*) was current in Leibniz's seventeenth-century context.[43] Here, a monad (or soul) is a fold in the cosmos that expresses the entire cosmos from its unique point of view. It is an intensive infinity: a single soul that innately includes the entire universe, as the infinitesimal implies the infinite. If all entities are ensouled, as I argue, then all entities are monads: models of the cosmos that

express the cosmos, however incompletely. Leibniz' principle of sufficient reason further states that each monad encapsulates the entire history of the universe—what Daniel W. Smith calls "an almost hallucinatory conceptual creation."[44] Each monad, Leibniz writes, "imitates [God] as much as it is capable. For it expresses, however confusedly, everything that happens in the universe, whether past, present, or future."[45]

Leibniz proposed that a mind or soul is a mathematical point "proportional to an endeavour at each instant"—that is, it expands or contracts according to its striving. It is encased by a physical point, the body, "the proximate instrument and as it were vehicle of the soul."[46] Calculus supports Leibniz's argument that every monad occupies a distinct and necessary point on the continuum of the cosmos. In Deleuze's explication, each monad expresses the totality of the world under a certain differential relation and around the distinctive points that correspond to it. Whatever has a point of view is a subject. An ever-changing point of view *defines* the subject, as a snowboarder is defined by the sweeping paths she takes on the slope.[47] Similarly, channeling the philosophy of the fold through Indigenous thought, Eduardo Viveiros de Castro characterizes the Amerindian cosmos as a single entity that subdivides into distinct bodies. Certain animals, like the jaguar and the vulture, constitute subjects because they are given names that position them in the cosmos.[48]

In Leibniz's folded dualism, translated into Deleuze's terms, the infinite cosmos expresses itself both through monads or souls, which actualize it, and through the monads' bodies, which realize it. Both the physical world and the soul are connected to the infinite, but differently: the body by being affected (from the outside), the soul by perceiving or "reading" (on the inside). The monad's body has infinite *external* causality. Since all physical objects are interrelated, any physical event will involve every other physical event in the universe—though negligibly in most cases. The monad itself has infinite *internal* causality. It is not affected by its body but by a nested series of causes, and ultimately by the only necessary being: for Leibniz, this ultimate cause is a transcendent God, because a genuinely sufficient reason must involve a cause that is noncontingent.[49] The monad perceives the world; the monad's body (which is composed of other monads) feels the world: "What occurs in the soul represents what occurs in the bodily organs."

Monads' bodies feel the entire cosmos through their neighbors, which jostle them on the common fold like restless bedmates, and in turn by their neighbors' neighbors, to infinity. "Every body is affected by everything that happens in the universe. . . . But a soul can read only what is distinctly represented

there; it cannot unfold all at once all that is folded within it, for this proceeds to infinity."[50] Lacking this limitation, "each monad would be a divinity," which of course is impossible in Leibniz's closed, harmonious world.[51]

Leibniz held that monads persist in a virtual state, sometimes for eons. As Richard T. W. Arthur demonstrates, Leibniz inherited from Petrus Severinus (1542–1602), Daniel Sennert (1572–1637), Pierre Gassendi (1592–1655), and before them Marsilio Ficino (1433–1499) and Paracelsus (1493–1541), the idea that "seeds" of not only organic but also inorganic entities were created by God at the beginning of time and lie dormant in matter. Even minerals have a seedlike force that forms them into crystals.[52] These ideas lend themselves to a time-based image of cosmic history in which monads wax and wane, but never entirely disappear.

Deleuze renders Leibniz's dualism immanent by saying the world, or the virtual, is actualized in monads and realized in bodies. "It is therefore folded over twice, first in the souls that actualize it, and again folded in the bodies that realize it," according to the laws pertaining to each.[53] The vinculum, the fold between the two folds, makes it especially difficult to distinguish where soul ends and body begins. Leibniz suggests that the body of each monad is composed of the infinity of other monads that surround it.[54] The vinculum is a unifying bond that binds souls together, where monads' skins press together to form the body of a larger monad in what I call soul-assemblages. Here, matter appears as no more than an infraslim pellicle separating spirits. But when Deleuze's Leibniz proposes that a monad precipitates from the sensations of the material world occurring to its point of view, spirit appears to be an expression of matter. Leibniz also levels the difference between spirit and matter when he says the monad's reason gives it knowledge of necessary and eternal truths—but that we can also learn these inductively from sense experience.[55]

The ever-changing actual world is wholly constituted by the experience of monads. To explain, let's hear from the forgotten monadologist H. Wildon Carr, one of a handful of early twentieth-century British monadologists (including Bertrand Russell and James Ward) who established a newly open, monadic cosmology.[56] Working in the swirl of process philosophies, pragmatist, phenomenological, and monist, Carr turned to metaphysics, and ultimately monadology, in search for a new materialism that would be a more adequate foundation for contemporary science than the then-dominant atomistic and mechanistic materialism.[57] He synthesized the thought of Leibniz, Spinoza, and Bergson to argue that reality consists of the totality of experience.[58] Monads are the only realities, each of which, from its unique perspective,

includes the entire universe. Consistent with Leibniz and anticipating both Whitehead and Deleuze, Carr explains that monads do not float like bubbles in a preexisting spacetime; rather, space and time "belong to the reality of the monad."[59] In Carr's monadology (more simply than Leibniz and Deleuze, and similarly to Spinoza) the material world of extension exists in parallel to the monadological world and can be described by atomism.

What is wondrous in the monadological cosmos is that every entity experiences and expresses the cosmos differently, as in Carr's example of a group of people riding a train, whose bodies are close together in atomist space but whose monads are experiencing vastly different thoughts, perceptions, and feelings. His most moving example is a world consisting of only two monads: a soldier and a skylark on a French battlefield, during the Great War of 1914–1918. In a brief pause between explosions, the soldier hears the skylark's song, and the skylark chooses where to alight on the smoky field in relation to the soldier's position. Each monad includes the entire world of the battle, which it experiences from its own perspective, including the other monad. Their distinct experiences do not add up to the world; each one *is* the entire world. This alone is what constitutes reality.[60] "The monad is both in-itself and for-another. In-itself it is the subject of experience with its perspective. For-another it belongs to the universe of the monad in whose perspective it is."[61] Another way to say this is that each monad's experience constitutes the virtual for the other monad.[62]

Oddly to modern thinking, in Leibniz it is the monad that is active, while the body is passive. Leibniz argues that the soul represents the universe by representing its body, which is physically connected to the whole universe, but it is not caused by its body. The Leibnizian monad does not have windows, in the form of sense organs. The monad does not see and hear objects of experience out its windows, as Carr explains; instead it *includes* them in itself. The two-floor model of the monad suggests to some readers that monads cannot communicate with one another, but in a chapter winningly titled "Monadic Intercourse," Carr explains (resonating here with Bergson) that monads communicate by creating images for one another. "Intercourse is not action provoking reaction, but expressive action evoking new expression."[63] Monadic experience, that is, is fundamentally *aesthetic*, as we respond to the images (multisensory images, I would emphasize) that other monads express.

I appreciate Leibniz's understanding of soul not as the immortal portion of beings that will survive their death but as a reading room: a private space where the monad can synthesize its experience of the world. The monad

needs a place where it is not constantly being bothered by what its body is telling it. A place to read a novel, an atlas, or some scientific literature; to watch TV and go online; to sift through its memories. Into this private space the monad unfolds those aspects of experience that matter to it, which will most likely differ greatly from those of the monad next door.

Once we expand what counts as a soul, we will be able to conceive that all of matter is packed with reading rooms: sites of perception, memory, and imagination. So every entity in the cosmos is not only feeling its relations to the rest of the cosmos with its body but also reading the cosmos with its soul, and expressing its findings to others.

Bohm: The Implicate Order

Leibniz's monad that comprises the world corresponds to Bohm's model of the holographic universe, in which each individual is a hologram of the universe as a whole but reflects only its surrounding field clearly.[64] Arthur points to this link in his contention that Leibniz's "idea of the state of a substance as a representation of its surroundings was a crucial ingredient in the development of the modern concept of a *field*," anticipating the field theory of quantum physics.[65] Critiquing the conventional view in quantum physics that reality at the quantum level cannot be conceived of, and that quantum and classical physics obey irreconcilably different laws, Bohm argued that the worlds described by classical and by quantum physics are continuous. As random flashes on the surface of the sea manifest the effects of the waves, what appear to be discrete phenomena are the manifestations of an implicate order. In this cosmology (a term Bohm uses) all entities in the cosmos are interconnected, in that they are all the effects of a common cause, at a level more profound than that described by quantum physics. Bohm's cosmology, though it claims to describe the entire universe as a wave function, is not deterministic because we can only know local regions of the wave function.

In the implicate order, every spatiotemporal region enfolds the structure of the whole universe. "A *total order* is contained, in some *implicit* sense, in every region of space and time." For example, in a television broadcast the visual image is translated into a temporal order, which is carried in radio waves: it is implicit in the waves.[66] I would add that in a digital broadcast, analog information, translated into digital packets, is implicit in the digital signal.

To further illustrate this point, Bohm cites a lab experiment in which a droplet of insoluble ink is mixed into a viscous fluid, using a mechanical stir-

ring device, until the fluid goes gray. When the device stirs in the other direction, the gray mass reverts to a single droplet again. The gray mass *enfolds* the drop of ink; that is, the drop of ink is implicate in the gray mass. Stir the other way and it becomes *explicate*. Different pictures that look indistinguishable may have different implicate orders.[67] I take this as a model for the way seemingly identical images, say the cute and topical memes that populate many people's screens, all imply different trajectories, including the person's motivation to see the meme and the infrastructure that carries it to their device. The memes look the same, but each is unique, and you can see this when you unfold the path it took to reach this particular screen.

A hologram is an interference pattern between two laser beams: one directly onto a photographic plate, the other first reflected off the structure being imaged. The interference pattern shows the whole structure in every region, though not all in the same detail. Each region, Bohm writes, is *relevant* to the whole. Much like the perception of Leibniz's monad, the hologram sees all, but only sees clearly the parts relevant to its point of view.

Bohm was the first to point out that an electron is a member of a whole of many electrons, whose interconnectedness is described by Schrödinger's equation. While in classical physics the amplitude of a wave decreases over distance, in a quantum field it remains constant. The form of the quantum field, and not its strength, determines its effects. This means that a particle can be affected by distant features of its environment. Bohm and Basil J. Hiley compare a ship that is directed by radio waves: the radio waves don't have to be strong to guide the ship, because it has its own power.[68]

When particles join, for example, atoms in a molecule, the wave function becomes a single function. All particles are governed by one wave function: this is quantum entanglement. If one electron moves, the path of the other electrons that are entangled with it will be modified. This is why the dominant view in quantum physics treats matter as erratic and probabilistic. In fact, Bohm and Hiley contend, electrons behave erratically *because* they are connected to other electrons acting as a whole. Moreover, these connections are not abstractions defined by equations but can be *intuitively* grasped and experienced.

The concepts from quantum theory that migrated into other disciplines and into popular culture—the uncertainty principle, a belief that reality becomes statistical at the quantum level, and a notion of quantum entanglement or action at a distance—are approximations of the conventional quantum theory that dominates the field (associated with the quantum physicists Bohr,

Werner Heisenberg, and John von Neumann). According to Bohr, it is not meaningful to talk about a quantum object apart from the whole system of which it is a part. The quantum algorithm only gives probabilities of possible results for a given experiment. Some have interpreted this to mean that reality itself is statistical, but that does not appear to have been Bohr's intention.[69]

Bohm and Hiley agree with Bohr that an experiment, such as the double-slit experiment, has to be regarded as an undivided whole, including the experimenter and the measuring device. Where they differ with Bohr is in asserting that the entire process can be analyzed in thought, if not in actuality.[70] The fact that quantum phenomena are not controllable and predictable doesn't mean the quantum world cannot be determined. It's possible to do physics without the positivism and control that Bohr's conclusion about the impossibility of measurement required.[71] Similarly, *pace* Heisenberg, they argue it's not necessary to observe in order to know the location of a particle. Instead they follow John Bell's concept of "beables" rather than observables. Beables, defined as elements of a physical theory that are taken to correspond to something physically real, have a reality that is incapable of being observed.[72]

Rather than define physical concepts based on experiments, Bohm and Hiley argue, one can *derive* possible phenomena from the overall structure. Sounds risky, I know, but they have the equations to demonstrate it. It may be possible to analyze a quantum of action at a more complex level that could treat it as continuous and analyzable. Thus, there is no reason not to seek an ontological interpretation of quantum theory.[73]

To explain the relationship between a particle and its quantum field, Bohm and Hiley introduce the concept of active information. This is not top-down information but information specifically relevant to the particle's "point of view" in the quantum field, much as the monad receives the universe to its point of view. It accounts for how a quantum field, whose energy is weak, can actualize the potential of a particle whose energy is much greater.[74] Each particle is actualized in an active interaction with information, individualized for it by the quantum field. Bohm and Hiley give the example of a map, which is passive information until someone uses their imagination and energy to actualize some of the map's potentials. Or the DNA molecule, which guides cell growth but is useless without the energy from the cell and the environment.

Information participates in actualization by providing a road map, but it requires energy and participation. In turn the energy guided by the informa-

tion is not mute and passive. "The fact that the particle is moving under its own energy, but being guided by the information in the quantum field, suggests that an electron or other elementary particle has a complex and subtle inner structure."[75] Just like people, particles behave statistically in large numbers, but individually they have a rich private life. "A particle has a rich inner structure which can respond to information and direct its self-motion accordingly."[76] Active information is a positive concept, comparable to Simondon's argument that information instigates individuation; later on, it will inform my conception of information as a selective unfolding of the infinite.

The folded character of the quantum field, whereby each particle enfolds the implicate order, resonates with Murray Gell-Mann's suggestion that particles are folds or braids of waves. "In a continuum framework, particulation can be understood as a type of organization or plaiting amid disorganized conditions of an inherently pleated (wavy) field." Pointing out the etymology of com*plex*ity in the Latin *plexus*, braided, Gell-Mann proposes to call quantum physics *plectics*, connoting entanglement.[77] Consonant with Bohm and Hiley, Gell-Mann and James B. Hartle hazard a quantum cosmology in which all entities, including the entangled observer and experiment, enfold the entire history on the universe.[78] In these ways, as we'll see, quantum cosmology aligns with Leibniz's concept of sufficient reason, whereby each entity enfolds the history of its causes. The particle's "rich private life" is the life of the microcosm, which internalizes the cosmos—here, the quantum field—with respect to its singular point of view, and acts on the information it receives.

Bohm and Hiley point out that the vast swath of inner space between 10-16 centimeters (what physics can measure now) and 10-33 centimeters (the shortest distance potentially meaningful to physics)—the same order of scale as between us and elementary particles—is unknown. They suggest that "since the vacuum is generally regarded as full . . . with an immense energy of fluctuation, it may be further suggested that ultimately the energy of this [elementary] particle comes from this source."[79] It is quite thrilling to think of the cosmos as infinitely populated by infinitesimal particles that are powered by fluctuating energy.

Political reasons forced Bohm's theory, together with others who disputed the dominant view, into a minority position. Power struggles in the scientific academy, and red-baiting of Communists in the postwar United States, pushed Bohm to the margin of the field and into exile in the United Kingdom[80] Though I am not a physicist, Bohm and Hiley's mildly worded objections to their colleagues who enforce the conventional view sound completely

reasonable as a plea for the diversity, open-mindedness, and, above all, scientific caution against dogma that make for a healthy intellectual milieu.

Glissant: History Enfolds Relations, Relations Enfold History

In advocating an understanding of the world as constituted by folds rather than breaks, I do not mean to minimize the historical facts of rupture, genocide, and extinction. Thinking with folds models a way of following surfaces, never letting go of the thread, seeking continuities and relationships. I believe it honors the lost and the dead by acknowledging the ways they remain present on a common surface. Glissant, who, as the Caribbean descendant of enslaved African peoples, has strong reason for pessimism about cultural loss, maintains a surprising optimism that *all* cultures survive in the chaos of the contemporary world.

As Glissant argues, a model of the world that does not seek depths but respects the complexity of folded surfaces best expresses the colonial and postcolonial reality of inextricably mixed heritages. Where clarity serves a colonial or dominant way of thinking, Glissant's style multiplies folds, as a creative and political strategy of writing and thinking within the colonizer's language.[81]

Glissant makes the Deleuzian observation that Baroque art modeled a way of knowing that renounced mastery: it "mustered bypasses, proliferation, spatial redundancy, anything that flouted the alleged unicity of the thing known and the knowing of it."[82] The Antillean writer pursues Deleuze's passing observation that the Baroque is an art of property that arose in the period of European colonization. Baroque art only came into its own, as an art of folded surfaces that enfold, rather than assimilate, differences, when it came to the Americas and mixed with the arts of Indigenous peoples. The Baroque is not just a generative model but a historical event, whose function as a model is maximized by colonial hybridization or *métissage*. In Latin American and Caribbean religious art, the Baroque "so closely intermingled with autochthonous tones" that it became able to express the world in its becoming. "The generalization of *métissage* was all that the baroque needed in order to become naturalized. From then on what it expressed in the world was the proliferating contact of diversified natures. It grasped, or rather gave-on-and-with, the movement of the world. No longer a reaction, it was the outcome of every aesthetic, of every philosophy. Consequently, it asserted not just an art or a style but went beyond this to produce a being-in-the-world."[83] Cul-

tural mixing, *especially* in violence, creates folds upon folds; it yields a more complete expression of the folded cosmos than do apparent monocultures.

To the intercultural art of folds that Glissant observes, I add the crucially mind-bending ingredient of Islamicate patterns of endless knots and tessellated surfaces that was so thoroughly integrated into European Renaissance and Baroque art, and whose abstract lines also entwine the Baroque arts of the Americas.[84] The Islamic element of the *métissage* also unfolds from violence: the Spanish conquest and expulsion or forced conversion of the Muslim inhabitants of the Iberian Peninsula, and expropriation of their knowledge.

We behold these visually and intellectually beguiling themes, the embodiment of Baroque cultural enfoldment, in the arts of Hispanic colonies in South America and the Caribbean: architecture, visual art, and especially craftwork of the sixteenth through eighteenth centuries. Iberian figures, Islamicate patterns and compositions, Indigenous themes, materials, and colors, and other motifs mingle on ceramics, leather goods, and textiles, witnessing the folding of cultures that took place through conquest, assimilation, and commerce. An eighteenth-century leather trunk from New Spain, in the collection of the Franz Mayer Museum in Mexico City, speaks of this folding of cultural traditions. It was used to store cocoa beans; one can imagine a lingering fragrance.

The trunk's sides and lids are embroidered in agave thread with an attractive interlace pattern that terminates in lotus flowers. Straight out of a decorated Qur'an, these patterns are "sticky" in Alfred Gell's sense: they compel the eye to return to them repeatedly, in a curiosity that becomes fond attachment.[85] In between them, ladies on balconies flirt with horsemen, and isolated hunters and animals pose. In the Islamicate habit of filling voids with pleasing motifs, the heads of hares and deer are cupped with plantlike flourishes. But in the new context these curlicues have taken on an additional function: Gustavo Curiel suggests that they act as "speech scrolls—a symbol of pre-Hispanic origin."[86] Thus the Indigenous tradition of speaking animals folds into all the other signs on this cocoa trunk, which thus incarnates centuries not only of imperialism but also of intercultural curiosity and of cultural survival, not in purity but through *métissage*. A beholder's brain, beguiled by the abstract lines of the knotted pattern, intoxicated by the scent of chocolate, might be able to hear the address of the animals.

This historical art of relation, Glissant continues, prefigures our contemporary situation of relational complexity across art, science, and all human cultures.[87] Translator Betsy Wing chose to translate Glissant's *donner-avec* as

FIGURE 1.3. Leather trunk, New Spain, eighteenth century. Franz Mayer Museum, Mexico City.

"giving-on-and-with," explaining that it is a form of understanding that is not *comprendre*, as in to comprehend, with its connotation of enclosure, but to know something by yielding to it and following where it goes.[88] It is like learning about something by following it with your hands.

Joined by other world traditions, the capacious folds of the Baroque, Glissant suggests, express Relation itself. Its pleating and whorling art forms materialize a kind of knowledge that entails close contact with the world and mutual becoming of beholder and world. Art forms now accomplish this by staying close to the surface of the world. Movies such as *Meu Querido Supermercado* respect obscurity as enfoldedness (to a given point of view). They do not worry about truthfully representing the world but instead try to become like it.

This book's spirit of folding and unfolding attempts to extend Glissant's remarkable optimism by staying close to the surface of the infinite, where creativity is ceaseless and new folds are constantly being pulled from ex-

isting thoughts, histories, and materials, in unique local situations. All us entities, organic and nonorganic, live on the face of the infinite. As we act, contemplate, savor, suffer, and cherish, we intensify the infinite and add to it. Intensification is amplifying latent connections, making them actual, and strengthening the bonds between our immediate experiences and those of others in different places and times. The ethics of enfoldment include respecting the opacity of others, in Glissant's much-loved concept: resisting the desire to translate an other into your terms but rather respecting their irreducible singularity.

Inspired by the cyclical movement of the tides on the black sand beach, Glissant argues that there is no dominant fold but an encompassing chaos. "I thought how everywhere," he writes, "and in how many different modes, it is the same necessity to fit into the chaotic drive of totality that is at work, despite being subjected to the exaltations or numbing effects of specific existences." He continues:

> I thought about these modes that are just so many commonplaces: the fear, the wasting away, the tortured extinction, the obstinate means of resistance, the naive belief, the famines that go unmentioned, the trepidation, the stubborn determination to learn, the imprisonments, the hopeless struggles, the arrogance and isolation, the hidden ideologies, the flaunted ideologies, the crime, the whole mess, the ways of being racist, the slums, the sophisticated techniques, the simple games, the subtle games, the desertions and betrayals, the unshrinking lives, the schools that work, the schools in ruin, the power plots, the prizes for excellence, the children they shoot, the computers, the classrooms with neither paper nor pencils, the exacerbated starvation, the tracking of quarry, the strokes of luck, the ghettos, the assimilations, the immigrations, the Earth's illnesses, the religions, the mind's illnesses, the musics of passion, the rages of what we simply call libido, the pleasures of our urges and athletic pleasures, and so many other infinite variations of life and death. That these commonplaces, whose quantities are both countless and precise, in fact produced this Roar, in which we could still hear intoned every language of the world.[89]

This litany of chaos appears like a drawing of the countless ways infinite life is captured, repressed, and sometimes expressed by patterns: patterns extracted from the infinite, which I will characterize as information folds, that attempt to dominate it in the form of systems of power: schools, banks, religions, conventions, and especially the sickly snares of global capitalism. Yet it also

describes how life on the surface of the infinite—chaos, a field of singularities—is vaster than the efforts to structure and dominate it.

Glissant is well aware that staying close to the surface is provisional. People are always getting pulled into power relations that precede them, especially if they are colonized or disenfranchised, and these power relations disfigure the smooth path. In my terms, we get pulled into dominant folds and must constantly rearticulate our own surfaces in response. His haunting figure of the man walking on the black beach epitomizes withdrawal from dominant relations, indeed from all relations, and becoming completely opaque. Walking, tightening his belt as he gets thinner every day, the man refuses to speak, making the slightest gesture of acknowledgment to Glissant as he passes one day.

Unlike this ambulant, nearly disappearing figure, the people "struggling within this speck of the world against silence and obliteration" must consent, Glissant writes, to be reduced to sectarianism, stereotypes, taking sides in power struggles, and the other generalizations that kill vital singularity. In my terms, to struggle for voice and recognition necessitates, if only provisionally, moving along the dominant folds and assuming their shape. It necessitates, Glissant writes, being "grasped" by the economic inefficiencies of the postcolonial state, the strings-attached gifts of former colonial donors, the Procrustean strictures of the World Bank. It requires trying to match the speed of other parts of the world: "At all costs we wanted to imitate the motion we felt everywhere else."[90] "The Black Beach" concludes, fittingly, with economic recommendations: ways that Martinique, like other small postcolonial states, could resist the totalizing folds of neo-imperial information capitalism.

Only a Model

Is the folded cosmos just a metaphor? Or does it describe the way things really are: Is it an ontology? It is something in between: a model, or a simulation.

Concepts are abstractions from an ungraspable flow.[91] They are not right or wrong; they animate attitudes toward the world in more or less relevant ways. They reflect on the cosmos of which they are a part, and add to it. As Bohm and Hiley write, "the content of the theory is not by itself the reality, nor can it be in perfect correspondence with the whole of this reality, which is infinite and unknown, but which contains even the processes that make theoretical knowledge possible."[92] My concept of the folded cosmos, with its particular intellectual heritage, is one of many ways to argue that all of us live in inextricable interrelation in a more or less open whole. Others include the Taoist cosmology in which the One divides into Two; the re-

cursively nested Dogon cosmology; the Neoplatonist universe that emanates without breaking; Whitehead's cosmos in which chaos becomes ever more orderly and intense. Among contemporary thinkers, these models of inextricable interrelation include the entangled universe that Karen Barad models from quantum physics, Nail's ecological theory of an acceleratingly folded cosmos, and the cosmos that Adrian Ivakhiv, like me, describes according to a triadic process.[93] All of these cosmic models are, as Bohm insists, abstractions from something ungraspable. I proffer the folded cosmos as a useful abstraction, a diagram, keeping in mind that "we write only at the frontiers of our knowledge," at the border that transforms ignorance into knowledge—and vice versa.[94]

Earlier I asked, does all reality boil down to wave functions? It is tempting to assert that this is the case. Nail, for example, asserts that everything, from subatomic particles to societies, is defined by a waveform.[95] I can get behind this assertion as a model, but not as an ontology. Similarly, I'm tempted to apply Bohm's suggestion to the nagging question for a Deleuzian, where does the virtual get its energy from? Might it subside in that field of energetic fluctuations that occurs between 10-16 and 10-33 centimeters? Keeping Bohm's caution in mind, however, I remind myself not to misplace concreteness. As the serf mutters in *Monty Python and the Holy Grail*, it's only a model.

Physicists and chemists observe phenomena that quantum physics describes, but quantum physics doesn't apply to the experience of biological beings like us. Our macroscale world is described by classical physics, and by the higher-level systems that other sciences analyze. Nevertheless, quantum physics provides powerful models and metaphors that lately have proved extremely attractive to humanities scholars, such as entanglement and Heisenberg's uncertainty principle. As the child of scientists, I am bothered by these borrowings when they appeal to science as fact, for scientists know they are conventions—durable, usable conventions to be sure, but conventions arrived at through struggles that are political as well as intellectual, and ultimately placeholders for an understanding to come.

To avoid misplaced concreteness, I step back from the current interest in applying quantum entanglement to situations that can be described by classical physics (let alone biology, political science, and other methods of studying phenomena). Everything is connected, but not everything impinges on everything else.[96] Everyday problems rarely require quantum solutions, delightful though it is to contemplate them.

When entanglement actually occurs—when an event distant in time and space suddenly "flashes up" and reveals its involvement in the here and now,

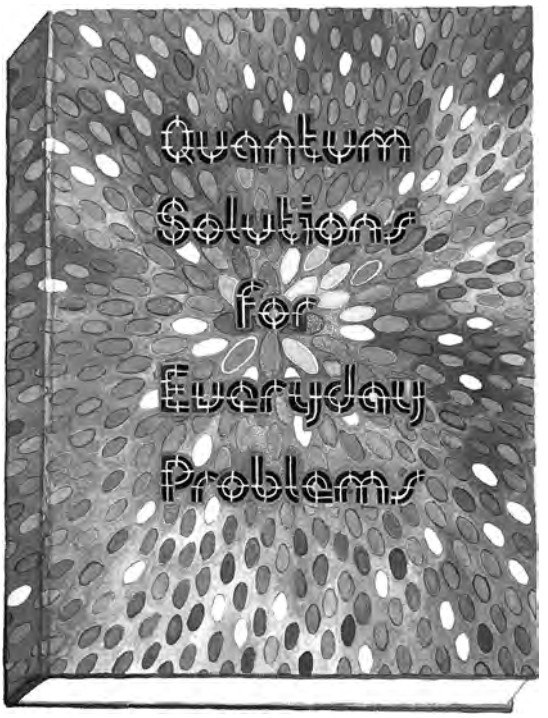

FIGURE 1.4. Natalie Sorenson, *Quantum Solutions for Everyday Problems*. Watercolor, 2019. Sorenson invited me to contribute a title for her series of covers of imaginary book titles, and this stunning painting is the result.

it's crucial to be able to identify how that relationship occurs. The moments when an unlikely relationship allows us to detect the whole in the parts are precious, and we need to be able to grasp them.

Enfolding-unfolding aesthetics offers some methods to detect these moments of connection, and even, in some cases, to change them. We affect things locally, and at a distance, but not everything all the time. So, the creative (and sometimes political, sometimes magical) act is to discover those connections that are most extensive and most deeply enfolded—and to have the élan to seize the moment and unfold them. In so doing, we align our will with that of the cosmos.

Chapters to Come

This chapter gave a study of the cosmos from the top down. The next chapter, "Soul-Assemblages," starts from the bottom up, identifying the component parts of the cosmos: after Leibniz, monads, or embodied souls. I give a non-transcendental definition of *soul* as anything that is bounded and there-

fore alive and suggest that the cosmos, and all of us, consists of ensouled matter. I introduce the concept of soul-assemblage, a group of monads that are joined by a common purpose, which forms its own folds. Here my cinematic thinking companion is the Otolith Collective's *INFINITY minus Infinity* (UK, 2019), a soul-assemblage that analyzes the racial capitalocene in the contemporary United Kingdom. We'll confront the challenge of unfolding differently, which requires identifying singularities, monads that connect to enfolded surfaces. We'll see that Leibniz's cosmology must be "snipped open" in order to allow every monad to thrive, and, this done, I will suggest that some soul-assemblages have the potential to radically deterritorialize the existing order.

The following chapter, "Enfolding-Unfolding Aesthetics: A Triadic Model of the Cosmos," introduces the triadic model of the cosmos as a cycle of ceaseless folding and unfolding, in a flux between the three planes of the infinite, information, and image. I introduce enfolding-unfolding aesthetics as a triadic method for analyzing this folding process, with attention to information as the human and political filter of the infinite. This chapter gets practical, outlining the method of enfolding-unfolding aesthetics, surveying manners of unfolding and the style necessary for a successful unfolding. We'll see that equally important is enfoldment, the strategy of protecting things from being unfolded related to Glissant's term "opacity."

Next, "The Information Fold" brings the folded cosmos into dialogue with contemporary theories of surveillant information capitalism. I'll suggest an "only moderately paranoid" rejoinder to the darker theorizations of information's grip, especially where information-images are concerned. This relatively cheerful view is, however, moderated in turn by an analysis of the unsustainable energy consumption of information and communication technologies. The chapter then turns to media arts of the fold and presents a protagonist for the media of our coming collapse informatics.

Chapter 5, "Training Perception and Affection," introduces affective analysis, another aesthetic method that is at the core of this book's practical philosophy. A triadic method, affective analysis postpones conceptual analysis in order to take time experiencing affects, understood as a multistage process, and perceptual analysis; it then compares affective and perceptual responses in order to arrive at concepts, or what Spinoza termed "adequate ideas." Affective analysis, an exercise to expand embodied capacities for openness and connection, strengthens the skills we will need to resist the ideological powers of the information fold and begin to unfold differently.

When affective analysis reaches an impasse, it may be a sign that we are in the presence of something so deeply enfolded, so thoroughly virtual, that it can only be unfolded by a determined, often collective effort. The chapter "The Feelings of Fabulation" offers a six-step method for fabulating, informed by Deleuze's concept of powers of the false. Drawing on the three-step method of affective analysis, fabulation adds a "zeroeth" step: making connections with the beyond, be that unimaginably far in time or space or incompossible with the space-time in which we seem to live. Yet, I argue, in the company of fabulative movies, fabulation doesn't need to occur at the level of science fiction: small and local acts can bring the inconceivable into existence right on your doorstep. On a large scale, however, fabulation is revolutionary. Here the cosmic soul-assemblage carries out a great refusal that rejects almost all of present reality and pulls out the most distant, most unlikely fold.

A case study of enfolding-unfolding aesthetics, "Monad, Database, Remix: Manners of Unfolding in *The Last Angel of History*" is a most ambitious exercise in the method, inspired by a movie whose stakes of unfolding differently are high.[97] This 1995 movie by John Akomfrah and Black Audio Film Collective, a founding text of Afrofuturism, models manners of unfolding lost African-diasporic histories. There is a manner of unfolding that prepares the audience by creating new embodiments; an unfolding with urgent élan of histories almost entirely lost; a protective aniconism that refuses to unfold. When history cannot be unfolded, fabulation kicks in, and the fluent unfolding technique of the remix. *The Last Angel of History* detects clues in databases that inspire me to unfold the deep time in which algorithmic knowledge traveled from Africa and West Asia into Europe and the Americas, including in the possession of enslaved Africans and their descendants.

The final chapter, "The Monad Next Door," returns to *The Fold*'s Leibnizian protagonist to celebrate the monad as an interiority, or soul: a private reading room in which to contemplate the cosmos that the monad enfolds. Disquietingly, though, we monads live inextricably from our neighbors, who constitute our homes and our very bodies. These relationships fold class politics into our very being, exacerbating the monad's upstairs-downstairs relationship with its body. When our material supports become toxically entwined with information—the monad's mortgage—it may be time to find a way to live more lightly on the earth. A lively subdivision of movies, especially *Neighboring Sounds* (Brazil, 2012) by Kleber Mendonça Filho, explore the monad's protected space and its cozy, claustrophobic, and inevitable interfoldings with others.

The Fold concludes gently with "Recognizing Other Edges," a reflection, written while the now-common summer smoke stung my eyes, on refusing cultural and political edge-recognition software. The boundaries of soul-assemblages are often drawn by corporate, government, and imperial interests; but those edges are always shifting according to the restlessness of the enclosed elements. Enfoldedness gives shimmer to the virtual, and an infinity of soul-assemblages shift and shimmer, in a haptic haze that defies borders.

NOTES

CHAPTER 1. LIVING IN A FOLDED COSMOS

1 A cosmic image I first introduced in *Touch*, ix. I was inspired by the baker's transformation in mathematics, mentioned in Deleuze, "Mediators," 124.

2 Walid El Khachab, presentation to Substantial Motion Research Network, April 30, 2022. El Khachab is taking up an argument I made long ago in "Video Haptics and Erotics."

3 Deleuze and Guattari, *A Thousand Plateaus*. Spinozan Marxist A. Kiarina Kordela proposes that capitalist modernity constitutes the plane of immanence we occupy now, and that its immanent process converts substance into value. Kordela, *Epistemontology in Spinoza-Marx-Freud-Lacan*.

4 Bohm and Hiley, *The Undivided Universe*, 58.

5 Leibniz, *The Monadology*, §56, in Strickland, *Leibniz's Monadology*, 119.

6 "The actual image and its virtual image . . . constitute the smallest internal circuit, ultimately a peak or point." Deleuze, *Cinema 2*, 73.

7 Deleuze, *The Fold*, 58.

8 Deleuze has been unfairly criticized for the seeming Platonism of the concept of univocity of being. He would have been helped by the argument of Ṣadr al-Dīn al-Shīrāzī (1571–1640), who posited that existence is a process of systematic ambiguity or modulation (*tashkīk al-wujūd*, the modulation of being), and being is predicated by modulation, not univocity. Ṣadr al-Dīn al-Shīrāzī, *Asfār*, edited by M. Riḍā al-Muẓaffar (Tehran, 1378), I:433, in Rizvi, *Mullā Ṣadrā and Metaphysics*. I relate Ṣadrā's modulation of being to Deleuze's disjunctive synthesis in Marks, "Lively Up Your Ontology."

9 See, for example, Marks, *Enfoldment and Infinity*; "A Deleuzian Ijtihad"; and "'We Will Exchange Your Likeness."

10 Fuller and Goriunova, "Devastation."

11 Peirce, "Man's Glassy Essence," *Collected Papers*, 6.268.

12 Carr, *A Theory of Monads*, 22.

13 Ruyer terms this self-proximity or auto-affection. See Grosz's survey of Ruyer in *The Incorporeal*, chapter 6.
14 *Synechism* is Peirce's term for this indexical interconnection among all entities: in his case, the interconnection among all signs, in a cosmos composed only of signs.
15 Pandian, "Love," in *Reel World*, 93.
16 See, for example, Leibniz, *The Monadology*, §31–39, in Strickland, *Liebniz's Monadology*, 20–21. Deleuze, "Sufficient Reason," *The Fold*, 41–58. Similarly, for Whitehead, when an entity gets prehended, its grasp of the universe may potentially be prehended.
17 This respect for the interior infinity of objects sounds similar to object-oriented ontology but is quite distinct. While 000 respects the autonomy of objects as separate, I interpret their autonomy as the maintenance of connectivity in a state of latency.
18 MacCormack, "Becoming-Vulva," 99.
19 Whitehead, *Process and Reality*, 41, 88.
20 Deleuze, *Expressionism in Philosophy*, 11.
21 I undertake a similar exercise in an investigative love letter to a certain rock. It is an example of how research—here in geologic history—and experimentation can unfold monads and learn about the cosmos from their point of view. Marks, "Object Lesson: My Rock," 503–5.
22 Braidotti, "A Theoretical Framework for the Critical Posthumanities," 32–33.
23 Peirce, "The Law of Mind," *Collected Papers* 6:158.
24 Rescher, *Process Metaphysics*.
25 Bohm, *Wholeness and the Implicate Order*, 14.
26 Bohm, *Wholeness and the Implicate Order*, 67.
27 Bohm, *Wholeness and the Implicate Order*, 181. Bohm emphasizes that both relativity and quantum theory are provisional accounts that will have to evolve.
28 Grosz, *The Incorporeal*.
29 Deleuze, "Bergson, 1859–1941," 31.
30 Friedman and Schäffner, *On Folding*, 23.
31 Friedman and Schäffner, *On Folding*, 20–23. In 1996, Murray Gell-Mann proposed *plectics* as a name for the interdisciplinary science of complexity, in "Let's Call It Plectics."
32 Deleuze's paraphrase of Duns Scotus in *Difference and Repetition*, 36.
33 Deleuze, *Difference and Repetition*, 37.
34 As Steven Shaviro notes, there is a tension in Deleuze and Guattari's work over how the process of actualization happens. Is it the result of conatus (from Spinoza) or autopoiesis (as in Varela), which emphasize how entities endure as they interact with their environment? Or is it individuation, from Simondon and Whitehead, which emphasizes novelty over endurance? Shaviro, *Without Criteria*, 112n7.
35 Simondon, "The Genesis of the Individual."
36 Simondon, "The Genesis of the Individual," 310; emphasis in original.
37 Braidotti, "Conclusion."

38 Iqbal, *The Reconstruction of Religious Thought in Islam*, 12.
39 Nail, *Theory of the Earth*.
40 Leibniz gives this definition in the *Corpus hominis*. Arthur points out that he derives the concept of conatus from Hobbes. Arthur, *Monads, Composition, and Force*, 174.
41 Hongisto, *Soul of the Documentary*, 35 and 141n35, referring to Aristotle, *De anima*, books 2.1 and 2.2. I will challenge the Aristotelian contention that matter does not have soul.
42 Arthur, *Monads, Composition, and Force*, 127.
43 Leibniz, *Sämtliche Schriften und Briefe*, cited in Arthur, *Monads, Composition, and Force*, 165.
44 Smith, "Genesis and Difference," 142.
45 Leibniz, *Discourse on Metaphysics and Other Essays*, §9, 9.
46 Arthur, 117. The first quotation is from Arthur, the second from Leibniz, *Sämtliche Schriften und Briefe*, series II, volume 1, 113.
47 This is the case with Bergson and Whitehead too. There is a point of view so inextricable to a thing, Deleuze writes, that "the thing is constantly being transformed in a becoming identical to point of view." Deleuze, *Cinema 2*, 146.
48 Viveiros de Castro, "Cosmological Deixis and Amerindian Perspectivism."
49 Strickland, *Leibniz's Monadology*, 92–93. This concept is rooted in Avicenna's argument, transmitted via Thomas Aquinas, that the whole series of contingent entities must depend on an ultimate noncontingent entity, namely God. Fakhry, "The Ontological Argument in the Arabic Tradition," 8–9.
50 Leibniz, *The Monadology* §61, in Strickland, *Leibniz's Monadology*, 127.
51 Leibniz, *The Monadology* §60, in Strickland, *Leibniz's Monadology*, 125.
52 Arthur, *Monads, Composition, and Force*, 138.
53 Deleuze, *The Fold*, 120.
54 Leibniz, "Philosophical Essays," 207 cited in Look, "Leibniz's Metaphysics," 104.
55 Leibniz, *The Monadology* §29, §30, in Strickland, *Leibniz's Monadology*, 82–83.
56 Russell's critical study of Leibniz supplied all the ingredients that Whitehead would take up some years later. One of his solutions to make a monadic cosmos immanent, not transcendent, was to argue that relations are not ideal, subsisting in the divine mind, but real. See Bertrand Russell, *The Philosophy of Leibniz*; and Basile, *Leibniz, Whitehead and the Metaphysics of Causation*, 27.
57 Basile, "Herbert Wildon Carr," 383–84.
58 Like all histories, the history of philosophy is mostly enfolded. Why certain thinkers continue to be acknowledged, or get rediscovered, likely owes a lot to arbitrariness, politics, and laziness. When I chanced upon Carr's book in the philosophy section of Powell's Bookstore in Portland, a mecca for secondhand books, in April 2019, I took it as a clear signal. Inspired by Bergson, Leibniz, and the new discoveries of physics, Carr looked to be my fellow traveler—especially when he declares in the first few pages that all substance consists of experience, in fact infinite numbers of ever-changing experiences. I would

grab the book and see how his findings paralleled those of thinkers who survived the next hundred years, such as William James and Alfred Whitehead. But Carr's contribution has been forgotten. Carr was no underdog. He translated Leibniz, published eighteen books of philosophy, and taught at King's College, London and at the University of Southern California. He was a public intellectual, too, publishing sheaves of reviews of books, art, and performances. Yet Wikipedia doubts that he is notable enough to include. Carr's ideas are now quite enfolded—not gone but become very small. This copy of *A Theory of Monads*, published in 1922, is being avidly prehended by mildew. A thousand mildew-monads make me sneeze. I understood my encounter with this now-forgotten philosopher as a *memento mori*.

Yet it is no melancholy exercise to unfold the community of scholars who engaged with Carr's work. As a fellow member of the Aristotelian Society, Carr would have been Whitehead's interlocutor in their shared interest in Leibniz and Bergson. Whitehead adopted Carr's term "solidarity" to characterize the universe as a solidarity of actual entities (*Process and Reality*, 40). Another is the Indian philosopher C. T. K. Chari (1909–1993), who argued for links between quantum theory and psi phenomena. And another is Carr's contemporary Hilda Oakley (1867–1950), who also anticipated Whitehead in her argument that the world is constituted by cumulative acts of creative memory.

59 (Nor do monads float like bubbles in Francisca da Silva's mop bucket, though it remains a beautiful metaphor.) Carr, *A Theory of Monads*, 46. See also Basile, "Herbert Wildon Carr."

60 Carr, *A Theory of Monads*, 52–53, 55.

61 Carr, *A Theory of Monads*, 57.

62 D. H. Lawrence evidently absorbed his British contemporaries' theories that the monad encompasses the entire world. In the steep Italian hillside town of San Tommaso, near which he lived in 1912–1913, he encounters a woman spinning yarn on the church terrace. From her incurious responses to his questions, Lawrence gains the impression that "She was herself the core and centre to the world, the sun, and the single firmament. She knew that I was an inhabitant of lands which she had never seen. But what of that! . . . The lands which she had not seen were corporate parts of her own living body, the knowledge she had not attained was only the hidden knowledge of her own self. She was the substance of the knowledge, whether she had the knowledge in her mind or not. There was nothing which was not herself, ultimately." Lawrence, *D. H. Lawrence and Italy*, 24–25. I thank Rick Coccia for reading this passage to me.

63 Carr, *A Theory of Monads*, 252.

64 Geoffrey C. Bowker also makes this Leibniz-Bohm connection in "A Plea for Pleats," 125.

65 Arthur, *Monads, Composition, and Force*, 296.

66 Bohm, *Wholeness and the Implicate Order*, 188; emphasis in original. Pylkkänen construes Bohm to argue that each entity enfolds not the universe

but information about the universe, as light waves enfold information that is unfolded by the eye. Pylkkänen, *Mind, Matter, and the Implicate Order*, 19.

67 Bohm, *Wholeness and the Implicate Order*, 189. This example inspired my earliest iteration of enfolding-unfolding aesthetics in Marks, "Nonorganic Subjectivity."

68 Bohm and Hiley, *The Undivided Universe*, 31–32. The reason the quantum potential does not change, they explain, is that the quantum field, ψ, occurs in both the numerator and the denominator of its equation.

69 Bohr, *Atomic Physics and Human Knowledge*, 17–19. Faye and Jackstad explore further whether Bohr held a realist attitude in "Barad, Bohr, and Quantum Mechanics," 8231–55.

70 Bohm and Hiley, *The Undivided Universe*, 39.

71 Bohm and Hiley, *The Undivided Universe*, 24.

72 Bohm and Hiley, *The Undivided Universe*, 41.

73 Bohm and Hiley, *The Undivided Universe*, 25–26.

74 Bohm and Hiley, *The Undivided Universe*, 36. As mentioned, Bohm and Hiley's concept of information, which they call "active information," derives not from the information theory associated with Claude Shannon but from the Aristotelean idea of something that gives form, as form in-forms matter. However, this is not Aristotelean hylomorphism, where matter is mute and passive until form shapes it.

75 Bohm and Hiley, *The Undivided Universe*, 37.

76 Bohm and Hiley, *The Undivided Universe*, 39.

77 Gell-Mann, "Let's Call It Plectics," 96. The term has had some traction in art and architecture theory.

78 Bohm and Hiley, *The Undivided Universe*, 339–41, on Gell-Mann and Hartle, "Quantum Mechanics in the Light of Quantum Cosmology," 321–43.

79 Bohm and Hiley, *The Undivided Universe*, 38.

80 Another was Louis de Broglie, whose pilot-wave theory was brusquely rejected in 1927 by Pauli at the famous Solvay Conference. In 1952, Bohm revived it and provided a response to Pauli. Strikingly, at that point twenty-five years later, de Broglie recommenced work on the pilot-wave theory. Bohm and Hiley, *The Undivided Universe*, 39.

81 Wing, "Translator's Introduction," xii.

82 Glissant, *Poetics of Relation*, 78.

83 Glissant, *Poetics of Relation*, 78.

84 See, for example, Marks, *Enfoldment and Infinity*, chapters 3–5; and Belting, *Florence and Baghdad*. Tarek Elhaik finds this enfolded heritage of Islamicate plastic arts and philosophy in the beautiful walking cogitation "Ibn Rushd/Averroës in Mexico City's Kiosko Morisco."

85 Gell, *Art and Agency*, 80–82.

86 Curiel, "Leather Trunk," 161. An art historian might demur that the foliate forms are simply performing their traditional duty of space filling, or that the animals are eating them, and not speaking them.

87 Glissant, *Poetics of Relation*, 79.
88 Wing, "Translator's Introduction," xiv.
89 Glissant, *Poetics of Relation*, 124–25.
90 Glissant, *Poetics of Relation*, 123, 124.
91 Bohm, *Wholeness and the Implicate Order*, 62; Ṣadrā, *The Book of Metaphysical Penetrations*, 37.
92 Bohm and Hiley, *The Undivided Universe*, 326.
93 Barad, *Meeting the Universe Halfway*. Barad looks to Niels Bohr, I to Bohm, for problems and solutions in quantum physics that can be generalized. Barad adapts Bohr's majority position in quantum physics, according to which positions of particles at the quantum level are indeterminable. I adapt Bohm's minority argument that these positions are determinable according to an implicate order, as we've seen. Nail, in *Theory of the Earth*, terms our present era the kinocene because these foldings have accelerated, and with them environmental devastation. Ivakhiv, *Shadowing the Anthropocene*.
94 Deleuze, *Difference and Repetition*, xxi.
95 Nail, *Theory of the Image*, 53.
96 In physics, most systems behave independently, not only in the classical limit, but also in most quantum situations. The equation for the quantum potential can be expressed as the sum of two (or more) terms, proving that the two (or more) systems behave independently. Even though the universe is a whole system, we can usually analyze its parts separately. Not everything is subject to the butterfly effect. Bohm and Hiley, *The Undivided Universe*, 58–62.
97 Other case studies of enfolding-unfolding aesthetics include Marks, "Experience—Information—Image," "Noise in Enfolding-Unfolding Aesthetics," and *Enfoldment and Infinity*, and my 2019 film with Azadeh Emadi *Gerard Caris: Unfolding from Pentagons*.

CHAPTER 2. SOUL-ASSEMBLAGES

1 Hoffmeyer, *Biosemiotics*. On cell membranes see also Nail, *Theory of the Earth*, 140–46.
2 Deely, "Building a Scaffold."
3 Withdrawal is a shout-out to object-oriented ontology, opacity to Glissant. The private constitution of the soul is comparable to the process of concrescence that Whitehead describes, in which an actual entity undergoes a private meditation, or subjectivation, in the course of selectively prehending its corner of the universe.
4 Ivakhiv, *Shadowing the Anthropocene*, 63.
5 Leibniz, *The Monadology*, §67–68, in Strickland, *Leibniz's Monadology*, 133.
6 See Halperin's beautiful essay on body stones, "Physical Geology/The Library," 79–84.