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ARTICLE

Experiencing presence

An interactive model of perception

Anna I. Corwin, *Saint Mary's College of California*
Cordelia Erickson-Davis, *Stanford University*

This essay brings literature in experimental psychology and visual perception into conversation with psychological anthropology to propose a new theory of presence. We examine data on Catholic nuns' experiences of God's presence, proposing that presence—indeed all perceptual consciousness—can be conceived of as the dynamic and ever-emerging interaction of a perceiver-environment system. By understanding presence as interactional, we shift away from framing experience of the divine as a puzzle to be explained in the face of what we know about the natural order of things toward a model in which perceptual experience is co-constituted by a perceiver and environment in relation. By proposing a common language that can be used to talk across the bounds of the "natural" and "social" sciences, this essay introduces a model that can capture and represent the lived experiences of individuals in a way that both takes that experience seriously and renders that experience open to empirical investigation.

Keywords: Catholicism, presence, perception, psychological anthropology, ontological turn, religion

When Catholic nuns join a convent, they become brides to Christ. The women leave their families, their homes, their worldly independence, and material attachments; they choose to give up self-determination, the ability to choose where to go, what to wear, what to eat, and who to live with. When these women become nuns, they vow to live in an intimate relationship with God and live the rest of their days married to Jesus Christ, son of God. The nuns live their lives serving God, a simultaneously present yet immaterial spiritual being, praying to him and doing his work in the world until the day they die.

Since Anna I. Corwin (one coauthor of this essay) began conducting ethnographic research in a Franciscan Catholic convent nine years ago, she has come to understand that these nuns inhabit a world that is, in some fundamental ways, experientially distinct from the way in which she inhabits the world. When Corwin is in the convent, conducting interviews, sharing meals with the sisters, or sitting with them in the infirmary, she experiences herself in a room with human others. The nuns, she has come to understand, experience something distinctly different: They are in the room with human others and God. The nuns, during prayer, in Mass, and as they move through each day, experience the presence of God. This should be no surprise as it is precisely what they signed up for when they took their vows. They renounced the material world and joined a convent. And they are not alone: a 2014 Religious Landscapes Study conducted by the Pew Research Center reported that 63 percent of Americans "believed in God" and were "absolutely certain" in their view. The surprise here is not that nuns and a great many others experience God in their lives but that anthropologists have largely failed to capture and represent the lived experience of these individuals in ways that take that experience seriously. Despite a tremendous outpouring of anthropological work on how to represent the lived experiences of others, anthropologists still struggle to empirically evaluate the lived realities of others, especially when it comes to religious experience (see, for example, critiques by Graeber 2015; Laidlaw 2012; and Luhrmann 2018).

Writers in anthropology's ontological turn have offered a call to take their interlocutors more seriously by advocating a move, or "turn," away from an "epistemological orientation" (i.e., how an interlocutor comes to "know" or "represent" the world we share) and toward

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an "ontological orientation" (i.e., how those interlocutors come to instantiate distinct and legitimate worlds of their own) in order to let their interlocutors set the terms of what is possible to say about them (Heywood 2012; Holbraad 2007, 2008, 2009, 2012a, 2012b; Holbraad and Pedersen 2017; Laidlaw 2012; Pedersen 2001, 2011, 2012; Viveiros de Castro 2003, 2013, 2015).[1] To do this, they have advocated taking on the Euro-American assumption of a unified and fixed reality, proposing that we instead speak about "multiple ontologies" for individuals whose beliefs and practices present radical differences to our own. However, as David Graeber points out in his review of the movement, by making this move, scholars end up "adopting a tacit ontology which seems indistinguishable from classical philosophical idealism. Ideas generate realities" (2015: 21). In other words, they double down on the distinction between materialism and idealism that they set out to trouble.

We believe that the ongoing problem associated with ontological confrontation can be attributed to the tendency of anthropologists to maintain methodological silos. Anthropologists are trained to remain focused on the perceiver, the interlocutors with whom we work. Unsettling the underlying idea of a unified, fixed reality has thus been a challenge because we lack a common language with which to talk across the bounds of the "natural" and "social" sciences categories, which remain quite philosophically fixed.[2] Unveiling the laws that govern that undifferentiated reality remains the domain of the natural sciences, while studying the ways different people apprehend and act on that reality remains the domain of the social sciences (Graeber 2015: 18). Issues of ontology, which seem to require us to confront the sphere of the "natural," therefore remain largely untouched in accounts of "multiple ontologies." Indeed, theorists like Martin Holbraad and Morten Pedersen, when pressed, end up settling for the position that these alternate realities are veridical with respect to individual perceivers (2017)—a position that Graeber (2015), James Laidlaw (2012), and Tanya Luhrmann (2018) point out leads us not into ontological confrontation but into epistemological relativism, the position that anthropologists have always held.

Here we present an example of what such a common language—that can speak across the bounds of the natural and social sciences—might look like by discussing ontology and presence, specifically taking the case of the presence of God through the language of sensory perception, using the theories of experimental psychologist J. J. Gibson. In the terms of sensory perception, experiences of God have been explored in terms of the "presence of unseen others," "social presence," or simply "perceptual presence," and has been an important area of inquiry in the neurosciences and media studies as well as in cultural anthropology. As we will endeavor to show in this essay, despite the differences in theoretical disposition and methodological orientation, all three disciplines have relied on the same two problematic assumptions: 1) that there is a static reality external to the perceiver, and 2) feelings of presence are interpretations or belief states about more rudimentary sensorimotor experience; assumptions that preclude us from accounting for the ethnographic data such as the accounts of the presence of God from the Franciscan Sisters of the Sacred Heart Convent.[3]

Following Gibson's ecological theory of perception, we propose that presence—indeed, all perceptual consciousness—can be conceived of as the product of the direct, dynamic interaction of a perceiver-environment system. When a Catholic sister encounters God, God's presence is neither an objective property apart from the perceiver, nor is it a subjective property of the perceiver's mind, projected onto the world. That presence is realized—or constituted—in the interaction between the

1. In "Ontological Anthropology and the Deferral of Critique," Lucas Bessire and David Bond (2014) suggest that the "ontological turn is premised on skipping over an entire generation of anthropologists that took up these same problems and worked them out in very different ways," specifically suggesting that current literatures on the ontological turn ignore the "intellectual genealogies of self-proclaimed ontologists—such as Frantz Fanon, Hannah Arendt, Raymond Williams, Judith Butler, and Michel Foucault" (441). Here we cite these authors as contributors to the ontological turn with the understanding that they have not claimed the title themselves.

2. A rare exception to this methodological division is the work of anthropologist Tim Ingold, who draws on Gregory Bateson, James Gibson, Hans Jonas, and Merleau-Ponty in his work, combining "'relational' thinking in anthropology, 'ecological' thinking in psychology and 'developmental systems' thinking in biology" (Ingold 2000: 4). Ingold calls this synthetic approach the "dwelling perspective" (5).

3. Following IRB protocol, all names—including the name of the convent—are pseudonyms.

environment-perceiver system, in a way that is at once fully material and tractable and fully codetermined.

By understanding the experience of presence as interactional, we shift away from a model of experience of the divine as a mystery that calls into question what we know about the natural world toward a model that takes that experience as ground truth.[4] By combining literature on perception with ethnographic data, we hope to arrive at a more holistic model of presence, one that both takes seriously the lived reality of the nuns' experiences and one that sees these experiences as open to empirical investigation.

We begin the essay with an introduction to the ethnographic data that inspired us to reexamine the question of presence. From there, we turn to a brief review of the history of presence, outlining how media studies, the neurosciences, and cultural anthropology have explored perceptual presence. Next, drawing inspiration from Gibson's work on an ecological theory of perception, we propose a new theory of presence, one that treats presence (and all perceptual consciousness) as the dynamic and ever-emerging interaction of a perceiver-environment system. Finally, we return to the ethnographic data to demonstrate how this theory allows us to interpret the Catholic nuns' experiences of the presence of God in a new way.

In the convent: The ethnographic data

While almost all of the sisters interviewed in the convent experienced God's presence, only a handful of the nuns described their sense of God's presence as clear embodied sensations. A few sisters described feeling God's touch. For example, one sister described feeling Christ's hand in her palm and lying in bed next to him each night. Another described speaking with God and clearly hearing his voice in conversation. However, the majority of the sisters described something different. They described God's presence as a feeling of peace, calm, or love. They described it as enduring. Sister Matthew said in an interview: "So if I had to say how did I feel that presence of God, it was like a calm breeze flowing over me, and it would be a sense of peace. In all of those moments where you feel touched by God, there's just such a peace, calm." She described this as the same feeling she had as a child, in the third grade, when she remembered kicking leaves on a crisp autumn day. She said that this was the first day she could remember feeling God's presence. She said, that day "I just felt God's presence, and I knew it was God." She said that as a child she would constantly feel God's presence, and it felt "like I was engulfed by God, like I knew God was there with me."

Almost every sister characterized God's presence as an enduring state, describing these feelings of presence as "calm," "love," and "peace"; often they use the word *know*, as in: "I just know that He's with me." Occasionally, the sisters described God as feeling farther from or closer to them, and most have suggested that the sense of presence becomes "deeper" with prayer and time. Almost all of the nuns described a sense presence that had endured since their childhood. Importantly, what emerges from the data is not a belief in God or knowledge about God, but an experience of God's presence. Matthew Ratcliffe defines presence as the experience "that a perceived entity is 'here, now'" (Ratcliffe 2015: 91). Distinct from an understanding that there is a creator "out there," the nuns' experience of God includes a sense of proximate closeness, a God who dwells "here," in space and time with them, sometimes even within their very bodies, or "engulfing them" (to use Sister Matthew's words).

Belief in God does not seem to be relevant to the nuns. This question of belief as a propositional statement—"Do I believe, do I not believe, do I doubt, do I not?"—is not an issue Corwin has ever heard arise in the convent. In the time Corwin has been going to the convent, she has never heard anyone discuss belief—either theirs or their peers'—except in response to an interview question. In 2016, Corwin asked in interviews if any of the nuns ever doubted the existence of God. Everyone who was interviewed said "no," confirming what had been observed in the convent over the years. Some of the nuns sometimes reported feeling as if God was "far away" or, occasionally, they confessed doubting that God was listening to them or doubting that they've

4. "Ground truth" is a term used in a number of disciplines (such as statistics, computer science, meteorology, geographic systems) to refer to information gathered via direct observation—that is, empirical evidence. It is often used to mean the standard with which to compare the performance of a model. Here we mean to use "ground truth" in a similar vein as Holbraad and Pedersen's use of "ground" (to mean not the ethnographer but the context). By foregrounding "ground truth" we aim to emphasize our commitment to pursuing empirically based, tractable accounts that can be utilized in disciplines outside of social theory.

been good enough to go to heaven when they died, but belief—the process of assessing whether or not God exists—did not seem to arise as a question for the sisters. On Sundays at Mass, the nuns recite the Nicene Creed, which begins as an assertion of belief: "I believe in One God . . ." We could speculate that for the nuns, the line about belief in the creed is more similar to the notion of belief as it was defined in the early Church: a synonym to commitment. As Wilfred Cantwell Smith pointed out, in the early Catholic Church, the verb *to believe* was used to mean to "pledge allegiance, to commit oneself, to give one's loyalty" (1998: 41). It was not until quite recently that belief became a propositional or epistemic claim, one that in contemporary terms has "come to designate explicit uncertainty and doubt" (Smith 1998: 60). Outside of the weekly recitation of the Nicene Creed, the nuns do not discuss their experience of God in terms of "belief." The presence of God, for them, seems to be an ontological fact.

Anthropologists of Christianity have written about the "problem of presence," the concept that Christians must struggle with the seeming contradiction that God is at once there and not there (Engelke 2007; Keane 1997). In her work with Evangelical Christians, Luhrmann has written that the problem of feeling God's presence emerged for her interlocutors as a constant negotiation (2012). However, unlike many Protestant Christians represented in the anthropological literature, Catholic nuns seem to take the presence of God as a given. God's existential state did not arise as a problem for the nuns. When asked about their relationship with God, the nuns frequently used the metaphor of a relationship with a spouse, saying, for example: "It's like [your spouse]—don't you talk to become closer?" Corwin notes, "I have to admit that it's taken me years to treat this with anything but frustration—I would think 'I know what it's like to have a spouse, to speak to a human, I don't need this explained to me; tell me about God, that's what I don't understand.' I was too preoccupied by the non-materiality of the divine or perhaps by my own unfamiliarity with this form of presence that I was unable to take seriously what the nuns consistently told me. Only now do I understand that what they were trying to tell me may be that the experience of speaking to another person isn't so different from their experience of interacting with God."

When the Franciscan nuns described God's presence, they described something that felt effortless, that was relational. There are overarching commonalities that characterized their experience as a group—for instance, that God was all-encompassing and often described as "enduring." The sense of calm, love, and peace also appeared across the nuns' descriptions, but there were also interindividual differences as well as differences that emerge over the life course. For instance, Sister Irma, who was in her 80s, said in an interview, "I always knew God was there for me, so when I had all this breakdown of my body, I know God's supporting me." Corwin asked her, "And what does that feel like?" to which Sister Irma responded: "Safe, and being loved, or being questioned, you know, if He's questioning me on something. It isn't just the Holy Spirit, but the Father, the Son, and the Holy Spirit are a team, and sometimes I move into one, and somethings the other. Of course Jesus is my spouse."

There are elements of God's presence as described here that cut across many of the interviews, such as her experience of feeing safe and loved, but some of the particulars of what she describes, for instance, of being questioned by God, and the particular distinctions between Sister Irma's interactions with God as manifested through the trinity are distinct to Sister Irma's particular interactions. The model we put forth in this essay allows us to account for the nuns' experiences in ways that both give a sense of the commonalities within communities and, critically, allows us to account for interindividual differences. What is key to note here is that the model of presence we propose allows us to explore the sisters' experiences of God's presence without falling into many of the possible traps that expose themselves when examining experiences that are not shared. Specifically, we see two central problems that can be avoided with this model: First, it allows us to study sensation and the embodied experience without reducing the nuns' experience of God's presence to subjectivism (in which the experience of God resides solely in the subject). The second problem that arises when God's presence is relegated to the domain of the subjective is that phenomena wall themselves off from empirical investigation in all the detail available to us if we include not only the person perceiving God's presence but also the world or environment in which she is embedded. Often other writers have dealt with the problem of God's presence by avoiding the question of God altogether (Luhrmann 2018: 65). The problem with this approach is that it produces a subtle denial of the possibility of the realness of God's presence. While this has produced excellent work that can address questions of practice, ritual, language,

and culture, this approach nevertheless denies us the possibility to take the presence of God seriously.

In the following section, we review existing literature on models on presence in three fields. We begin with media studies and the neurosciences, as these two fields have produced the majority of the work on the topic of presence. It is important to review the work done within these fields in order to understand the models and assumptions that have been imported and shared within the domain of the social sciences, and specifically within cultural anthropology. As we shall see, the literature on presence in these three fields presents two major shortcomings: first, that there is a static reality external to the perceiver; and second, that feelings of presence are interpretations or belief states about more rudimentary sensorimotor experience. In this section, we outline how each field has approached the problem of presence and how these approaches are not fully satisfactory.

A brief history of presence

Media studies

Much of the work on the topic of presence has been done in the realm of media studies by those interested in creating effective tools of communication—for example, telephones, video conferencing, and more recently, virtual and augmented reality technology. The term *telepresence* was coined by Marvin Minsky (1980) to name the sense human operators might feel of being physically transported to a remote space via the teleoperating system. Since then, telepresence—or now, "virtual presence," "mediated presence," or just "presence"—has been used to refer to a sense of "being there" in an environment created by technology (McLellan 1996; Rheingold 1991; Sheridan 1995; Slater and Usoh 1993; Steuer 1992). For media scholars, the study of presence is a useful way to think about human responses to media technology; a quality that can be measured and used as an indicator of the immersiveness—and thus effectiveness—of the simulated environment.

In this context, the study of presence is frequently divided into the categories of environmental (or spatial) presence, social presence, and self-presence (Lee 2004; Ratan 2012). In the context of a particular media technology, social presence was originally defined as "the degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships" (Short, Williams, and Christie 1976: 65). With time, different dimensions of social presence have been recognized, including degree of initial awareness, allocated attention, the capacity for both content and affective comprehension, and the capacity for both affective and behavioral interdependence with another entity (Biocca and Harms 2002). While there is no universal agreement on the definitions of these terms, many studies have adopted an abbreviated form of Frank Biocca and Chad Harms's (2002) perspective, defining "social presence" to be one's sense of being socially connected with the other, and "copresence" as one's sense of the other's presence or existence within the same space as the perceiver (Lee 2004; Oh et al. 2016).

Much of this research takes an experimental approach: selectively altering sensory cues of the virtual environment or virtual other and then measuring the user's response to those changes—either behaviorally through physiological measurements (heart and respiratory rate or galvanic skin response), or through questionnaires (asking, for example, "To what extent did you feel that the [virtual other] was present? To what extent did you feel that [virtual other] was watching you?"). Using these methods, researchers have found that feelings of social presence (and copresence) in mediated environments are enhanced when the virtual other has realistic eye and head movements (Bailenson, Beall, and Blascovich 2002; Garau et al. 2003; Tu 2002); is responsive to the perceiver in terms of verbal and nonverbal interaction (Oh et al. 2016; Tu 2002); and is visually present (Heeter 1992). The nature of the appearance matters less than one might think (Nowak and Biocca 2003).

That said, social presence—by any of the aforementioned definitions—is rarely the focus of the research in which the concepts are employed. More frequently, social presence is a means to explore the effects of other variables, such as features of the interface, the perceiver's attitudes toward the mediated others, persuasion, illusions of reality, learning and memory, and mental health (Bailenson et al. 2001; Choi, Lee, and Kim 2011; Nowak and Biocca 2003; Turkle 1997). Indeed, some researchers have warned against reading these results outside of the context of the mediated technology with which it was used: "Although we believe a theory of social presence should yield some insight into fundamental epistemological issues in the knowledge of other minds . . . or social psychological issues in person perception, all human interaction is not the scope of phenomena to be explained. The scope of social presence theory is

the explanation of technologically-mediated human interaction specifically" (Biocca, Harms, and Burgoon 2003: 35).

Despite this warning, the application of media studies' research on social presence to more general theories of sociality has indeed transpired (LaMendola 2010; Rajendran 2013; Wallace et al. 2010), encouraged by—and further encouraging—the conception of the social other as a symbolic construction within the mind of the perceiver (whether mediated by communication technologies or not).

Neurosciences

In the neurosciences, studies of presence have primarily been undertaken in individuals with (pathologized) conditions in which one's sense of reality is altered—for example, forms of psychosis and other states marked by derealization and hallucinations of unseen others. Findings from these studies have then been generalized to understand the way reality is constructed by healthy individuals. A theory of increasing popularity within the neurosciences for exploring and explaining bodily experiences—including what are considered unusual or alternative states of consciousness such as feelings of presence of unseen others—is something called the "predictive coding model" (Friston and Kiebel 2009; Seth, Suzuki, and Critchley 2012; Taves and Asprem 2017; van Elk and Aleman 2016).

The predictive coding model suggests that humans have models or representations of ourselves and the world that we use to make predictions of what we will experience. These models are informed by prior beliefs and sensory signals that are constantly being updated when our predictions do not match our observations. Thus there is a constant interplay between "bottom-up" multisensory integration and "top-down" conceptual stimuli converging and constituting these generative models we have of ourselves and the surrounding world.

Proponents of this theory suggest that all bodily experience can be understood through this model, including religious and spiritual experience. For these researchers, the feelings of presence of unseen others is understood as an illusion most likely caused by the misattribution of the source and identity of sensory signals (i.e., tactile and proprioceptive signals) coming from one's own body, which individuals then interpret to be spiritual or religious in origin (Blanke et al. 2014; van Elk and Aleman 2016).

One group of scientists set out to prove this theory by reproducing feelings of presence in healthy individuals (Blanke et al. 2014). Using a "master-slave" robot system, the subject produces a finger-scratching motion using a "master" robot that is placed in front of them. This scratching motion is then reproduced by the "slave" robot that scratches the subject's back from behind. The timing between the production of the scratching motion and the reception of the scratching is sometimes varied such that the two actions occur variously in sync or out of sync. Olaf Blanke and colleagues found that if the motion of the subject and the slave robot were synchronous, subjects reported the sensation of their body drifting to the location of the slave fingertip. In other words, proprioceptive information shifted to fit the tactile and visual cues they were given. However, if the motion of the subject and slave robot were asynchronous, this resulted in the experience that someone else—an unseen other—was in the room scratching the subject's back. "This spatiotemporal conflict was resolved by our participants generating the illusory experience that the felt touch was not caused by themselves but by another person behind them that was touching their backs" (2014: 2683). They concluded that the sensation of presence of an unseen other is the result of sensorimotor dis-coordination—not just in their subject population but for any sense of presence of an unseen other. "Instead of it being a spiritual thing, it is the brain being confused," Blanke stated in a subsequent article (Blanke, quoted in Alleyne 2011).

Blanke's conclusions and the predictive coding model have been readily cited by other neuroscientists in their work on unusual bodily feelings of self and other (Lopez et al. 2015; Seth, Suzuki, and Critchley 2012; Taves 2011; Taves and Asprem 2017; van Elk and Aleman 2016). In addition to the feeling of presence of unseen others, some of these researchers have posited that this model can also be used to account for all religious and spiritual phenomena, including "so-called self-transcendent and mystical experiences that are characterized by a loss of sense of space and time, the blurring of self-other boundaries and a strong feeling of unity and connectedness with the world as a whole" (van Elk and Aleman 2016: 366). While these authors are comfortable with the categorization of all religious experience as an illusion or misattribution of sensory signals, these assumptions preclude us from taking seriously ethnographic data in which individuals experience reality in a way that the researcher does not herself experience.

Cultural anthropology

Anthropologists have long encountered communities of people who regularly interact with nonhuman others and have grappled with how to represent these experiences. Anthropological writing from the late 1800s until recently is replete with descriptions of what individuals "believe." As Byron Good (1994: 12) points out in the introduction to *Medicine, rationality and experience*, E. E. Evans-Pritchard (1963) made a subtle juxtaposition between what he ascribes to be Zande beliefs (e.g., that some people may be witches) in contrast to Zande knowledge (e.g., Azande know diseases by their major symptoms). Evans-Pritchard famously argued that Zande witchcraft was not an irrational practice. He asserted that Azande people were ultimately quite rational; they knew how the material world functioned—termites chewing on wood will eventually make a granary collapse. Witchcraft, he suggested, spoke to the ultimately unanswerable questions, such as why the granary collapsed at that particular moment. Despite Evans-Pritchard's careful attention to Azande cultural logic, Good points out that Evans-Pritchard's text nevertheless contrasts what Azande people believed and what they knew, revealing an underlying commentary on reality and positioning Evans-Pritchard as the arbiter of what was real. The problem implicit within this discourse regarding "belief" and symbolic representation is the assumption that there is an objective, universal, and veridical natural order to which various "native point of views" can be compared. Even as anthropologists have worked to honor those viewpoints through cultural relativism, the underlying model is one in which there is a single empirical reality, onto which symbolic representations are overlaid. This model fails to take those points of view seriously as veridical accounts of the world.

Over many decades, there have been a number of interventions in which scholars have called on their peers to take others' lived realities more seriously. In *Ethnographic sorcery*, Harry West (2008) offered a reflective follow-up to *Kupilikula* (2005), an ethnography on sorcery practices of the Muedan people in the northern district of Mozambique, after a Muedan spoke up to correct West, arguing that the sorcery practices that he had characterized as symbolic (e.g., the transformation of the sorcerers into man-eating lions) were in fact real. West means to give the matter a serious reckoning in *Ethnographic sorcery* by embarking upon an analysis of metaphor. He arrived at the position of Husserlian phenomenologists, asserting that "reality exists only through its apperception" (2008: 46), resulting in a "life-world" made out of the meanings people give to it. Metaphor, more than "mere" symbols, acts to structure our experience of the world.[5] West holds that these perceiver-dependent realities can in turn structure the realities of others as far as agents have the power to bring the shared, material reality into correspondence with their own imaginary visions of the world.

Many anthropologists, such as Luhrmann (2018) and Thomas Csordas (1993) have approached the ontological question of God (and the epistemics of belief) by examining lived experience, specifically in their cases, the sensory perceptions of God. One of the essential components of the anthropological treatment of presence is its attention to cultural practice. For example, Julia Cassaniti and Tanya Luhrmann (2014) used the concept of kindling to theorize cultural variation in bodily expression. The kindling hypothesis was first articulated by Emil Kraepelin (1921), who observed that to the extent that traumatic events—a job loss, death of a loved one, breakup—play a role in the first episode of mania or depression, it takes "less" trauma to trigger a similar reaction in the future. A process of sensitization happens where, over time, episodes of mental illness seem to recur in the absence of the psychosocial stressor.

Cassaniti and Luhrmann have extended this work in a model of "cultural kindling," suggesting that the kindling phenomenon is at work when the local culture shapes the way people attend to religious settings. They suggest that the ways people are socialized enable individuals to focus on certain stimuli or sensations (and not others) and imbue them with meaning. Over time and repetition, one's threshold for experiencing and identifying particular sensations lowers. For example, Cassaniti and Luhrmann note that once someone has experienced a moment of uncontrollable shaking or a rush of joy during spiritual practice, going forward they are more likely both to experience that sensation again, and to associate it with the spiritual (2014). Like any practice, they suggest that the more one does it, the easier it comes, as the connections between trigger and response are kindled into place.

These anthropological works have been important in understanding the ways in which perceptual experience is attuned to practice. However, within these works is

5. An approach that is in line with George Lakoff and Mark Johnson's treatment in *Metaphors we live by* (1980).

the buried assumption—both fueling and fed by methodological constraints—that binds one to talk of difference only as far as it is reflected and experienced within the mind of the perceiver.[6] Anthropologists like West may grant the power of social representations to shape reality, but in the end these accounts are still relative to the perceiver. For him, sorcery lions are real for the Muedans as far as they are real within the minds of individuals who have the power to shape a social context that will then shape the perceptual life-worlds of individuals who live in it; it is doubtful that West thinks sorcery lions exist as anything other than perceived intentions of the sorcerer. Though social theorists might call their analyses dynamic and indeterminate, they are still appealing to a world that sits apart from the perceiver, a world that is apprehended and acted upon, but one in which the perceiver and the environment are ultimately separate. This is why Luhrmann's "The real ontological challenge" (2018) is useful, as it articulates how deeply entrenched the ontological commitments we have as Western secular scholars are in ways that sometimes remain unconscious even to us.

A new theory of presence

The model of perception that emerges in the work by media scholars, neuroscientists, and anthropologists alike largely rests on a central question: How does the experience of "out there" (the world) get "in here" (one's mind)? Although the fields differ in the methods by which they approach this question, the majority of their research programs are based on the fundamental assumptions that first, there is an external reality that is separate from the perceiving subject, and second, that feelings of presence are interpretations or belief states about a more rudimentary sensorimotor experience. While anthropologists would be loath to be associated with the term, these assumptions are two forms or versions of the same kind of representationalism, the belief that the observer exists within the world and represents or reflects the external world within her mind; that perceptual experience is built using sensory data and is confined to the interior contents of consciousness. From this standpoint, presence is symbolic, and we humans are representors or symbolizers. We stand apart. We make meaning via interpretation. Accounting for the discrepancies between the way things are and the way they appear to us becomes the primary preoccupation extending from this assumption.

We have suggested that this assumption is problematic for two reasons. First, it is ethnocentric to presume that we have a corner on reality while others do not (e.g., that those from a scientific standpoint get to define what they perceive as real while the nuns' lived experiences, not to mention the lived experiences of other non-"Westerners" of the world, are relegated to the fictionalized reality we call "belief"). Second, it neglects the role the world plays in perception. By interiorizing and indifferentiating perceptual phenomena—such as the nuns' experience of God's presence, to the mental contents of a human subject—it overlooks the conditions that are integral in the formation of those percepts.

We suggest that the anthropological analysis of spiritual or religious presence can move beyond a model based on symbolic representation and epistemological relativism by turning to the language of sensory perception and, in particular, a branch developed by Gibson, an empirical and philosophically inclined experimental psychologist whose work focused on visual perception. In addition to his work on affordances (1966), Gibson formulated an alternative approach to representationalist accounts of perception that he named "ecological optics," or the ecological theory of perception (1966, 2002, 2014).[7] In it, he conceives of all perception as the

6. Ingold has made a similar point regarding the problems that arise with anthropologists' methodological focus on the perceiver, using the context of hunting and gathering. Ingold describes the anthropologist making sense of the Cree assertion that caribou, who, becoming aware of the hunter, have the tendency to freeze and stare into the face of the hunter, are offering themselves to the hunter "intentionally and in the spirit of goodwill or even love towards the hunter" (Ingold 2000: 14). Ingold contrasts analyses from wildlife biologists, whose explanations turn to adaption to predation by wolves, with analyses by anthropologists who turn to symbolic explanations and Cree cosmology. Ingold argues that the anthropologists' use of perceptual relativism "does not undermine but actually reinforces the claim of natural science to deliver an authoritative account of how nature really works." He continues, arguing "both claims are founded upon a double disengagement of the observer from the world. The first sets up a division between humanity and nature; the second establishes a division within humanity between 'native' or 'indigenous' people, who live in cultures, and enlightened Westerners who do not" (2000: 15).

7. In later years, the cause of nonrepresentationalist, action-based account of perception was taken up by various

product of a direct, dynamic interaction of a perceiver-environment system. We suggest that attending to Gibson's work on perception is useful as it allows us to see presence as constituted by a reciprocal relation between perceiver and environment, an interaction that is always already socially mediated and open to empirical inquiry.

Gibson studied at Princeton under E. B. Holt, a student of William James who married James's nondualistic metaphysics of radical empiricism with a behaviorist emphasis on action. During World War II, Gibson worked in the psychological research arm of the US Army Air Forces, where he was responsible for selecting assessment procedures for prospective pilots. He realized the standard measures, which used static visual 2-D displays, were inadequate; when pilots operate aircrafts they perceive themselves (and their planes) to be moving relative to ground surfaces, especially during landing and approach. This led him to develop more naturalistic assessment tools—for example, dynamic displays—but it also turned his attention to everyday experience and led him to rethink perception more generally.

Gibson eventually came to argue that we do not reconstruct the world internally; there is no image or model that a "ghostly" observer evaluates. Rather, perception is the direct interaction with the environment (rather than an indirect process via the mediation of a representation). The world itself is the repository for information about it—not our sensations or intermediary reconstruction of it. It seems that the world is high resolution and continuous because the world is rich and continuously available to us for exploration. Thus, the act of perceiving—of picking up information—is one of active exploration, of the perceiver moving through the environment of which she is dynamically a part.

With his theory, Gibson elevated the importance of the environment in the act of perception, placing it on even ground with the perceiver. He named his theory "ecological optics"—later expanded into the "ecological theory of perception"—and conceived of perception as the product of not the perceiver and environment separately but as the product of the constitutive interaction of the perceiver-environment system as a single entity.

In contrast to René Descartes's objective, mechanical world governed by fixed laws that exist a priori and apart from the perceiving subject, Gibson conceives of the environment as a structure that emerges as a result of interaction with the perceiver in constant, mutually constraining reciprocity; a structure that is not detached from what it structures. "Structure" for Gibson is a process or movement that manifests its pattern within a perceiver-environmental system. In Gibson's words, structure is "the self-organization of movement that is animated through perceiver-environment reciprocity" (Braund 2008: 123).

The ecological approach does not seek universal laws that cover all possibilities of mechanical interaction. Rather, it is interested in the manner in which the structure of the perceiver-environment system constrains possibilities through the dynamic interrelations of its parts. In the context of empirical research, then, this involves articulating the characteristics of a particular perceiver and their environment, as they relate to (and constitute) each other.

An example of perception as interactively constituted: The color yellow

In the ecological theory of perception, colors are properties of the world that result from perceiver-environment codetermination. The literature on perceiver-environment codetermination ranges from species-level interactions at a generational scale on the macro level, where animals and their environment are understood to respond to each other in the formation of an ecological niche (Levine and MacNichol 1979; Mollon 1992; Thompson 1995); to microinteractional studies of perception such as the immediate experience of "yellow-ness."

In this paradigm, "yellow" does not exist apart from either a yellow object or the perceiver's experience of it. Yellow is the interaction of a perceiver with the light reflecting off of the surface of an object within an ambient light array.[8] This occurs in the context where the

schools of thought that fell under the umbrella of "actionism" (Noë 2004, 2012; O'Regan and Noë 2001)—in particular, the sensorimotor theory of consciousness (O'Regan and Noë 2001) as well as enactivism and neurophenomenology (enactivism is the philosophical arm and neurophenomenology the empirical) (Thompson 2006; Varela 1996). Both schools place less emphasis on the environment and more on the structure of the perceiving animal, but made useful contributions in sketching out what "perception as interaction" might look like as an experimental research program.

8. The term *ambient optic array* refers to the medium that transmits light, where the surfaces reflect it diffusely.

perceiver has a specific perceptual apparatus, evolutionarily tuned to an ecological niche, yet variable within each individual (in terms of both biological structure—for example, dichromates versus trichromates—as well as that perceiver's specific personal history and skills of access—that is, their understanding of "yellow" based on particular sociocultural and individual perceptual learning circumstances).

Yellow does not reside as an objective property of the world apart from the perceiver (i.e., objectivism), nor does it exist as a subjective property of the perceiver's mind, projected onto the world (i.e., subjectivism). Yellow is realized—or constituted—in the interaction between the environment-perceiver system, in a way that is at once fully material and tractable and fully codetermined. Indeed, it is open to characterization and comparative study in all of the detail of the interaction between a particular perceiver and particular environment. It thus renders phenomenal consciousness open to public access and study, only requiring the care of specification of both perceiver and environment.

Sometimes a so-called white wall will look yellow to a perceiver by merit of the ambient lighting conditions; or a dress that appears blue and black to many people will look white and gold by merit of variations in the perceiver's perceptual apparatus and how an individual has learned to identify colors over her lifetime (Hesslinger and Carbon 2016). These are not "illusions" but a reflection of the way things are, where "things" are constituted by their relation with the things in their surround and in dynamic interaction with the perceiver. To understand the perception of the wall or dress, we must take the perceiver and environment as a mutually constituting system. Within this perspective, variation in the perceiver's reported experience—for example, the dress appearing blue and black to one person and white and gold to the next—is simply a factor of the dynamic interaction that has emerged within that system over a lifetime. This is an ontological claim, pointing to the fundamental interdependency of things, and one that is at its heart radically empirical. Once we can get out of the head, in studies of perception, we open ourselves to the world—one ready for characterization.

Example #2: Perception of the other as interactively constituted

A similar process unfolds when an individual experiences the presence of another person: We experience the other individual sensorially, with all of the material particulars of our perceptual apparatus in interaction with all of the material particulars of their person, within specific sets and settings, and engaged in various activities. This, of course, involves myriad processes that can be broken down and studied at various levels (perceptually, cognitively, behaviorally, historically, etc.).

Yet we experience the other person as something other or more than the sum of those processes; there is a feeling of recognition, a palpable sense of presence that often seems particular to them. Just as with the perception of yellow, which is often experienced as a seemingly straightforward apprehension of "yellowness," an experience of the presence of another person might feel like a straightforward recognition, as in "there is Luisa," or "I am sitting next to José." However, despite the fact that these perceptions might feel like a simple or passive reception of a fixed material reality (as in, "that ball is yellow, and I am perceiving it," or "there is my daughter, existing in an external static reality, and I am passively perceiving her"), in fact, these events are interactions between the perceiver and the environment.

We learn to be with each other—to experience each other—through practices and habits. Scottish golf buddy, lover, academic collaborator, et cetera—these relationships are learned ways of being, and the practices they involve shape how we experience each other. The same can be said of the sisters' relationships with God: there is substantial learning involved in the interaction. Luhrmann (2012) and Rebecca Lester (2005) make similar points in their work on American Evangelicals and Mexican Catholic postulants, respectively: the particular qualitative experience of individuals' experiences of the divine depends on the learned cultural practices in which they engage over a lifetime.

There are the obvious empirical difficulties associated with querying the perceiver-environment system when it includes God. In the Franciscan Sisters of the Sacred Heart convent, for example, God does not appear in material form. Thus, rather than visual

These surfaces reflect in multiple fashions, from one surface to another and to yet another. The outcome of diffuse, multiple reflections is an omnidirectional flux of light, which fills the transmitting medium and envelops the perceiver. If this light has different intensities in different directions, instead of the same intensity in all directions, Gibson proposes to call the flux of light an ambient optic array (Gibson 2002).

perception, the nuns' perception of presence relies on the setting, practices, cultural histories, nonvisual sensory perception, et cetera. The anthropologists' data, therefore, lean heavily on reports of the perceivers' experiences. This, however, does not require that we conflate the perceiver's experience with God Him- (or her- or them-) self. The subtle but significant difference here is in acknowledging that to conflate the perceiver's experience with the phenomenon as a whole is a methodological shortcoming in the examination of a real interaction. What we strive to emphasize here is attention to how the environment reaches back through dynamic interaction.

Presence as perception, perception as presence

This model can be extended to all sensory perception, whether it be touch, taste, smell, hearing, proprioception, and combinations thereof, including the presence of others. In fact, the philosopher Alva Noë has suggested that perception of all kinds be reframed as "varieties of presence" given that perception is neither a matter of sensation nor mere feeling but is instead the "way we achieve access to the world" (2012: 2). In this action-based approach, presence is experienced in the phenomenological variety through the many ways we achieve skillful access to the world.

We suggest that this access is a two-way channel; framing presence as interaction captures the experience of communication. The nuns reach out to their environment as one that includes God, and crucially, the environment reaches back. Presence is moments of shared contact. Considering presence/perception as communication helps us shift some of the agential weight from the perceiver to the environment with which the perceiver interacts (whether the perceptual or communicative partners in question be other persons, nonhuman agents, or features of the environment).

For linguistic anthropologists and scholars of language, this perspective recalls work on the ontological levels of communication—specifically the "interactional" level of communication, which conceives of communication as coproduced by the dynamic interaction of one or more agents, or agent and the environment (Bartesaghi and Castor 2009; Levinson 2006; Thompson and Dori-Hacohen 2012). It also shares similarity to Elinor Ochs's (2012) article, in which she makes an argument for understanding the interactive nature of language and the ways in which language and experience arise together. In addition, our suggestion to replace a dyadic model of perception (where the perceiver apprehends a representation of the world) with a dynamic model (in which perception comes to exist as an interaction between the perceiver and the environment) might appear similar to how Charles Sanders Peirce's theory of semiosis compares to Ferdinand de Saussure's model of language.

Like the dyadic model of perception, Saussure's model of language has been represented as a circuit in which listening and comprehension were presented as direct representation of the speaker's expression (2007). In both models, the individual is represented as (ideally) mirroring the external input (the real world) in their brains.

In contrast, Peirce's model of information and meaning involves a triadic relationship in which a sign is constituted as an object by an interpretant (1991). While Peirce's distinction between sign and object maps onto Saussure's sign and object, Peirce distinguished them both from the interpretant, as the mediating relation between signs and objects—thus theorizing that meaning is always context-bound (Kockelman 2013: 120). Thus, in Peirce's semiosis, the act of interpretation is constitutive of the object, and not merely descriptive.

If we apply this model to the nuns' experiences of the divine, the divine can be conceived of as the object that arises from the relations between the signs and interpretants in the physical and embodied environment. Drawing on Paul Kockelman's words, the divine would be the "correspondence preserving projection of the ensemble of possible interpretants of a sign" (Kockelman 2013: 122), where, in the case of the nuns, the signs and interpretants might include bodily sensations of touch or sound, the experience of interacting with others, or a feeling of "calm" or "peace."

A dynamic possibility: Feeling God

One of the nuns in the Franciscan Sisters of the Heart Convent, Sister Louisa May, begins each day with a silent meditation, in which she describes experiencing God's presence. She describes her routine in this way: "I've developed this little ticket to a deeper place. I've developed a little reflection that kind of takes me to a place where I recognize—I know—I don't know how I know. But I feel and I know God's presence through me and around me."

She described her experience of the presence of God in these morning practices in the following words:

> It's an emotion but it's also kind of being suspended in time and space to the point where if I really allow myself go, to stay in that moment and its sometimes just a

> moment, everything else . . . there is no other else. . . . There is that sense of union. . . . The best way—it's peace. It's peace. It's a deep peace. There's not a physical touch. I'm not feeling a physical touch. I'm not getting a message. . . . It's not an image. It's an awareness, I guess, a deep awareness.

The presence Sister Louisa May describes here as a "sense of union," and a "deep awareness," that she describes as "peace" resonates with the descriptions we saw from her Franciscan peers above. She describes a transformation of self at the moment she experiences God's presence, articulating that it feels like "not just" herself, not a singular individual, but a feeling of "we" or union. God here emerges for Sister Louisa May as a sense of presence—or in her words, "union"—a sense that endures for her throughout the day, shaping the context and meaning of her interactions.

We suggest that what Sister Louisa May and the nuns describe is an act of communicative constitution that emerges between the individual and her environment. The environment, here, includes her body and embodied sensations, prayer practices, her personal history, the convent, the Catholic order she's a part of, et cetera. Here, Sister Louisa as well as the anthropologist engaging her are each embedded in particular perceiver-environment systems. The fact that these systems may be distinct from each other does not need to be a problem. After all, the two occupied distinct positions in relational space with distinct personal, cultural histories and past experiences that have shaped them over lifetimes. Sister Louisa May grew up in a Catholic home, reciting prayers and attending Mass from the time she was an infant. She was trained from the time she was young to recognize and respond to a particular type of divine presence. When she was young and when she entered the convent as a novice, she recited scripted prayer every day, speaking to God with the words the Catholic Church taught her. Every day from the time she joined the convent, she attended Mass in the elaborate marble-embellished chapel at the heart of the convent, taking communion with the sisters in her community. Later in her life, after Vatican II changed the regulations and expectations surrounding prayer practices (see Corwin 2012), Sister Louisa May was introduced to more contemplative practices that sometimes resembled Eastern modes of meditation. The prayer she described when she spoke about the experience of God's presence, as quoted above, involved a morning contemplative practice in which she sits in silence in her room inviting God to dwell within or be with her. To understand more about Sister Louisa May's experience would be to drill down on any of these component processes—a tall task made tractable by similarities shared by practices, persons, and places (and self-placed limits on curiosity). Together they contribute to what Gibson would call a perceiver-environment system: an emergent structure of constant, mutually constraining reciprocity; an active process through which Sister Louisa May and the divine each shapes the other.

Some of the ways the Franciscan nuns described their experiences of the presence of God—such as "calm," and "at peace"—resemble moods. If we take moods or existential feelings as Ratcliffe defines them as not "descriptions of internal states or of features of the world, but of one's relationship with the world" (2015: 45), then the idea of presence as a mood or existential feeling is consonant with our model. Similarly, Jason Throop, whose work on mood is influenced by both Martin Heidegger and Clifford Geertz, sees mood as a way of being that comes neither from the outside nor inside (Throop 2014: 69; Heidegger [1927] 1962: 176). While the nuns' mood-like descriptions of God may be particular to the Franciscan context, this framework continues to leave open the possibility of looking at human experience in the world as interactionally constituted.

The model we propose can account both for the commonalities we see across the Franciscan Sisters' experiences, such as experiencing God's presence as an existential feeling like "peace," as well as for interindividual differences. Offering some contrast, for instance, Sister Rita described encountering God's presence when she gets up in the morning, saying:

> I feel presence of God particularly when I get up in the morning. I usually, groggily [*laughs*] get myself dressed and then usually after breakfast I come in and this is my prayer time. It's time when I want to be with God. And for me, it's saying about dad, "Good morning Dad, how are things today?" Or to my mother, "Mother, it's good that you're here today, blessings," and I bless the family and friends . . . and I say "Oh God, I'm here with my friends today. Bless them and bless me." And then I can be. . . . What it does, it's very much that kind of centering where you call yourself to God and everything else kind of falls apart.

Following this, she was asked, "What does it feel like?" Sister Rita responded: "The feeling for me is that of being at ease and at peace. . . . It comes to me when

I sit down and I put my hands in front of me . . . at some point in time, I can sense God's presence. That He is here. He is here in every part of us. He's here with you as much as He's here with me. That's where I am."

For Sister Rita, we again see elements of the presence of God that appear in many of the interviews—for instance, the feeling of being "at peace." But, again, there are a number of details that are distinct to Sister Rita's interaction with the divine. Here, she describes calling forth friends and family who are no longer alive, blessing them, and requesting God's blessing and the experience of everything else falling away (or "apart" in her words). These particularities are distinct to the specific arrangement of the perceiver-environment system. To look empirically at these differences, we can examine the histories of the sisters, their charism, and practices, as they have shaped the ways in which each sister interacts with the environment. Sister Rita, for instance, was an only child who had tight relationships with her mother and father. She spent much of her time as a child in the presence of adults. As a nun, she spent much of her life serving as a teacher and, later, providing pastoral care. Now, in her late 80s, she prefers to spend her free time alone in her room. She journals each day as a mode of spiritual engagement with God, and talked about the role that reading spiritual books had played in helping her deepen her experience of God.

When we turn to examine the presence of God outside of the Franciscan convent, for instance, in interviews conducted in a Carmelite community, these differences became even more distinct. Unlike the Franciscans who work outside the convent to serve as teachers or in other ministries, the Carmelite nuns live cloistered lives, spending much of their time in prayer, and, for most of their lives, never leaving the convent and taking visitors only through a metal grate.

One of the Carmelite nuns described the presence of God in this way: "I have this almost physical sense of the creative love of God. It's creative. . . . God is totally loving. . . . More than ever in my life, I feel the pulse of this creative love. Not just up there, but pulsing in my body, and in creation, in relationships." God's presence was never described as a pulsing, creative love by the Franciscans that were interviewed, but it would be a mistake to describe this as only a result of the differences between perceivers, which would reduce the dynamism of the interaction to the mind of the perceiver. Rather, if we look at the particular histories, charisms, and practices—for instance, the Carmelite nun's engagement with Whitehead, Teresa of Avila, and Saint John of the Cross, and her lifetime of practice integrating these texts with a rigorous prayer schedule, most of this time spent alone, praying in her cell, we can begin to see how individual social histories have come to shape the ways each of the sisters are interacting with their environment, and therefore how presence emerges as dynamic interaction of a perceiver-environment system.

By understanding the sisters' experiences of the presence of God as interactionally constituted, we avoid the pitfalls of much of the literature on the topic of presence. In the model we propose, there is no singular, external reality that is separate from the perceiving subject. Conceiving of God's presence as a form of communication, constituted through the interaction of a perceiver-environment system (which includes not only the individual but also everything in the perceptible surround available for interaction with the perceiver, including her body), God does not need to be assessed as "existing" or "not existing" in the material world. By thinking about each of the sisters' experiences of presence as interactional and direct, it allows us to take seriously the experience of God as ontologically real and open to examination. Through this approach, we neither reduce the nuns' experiences of God's presence as mere "beliefs" held by the perceiving subject, nor are we forced to reckon with a unitary, fixed, and external reality in which the nuns' perception is merely a passive apprehension of it. Instead, by treating the nuns' perception of presence as interactional, the locus of study becomes the dynamic system of interaction within the perceiver-environment system. Just as when one perceives the color yellow or the presence of another human, those perceptual experiences do not reside as an objective property of the world apart from the perceiver (i.e., objectivism), nor does it exist as a subjective property of the perceiver's mind, projected onto the world (i.e., subjectivism). Whether it be yellow or the presence of an other, those phenomena are realized—or constituted—in the interaction between the environment-perceiver system, in a way that is at once fully material and tractable and fully codetermined.

In conclusion, we suggest that by thinking of presence—indeed, all perceptual consciousness—as interactionally constituted, other people's worlds open up to us. If we describe Sister Louisa May's or Sister Matthew's experiences of God's presence through this framework, we avoid the problem of discerning contradicting external realities to the duality of belief versus knowledge.

We also come to expand the view of our horizon past the bounds of the perceiver's body, avoiding an overreliance on sensorimotor categories and instead become oriented toward the richly dynamic environments that we inhabit and constitute. Sister Matthew's experience of God as a calm breeze flowing over her, and Sister Louisa May's experience of a peaceful union with God become analyzable if we think of each woman within her own particular constituting set of relations. An interactive model of perception opens us up to take seriously the nuns' experience of the presence of God—even if the ethnographer does not experience that presence—and it leaves open the possibility that the experience of presence can be studied empirically. We hope that others will take up the call to analyze presence as interactionally constituted, a call that we believe may lead to deeper anthropological understanding of perceptual presence.

References

Alleyne, Richard. 2011. "AAAS: Out-of-body experiences are just the product of a confused mind." *The Telegraph*, February 18, 2001. https://www.telegraph.co.uk/news/science/8327304/AAAS-Out-of-body-experiences-are-just-the-product-of-a-confused-mind.html.

Bailenson, Jeremy, Jim Blascovich, Andrew Beall, and Jack Loomis. 2001. "Equilibrium revisited: Mutual gaze and personal space in virtual environments." *Presence: Teleoperators and Virtual Environments* 10 (6): 583–98.

Bailenson, Jeremy, Andrew Beall, and Jim Blascovich. 2002. "Gaze and task performance in shared virtual environments." *Computer Animation and Virtual Worlds* 13 (5): 313–20.

Bessire, Lucas, and David Bond. 2014. "Ontological anthropology and the deferral of critique." *American Ethnologist* 41 (3): 440–56.

Biocca, Frank, and Chad Harms. 2002. "Defining and measuring social presence: Contribution to the networked minds theory and measure," edited by F. R. Gouveia and F. Biocca, 7–36. Proceedings of the 5th International Workshop on Presence.

Biocca, Frank, Chad Harms, and Judee Burgoon. 2003. "Toward a more robust theory and measure of social presence: Review and suggested criteria." *Presence: Teleoperators and Virtual Environments* 12 (5): 456–80.

Bartesaghi, Mariaelena, and Theresa Castor. 2009. "Tracing our steps through communication social construction: Six propositions for how to go on." In *Socially constructing communication*, edited by Gloria Galanes and Wendy Leeds-Hurwitz, 225–43. Cresskill, NJ: Hampton Press.

Blanke, Olaf, Polona Pozeg, Masayuki Hara, Lukas Heydrich, Andrea Serino, Akio Yamamoto, Toshiro Higuchi, Roy Salomon, Margitta Seeck, Theodor Landis, Shahar Arzy, Bruno Herbelin, Hannes Bleuler, and Giulio Rognini. 2014. "Neurological and robot-controlled induction of an apparition." *Current Biology* 24 (22): 2681–686.

Braund, Michael. 2008. "The structures of perception: An ecological perspective." *Kritike: An Online Journal of Philosophy* 2 (1): 123–44.

Cassaniti, Julia, and Tanya M. Luhrmann. 2014. "The cultural kindling of spiritual experiences." *Current Anthropology* 55 (S10): S333–43.

Choi, Jaewon, Hong Joo Lee, and Yong Cheol Kim. 2011. "The influence of social presence on customer intention to reuse online recommender systems: The roles of personalization and product type." *International Journal of Electronic Commerce* 16 (1): 129–54.

Corwin, Anna I. 2012. "Changing God, changing bodies: The impact of new prayer practices on elderly Catholic nuns' embodied experience." *Ethos* 40 (4): 390–410.

Csordas, Thomas J. 1993. "Somatic modes of attention." *Cultural Anthropology* 8 (2): 135–56.

Engelke, Matthew. 2007. *A problem of presence*. Berkeley: University of California Press.

Evans-Pritchard, E. E. 1963. *Witchcraft, oracles and magic among the Azande*. Oxford: Oxford University Press.

Friston, Karl, and Stefan Kiebel. 2009. "Predictive coding under the free-energy principle." *Philosophical Transactions of the Royal Society B: Biological Sciences* 364 (1521): 1211–221.

Garau, Maia, Mel Slater, Vinoba Vinayagamoorthy, Andrea Brogni, Anthony Steed, and M. Angela Sasse. 2003. "The impact of avatar realism and eye gaze control on perceived quality of communication in a shared immersive virtual environment." Proceedings of the SIGCHI Conference on Human Factors in Computing Systems: 529–36.

Gibson, James J. 1966. *The senses considered as perceptual systems*. Boston: Houghton Mifflin.

———. 2002. "A theory of direct visual perception." In *Vision and mind: Selected readings in the philosophy of perception*, edited by Alva Noë and Evan Thompson, 77–90. Cambridge, MA: MIT Press.

———. 2014. *The ecological approach to visual perception*. New York. Psychology Press.

Good, Byron. 1994. *Medicine, rationality and experience: An anthropological perspective*. Cambridge: Cambridge University Press.

Graeber, David. 2015. "Radical alterity is just another way of saying 'reality': A reply to Eduardo Viveiros de Castro." *Hau: Journal of Ethnographic Theory* 5 (2): 1–41.

Heeter, Carrie. 1992. "Being there: The subjective experience of presence." *Presence: Teleoperators and Virtual Environments* 1 (2): 262–71.

Heidegger, Martin. (1927) 1962. *Being and time*. Translated by John Macquarrie and Edward Robinson. Oxford: Blackwell Publishing.

Hesslinger, Vera, and Claus-Christian Carbon. 2016. "#TheDress: The role of illumination information and individual differences in the psychophysics of perceiving white–blue ambiguities." *i-Perception* 7 (2): 2–10.

Heywood, Paolo. 2012. "Anthropology and what there is: Reflections on 'ontology.'" *Cambridge Anthropology* 30 (1): 143–51.

Holbraad, Martin. 2007. "The power of powder: Multiplicity and motion in the divinatory cosmology of Cuban Ifá (or mana, again)." In *Thinking through things: Theorizing artefacts ethnographically*, edited by Amira Henare, Martin Holbraad, and Sari Wastell, 189–225. London: Routledge.

———. 2008. "Definitive evidence, from Cuban gods." *Journal of the Royal Anthropological Institute* 14 (1): 93–109.

———. 2009. "Ontography and alterity: Defining anthropological truth." *Social Analysis* 53 (2): 80–93.

———. 2012a. "Truth beyond doubt: Ifá oracles in Havana." *Hau: Journal of Ethnographic Theory* 2 (1): 81–109.

———. 2012b. *Truth in motion: The recursive anthropology of Cuban divination*. Chicago: Chicago University Press.

Holbraad, Martin, and Morten Axel Pedersen. 2017. *The ontological turn*. Cambridge: Cambridge University Press.

Ingold, Tim. 2000. *The perception of the environment*. New York: Routledge.

Keane, Webb. 1997. "Religious language." *Annual Review of Anthropology* 26: 47–71.

Kockelman, Paul. 2013. "Information is the enclosure of meaning: Cybernetics, semiotics, and alternative theories of information." *Language and Communication* 33 (2): 115–27.

Kraepelin, Emil. 1921. "Manic depressive insanity and paranoia." *Journal of Nervous and Mental Disease* 53 (4): 350.

Laidlaw, James. 2012. "Ontologically challenged." *Anthropology of This Century* 4 (May). http://aotcpress.com/articles/ontologically-challenged/.

Lakoff, George, and Mark Johnson. 1980. *Metaphors we live by*. Chicago: University of Chicago Press.

LaMendola, Walter. 2010. "Social work and social presence in an online world." *Journal of Technology in Human Services* 28 (1–2): 108–19.

Lee, Kwan Min. 2004. "Presence, explicated." *Communication Theory* 14 (1): 27–50.

Lester, Rebecca J. 2005. *Jesus in our wombs: Embodying modernity in a Mexican convent*. Berkeley: University of California Press.

Levine, Joseph S., and Edward F. MacNichol. 1979. "Visual pigments in teleost fishes: Effects of habitat, microhabitat, and behavior on visual system evolution." *Sensory Processes* 3 (2): 95–131.

Levinson, Stephan. 2006. "Cognition at the heart of human interaction." *Discourse Studies* 8 (1): 85–93.

Lopez, Christophe, C. J. Falconer, Diane Deroualle, and F. W. Mast. 2015. "In the presence of others: Self-location, balance control and vestibular processing." *Neurophysiologie Clinique/Clinical Neurophysiology* 45 (4): 241–54.

Luhrmann, Tanya M. 2012. *When God talks back: Understanding the American Evangelical relationship with God*. New York: Random House.

———. 2018. "The real ontological challenge." *Hau: Journal of Ethnographic Theory* 8 (1–2): 79–82.

McLellan, Hilary. 1996. "Virtual realities." In *Handbook of research for educational communications and technology*, edited by David Jonassen, 457–87. New York: Macmillan.

Minsky, Marvin. 1980. "Telepresence." *Omni* 2: 45–51.

Mollon, John. 1992. "Worlds of difference." *Nature* 356 (6368): 378.

Noë, Alva. 2004. *Action in perception*. Cambridge, MA: MIT Press.

———. 2012. *Varieties of presence*. Cambridge, MA: Harvard University Press.

Nowak, Kristine L., and Frank Biocca. 2003. "The effect of the agency and anthropomorphism on users' sense of telepresence, copresence, and social presence in virtual environments." *Presence: Teleoperators and Virtual Environments* 12 (5): 481–94.

Ochs, Elinor. 2012. "Experiencing language." *Anthropological Theory* 12 (2) 142–60.

Oh, Soo Youn, Jeremy Bailenson, Nicole Krämer, and Benjamin Li. 2016. "Let the avatar brighten your smile: Effects of enhancing facial expressions in virtual environments." *PloS One* 11(9): e0161794.

O'Regan, J. Kevin, and Alva Noë. 2001. "A sensorimotor account of vision and visual consciousness." *Behavioral and Brain Sciences* 24 (5): 939–73.

Pedersen, Morten Axel. 2001. "Totemism, animism and North Asian indigenous ontologies." *Journal of the Royal Anthropological Institute* 7 (3): 411–27.

———. 2011. *Not quite shamans: Spirit worlds and political lives in northern Mongolia*. Ithaca, NY: Cornell University Press.

———. 2012. "Common nonsense: A review of certain recent reviews of the 'ontological turn.'" *Anthropology of this Century* 5 (October). http://aotcpress.com/articles/common_nonsense/.

Peirce, Charles S. 1991. *Peirce on signs: Writings on semiotic*. Chapel Hill: University of North Carolina Press Books.

Rajendran, Gnanathusharan. 2013. "Virtual environments and autism: A developmental psychopathological approach." *Journal of Computer Assisted Learning* 29 (4): 334–47.

Ratan, Rabindra. 2012. "Self-presence, explicated: Body, emotion, and identity." In *Handbook of research on technoself: Identity in a technological society*, edited by Rocchi Luppicini, 322–33. Hershey, PA: IGI Global.

Ratcliffe, Matthew. 2015. "How is perceptual experience possible? The phenomenology of presence and the nature of hallucination." In *Normativity in perception*, edited by Thiemo Breyer and Maxime Doyon, 91–113. London: Palgrave Macmillan.

Rheingold, Howard. 1991. *Virtual reality*. New York: Summit Books.

Saussure, Ferdinand de. 2007. "The object of linguistics." In *Theorizing communication readings across traditions*, edited by Robert Craig and Heidi Muller, 183–90. Thousand Oaks, CA: Sage.

Seth, Anil K., Keisuke Suzuki, and Hugo D. Critchley. 2012. "An interoceptive predictive coding model of conscious presence." *Frontiers in Psychology* 2: 395.

Sheridan, Thomas. B. 1995. "Teleoperation, telerobotics and telepresence: A progress report." *Control Engineering Practice* 3 (2): 205–14.

Short, John, Ederyn Williams, and Bruce Christie. 1976. *The social psychology of telecommunications*. London: John Wiley & Sons.

Slater, Mel, and Martin Usoh. 1993. "Representations systems, perceptual position, and presence in immersive virtual environments." *Presence: Teleoperators and Virtual Environments* 2 (3): 221–33.

Smith, Wilfred Cantwell. 1998. *Believing*. London: Oneworld Publications.

Steuer, Jonathan. 1992. "Defining virtual reality: Dimensions determining telepresence." *Journal of Communication* 42 (4): 73–93.

Taves, Ann. 2011. *Religious experience reconsidered: A building-block approach to the study of religion and other special things*. Princeton, NJ: Princeton University Press.

Taves, Ann, and Egil Asprem. 2017. "Experience as event: Event cognition and the study of (religious) experience." *Religion, Brain & Behavior* 7 (1): 43–62.

Thompson, Evan. 1995. "Colour vision, evolution, and perceptual content." *Synthese* 104 (1): 1–32.

———. 2006. "Neurophenomenology and contemplative experience." In *The Oxford handbook of science and religion*, edited by Philip Clayton and Zachary Simpson, 226–35. London: Oxford University Press.

Thompson, G., and Gonen Dori-Hacohen. 2012. "Framing selves in interactional practice." *Electronic Journal of Communication* 22 (3/4): 1–26.

Throop, C. Jason. 2014. "Moral moods." *Ethos* 42 (1): 65–83.

Tu, Chih-Hsiung. 2002. "The impacts of text-based CMC on online social presence." *Journal of Interactive Online Learning* 1 (2): 1–24.

Turkle, Sherry. 1997. "Multiple subjectivity and virtual community at the end of the Freudian century." *Sociological Inquiry* 67 (1): 72–84.

Wallace, Simon, Sarah Parsons, Alice Westbury, Katie White, Kathy White, and Anthony Bailey. 2010. "Sense of presence and atypical social judgments in immersive virtual environments: Responses of adolescents with autism spectrum disorders." *Autism* 14 (3): 199–213.

West, Harry G. 2005. *Kupilikula: Governance and the invisible realm in Mozambique*. Chicago: University of Chicago Press.

———. 2008. *Ethnographic sorcery*. Chicago: University of Chicago Press.

van Elk, Michiel, and André Aleman. 2016. "Brain mechanisms in religion and spirituality: An integrative predictive processing framework." *Neuroscience & Biobehavioral Reviews* 73: 359–78.

Varela, Francisco. 1996. "Neurophenomenology: A methodological remedy for the hard problem." *Journal of Consciousness Studies* 3 (4): 330–49.

Viveiros de Castro, Eduardo. 2003. "AND." Manchester Papers in Social Anthropology 7. https://sites.google.com/a/abaetenet.net/nansi/abaetextos/anthropology-and-science-e-viveiros-de-castro.

———. 2013. "The relative native." Translated by Julia Sauma and Martin Holbraad. *Hau: Journal of Ethnographic Theory* 3 (3): 473–502.

———. 2015. "Who's afraid of the ontological wolf: Some comments on an ongoing anthropological debate." *Cambridge Anthropology* 33 (1): 2–17.

A. I. Corwin is an Assistant Professor of Anthropology at Saint Mary's College of California. Author of several articles, Corwin's research as a linguistic and psychological anthropologist examines the intersections between linguistic practices and embodied experiences of aging, pain, and illness. Corwin's forthcoming book manuscript provides a critical ethnographic account of why American Catholic nuns age more "successfully" than their lay counterparts.

A. I. Corwin
Saint Mary's College of California
1928 St. Mary's Road
PMB 4613
Moraga, CA 94575
USA
aic3@stmarys-ca.edu

C. R. Erickson-Davis is an MD/PhD candidate at Stanford University. Their research is at the intersection of cultural anthropology, medicine, the neurosciences, and consciousness studies. They are currently working on an ethnography of a brain machine interface device.

C. R. Erickson-Davis
School of Medicine and Department of Anthropology
Stanford University
450 Serra Mall
Stanford CA 94305
USA
cred22@stanford.edu