How to power encultured minds

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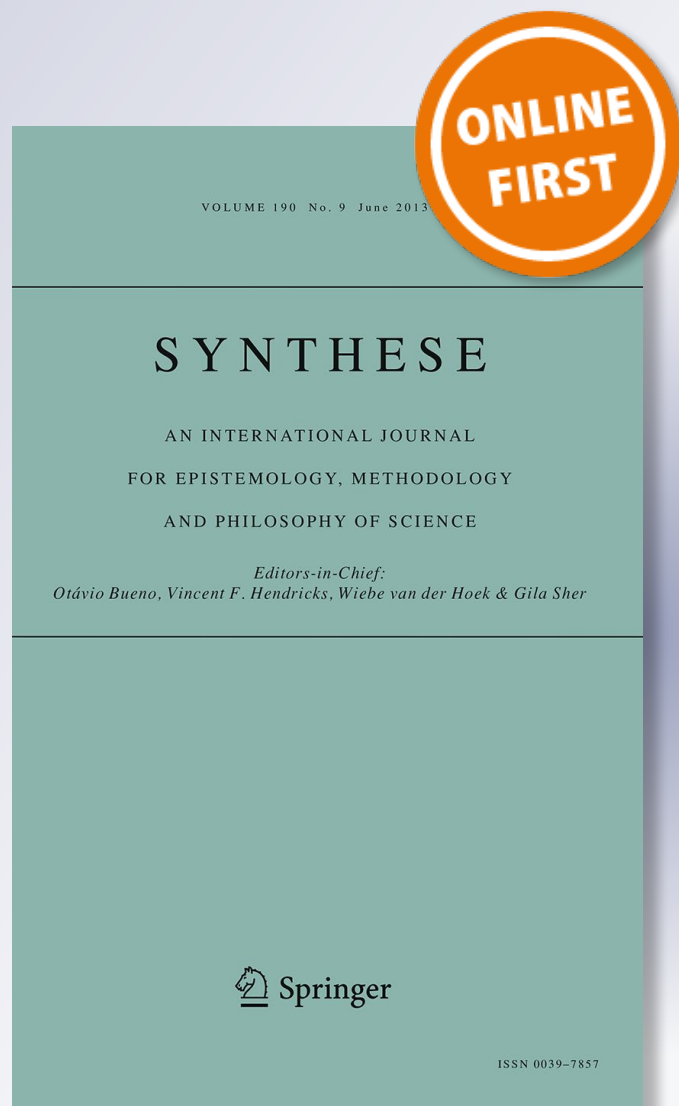
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Joseph Vukov[1] · Charles Lassiter[2]

Abstract
Cultural psychologists often describe the relationship between mind and culture as 'dynamic.' In light of this, we provide two desiderata that a theory about encultured minds ought to meet: the theory ought to reflect how cultural psychologists describe their own findings and it ought to be thoroughly naturalistic. We show that a realist theory of causal powers—which holds that powers are causally-efficacious and empirically-discoverable—fits the bill. After an introduction to the major concepts in cultural psychology and describing causal power realism, we use a case study—the effects of pathogen prevalence on culture and cognition—to show the explanatory capacities of the powers framework.

Keywords Causal powers · Cultural psychology · Encultured cognition

David Foster Wallace began a graduation address with this anecdote:

There are these two young fish swimming along, and they happen to meet an older fish swimming the other way, who nods at them and says, "Morning, boys. How's the water?" And the two young fish swim on for a bit, and then eventually one of them looks over at the other and goes, "What the hell is water ?"

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Culture is our water.[1] Everywhere and all the time we're swimming in a sea of values and norms.[2] We're born into the water and we'll die there too. It's inescapable.

Cultural psychologists are in the business of discovering how culture informs our mental lives, but how to go about situating their findings in a broadly naturalistic context isn't obvious. The issue is crucial. If the confluence of culture and mind is not situated in a naturalistic framework, we risk caricaturing them as immaterial forces, exerting influence from beyond the ken of scientific investigation. Sans a naturalistic framework, minds become disembodied Cartesian spirits. Cultures become immaterial Zeitgeists. Both become spooky.

Sperber has presented one influential and naturalistic framework which describes how culture and mind are mutually informing. He was an early leader in bringing tools like representations, computations, and massive modularity from the cognitive revolution to anthropology.[3] His view has a number of important nuances that separate him from competitors, of which there are many.[4] But those don't concern us here. We rather bring him into the discussion because we're interested in the way he uses an empirically- *and* philosophically-informed framework to describe the mutual influence of mind and culture. We are interested in the same kinds of things as Sperber: how mind and culture are mutually influencing and how culture is causally efficacious.[5] We, like Sperber, want a naturalistic and philosophically-informed account of mind-culture interactions. And so we bring Sperber into our discussion as a methodological foundation for the position we ultimately develop.

With this methodological influence noted, however, it is also important to note that the details and starting points of our projects are importantly different. Sperber's consists in using explanatory resources from cognitive psychology to explain why cultures evolve as they do. This is the "naturalistic approach" referred to in the title of his (1996): *Explaining Culture: A Naturalistic Approach*. When putting cognitive psychology in service of anthropology, Sperber has an ontology all ready to go: an

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[1] Kitayama (2002, p. 90) makes the same point: "What culture is to humans is what water is to fish."

[2] It's worth observing that American culture alone makes a separate room for a newborn baby (Burton and Whiting 1961). It's no coincidence that American culture is also hyper-individualistic (Henrich et al. 2010).

[3] For discussion of Sperber's influence on the development of cognitive anthropology (and cognitive science more broadly) see Boden (2004). Sperber's position is developed over many papers and books. But if interested parties were looking for a single source to learn about his views, they could do a lot worse than Sperber (1996). There, he cogently lays out a program for a naturalistic investigation of culture that depends on transmission of representations among individuals in a culture. Other papers flesh out details, like his defense of massive modularity (2001, 2005) and the role of cultural attractors in cultural evolution (Claidière et al. 2014; Claidière and Sperber 2007).

[4] The major competitors are Dawkins' memetics and Richerson and Boyd's culture-gene coevolution, though there are plenty of other accounts describing the dissemination of cultural attitudes, including those developed within the relatively recent area of network science (cf. Albert Barabási's open-source textbook at <http://networksciencebook.com/>) and recently applications of computer simulations to cultural psychology (cf. Kashima 2014). It's worth noting that Sperber, Dawkins, and Richerson and Boyd have much in common. All attempt to identify the mechanisms that make cultural evolution and transmission possible and all work within naturalistic frameworks. Where they differ is in an account of the mechanisms involved. The man himself has an informative and entertaining interview on this in *Edge*: <https://www.edge.org/conversation/dan_sperber-an-epidemiology-of-representations>.

[5] For Sperber, cultures are causally efficacious in the sense that cultural information enters into 'cultural causal cognitive chains' (Sperber 2006).

ontology of representations and computations. His project brings a philosophically-loaded cognitive psychology to explain phenomena in anthropology. Considered in this way, Sperber's account, we're happy to admit, is good for what it is and for what Sperber intends it to do—it provides a powerful framework for bringing the resources of cognitive psychology to bear on questions in anthropology.

But as we've said, our starting point is different than Sperber's.[6] Rather than starting from the evolution of cultures, we begin with the claims of cultural psychologists. Scholars in this field have already done the work of connecting a science of mind and a science of culture, but they've done it without a philosophical framework. More to the point, cultural psychologists lack the well-worked-out ontology that Sperber provides for cognitive anthropology.

Now, because of Sperber's influence in cognitive anthropology, and because of the similarities between our project and Sperber's, it may be tempting to recycle Sperber's ontology of computations and representations, putting it to use as an ontology for cultural psychology as well. In what follows, however, we suggest that this strategy would be short-sighted. The reason is that Sperber's account doesn't readily fit with how many practicing cultural psychologists describe mind-culture interactions. More details on these descriptions are to come, but here's a teaser. Heine, in his influential textbook on cultural psychology, writes,

> …thinking is not merely the operation of a universal CPU; thinking also involves interacting with the content that one is thinking about and participation in the context within which one is doing the thinking (2008, p. 25)

And while Heine calls out the universal CPU as a model of cognition, he might as well be referring to any view of cognition that isolates processes from content, including massively modular theories. An ontology of computations and representations does not mesh well with this description. If thinking isn't (or isn't merely) the operation of a universal CPU or modules for vision, language learning, or male sexual jealousy,[7] then thinking isn't about transforming mental representations. And so we are left with a choice: either force-fit cultural psychology into Sperber's ontology or find a new ontology.

In this paper, we opt for the latter, arguing that a realist metaphysics of causal powers fits much more readily with how cultural psychologists actually describe mind-culture interactions. To be clear: we're not arguing that our approach is better than Sperber's, or even that our approach is a direct rival of his.[8] As we've said, our projects have fundamentally different starting places, and we're happy to admit that Sperber's account provides a helpful framework for bringing the resources of cognitive psychology to bear on questions in anthropology. Rather, our aim is to present a framework that is compatible with the influences on psychology described by cultural psychologists. Sperber's model implies that any such influences must be computational, but this implication goes against the grain of how cultural psychologists talk. Our model, by contrast, is more ecumenical. It does not stipulate that all causal influences on the

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[6] Thanks to anonymous reviewers for pressing us to clarify this.

[7] Cf. Buss et al. (1992) and Harris (2003) for criticism.

[8] Even if we think it is.

mind are computational and thereby remains agnostic as to the extent to which the mind can be described in computational terms. Put differently: our model is pitched a greater degree of *abstractness* than Sperber's model. It is therefore immune to the outcome of debates being carried out in less abstract arenas—say, those debates between proponents of dynamic systems models and computational models.

It may be helpful to be more explicit about our purposes. In what follows, we aim to show that a cognitive ontology of causal powers is capable of satisfying two important desiderata for a metaphysics of encultured minds:

(A) The account reflects how cultural psychologists describe the interaction between mind and culture.
(B) The account allows us to describe culture and mind as 'natural' in a sense that is the same as other paradigmatically natural phenomena.

Sperber's account, by our lights, satisfies (B). It doesn't, however, satisfy (A). By contrast, we argue that a model of mind and culture based on a realist metaphysics of causal powers is capable of meeting both desiderata (A) and (B). Adopt realism about causal powers, and gain a naturalistic framework that reflects how cultural psychologists talk about minds and culture. In our dialectic with Sperber, then, we're *not* saying that an ontology of powers is superior to an ontology of representations.[9] Nor are we even saying that an ontology of powers directly rivals an ontology of representations. A causal powers framework, after all, is perfectly compatible with computationalism—it's just that the former, in being more abstract than the latter, leaves room for causal influences on the mind that cannot be described computationally. What we *are* saying is this. A powers-framework is better positioned than a representation-framework to take cultural psychologists at their word. Our interest is a philosophical one: given the success of cultural psychology, what naturalistic ontology fits best with the data and how the relevant scientists conceive of their own subject matter? Our answer, as we show in the paper, is: an ontology of causal powers.

1 From mind to culture and back again: a brief introduction to cultural psychology

Before we show how a metaphysics of causal powers provides a helpful framework, we first need to get clear on what's being framed. In this section, we describe the notions of mind and culture as they are understood in cultural psychology and survey a handful of major findings. Clearly, we cannot do justice to the whole of the field. Rather, we'll introduce just one way psychologists analyze cultures: the degree to which a culture's values trend towards individualism or collectivism.[10] The Cliffs Notes we provide will be plenty informative for our goals: to show that cultural information is located both

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[9] See note 8.

[10] These cultural-psychological categories have made appearances elsewhere in recent philosophy. Machery et al. (2004) draw on cultural differences to illustrate that causal-historical theories of reference aren't culturally universal. Sarkissian et al. (2010) show that people tend to believe in free will across the individualist-collectivist divide. Weinberg et al. (2001) show that epistemological intuitions (specifically, Gettier-related intuitions) vary across culture and socio-economic class.

in agents and in the world, and that minds and culture mutually influence one another. On to the first part of the story: culture.

1.1 Culture

Psychologists operationalize the concept of culture as information about shared values and norms that govern agents' behaviors (Heine 2008).[11] One simple example: Americans learn, "the squeaky wheel gets the grease." They're encouraged to blaze their own trail, like their ancestors rebelling against the British crown or heading out West. In contrast, the Japanese are taught, "the nail that stands out gets pounded down." Citizens are encouraged to put the needs of the group before their own and to conform to group norms. These bits of folk wisdom offer a glimpse into different cultural norms: Americans value uniqueness; Japanese value conformity.

Definitions of 'culture' are legion. Tomasello (1999) describes culture as an 'ontogenetic niche,' an environment that's inherited from past generations. Rosman and Rubel (1992) talk about culture as a 'way of life.' Turner (2001) offers a neurocentric conception as coherent and systematic biases in the brain's functional anatomy. Lande and Downey (2012) offer an ecumenical perspective; that the concept of culture should be defined relative to a field and in a way that pushes forward research in that field. (Keesing 1974 provides a helpful, if dated, view to some classic positions.) Adequate coverage of the culture concept would require more time and space than is available in this paper. Fortunately for us, we don't need to weigh in on this debate. Cultural psychologists conceptualize culture in terms of information, and we follow their lead.

Two well-researched categories about cultural values are *individualism* and *collectivism*.[12] In individualistic cultures, the individual is centralized and social structures tend to prioritize individuals' goals (Oyserman 2011). In collectivist cultures, the individual is subordinated to the group and social structures tend to prioritize the goals of the group. For example, batters in Japanese baseball use the sacrificial bunt to advance a runner on first base three times more frequently than their American counterparts. They give up chances to knock a ball out of the park for the good of the team (Whiting 2004).[13]

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[11] What is information? Cultural psychologists are agnostic on its nature (see Adriaans 2013 for an overview). It seems like they have the sort of thing in mind that Sperber (2006) does when he talks about 'content': "…a representation is whatever has meaning or content."

[12] It's useful to describe these as 'categories' but they're more like ends on a continuum. Cultures are more or less collectivist or individualist.

[13] One unfortunate vestige of early research on cultural psychology is that the individualism-collectivism split tends to track the geographical West/East split. This is unfortunate because cultural psychologists define culture in terms of *information* and not in terms of *geography*. There is, of course, an obvious relationship between the two: if culture is transmitted from agent to agent, then close physical proximity facilitates that. The examples we use in this paper tend to follow the East–West/collectivist–individualist mapping since we rely on well-accepted findings to make our case. Nonetheless, we do a disservice to the notion of 'culture' in thinking of it as geographically-bound.

Some common features of individualist and collectivist cultures (and their members) include[14]:

Individualist	Collectivist
Subordinating group goals to personal ones	Subordinating personal goals to group ones
Large in-groups (e.g. people who share similar attitudes towards a political issue)	Small in-groups (e.g. family)
Cultural values of uniqueness, self-reliance, and independence	Cultural values of conformity, obedience, and reliability
Freely chosen and voluntary relationships	Fixed relationships
Fluid in-group/out-group boundaries	Static in-group/out-group boundaries
Cognitive dispositions towards analysis, decontextualization, and finding difference	Cognitive dispositions towards holism, contextualizing, and finding similarity
Tendencies to differentiate seemingly disparate pieces of information to smaller units	Tendencies to reconcile seemingly disparate pieces of information into a larger picture

How do these cultural qualities propagate throughout a population? Cultural psychologists operationalize this question by looking at bearers of cultural information. Some bearers are *agent-external*, like popular books, magazines, Internet memes, religious texts, films, and sports commentary. Others are *agent-internal*: beliefs, desires, judgments, expectations, motivations, patterns of attention, and intentions.

Let's start with agent-internal bearers and the information they embody. One natural way to talk about them is to say that mental states and processes *mirror* cultural values.[15] Consider two examples. The first is Kim and Markus's (1999) study involving subjects waiting for flights at a lounge in a San Francisco airport. Participants were either of Asian descent and waiting for a flight to East Asia or of European-American descent and waiting for a flight to a non-Asian destination. They were asked to fill out a short questionnaire, and in return, the subjects would receive a free pen. The experimenters would pull out five pens that were a mix of red and green. The odd number ensured that one color was always in the majority. Roughly 75% of European-American participants selected the minority colored pen. A little more than 75% of Asian participants selected the majority color pen. (Red and green pens were each in the majority for roughly half of the trials.) Why would European-Americans prefer the minority color and Asians the majority color? The minority color was unique, an important norm in individualistic cultures. The majority color was unremarkable, reflecting the collectivistic value of conformity.

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[14] The literature on cultural and cognitive patterns associated with individualist and collectivist cultures is vast. Further, there are many differences among individualist and collectivist cultures. Individualism looks different when comparing American and British culture; and collectivism manifests itself differently when comparing Japanese and Latin American cultures. For an overview, see Triandis (1995), Kim et al. (1996) and Oyserman et al. (2002).

[15] Rowlands (2003, 2010) offers something of a Sartrean view in which consciousness is mirror-like. We don't mean anything like that here. Cultural psychologists will sometimes talk about "representing" cultural information internally, but that doesn't square with their rejection of the computational-representational framework. A charitable interpretation would be that minds represent information but without containing representations. But to avoid stacking the deck in favor of or against our proposed explanatory framework, we'll stick with the mirror-metaphor since it gets the empirical insights without the ontological baggage.

The second study comes from Peng and Nisbett (1999). They presented students in the US and in China with claims that are logically consistent but in tension with one another:

(a)   A health magazine survey found that people who live a long life eat some sort of white meat, e.g., fish or chicken.
(b)   A study by a health organization suggests that it is much healthier to be a strict vegetarian who does not eat meat at all.

American and Chinese students were assigned to one of three conditions: reacting to the plausibility of (a) alone, reacting to the plausibility of (b) alone, reacting to the plausibility (a) and (b) together. American and Chinese students tended to identify (a) as more plausible than (b) when each statement was presented on its own. When asked to judge the plausibility of each statement when presented together, American subjects ranked (a) as *more* plausible when presented alongside (b). That is, presenting divergent information had a polarizing effect. The plausible case seemed more plausible in the face of a potential defeater. Chinese subjects, on the other hand, ranked (a) as *less* plausible and (b) as *more* plausible when presented jointly. The opposite of a polarizing effect was found among the Chinese subjects. Peng and Nisbett concluded that cultural values of holism and finding commonalities motivated the Chinese students to downgrade the plausibility of (a) and upgrade the plausibility of (b); cultural values of analysis and finding differences motivated American students to upgrade the plausibility of (a) in the presence of (b).

These findings suggest that cultural information is internalized by agents and comes out in desires and judgments. The choice for the minority-colored pen in the Kim and Markus study is consistent with Western cultural attitudes of individualism: the minority pen is unique and hence desirable. The choice for the majority-colored pen by Asians manifests the cultural value of conformity: the majority pen is more clearly part of a larger unit and hence desirable. In the Peng and Nisbett study, Americans manifested an analytic cognitive style and Chinese participants manifested a more holistic cognitive style. Their respective tendencies reflect cultural cognitive values: individualists trend towards finding differences among sets of objects and collectivists trend towards finding similarities.

We said above that bearers of cultural information are both internal and external to agents. Now that we have seen cases of agent-internal bearers, we turn to agent-external examples.

Cultural values are manifested in cultural products: public representations that are available to cultural consumers. The idea is that cultural values are transmitted by artifacts as much as by agents. Examples includes popular songs, bestselling books, children's books, newscasts, sports reports, movies, television shows, and advertisements.

Here's one study of values embodied in cultural products. Tsai et al. (2007a) examined representations of emotions in American and Taiwanese children's books. They hypothesized that cultural values about emotions are mirrored in them: collectivist cultures would portray subdued emotional expressions and individualist cultures would portray exuberant emotional expressions. Why? Individualistic cultures promote asserting personal needs and working to change the behaviors of others to fit

those needs. Influencing others requires immediate action, which involves assertiveness. So in individualistic cultures, you would expect emotional expressions to display greater exuberance and intensity: if assertiveness is a cultural value, then expressions of emotions will be exuberant as opposed to subdued. Collectivist cultures, by contrast, promote waiting for others to express their needs before one's own needs are expressed. Waiting for others involves suspending action, requiring restraint. So emotional expressions in collectivist cultures should be more subdued and restrained. The question for researchers is: do children's books of individualistic cultures tend to portray exuberant emotions and activities (*mutatis mutandis* for collectivistic cultures and subdued emotions and activities)?

The answer is clear: yes. First, researchers coded the facial expressions of faces in the twenty best-selling Taiwanese and American children's books.[16] They found that American children's books had more excited (vs. calm) expressions and Taiwanese books had more calm (vs. excited) expressions, even though the total number of smiles in each book were roughly the same. Second, researchers identified frequency of activities of various intensity levels: standing is low intensity, walking is moderate intensity, running is high intensity. American children's books had more occurrences of high intensity activities than Taiwanese children's books, which found characters more often engaged in low or moderate intensity activities.[17]

The takeaway? Cultural information is embodied in cultural products. Researchers have carried out similar analysis of other cultural artifacts with similar results, including:

- religious texts (Tsai et al. 2007b),
- baby names (Twenge et al. 2010),
- popular books (Twenge et al. 2012),
- advertisements (Al-Olayan and Karande 2000; Belk and Bryce 1986; An and Kim 2007),
- university websites (Callahan, 2005),
- commercials aimed at children (Ji and McNeal 2001), and
- physical environments (Miyamoto et al. 2006).

Now that we have discussed how cultural psychologists talk about *culture*, we'll turn to how they talk about *mind*. The empirical and conceptual literatures here are enormous and fraught with nuance, but we will let the psychologists speak for themselves and glean a few take-home lessons.

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[16] The coding system used was developed, in part, by Ekman and Friesen (1978): the Facial Action Coding System. The system involves relativizing the facial features to the dimensions of the face. So an excited smile (for example) will have greater width and depth relative to that face than a calm smile. The resulting ratios of smile-size to face-size provide a basis of comparison for faces of different sizes and shapes.

[17] Even though the information is present, one might wonder, do the children pick up on it? The answer is "yes." Taiwanese children preferred images of children with calm smiles and European-American children preferred images with big smiles. Also, both sets of children were presented with stories in which the characters engaged in calm activities (e.g. floating on an inner tube) or rambunctious activities (e.g. splashing in the water). Taiwanese children preferred calm-activity stories and European-American children preferred the rambunctious-activity stories.

1.2 Mind

There is a much diversity in how cultural psychologists talk about mind. More often than not, cultural psychologists will talk about the 'self,' 'mental processes,' 'cognitive schema,' or 'mindsets.' Even so, there are a few common threads. Witness, for example, Markus and Kitayama's discussion of the self:

> A self is the "me" at the center of experience — a continually developing sense of awareness and agency that guides action and takes shape as the individual, both brain and body, becomes attuned to the various environments it inhabits. Selves are thus psychological realities that are both biologically…and socio-culturally…rooted. … They are simultaneously schemas of past behavior and patterns for current and future behavior (2010, p. 421).

One of the pioneering voices of cultural psychology, Schweder, describes persons and psyches in this way:

> [Cultural psychology's] central theme is that you cannot take the stuff out of the psyche and you cannot take the psyche out of the stuff. … [T]hinking is fundamentally interdependent with the traditional intellectual artifacts, representational schemes, and accumulated knowledge of some cultural or subcultural community … Every person is stimulus bound, and every stimulus is person bound. That is what it means for culture and psyche to make each other up (Shweder 1991, pp. 97–99)

Finally, in his influential textbook on cultural psychology, Heine writes:

> … in many ways, the mind does *not* operate independently of what it is thinking about. According to this view, thinking is not merely the operation of a universal CPU; thinking also involves interacting with the content that one is thinking about and participation in the context within which one is doing the thinking. …[T]o fully understand the mind, it is important to consider, say, whether one is thinking about food, weapons, sexual partners, or sacred rituals. … As humans are cultural beings, their actions, thoughts, and feelings, are immersed in cultural information, and this information renders these actions, thoughts, and feelings to be *meaningful*. … Because human thought is sustained by the meaning that people pursue, any efforts to bleach out this meaning to more clearly reveal the underlying CPU would only distort and misrepresent what the mind actually is. Humans are so embedded in their cultural worlds that they are always behaving as cultural actors, and their thoughts are always sustained by the meanings that are derived from their cultures. … [O]ur thoughts are forever bound up in our own cultural meaning systems (2008, pp. 25–26).

What do we take away from these snippets? First the obvious: these conceptions of mind are all functionalist in the way of James and Dewey (but not Lewis 1966 or Putnam 1975[18]), who are sometimes called 'American naturalists' (cf. Chemero 2009). The American naturalists believed that looking at mind piecemeal, outside

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[18] Though they'd be ok with late-1980s-and-beyond-Putnam.

the whole of the organism's mental life, behavior, and environment, misunderstands mind. What we begin with, for the American naturalist, is the acting organism in its environment: we are always and already organisms shaping and being shaped by our environments.[19] Cultural psychologists, much like the American naturalists, look at cognizing agents as they are situated in environments and living complicated lives.

Now the less obvious. Three lessons jump out: two positive and one negative. The first positive lesson is that human beings are essentially cultural organisms. Only slightly exaggerating: there is no human cognition as we know it without culture. The second positive lesson is that mind is dynamic: mind and culture continually inform one another. We will have more to say about this below in §1.3. Finally, the negative lesson is that the standard explanatory tools of computationalism and representationalism in cognitive science are not obviously built for capturing important cultural-psychological phenomena.[20] Here's a sketch of the motivating reasons.

The information that is processed affects how the agent processes it: if the subject's task provokes a collectivist mindset (or if primed to think collectivistically), then the subject goes at the task with that mindset, no matter whether they are from a collectivist or individualist culture. For example Kühnen et al. (2001) used independence primes ("think of how you are different from your family and friends") and interdependence primes ("think of how you are similar to your family and friends") on German students. Those who received the independence primes tended to do better on perceptual tasks that require identifying a single object that stands out from the picture. And those who received the interdependence primes tended to do better on perceptual tasks that require identifying how objects are spatially related to one another. But German culture trends towards independence rather than interdependence. Even so, researchers were able to get the individualistic students to perceive a scene seen like collectivists do.

The difference was in the incoming information: asking students to focus on differences activated an independence self-construal. Focusing on similarities activated an interdependence self-construal. Cultural psychologists conclude that it's not just the internal processing that's important: the cultural character of the incoming information is equally important. Both groups of German students were asked to think about their family and friends. Focusing on similarities, a norm of collectivistic cultures, is what brought about thinking of themselves as a member of a larger group; focusing on differences, a norm of individualistic cultures, brought about thinking of themselves as individuals. Cultural stimuli aren't cognitively innocent.

Many cultural psychologists take this to be evidence against the computational view of thought: a computational view would not predict different kinds of processes for

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[19] See, for example, Dewey (1896). Another important connection to make in this regard is between ecological psychology and cultural psychology. Ecological psychologists posit affordances (i.e. opportunities for action in an organism's environment) as a key theoretical entity. Cultural psychologists likewise talk about socio-cultural affordances: e.g. Costall (1995), Reitveld and Kiverstein (2014). Ecological psychologists also trace their intellectual lineage to the American naturalists, cf. Heft 2001. So cultural psychologists borrow conceptual resources from ecological psychologists, who often cite American naturalists as their intellectual parents.

[20] Oyserman's position is an important exception. She argues that culturally-influenced cognition is a kind of situated cognition. She discusses 'cultural mindsets' in terms of representations and schema (e.g. Oyserman 2011, p. 165). Even so, Oyserman is keen to note the back-and-forth causal influence of mind and culture.

different kinds of contents since computational processes are triggered by structures and not contents.[21] By analogy: different data structures (e.g. a string of characters vs. a variable) might be handled differently in a program. Operations that can be performed on one might not be performable on another. But the same data structures carrying different information are not treated differently: a list of numbers and a list of names are both lists, and whatever processes can be done on one can be done on the other.

Importantly, we are *not* siding with the cultural psychologists on this philosophical point. We rather remain agnostic on the implications of cultural psychology on computational accounts of mind. It may turn out that sophisticated computational accounts can model the ways cultural psychologists describe the relationship between mind and culture. Indeed, we are open to the empirical discovery that much of the mutual influence of culture and human behavior is in fact mediated by representations and computational processes.[22]

Rather, we are making a point about how cultural psychologists see their own work. And as we've seen, many cultural psychologists resist computer metaphors about mind. Moreover, as we discuss below, many are more at home with dynamic descriptions of mind and culture. It would therefore seem we are faced with a choice: either opt for a computational model, stretching the framework (perhaps to the point of distortion) to accommodate the ways cultural psychologists talk, or find a more ecumenical approach.

1.3 Dynamic minds and culture

The claim that minds and culture are dynamically related amounts to two observations: minds are organized and function in accordance with cultural influences, and cultures are shaped by how minds function. Mind and culture constantly shape one another; how one of them is working depends on what the other is doing.[23]

We have already seen a number of cases in which culture affects mental processing. But let's survey a few more cases from two major cognitive domains:

Perception:

- Subjects who are reared in buildings with "carpentered corners" perceive the lines in the Müller-Lyer illusion as unequal; subjects reared in buildings without carpentered corners perceive the lines as equal (Henrich 2008)
- Japanese subjects attend to background objects in a visual scene more than American subjects (Masuda et al. 2008)
- Chinese students' eyes saccade more than American students' eyes (Chua et al. 2005)

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[21] The computationalist response here is (to paraphrase Haugeland 1985): take care of the syntax and the semantics will take care of themselves. As long as the contents of the incoming information are in some way reflected in the syntax of the tokened representations, then the computationalist avoids the cultural psychologist's worry.

[22] Thanks to an anonymous reviewer for bringing this to our attention.

[23] We want to stress that Sperber (2006) believes this too. But the mechanisms he invokes for providing a naturalistic explanation are taken from computational strains in cognitive science, which as we saw puts Sperber in tension with most cultural psychologists.

- Farmers living in societies where they have to coordinate their actions with others are especially good at tasks that require viewing objects in relation to other objects; hunters and gatherers (who do not have to coordinate as the farmers do) are good at visual tasks that require viewing objects independently of their relations to other objects (Witkin and Berry, 1975).

Thinking about others

- People in individualistic cultures tend to explain others' behaviors by appeal to others' dispositions; people in collectivist cultures tend to explain others' behaviors by appeal to others' situations. (Shweder 1991)
- Indians often describe others by appeal to concrete behaviors, and not by abstract traits or situational forces (Shweder and Bourne 1982)
- One task which gets at an implicit measure of self-importance is to ask participants to draw their social network with circles representing each member in the network. The size of the subject's circle relative to the other members indicates the degree of self-inflation. Americans draw themselves about 6 mm bigger, Europeans about 3.5 mm bigger, and Japanese slightly smaller (Kitayama et al. 2009)

But what about the other direction, that mind shapes culture? There is one sense in which the answer is perfectly obvious: political cartoons, Internet memes, films, popular music, and sports commentary are created and produced by people, and these artifacts in turn shape cultural attitudes. In a less obvious sense, cognitive limits make some ideas "stickier" than others. Cognitive scientists, for example, describe religious ideas as "minimally counterintuitive:" the ideas violate expectations (e.g. a burning bush, virgin birth) but not so much as to be completely outlandish. In one study, Atran and Norenzayan (2004) gave subjects sets of statements that varied in their intuitiveness: some were very intuitive (e.g. a chanting man), some minimally counterintuitive (e.g. a melting grandfather), and some maximally counterintuitive (e.g. a squinting wilting brick). Some sets had only intuitive, some mostly intuitive with a few minimally counterintuitive, and some mostly intuitive with a few maximally counterintuitive sentences. Participants during the experiment had greatest recall of the sets of only intuitive sentences and worst recall of the sets with maximally counterintuitive sentences, with minimally counterintuitive falling in between. A week later, subjects were asked to recall what they remembered. The sets of sentences for which there was the greatest recall were those sets with mostly intuitive elements and a few minimally counterintuitive ones. Why are stories with a few minimally counterintuitive elements remembered? The intuitive elements of the story fit with our experiences of the world and the few counterintuitive elements stick out against the background of the intuitive ones, making them memorable. (Atran and Norenzayan point out that the Hebrew and Christian scriptures are full of mundane tasks with some extraordinary events sprinkled in.)

This example highlights one way in which mind shapes culture. Constraints on memory shape the ideas that stay in circulation within a culture.[24] In fact, one on-

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[24] Sperber uses findings like these to bolster his case for massive modularity and against a 'blank slate' view of mind that he finds in Dawkins. See Sperber (2011).

going area of research for cultural psychologists is identifying cognitive constraints that shape the kinds of information that stay in circulation within a culture.[25]

One final point before concluding this brief overview of cultural psychology. Chisholm (2009) has a useful way to think about the mutual influence of culture and cognition: each "inclines without necessitating." People have a natural tendency to think in collectivist or individualist ways but culture alone doesn't determine how people cognize. It's a conglomeration of personal histories, cultures, and the demands of the task. It would be a mistake to think that culture is cognitive destiny.

1.4 Slightly refining the desiderata

Now that we've concluded our brief overview of cultural psychology, we'll slightly refine the first of our desiderata. Recall how we formulated them above:

(A) The account reflects how cultural psychologists describe the interaction between mind and culture.
(B) The account allows us to describe culture and mind as 'natural' in a sense that is the same as other paradigmatically natural phenomena.

Cultural psychologists describe mind and culture as co-constitutive and their interactions as dynamic. So we'll refine (A) to capture this:

(A*) The account expresses the dynamic causal relations between mind and culture.

Keep (A*) and (B) in mind. We'll return to them in §4 after discussing a framework that, we'll suggest, satisfies both.

2 Causal power realism

It's our contention that a certain theory of causal powers—what we'll call causal power realism—provides a naturalistic framework for recent work in cultural psychology, a framework that satisfies the desiderata we've identified by accommodating the perspective of cultural psychologists more readily than Sperber's computational framework. In this section, we introduce and describe causal power realism. We don't defend it. That's been done elsewhere.[26] Rather, we focus on those aspects of causal power realism that are relevant to our purposes, and show how causal power realists can offer a naturalistic account of the causal processes into which individuals enter.

Consider, then, what we take to be the definitive claim of causal power realism:

1. Some causal powers are not reducible to the counterfactuals that describe them.

Take salt's power to dissolve in water: its solubility. Some claim that this power, and causal powers generally, are reducible to "suitably glossed and qualified conditional statements about events involving the object" (Martin 1994, p. 2; see, e.g., Ryle 1949;

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[25] Norenzayan and Heine (2005) sketches a framework for this research.

[26] See footnote 27.

Goodman 1954; Quine 1960; Prior 1985; Lewis 1997; Malzkorn 2000; Mellor 2000; Fara 2005; Manley and Wasserman 2008). For example, proponents of this position may claim that salt's solubility can be reduced to the counterfactual: "if one were to place the salt in water, then the salt would dissolve." On reflection, this particular counterfactual is too simple. Salt does not always dissolve when placed in water (say, if the water is very cold). Generally, simple counterfactuals often fail to capture the complexity of something's causal powers. Still, many have argued that powers are reducible to counterfactuals, as long as the counterfactuals have been 'suitably glossed and qualified.'

Causal power realists, by contrast, reject this claim. In embracing (1), they affirm that some causal powers are not reducible to even complex counterfactuals. Causal power realists advance various reasons for embracing (1), and defend various brands of causal power realism.[27] We won't get into those versions here, or the reasons causal power realists advance in support of their position. Rather, we take (1) on board as part of our working metaphysical outlook.

It will, however, prove important to fill out our account of causal power realism beyond what is captured by (1). So consider five claims that extend the view:

2. Powers are empirically-discoverable.
3. The manifestation of every power is itself empowering,
4. All powers have lineages.
5. Powers are manifested in conjunction with manifestation partners.
6. Causes can be understood as both the current manifestation of powers and the lineages of those manifestations.

To be clear: we're not arguing that causal powers realists *must* adopt these further claims. Only (1) is definitive of causal power realism, and some causal power realists may reject the claims presented in (2–6). Still, we feel these additional claims provide one reasonable extension of the position staked out in (1). In what follows, we therefore refer to conjunction of (1–6) as 'causal power realism,' even while we recognize that some who accept (1) may reject the additional claims.

Let's turn to consider (2) more carefully. According to (2), powers are empirically-discoverable. To see why causal powers realists have reason to accept (2), notice that something's causal powers are features of individuals that do causal work. Causal powers are features "that make causal interactions among individuals possible" (Jaworski 2016, p. 29). But how do we discover these features? Empirically. Indeed, the sciences ostensibly provide our best resource for determining which causal powers individuals have. For example, chemistry and physics provide our best resource for determining the causal powers of sodium ions; biology provides the best resource for determining the causal powers of organisms; empirical psychology provides the best resource for determining the causal powers of minds; and so on. According to causal power real-

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[27] Based on the way we have defined causal power realism, the position is widespread. In fact, the positions defended in all of the following would count as causal power realism: Prior et al. (1982), Armstrong (1983, 1996a, b, c, 1997, 2004, 2005, 2010), Lewis (1986), Martin (1996, 1997, 2007), Martin and Heil (1998, 1999), Ellis (2001, 2002), Molnar (2003), Heil (2003, Heil 2005), Mumford (2004), Psillos (2006), Bird (2007), Marmodoro (2009), Jacobs (2011) and Jaworski (2016). Those familiar with this literature will recognize that the positions defended in this list differ from each other significantly. Still, all are united in rejecting the idea that powers are reducible to counterfactuals.

ists, powers are not veiled from scientific inquiry. Much the opposite. It is precisely through scientific inquiry that we discover which causal powers there are and which individuals have them.

Move on to claim (3): the manifestation of every power is itself empowering. Consider an ignited match. According to causal powers realists, when a match ignites, it manifests one of the powers it has—its flammability. The manifestation of this power, however, is also a power itself. An ignited match is empowered to ignite firewood in a way an unignited match is not. Likewise, ignited firewood is empowered to toast marshmallows in a way unignited firewood isn't. Generally, causal power realists claim that every manifestation of a power is itself empowering (see Jaworski 2016, p. 54).

There is a crucial idea nearby. Individuals acquire their causal powers through a temporal series of manifestations. This is what claim (4) is getting at: causal powers always have a lineage. Take the powers of salt. Salt has the causal powers it has (the power to deice roads, to dissolve in water, and so on) because of the way a certain quantity of sodium and chlorine ions manifested the powers they had to bond with each other. And these ions, in turn, were empowered to bond with each other because of the way in which the electrons, protons, and neutrons that composed them manifested the powers they had. Generally, and however the empirical story turns out, causal power realists claim that the powers an individual has can be traced to previous manifestations of other powers. This story becomes more complicated when we turn from the powers of salt to the powers of complex individuals such as organisms (more on that below). But the lesson remains the same: all powers have a lineage.

Turn next to claim (5): powers are manifested in certain conditions, and in conjunction with what we'll call manifestation partners.[28] Consider salt's power of solubility. Salt does not manifest this power on its own. Rather, it manifests the power just in case it is conjoined with water's power to dissolve it. The water's conditions, moreover, affect whether and how salt manifests its powers. Salt fails to dissolve in water if the water is hyper-salinated. Likewise, salt dissolves more quickly in water that is boiling than in water that is room temperature. Generally, "if you vary an object's circumstances, you may affect the way an object's powers are manifested" (Heil 2003, p. 93). Why? "[B]ecause the manifestation of a power can be affected, often dramatically, by the presence or absence of other powers" (Heil 2003, p. 93).

One upshot of this stance is that any token manifestation must ultimately be described as the result of a complex combination of causal powers. Indeed, every manifestation involves the contribution of proximal as well as distal causal powers. Salt's dissolving in water is no exception. As we've noted, the rate at which salt dissolves may be affected by the salinity of the water and the water's temperature. It may also be affected, however, by more distal causal powers, as revealed by empirical sources. For example, it may be affected (however slightly) by the water's distance from the sun, by gravitational forces exerted by the moon, and so on. For the causal power realist, every manifestation is thus the end result of a massive number of causal influences. Why is the causal power realist committed to this? It is because the conditions in which partners are conjoined also affect the way in which they are manifested, the causal story is never quite as simple as the conjunction of a handful of proximal

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[28] Martin (2007, Chapter 3) calls them "reciprocal disposition partners."

partners. Rather, for the causal power realist, every manifestation is the end result of a stew of causal powers, not merely the most proximal causal contributors.[29]

That's not to say that every causal power will play an equally important role in our description or understanding of a token manifestation. The reason has to do with the interests we bring to these descriptions. We won't, after all, typically be interested in how remote causal powers contribute to token manifestations. For example, when studying a token instance of salt dissolving in water, we won't typically be interested in how distal causal powers (such as the gravitational forces exerted by the moon) contribute to the manifestation. Rather, we'll be interested in studying the contributions of more proximal causal powers—most obviously, the powers of salt and water. Still, while we may *typically* be interested in the causal contributions of the most proximal causal powers, there will inevitably be circumstances in which our interests direct us to study the contributions of more distal causal powers as well. Take the distance of a quantity of water from sea level. Typically, we won't be particularly interested in how this contributes to the water boiling, but that changes as soon as we try to make pasta in Denver. To return to the causal stew metaphor: while we may typically be interested in a stew's main ingredients, as soon as we become interested in understanding a particular stew's subtle flavors, this may lead us to become interested in studying the minor ingredients as well.

Because causal power realists understand the manifestation of powers in this way, they also claim that we can understand causal processes as manifestations of powers. For suppose mixing salt and water in conditions C causes the salt to dissolve. According to causal powers realists, we need not understand this causal process merely as a series of events, one in which one event type (salt being mixed in water) causes another event type (salt dissolving in the water). We can also understand the process in reference to the powers the salt and water have, and to the empirically-discoverable conditions in which they manifest these powers. When salt dissolves in water, causal power realists can begin to describe this process as salt manifesting its power to dissolve in water in conjunction with water manifesting its power to dissolve salt. As we've seen, the story gets complicated from there. Empirical sources may reveal all kinds of influences in any seemingly simple manifestation. The overall framework, however, remains elegantly simple—for the causal powers realist, causal processes are not mere series of events, but are also manifestations of powers.

Because of their other commitments, causal powers realists are also committed to a kind of causal pluralism. Consider the manifestation of my power to ride a bike. There is one sense according to which my bike riding is caused by my legs manifesting their power to push the pedals, my leg muscles manifesting their powers to retract and expand, my motor neurons manifesting their powers to fire in certain ways, and so on. But as we've seen, causal powers realists claim all powers have a lineage. And so there is an important sense in which my bike riding is not only caused by the current manifestations of my powers, but is also caused by the ways in which I have manifested powers in the past. I manifest my power to ride a bike now only because I previously manifested my power to learn how to ride a bike, and I manifested this power only

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[29] Mumford and Anjum ([2010](#)) model the causal stew by means of vectors. For a causal power C, there are some powers that promote C's manifestation and others that inhibit. When there are sufficiently many promoters—and sufficiently few inhibitors—for C, then it manifests its effects.

because I previously manifested the power to coordinate my leg movements, and so on. Because causal powers realists understand causal processes in terms of the manifestation of powers, there is therefore a sense in which my bike riding is caused not only by my current bodily processes (and other more distal powers), but also by past manifestations of my powers. Moreover, when this case is generalized, we arrive at the final claim that composes causal powers realism. According to (6), causes can be understood as both the current manifestation of powers and the lineages of those manifestations. For the causal powers realist, we've seen, any token manifestation is the product of a stew of causal powers. Claim (6) brings out the fact that this stew has not only a synchronic dimension, but a diachronic dimension as well.

We could say more about causal power realism. But this will do for our purposes. What is important to notice is that realism about causal powers provides an empirically-friendly framework for talking about the causal processes into which individuals enter. For those who accept claims (1–6), powers are not metaphysically mysterious. Powers are rather empirically-discoverable features individuals have. Causal processes, moreover, can be understood in reference to the manifestation of these powers and the conditions individuals are in. Adopting causal power realism means gaining a naturalistic framework for empirical investigation generally.

3 Empowering cultural psychology

Above, we introduced several ways cultures and minds influence each other. It is our contention that causal power realism provides a naturalistic framework for describing this influence. It won't be necessary to work through all the findings we've discussed. Rather, we'll use data from the individualist/collectivist explanatory scheme as a test case to guide our discussion. Our reasons for choosing this case are simple. The individualist/collectivist scheme has been foundational to how cultural psychologists describe culture and its influence on individual minds and behavior (see, for example, Triandis 1995; Hofstede 2001). Indeed, Heine (2008) claims that the degree to which a culture is collectivist or individualist "may ultimately prove to be the most important dimension for capturing cultural variation" (Heine 2008, p. 189). By choosing this test case, we thus hope to suggest how causal power realism may provide a similar framework for other findings.

Consider, then, one important finding that we believe is surprising and that demonstrates the explanatory capacities of causal power realism. Fincher et al. (2008) find that pathogen prevalence correlates with a culture's degree of individualism or collectivism (and, correspondingly, the cognitive powers of the culture's members).[30] The greater the prevalence of deadly pathogens—including typhus, leprosy, malaria, and tuberculosis—the more collectivistic the culture. Lower pathogen prevalence means weaker collectivistic (and more individualistic) tendencies.

But what does pathogen prevalence have to do with individualistic and collectivist cultures? Collectivist cultures, as we said before, tend to be tight-knit with clearly-defined boundaries between ingroup and outgroup members. They also tend to enforce

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[30] Pearson's r = -0.69, $p < 0.001$.

conformity over deviance. These behaviors and attitudes, according to Fincher et al. are advantageous in places where pathogens abound. Xenophobic attitudes help reduce the likelihood of an outsider bringing in a devastating disease. Additionally, conformity to tradition and rituals—such as those around food preparation—can reduce the likelihood of exposure to deadly pathogens. What Fincher et al. findings ultimately suggest is that pathogen prevalence is one factor in the emergence and maintenance of cultural values, that values associated with collectivism emerge and are maintained in pathogen-heavy environments (and *mutatis mutandis* for individualism and pathogen-light environments). When this result is paired with our discussion in §2—the upshot of which is that cultural values shape beliefs, judgments, and desires—the surprising conclusion is thus that pathogen prevalence is causally related to our mental lives. Philosophers have been keen to distinguish proximal and distal causes for mental events (e.g. Dretske 1988); but it's remarkable that the prevalence of typhoid or malaria bears on displays of disgust, extroversion and avoidance behaviors, and discrimination against others (Schaller and Park 2011).

The data suggest that pathogens, among other forces, shape cognition in non-obvious ways.[31] But what isn't immediately clear is how to describe this influence in a way that squares with the way we describe other natural processes. In what way is the influence of leprosy on discriminatory judgments *as natural* as the influence of salt and water on each other?[32] This is the sort of question we've suggested that causal power realism is especially good at answering. So consider again the six claims that compose the framework:

1. Some causal powers are not reducible to the counterfactuals that describe them.
2. Powers are empirically-discoverable.
3. The manifestation of every power is itself empowering,
4. All powers have lineages.
5. Powers are manifested in conjunction with manifestation partners.
6. Causes can be understood as both the current manifestation of powers and the lineages of those manifestations.

Keeping (1–6) in mind, we can consider how the claims map onto a concrete case of cognition grounded in the findings of Fincher et al.

Imagine then a member of a collectivist culture—we'll call him 'Oran'—in an area with high prevalence of pathogens.[33] Oran sees someone he doesn't recognize in the distance and forms the belief that the stranger is unwelcome—a characteristic act for someone in that sort of environment. In the parlance of causal power realism, he manifests a power to token beliefs of this type. Oran's power of belief-formation, as (2) implies, is not empirically inaccessible. Rather, according to causal power realists, if we want to identify and understand Oran's various cognitive powers, we ought to

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[31] Fincher, et al also discuss the effect of *per capita* GDP as a force shaping degree of individualism and, by extension, cognition. We address this in greater detail below.

[32] Work on implicit racial biases has amply illustrated how social structures inform discriminatory judgments (e.g. Gendler 2011; Anderson 2010). But as far as we know, philosophers have yet to consider how the prevalence of disease can do the same.

[33] The careful reader will notice that Oran is the name in the town in Camus' *The Plague*. A fitting name for someone in an area with high prevalence of pathogens.

look precisely to the sciences. Moreover, the sciences provide the best resource for determining the *conditions* in which Oran's cognitive powers are manifested. As (5) says, powers are manifested in conjunction with manifestation partners, and these partners, being powers themselves, are best characterized by empirical sources. We don't need to look to science, however, to identify one proximal manifestation partner for Oran's power to form beliefs about strangers. It is the stranger's visibility, her power to be perceived. Just as salt dissolves in the presence of water, Oran (in this case) forms his discriminatory belief in the presence of the stranger. Oran is empowered to token beliefs of a xenophobic type about strangers, and manifests this power in conjunction with seeing her.

Of course, the story quickly gets more complicated: just as a token instance of salt dissolving in water is the end result of a stew of causal powers, so too Oran's belief formation cannot be accounted for exhaustively by Oran and the stranger. Any token instance of salt dissolving in water is affected by everything from the water's distance from the sun to the moon's gravitational forces, and Oran's belief formation may likewise be affected by everything from the time of year to what Oran had for breakfast. While the stranger may be one obvious proximal partner for Oran's belief formation, this is but one part of a complicated causal story.

One may also worry that the analogy we're drawing between salt's powers, on the one hand, and an agent's powers of belief formation, on the other, is pitched at too great a level of abstraction.[34] If both Oran and salt can be said to manifest powers when they respectively dissolve in water and form a xenophobic belief, how informative can our account be? Is not this analogy so abstract that it lacks content altogether? The objection is an important one. And it is, in one way, obvious that there are significant differences between the psychological powers Oran has and the chemical powers salt has, differences that we are glossing over in drawing parallels between them. But what do these differences consist in precisely? It follows from our account that this is an empirical question. The reason is that, as (2) says, powers are discovered empirically. On the account we're defending, it's therefore up to empirical sources to describe precisely the difference between the kinds of powers: chemical, biological, psychological, and so on. This means that at the level of analysis we are carrying out in this paper, our description of various kinds of causal powers—for example, the powers had by Oran and a quantity of salt—will *inevitably* be abstract, since according to the account, details about the differences between powers depend on what empirical sources tell us. What we want to emphasize here is therefore the way in which Oran's belief manifestation is *similar* to salt's dissolving in water from the perspective of causal powers realism. For the causal power realist, both can ultimately be described in terms of the relevant causal powers in play and the way in which those powers are manifested in conjunction with each other. The framework advanced by causal powers realists therefore allows us to describe the influence of the stranger on Oran in a way that squares with the way we describe paradigmatically natural processes. True, that description may be at a high level of abstraction. But it is not at so high a level of abstraction to be lacking content altogether.

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[34] Thanks to two anonymous reviewers for bringing this objection to our attention.

This, at any rate, is the way causal power realists will begin to describe the belief Oran tokens. But now into the weeds: how does causal power realism apply specifically to Fincher et al.'s findings? We've seen that pathogen prevalence is relevant to the formation of Oran's belief. How then do proponents of causal power realism describe this relevance? The answer lies in claim (4), in the idea that powers have lineages. Go back to the case of riding a bicycle. We've seen that exercises of my power to ride a bike depend on past manifestations of other powers I have. I manifest my power to ride a bike now only because I previously manifested my power to learn how to ride a bike, and I manifested this power only because I previously manifested the power to coordinate my leg movements, and so on. Likewise, Oran's current formation of the belief that the stranger is unwelcome depends on past exercises of his powers. Which powers? Powers of observation and imitation: one learns to eschew strangers by seeing others do it first.[35]

Causal power realism also allows us to push the lineage even further back in time, and to manifestations of powers beyond those exercised by Oran himself. Agential powers have roots in the manifestation of powers that are not agential at all, including cultural powers. And cultures don't develop overnight. They develop across time, and in response to a myriad of influences, both agential and non-agential. Schaller and Park (2011) describe a 'behavioral immune system': patterns of behavior that have proven evolutionarily advantageous. For example, we've seen that the historic prevalence of pathogens encourages collectivist behaviors, behaviors such as strongly enforcing food-preparation rituals and keeping out foreigners. These behaviors, in turn, are transmitted across generations through manifestations of agential powers of belief formation, observation, and obeying commands. The lineage of an agent's manifesting a particular power of belief formation can therefore be traced back to a series of agential powers manifested by historical members of the agent's cultural group. Sterelny (2006) makes just this point: cultural beliefs and practices are transmitted from one generation to the next through an assembly of older cultural attitudes and habits.

But there's more to lineages than an agent's ancestry. Fincher et al identify pathogen prevalence as contributing to beliefs and behaviors. And as we saw in §1.3, cultural products are bearers of cultural information and are causally efficacious in agential belief and action. Taken together, these findings tell us that non-agential powers can contribute to the lineage of agents' mental lives. This isn't new: even Aristotle observed that the "soul is in a way all existing things" (*De Anima* III.8).

Now recall how cultural psychologists describe culture (§1.1): information about shared values and norms that govern agents' behaviors. Bearers of that information are agents and environments (both naturally occurring and constructed). But if agent-internal and -external bearers of values and norms are causally efficacious (§1.1) and if culture is nothing other than this information, it follows that cultures are causally efficacious. And if causally efficacious, then powerful. The conclusion? Cultures have powers.

The conclusion may sound odd, but a moment's reflection on the empirical data show that it's not really all that strange. Take just one example. Santos et al. (2017) find

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[35] At this point, we pass the ball to social learning theorists for identifying the mechanisms involved with learning from others, cf. Hoppitt and Laland (2013).

that cultures around the world are becoming more individualistic. This is due in part to environmental changes: lower pathogen prevalence and increased socioeconomic development, among others. As cultures become more individualistic, moreover, they exert pressure on agents to enact more individualistic attitudes.[36] Put differently: a culture's individualism influences the attitudes of that culture's members. But if that's the case, then we are presented with a solid parallel between paradigm cases of causal powers and the causal influences cultures can exert. Indeed, just as salt has the power to dissolve in the presence of water, so too cultures have the power to become more individualistic under certain conditions, such as when pathogen prevalence goes down and socioeconomic development goes up. And just as the dissolution of salt in water affects both the sodium and chloride ions as well as the water, increasing individualism affects the agent-internal and -external bearers of information: that is, people and their cultural products. Cultural powers, it turns out, are not so strange after all.[37]

Of course, and as we've said, cultural powers will no doubt differ significantly from chemical powers (which will differ from biological powers, and so on). It's up to empirical sources to tell us precisely how these powers differ. But again, what we want to emphasize here is the similarity between the various kinds of powers. Causal powers realism provides a framework in which the influence of culture on minds is on a par with the influence of water on salt.

If it isn't yet clear how causal power realism allows us to talk about the influence of a culture on an agent's mental life and behavior, think about the kind of causal pluralism to which causal power realism is committed. Claim (6) tells us that causes can be understood as both current manifestation of powers and the lineages of those manifestations. When I manifest my power to ride a bike, there is a sense in which my bike riding is caused by my current bodily processes, but also in which it is caused by my past experiences and past manifestations of my powers. Likewise, when Oran manifests his power to token a belief about strangers, there is a sense in which the belief is caused by the current manifestation of his powers—his powers of belief formation in conjunction with the presence of the stranger. But there is also a sense in which the tokening of this belief is caused by the lineage of Oran's epistemic powers, a lineage that can be traced back not only to Oran's previous patterns of belief formation, but also to the culture of which he is a part, and even to ecological influences on that culture. Causal power realism thus construes the influence of an agent's culture as being causally on a par with the agent's own psychological and physical history. Both

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[36] This is just what researchers are finding: for example, in both the US and Japan, there has been a notable decrease in the extent to which individuals value social participation and children's obedience (Hamamura 2012). Also, the use of first-personal pronouns is on the rise globally (Yu et al. 2016), something cultural psychologists use as a marker of individualism.

[37] A question: are cultural powers something over and above the powers of that culture's members? Put differently: are cultural powers *emergent*, or are they reducible to some set of lower-level powers?

That's an important question, but ultimately an empirical one. We've seen that according to causal power realism, powers are empirically-discoverable. So when we are trying to determine which powers there are and which individuals have them, we should look to empirical sources. So just as empirical sources will determine whether (say) biological powers are reducible to chemical powers, so too empirical sources will determine whether cultural powers are reducible to some lower-level set of powers. For our purposes here, it is therefore simply important for us to note that cultures have powers. Whether these powers are emergent is a question that lies beyond our purposes, and indeed, beyond purely philosophical inquiry.

are part of the lineage that cause present manifestations of agents' mental powers. From the perspective provided by causal power realism, culture's influence on mental life can be placed directly alongside more paradigmatically natural causes of mental life.

To be clear: we're not suggesting that pathogen prevalence invariably causes a collectivist culture. Nor are we claiming that Oran's culture invariably causes his belief. As we've noted, from the perspective of causal powers realism, every manifestation is the end result of a stew of causal powers. Moreover, we have good reason to think that there are many ingredients to the particular stew we've described. Less metaphorically: we have good reason to think that there are many forces that correlate with a culture's degree of individualism and thus on the formation of Oran's belief.[38] Fincher et al mention that *per capita* GDP is as good a predictor of individualism as pathogen prevalence.[39] So because a culture's degree of individualism or collectivism is caused by a number of influences, Oran's belief about the stranger is (distally) caused by these influences. Furthermore, the causal influences on the formation of Oran's beliefs not only due to his culture, but (more proximally) by his current mood, the time since his last meal, and so on. The causal powers framework does not suggest a simplistic picture according to which pathogen prevalence causes a certain kind of culture which in turn causes a certain kind of belief formation among its members. Rather, causal powers realism suggests that every token manifestation is the end result of a massive number of causal influences. Typically, we are most interested in the proximal causes of the beliefs we form, and indeed, that's where the interests of many epistemologists and psychologists lie. The interests of *cultural* psychologists, however, lie in describing more distal causal influences on agents' mental lives. Causal powers realism thus provides a framework that allows us to fit both research programs side-by-side. More specifically, causal powers realism provides a framework according to which pathogen prevalence in Oran's country can be understood as a distal causal contributor to token beliefs that he forms, even while it recognizes the role that more proximal causal contributors (such as the stranger's visibility) play in the formation of these beliefs.

We've seen, however, that mental life and culture influence *each other*. The mental activity of a culture's members—the beliefs those members form, the stories they tell, the products they create—contribute to and solidify the extent to which a culture is empowered in individualistic or collectivist ways. Just as salinated water is empowered partly because of the way salt manifests its powers, so too a culture is empowered partly because of the way that culture's members manifest their mental powers. The relationship between our mental lives and culture is, in a word, dynamic. Does this dynamism pose a problem for the framework we have been proposing? Not at all. In fact, the dynamic interplay between mind and culture is precisely what we should expect, given causal power realism. The reason stems from claim (5), the idea that powers are manifested only in conjunction with manifestation partners. We've seen that culture can work as a manifestation partner for our mental powers. And partnership is a symmetric relation. So if culture is a manifestation partner for our mental lives,

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[38] Thanks to an anonymous reviewer for bringing this to our attention.

[39] However, per capita GDP doesn't account for the predictive power of pathogen prevalence on degree of individualism.

then our mental lives are a manifestation partner for culture. To claim (as we have) that cultures empower minds *entails* that minds empower cultures.

We haven't mentioned how one of the key elements of causal power realism is relevant to our discussion. Recall claim (3): the manifestation of every power is itself empowering. To return to our test case, what does the manifestation of Oran's belief that the stranger is unwelcome empower him to do? One way to begin answering this question is by thinking about how Oran's belief may empower him in conjunction with various partners. For example, consider the stranger herself. Oran's belief may lead him to drive her off. Believing that the stranger is unwelcome empowers him to get rid of her. But that's not all the belief empowers Oran to do. For suppose that other group members are in close proximity to Oran. His belief may encourage his neighbors to treat the stranger with hostility, especially if he is part of a culture that uses xenophobic behaviors as a way of preventing the introduction of a potential pathogen-carrier into the group. The belief empowers him to reinforce the xenophobic tendencies of the group. Finally, suppose that younger children are within earshot of Oran and hear him being hostile to the stranger. Unwittingly, Oran contributes to the lineage of his culture's powers. The belief he forms in conjunction with a particular stanger empowers him to transmit xenophobic attitudes to future generations.[40] Generally, because Oran manifests his belief about strangers, he is empowered to act and behave in ways he may not have otherwise acted and behaved.

Let's sum up. For causal power realists, the manifestation of powers and their lineages are phenomena best described and explained by the natural sciences. That's true of the manifestation of *any* causal power, but also of particular cases of cognition. Indeed, causal power realists construe cases of cognition as manifestations of powers, manifestations that have lineages traceable in part to agential and non-agential cultural influences. Above, we've shown how this may play out in the case of a particular belief about strangers in a collective culture, and have provided empirical findings that fill in some of the details. But in focusing on this test case we've also gestured at how the strategy might be applied more broadly.

4 Conclusion

We mentioned in §1.4 that any successful account of the relationship between mind and culture will satisfy two desiderata:

(A*) The account sufficiently accounts for dynamic relations between mind and culture.
(B) The account allows us to describe culture and mind as 'natural' in a sense that is the same as other paradigmatically natural phenomena.

We conclude by showing how our account satisfies both (A*) and (B).

Consider (A*) first. This desideratum is satisfied by claims (4), (5), and (6) of causal power realism—powers are always manifested in conjunction with manifes-

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[40] Going even further—these last two manifestations (reinforced xenophobic attitudes and transmission of attitudes to children), what do *they* empower? Nothing other than the maintenance and transmission of cultural attitudes.

tation partners; all powers have lineages; and causes can be understood as both the current manifestation of powers and the lineages of those manifestations. We saw that mind and culture are dynamically related in the sense that mind shapes culture and culture shapes mind. In the parlance of causal power realism, powers of mind and culture are manifestation partners. These powers, moreover, have lineages, lineages which are tangled up with one another. Causes of judgments and beliefs, for example, can be understood as the manifestation of agential powers for believing or judging, but also in terms of the intertwined lineages of that agent's mind and culture. For the causal power realist, mind and culture are thus dynamically related because their respective powers are manifestation partners, because their powers' lineages are intertwined, and because these intertwined lineages are part of causal explanations for their manifestations.

Claims (1), (2), and (3) of the powers framework—powers are not reducible to counterfactuals, powers are empirically-discoverable, and the manifestation of every power is itself empowering—satisfy (B). According to causal power realists, powers are not merely a linguistic entity. Rather, we discover powers and their empowering effects through empirical investigation. Causal power realism thus allows us to describe culture and mind as natural in a way that tracks paradigmatically natural phenomena. For the causal power realist, the influence of culture and mind on each other does not fundamentally differ from the influence of (for example) salt and water on each other. Both are manifestations of powers, and manifestations of powers are best understood by the natural sciences.

This finding brings us full circle. Recall that we opened with a challenge: how can we account for encultured minds without summoning the spectre of spookiness? We've seen that Sperber presents one influential way of answering this question in cultural anthropology: by using the language of representations, computations, and modularity. We've also seen, however, that this language does not fit well with the way cultural psychologists discuss the interplay of mind and culture. That's not to say Sperber's account *can't* accommodate cultural psychology. Above, we've admitted Sperber's model may be perfectly compatible with the field's findings—it could turn out, for example, that the dynamic interplay of mind and culture can be captured in computational terms. Rather than stretch the computational model to fit cultural psychology, however, we've aimed in this paper to propose an alternative, more ecumenical way forward, one that does not require computationalism even if it is compatible with it. This approach, we've suggested, fits well with recent findings and the way cultural psychologists describe these findings. Our suggestion: navigate the conceptually fraught waters of mind and culture by empowering them.[41]

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