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## Perspectives and Frames in Pursuit of Ultimate Understanding

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C2.P1 Our ordinary talk is rife with “framing devices”: expressions that function, not just to communicate factual information, but to suggest an intuitive way of thinking about their subjects. Metaphors are the most obvious instance: when a speaker calls their new home a “dump,” their old job a “jail,” their new colleague a “bulldozer,” a “gorilla,” or a “quarterback,” their classmate “a tailwagging lapdog of privilege” (Moran 1989: 90) or a prospective paramour “the Taj Mahal” (Bezuidenhout 2001: 161), part of their intended effect is to evoke a host of unstated properties which fit together, along with images and feelings, into a coherent interpretive whole (Camp 2006). But metaphors are far from unique in doing this. Slurs like “kike” (Camp 2013) and thick terms like “foodie,” “bourgeois,” “wanton,” and “valor” also promulgate perspectives, as do truthful “telling details” like that Barack Obama’s middle name is “Hussein” (Camp 2008), and fictional or apocryphal “just-so stories,” for instance, that Donald Trump was denied admission to Harvard as an undergraduate (Camp 2009). These rhetorical tropes differ in important ways, in their conventional status, assertoric force, and interpretive mechanisms and effects. But they all perform a recognizably common, and crucial, communicative function.

C2.P2 The use of such framing devices isn’t confined to casual conversations. Frames are also ubiquitous in political, pedagogical, and scientific discourse. Lakoff (2004) illustrates the pervasiveness of “strong father” and “two-parent egalitarian” parenting models in driving conservative and liberal policies and propaganda. Coll et al. (2012) document widespread use of models and analogies, like enzymes as lock and key or photosynthesis as making a cake, in science education. And philosophers and historians of science have long noted the ubiquity of models, fictions, metaphors, and analogies in scientific investigation and explanation (Hesse 1993; Giere 1998; Elgin 2006;

Godfrey-Smith 2006; Camp 2018a). Finally, in addition to their use in communication, framing devices can also play an important role in individual cognition, as slogans, precepts, and models that guide inquiry, explanation, and memory.

C2.P3 At the same time, however, framing devices are double-edged swords (Glynn 2008). In their communicative role, they can mold our minds into a shared pattern—even when we as hearers would rather resist (Camp 2017). They can foster confusion, when speakers and hearers unknowingly focus on different unmentioned properties, images, and feelings. And they can provide cover for cowardly insinuation and innuendo (Camp 2018b). The risks in individual cognition are potentially greater, insofar as the intuitive power of a frame can blind us both to known features that don't fit easily within the frame, and also to “unknown unknowns” we have not yet encountered. Thus, perhaps Locke is right to disavow such “eloquent inventions” as “perfect cheats” that “insinuate wrong ideas, move the passions, and thereby mislead the judgment” (1689/1989: 34).

C2.P4 I think this is the wrong conclusion to draw. The metaphor of double-edged swords is indeed apt; but that is because frames are *tools* for thought, which, like any tool, can be used well or badly, and for good or for ill—not because they fall outside the realm of rationality altogether.

C2.P5 In §1, I describe how framing devices express open-ended perspectives, which produce structured intuitive characterizations of particular subjects. In §2, I argue that frames can make effective, distinctive epistemic contributions in the course of inquiry. And in §3 and §4, I argue that the cognitive structures that frames produce can contribute to, and even constitute, epistemic achievements in their own right, even in highly idealized circumstances at the nominal end of inquiry. Throughout, I will focus especially on scientific understanding, because it serves as a paradigm case of rational inquiry, from which frames and perspectives are most likely to be excluded. The case for other modes of inquiry and understanding, such as psychology and history, is comparatively easier to establish; I will not address the important differences among them here.

## C2.S1 1. Characterizations, Perspectives, and Frames

C2.P6 As I will be using the terms, *frames* are representational vehicles with the function of expressing *perspectives*. Perspectives in turn are open-ended

dispositions to interpret, and specifically to produce intuitive structures of thought about, or *characterizations* of, particular subjects. These are relatively familiar terms, used to describe familiar phenomena. I will articulate them in the way I have found most theoretically fruitful, one that both overlaps and departs from those offered by other theorists describing the same broad range of phenomena. Some of these other taxonomies exclude those phenomena from the realm of rationality and the achievement of epistemic value by definition. But even leaving the question of epistemic status to the side, I believe these alternative taxonomies fail to do full descriptive justice to the way that the actual phenomena function, either in ordinary life or in more systematized contexts like historical and scientific inquiry.

### 1.1. Characterizations

C2.S2

C2.P7

Much of our everyday cognition involves complex, intuitive ways of thinking, which I call characterizations. Stereotypes are the most familiar case; but where stereotypes are culturally ubiquitous, characterizations can be restricted to a sub-discipline, a particular conversation, or an isolated individual. In many cases, characterizations are close to what philosophers call “conceptions”: a set of intuitive beliefs about an individual or a kind, which need not be extension-determining, or constitutive of conceptual competence, or even reflectively endorsed; but which are easily evoked and provide the standard “mental setting” (Woodfield 1991: 551) for thinking about a subject.

C2.P8

Characterizations thus differ markedly from concepts, at least as philosophers typically think of them.<sup>1</sup> Prescinding from as much detail as possible, characterizations differ from concepts in at least three key respects: their content, structure, and stability (Camp 2015). First, concepts are (or at least entail, or involve) abilities to re-identify certain individuals and kinds: they determine *what* is being thought about, and in particular that the same individual or kind is represented across those variations in the circumstances of activation and evaluation that are irrelevant to the concept’s applicability. As such, concepts abstract away from many details in our

P1.N1

<sup>1</sup> I believe that philosophers have identified a significant cognitive role for concepts as they construe them, but that the phenomena that psychologists study under the rubric of “concepts” are also important, and that much of the apparent disagreement can be reconciled by interpreting psychologists as often primarily concerned with characterizations instead (Camp 2015).

experience and knowledge about the subject, including especially perceptual details and affective responses. By contrast, characterizations are informationally, experientially, and affectively rich, integrating as much data as possible into an intuitive whole. So, for instance, my intuitive characterizations of Barack Obama and Donald Trump include, *inter alia*, facts about their backgrounds, families, psychological traits, and past actions; what each of them look like, including how they walk, talk, and gesture; and my emotional and evaluative responses to these details and to them more generally.

C2.P9 Second, where concepts have (at most) minimal internal structure, of deductive and material inference, characterizations connect the many constituent features that they attribute to their subjects into a complex multi-dimensional structure, reflecting the different ways in which a feature can *matter* in an agent's characterization of a given subject. Two dimensions of "mattering" are especially crucial. First, some of the features ascribed to a subject are more *prominent* than others: more initially noticeable and quicker to recall. I take prominence to be equivalent to what Tversky (1977) calls "salience," which he in turn analyzes as a function of two factors, each of which is contextually relative in a different way. On the one hand, a feature is *diagnostic* to the extent that it is useful for classifying objects in a given context, as the elliptical shape of a snake's pupils might be useful for determining whether it is poisonous. On the other hand, a feature is *intense* to the extent that it has a high signal-to-noise ratio. What counts as background "noise," and hence in turn how intense a given feature is treated as being, varies widely, both in how locally sensitive and in how cognitively mediated it is. So, for instance, the perceptual intensity of a light's brightness relative to the ambient lighting is fixed by a background that is highly local and directly physical; while the perceived intensity of a pigment's tonal saturation in a painting is likely to be measured not just in contrast to the other colors in that particular picture, but also against the agent's assumptions about typical saturation levels in other paintings within that genre, or from other historical periods.

C2.P10 Where prominence selects which features matter, *centrality* determines how they matter, by connecting features into explanatory networks, such that more central features are more richly connected to other features. Causal connections are a paradigm basis for explanation. And a decent, albeit rough, measure of imputed causal centrality is *mutability*: how much the agent's overall thinking about the subject would need to alter if they no longer attributed a given feature *f* to the subject (Murphy and Medin 1985; Thagard

1989; Sloman, Love, and Ahn 1998). However, connections may be logical or metaphysical without being causal. We also often intuitively connect features on grounds that are emotional or ethical: in terms of the “tick-tock” of what would be satisfying, or more generally which features “fit” together (DeSousa 1987; Kermode 2000). (Indeed, we sometimes impute causes in order to justify such intuitions.)

C2.P11

Prominence and centrality are structurally distinct ways for a feature to matter intuitively. So, for instance, Barack Obama’s ears or Donald Trump’s hair may be highly prominent in my thinking just because they are unusually protruding and swooping, respectively, even if I do not take those features to be at all explanatory. But the two dimensions are not entirely disconnected. In particular, when a feature *f*s intensity departs markedly from a contextually determined baseline—especially if it is highly intense, but also sometimes if it is unusually low—then this fact calls out for explanation. Sometimes we dismiss such departures from baseline as anomalies; but often we seek or posit an explanation of the departure which is grounded in the subject’s central features. And even when no plausible justificatory connection is forthcoming, we may still intuitively feel that the feature intuitively “fits” together with more central features, at least aesthetically. Caricatures often seem apt, and funny, because they play on such aesthetic connections: for instance, by linking Obama’s protruding ears to his Spock-like nerdiness, or Trump’s swooping hair to his grandiosity.

C2.P12

The third key difference between concepts and characterizations, besides the richness and structure of their contents, is their stability. A core function of concepts is to underwrite connections between distinct thoughts, both synchronically via inference, and diachronically via recall and revision of beliefs, desires, and other attitudes. The possibility of re-deploying the same belief on multiple occasions, let alone of changing my mind about its truth, requires being able to represent the same content on multiple occasions. Likewise, integrating multiple pieces of information about the same entity requires being able to represent that entity as the same. Thus, concepts, qua cognitive entities that enable agents to represent, collect, and use information about various entities and kinds, must be fairly cross-contextually stable (Camp 2015).

C2.P13

We do regularly use concepts in this logical, stabilizing way in actual life—for instance, when we individually plan a route for performing a series of errands or a budget for buying a house, or when we collectively plan and build a bridge or a political system. However, much of our intuitive thinking

is also contextually malleable, as the vast experimental literatures on framing and affective and cognitive priming demonstrate (e.g., Kahneman, Slovic, and Tversky 1982; Levin, Schneider, and Gaeth 1998; Musch and Kluer 2003; Bartels 2008). In particular, ethical and emotional responses, as well as judgments about causal structure and statistical probability, influence and are influenced by our currently operative characterizations. And although contextual priming is sometimes driven by relatively innate impulses, as “dual systems” theorists maintain, it often activates and modulates repertoires of interpretation and evaluation that are rich, sophisticated, and highly enculturated. Because many of these context-specific effects on what we notice and how we explain and respond to it are implicit, they often go unnoticed until we are prompted to reflect on our inconsistencies.

C2.P14

The sort of contextual malleability displayed by characterizations underlines another key difference from concepts. Many philosophers take it to be characteristic, even constitutive of conceptual thought that it is subject to critical reflection and revision (McDowell 1994; Korsgaard 2009). In this sense, it is part of applying concepts, at least for normal adult humans, that one can hold them “at arm’s length,” in order to scrutinize their applicability and the transitions they underwrite. By contrast, characterizations are by their nature intuitive patterns of thought, which guide what an agent just does naturally notice, what explanatory connections they do tend to form, and how they immediately respond in cognition and action. As such, reflectively endorsing the appropriateness of a given characterization, as specified at arm’s length, is neither necessary nor sufficient for actually characterizing a subject in the relevant way.

C2.P15

There is an important sense in which concepts are also intuitive, insofar as concept-constituting inferential transitions are “primitively compelling” to a competent agent who entertains the relevant thoughts (Peacocke 1992). However, in the conceptual case, this “compulsion” arises because the agent takes the transition to be correct, or at least right in a way relevant to sorting and classification (Ginsborg 2011). By contrast, characterizations can remain intuitively compelling despite our rejecting their aptness. Often, of course, our conceptual and characterizing “compulsions” operate in tandem. And in particular cases, there may be no clear, independent fact of the matter about whether the intuitive attribution of a feature, or association between features, “really” belongs to the agent’s concept or to their characterization. However, the two classes of intuitive attribution and association can, and demonstrably do, come apart, in ways that are answerable to different cognitive pressures

and evaluative norms; and our theoretical taxonomy should recognize this (Camp 2015).

C2.P16

In particular, it (all-too) frequently happens that one intuitively characterizes a subject in a way one wishes one didn't, as with in stereotype threat or unwelcome slurs or insinuations (Camp 2013). At the same time, we also sometimes willingly try on characterizations that differ from those we take to be genuinely apt. This is perhaps most obvious in reading fiction (Camp 2018c). But at least sometimes in the course of political and personal debate, we attempt, and sometimes succeed, in "getting" how someone else construes the subject, "from the inside." Still, in such cases, merely wanting or intending to try on a characterization doesn't suffice to "get" it: even if we do reflectively endorse its appropriateness, the characterization may fail to function at an intuitive level. Reflective endorsement without intuitive applicability is especially palpable on first encounter with idealized scientific models, such as Feynman diagrams.

C2.P17

Characterizing, as the complex intuitive construal of a subject, is thus in general partly but not entirely under voluntary control. We do have antecedent, default intuitive characterizations of many subjects; but these are modulated for us, often without our noticing it and sometimes actively against our will, by external and internal contextual factors. We can also modulate our characterizations intentionally, by directing our attention toward some particular features and away from others, and by actively entertaining certain concepts and assumptions. When we are attempting to cultivate a given characterization, any one bit of information about which features play what role in it—that *this* is a highly notable feature, which in turn explains *that* one—may help us to "get" it at an intuitive level. But much as with the classic cases of gestalt perception, ultimately the relevant structures of attention, explanation, and response just do govern our intuitive thinking—or don't. And as with gestalt perception, while a new characterization sometimes "clicks" into place, accompanied by a phenomenology of sudden illumination, it may also dawn gradually.

C2.P18

The analogy with gestalt perception brings out a final feature of characterizing: the sense in which it is a holistic affair. Altering the prominence or centrality of a single feature can induce pervasive, complex alterations to the structural relations among other elements, by "tipping" them into new clusters of explanatory relations and new weightings of prominence. The effects of applying a new frame may also extend beyond structural realignment, producing a paradigm shift that alters the significance of



the basic features themselves. Thus, a spatio-temporally equivalent gesture can seem threatening or merely awkward, depending on one's characterization of the person performing it. This is especially obvious in cases where we know little about the person, and so where race and other general demographic features can have a strong effect (Devine 1989; Duncan 1976). But it extends to cases that encompass rich bodies of information: for instance, in our interpretations of an intimate partner's specific behaviors while we are embedded within, and then after leaving, the relationship.

## 1.2. Perspectives

C2.S3

C2.P19

Thus far, I've been focusing on individual characterizations and spelling out the ways in which they differ from concepts, especially in terms of their contextual malleability. However, characterizations are rarely isolated, on a given occasion or across time. Rather, agents have default propensities to form certain types of characterizations of multiple subjects. A *perspective* is an open-ended disposition to characterize: to encounter, interpret, and respond to some parts of the world in certain ways. We of course have our own individual interpretive dispositions, which may be more or less stable and more or less encompassing. But we also have an intuitive, sometimes quite nuanced, sense of other people's perspectives. When we know someone well, we can predict how they will construe and respond to new subjects, and how they will assimilate new information about old subjects into their existing frameworks for them. Similarly, part of the power of psychologically rich fictions lies in the way that we as readers come to anticipate, not just how events in the fictional world will unfold and be described, but how the narrator or authorial figure would interpret the actual world if they were to encounter it (Camp 2018c).

C2.P20

This open-ended quality distinguishes perspectives from propositional attitudes even more strongly than characterizations are distinguished from concepts. A characterization does have a content, albeit a complex, often messy, and mostly unarticulated one: it attributes a set of features to a particular subject, and embeds those features in a multidimensional structure of prominence and centrality. At the same time, as we just saw, it is neither necessary nor sufficient for characterizing a given subject in the relevant way that one explicitly endorse or even entertain this complex content. Rather, what matters is that one's own intuitive patterns of attention, explanation,



and response actually implement this structure, at least for the moment. In this sense, characterizations are not (just) attitudes toward propositions: they are, instead, intuitive cognitive implementations of complex structures.<sup>2</sup>

C2.P21

Perspectives inherit this intuitive implementational aspect from the characterizations that they generate. But they are also non-propositional in a stronger sense. In principle, given sufficient reflection and effort, characterizations' contents are fully specifiable in propositional terms—so long as those propositions can include demonstrative reference to images, experiences, emotions, and evaluations, as well as representations of higher-order structural relations of relative prominence and centrality. It's just that *having* a characterization involves more than having an attitude of entertainment or endorsement toward those propositions. By contrast, perspectives lack contents: having a perspective need not require endorsing, or even intuitively attributing or connecting, *any* particular features of a subject. Perspectives are in their essence tools for thinking, not thoughts per se.

C2.P22

Some perspectives may well be essentially connected with certain propositions: for instance, the perspective of evangelical Protestantism may essentially involve commitment to the divinity of Jesus and to the Bible being the Word of God. However, many perspectives, such as political liberalism or conservatism, lack any essential doctrines. Moreover, adherents of a perspective needn't endorse the doctrines that might appear to be central or even essential to it. For instance, many self-professed evangelical Protestants reject the claim that the only route to eternal life is belief in Jesus's divinity, even though church leaders almost universally take this claim to be required for being a good evangelical Christian.<sup>3</sup> But they still identify as evangelical Christians, insofar as they notice, care about, explain, and respond to many aspects of the world in many of the same ways as their more orthodox brethren.

P1.N2

<sup>2</sup> Perhaps at least some beliefs (and make-beliefs) are not fully propositional attitudes, given this specification of "propositional attitudes." I am inclined toward a view of beliefs as standing commitments to treat the world as being a certain way, where some such commitments may involve complex characterizations. High-level interpretive beliefs, such as those expressed by "Men are more violent than women," "Equal work merits equal pay," or "Precision is more important than insight," are the clearest candidates here. I leave an analysis of belief, and the relations between belief and concepts and characterizations, for another occasion.

P1.N3

<sup>3</sup> A 2008 Pew study found that 51% of evangelical Christians believe that belief in religions other than Christianity can lead to eternal life, and that 26% allow that atheists can achieve salvation; while according to a 2011 Pew survey, 95% of evangelical Christian leaders say that these beliefs are incompatible with being a good evangelical Christian.

C2.P23 Thus, where characterizations are intuitive construals of a given subject at a given time, perspectives are open-ended intuitive dispositions to interpret. They are open-ended in at least two senses: first, they provide a way of updating a given characterization over time, as new information and experiences come in; and second, they generate characterizations of multiple, perhaps indefinitely many, specific subjects. In both dimensions, although *which* particular information, images, and feelings are attributed to a subject varies, there is a stable perspective just in case there is substantive stability in the *sorts* of features the agent tends to notice, the sorts of explanatory connections they tend to draw, and the sorts of predictions and emotional and evaluative responses they tend to have.

C2.P24 While the effects of variation in context on particular characterizations are typically messy, they are also fairly clearly demonstrable. Given a stable set of information, it is possible to measure, in fairly specific and controllable ways, how priming for distinct emotions, explanations, and purposes, and/or changing the order, vividness, or terms of description, alters an agent's characterization of that information. In this way, in the case of characterizations we can at least begin to get a grip on the sense in which different agents, or the same agent at different times, have distinct characterizations of a common set of facts.

C2.P25 By contrast, because of their essentially open-ended nature, it is much harder to identify and individuate sameness and difference in perspective, and to say when an agent is operating with a certain perspective. Within a given context, the wider the swath of agents' characterizational dispositions' fit with a certain perspective, the more plausible it is to say that they have temporarily adopted it. Likewise, the wider a range of contexts in which an agent manifests those dispositions, the more plausible it is to say that this is their own perspective. However, there is not always a principled answer to the question of whether an agent has only temporarily tried on an alternative perspective, or whether their temporary responses really are "their own." Rather than seeking to identify absolute sameness and difference in perspectives, it is often more accurate to speak only of relative overlap and stability.

AQ: This apostrophe seems necessary to make the grammar right.

C2.S4

## 1.3. Frames

C2.P26

Characterizations, qua intuitive, holistic, contextually malleable ways of thinking that are often imagistically and affectively laden, are typically tacit, messy, and inchoate. Perspectives, qua open-ended dispositions to characterize, are even more so. At the same time, perspectives affect our thinking in deep and pervasive ways, including by influencing our explicit judgments and beliefs. For these reasons, we often want to impose more coherence and stability on our intuitive thinking. We also often want to communicate our characterizations and perspectives to others, either just to help them understand our state of mind, or else to coordinate on a common assumptions.

C2.P27

To accomplish both goals, of internal regulation and external expression and coordination, we frequently employ interpretive *frames*. As I will use the term, frames are representational vehicles—most obviously linguistic vehicles like slogans, but also non-linguistic vehicles like diagrams and caricaturing cartoons—under an intended interpretation, where that interpretation itself functions as an open-ended principle for organizing and regulating one’s intuitive overall intuitive thinking about one or more subjects. Frames crystalize perspectives into compact, explicit form. Not all perspectives can be adequately expressed by frames: some are just too multivalent to be captured by a single slogan or image, or no one has yet happened or needed to do so. But when and to the extent that a frame does express a perspective, it unifies it into a more cohesive whole and underwrites wider contextual stability. Further, as publicly accessible entities, frames can function as vehicles for communicating perspectives, by evoking a body of shared experiences and feelings.

C2.P28

A frame can express a perspective, and apply to its subject, in various ways. The relevant interpretive principle may be explicit in, or follow fairly immediately from, the informational content of the frame itself, as in “He’s just not that into you”; or it may evoke an unstated characterization, as with a tautological saying like “Boys will be boys.” The association between vehicle and perspective may be conventional, as with slurs (Camp 2019); or it may be pragmatic, as with metaphor (Camp 2017). The frame’s informational content may be true, as with “telling details”; or false, as with apocryphal and just-so stories (Camp 2008). And the imaginative transformation required to apply a literally false frame may operate at an interpretive level, as with metaphor, or at a metaphysical one, as with fiction (Camp 2009).

C2.P29 All of these differences make a difference to the type of cognitive effort involved in comprehending them and to the sort of cognitive effect they produce—including in the context of inquiry, especially scientific inquiry (Camp 2018a). For current purposes, however, these differences are ancillary. What matters, first, is that frames in general express perspectives, which function as open-ended intuitive principles for attending to, explaining, and responding to a range of subjects as an agent encounters new information and experiences. And second, while frames, perspectives, and characterizations all utilize and influence concepts and judgments, they always go well beyond, and often depart significantly from, the deliverances of conceptual thought.

C2.S5

## 2. Frames as Instruments for Inquiry

C2.P30 As a descriptive matter, the ubiquity of intuitive, associative cognitive structures in everyday thought is well-attested empirically, albeit not using exactly the terms and categories I have employed. However, the normative, and specifically epistemic, status of characterizations, perspectives, and frames is highly contested. Theorists who distinguish intuitive associative thinking from more narrowly conceptual thought, as I have done, often treat the two classes of phenomena as belonging to distinct cognitive “systems,” with the evolutionarily ancient System 1 functioning as a fast and dirty shortcut for the more robustly logical cognition undertaken by System 2 (e.g., Gendler 2008; Evans and Frankish 2009; Kahneman 2011). If we understand characterizations and perspectives as at best intuitive proxies for, and as at worst antagonistic to rational, conceptual thought, it is difficult to see how they could make any genuine epistemic contribution. Either they are mere noise, which we should filter out in the pursuit of genuine knowledge (Gendler 2007, 2011); or else they are intuitive heuristics whose deliverances must be independently tested, and ultimately eliminated as inquiry proceeds.

C2.P31

By contrast, I take characterizations to play a functional role distinct from that of concepts, but one that is still in the service of rational engagement with the world. While concepts provide stable classificatory principles which enable agents to think about the same entity or kind across a range of contexts, in order to connect and update thoughts in systematic ways, characterizations facilitate smooth interaction within contexts by guiding attention and response, and by synthesizing rich bodies of information and experience into intuitive wholes (Camp 2015). If we accept that concepts and

characterizations do have distinct functional roles, then it becomes an open question what epistemic status to assign to characterizations, perspectives, or frames. In this section, I argue that frames can play a distinctive, even essential role in the course of inquiry, by guiding attention and suggesting hypotheses and explanations in an open-ended, flexible way that a fixed set of propositions by itself cannot do. In §3 and §4, I argue that although frames drop away as inquiry proceeds, perspectives and characterizations contribute essentially to ultimate understanding even at the (putative) end of inquiry.

C2.P32 There is a relatively straightforward, uncontroversial sense in which frames can contribute to understanding. As communicative tools for expressing complex intuitive patterns of thought, frames help us to comprehend one another's perspectives, in ways that narrowly informational statements can't. They thus enable interlocutors in a given conversation to coordinate efficiently on a rich set of unstated assumptions, expectations, and evaluations, which they can then utilize, independently of the frame, in the course of investigating what is true or what to do. Even when interlocutors don't end up endorsing a common set of assumptions, they may still achieve a kind of respectful engagement with the other's point of view, or at least an ability to predict what the other will think, say, and do, which they could not have without trying on that perspective "from the inside."

C2.P33 In addition to assisting in intersubjective understanding, frames can also help us to understand ourselves. They may do this by providing cross-contextually stable handles that encapsulate the interpretive principles we care most about. Frames can confront us forcefully with new perspectives to resonate to—or to reject—and thereby help reveal to us what our antecedent, tacit interpretive principles had been. Finally, frames may provide us with aspirational touchstones which we can employ in order to actualize more fully at an intuitive level interpretive principles that we reflectively endorse in the abstract.

C2.P34 While these are all valuable roles for frames to play, which contribute to understanding our own and others' minds in a rich, intuitive, ongoing way, what's primarily at issue in investigating the epistemic status of frames, perspectives, and characterizations is whether they can make a distinctive contribution in understanding the world as it is, independently of us.

C2.P35 A first step in arguing that they do facilitate understanding centers on the role of perspectives as tools for thought. A perspective provides an agent with an ability to navigate efficiently among a rich body of existing information and experiences. When I have a perspective on a domain, I "know

my way about” that domain (Wittgenstein 1953: §123) in an intuitive way that facilitates retention, recall, and selection of relevant information from a larger body. This robust effectiveness of frames in fostering the efficient manipulation of information explains the strong emphasis on their utility in education, most notably in science (Coll et al. 2005). Moreover, by providing a principle for incorporating new information and experiences, and for predicting further information, a perspective enables me to “know how to go on” in updating and generating new characterizations of the focal subject, and often of other, related ones as well (Wittgenstein 1953: §179).

C2.P36 By guiding the intuitive characterizations that an agent forms of a given domain, a perspective also thereby influences their outright judgments about it. It does this most directly by influencing their higher-order structural judgments about base-level information: by guiding what information they take to warrant explanation and what they dismiss as irrelevant or unreliable; which explanations they find compelling; and what predictions they make about counterfactual contingencies and future events. And in turn, these structural judgments can provide the justificatory ground for—and sometimes themselves constitute—statistical, explanatory, and evaluative judgments about that domain.

C2.P37 At a deeper level, a perspective also affects an agent’s base-level beliefs themselves, by determining which concepts they deploy in forming their base-level judgments. A perspective presupposes a taxonomy of categories, which function to support a profile of theoretical and practical ends. It thereby individuates occurrences of features as relevantly “the same again,” and imposes boundaries between kinds of objects in virtue of their possessing those features. It also thereby assigns greater prominence to features that are diagnostic relative to that taxonomy. And it assigns explanatory structures and degrees of centrality that answer to the operative profile of practical and theoretical purposes.

C2.P38 By guiding the classification of information in the formation of base-level and higher-order judgments about the world, frames and perspectives function as genuinely epistemic tools. As such, they can be assessed, and criticized, in terms of their functional utility. At a minimal level, we can make sense of an agent mischaracterizing a given subject relative to their own interpretive standards, if their assignments of prominence and centrality come apart from the assignments that are warranted by their operative taxonomy, practical and explanatory purposes, and the actual distribution of features in the world. More robustly, we can assess frames and perspectives themselves

for epistemic aptness. Internally, frames that are more coherent enable agents to better navigate among their existing information. Externally, frames that are more apt presuppose taxonomies that better serve the operative practical and explanatory profile and that individuate kinds of features and objects using categories that more closely track actual statistical distributions. Apter frames thereby provide agents with a more robust and reliable epistemic grip on the world: one that enables them to assimilate a wider range of new information smoothly into their existing interpretive structure, to make more accurate predictions, and to make interventions that serve their practical goals.

C2.P39 Beyond helping them to navigate among existing information and assimilate information that an agent happens to encounter, the perspective expressed by a frame can also contribute to understanding in a more proactive way, by guiding their search for information. It can do this directly, by leading them to seek confirming evidence for a putative explanatory connection. But it can also generate hypotheses for investigation in more indirect ways.

C2.P40 In particular, one reason that analogical and metaphorical frames are so cognitively fruitful is that they set up “analogical equations” which transfer structural “kernels” of related features from one domain to another. More specifically, with analogical frames, the fact that the target domain is already known to exhibit many features within the kernel suggests that it may also point toward as-yet unknown features which would “complete” that system (Gentner and Jeziorski 1993: 452). But metaphor and analogy are not unique in producing “system completion” (Camp 2018a). For instance, true frames, such as “telling details,” can guide investigation by suggesting the application of a cluster of features that are associated within the characterization of that detail, and by generating explanations that focus on those features. Likewise, “just-so stories” and other literally false frames can generate hypotheses by suggesting that *if* the subject *a*, were, contrary to actual fact, to possess feature *X*, then it *would* also possess features  $x_1$ ,  $x_2$ , and  $x_3$ ; since *a* is already known to actually instantiate these features, and since those features are associated by the frame with features  $y_1$ ,  $y_2$ , and  $y_3$ , then perhaps *a* possesses  $y_1$ ,  $y_2$ , and  $y_3$  as well.

C2.P41 In the simplest cases of feature introduction by “system completion,” the candidate features can themselves be straightforwardly specified in literal terms. When this is the case, the frame is dispensable, in the sense that it merely prompts a hypothesis that could have been articulated independently



all along. The contribution of such frames to investigation is merely heuristic, if practically substantial.

C2.P42

In a second, slightly more complex class of cases, there may be no antecedent term for the relevant feature in the language; but the analogical equation set up by the frame may still be sufficiently constrained that it effectively provides a reference-fixing description which permits the introduction of a new literal term into the language (Camp 2006). Here, the frame does play an essential initial role, by establishing a relevant mapping between the two structures of the framing and target characterizations. However, the equation itself, once specified, is still precise enough to determine a substantive identificatory condition for the relevant base-level features or explanatory structures, independent of the frame. Thus, we might want to say that for this second class, the frame's contribution can be restricted to generating a "Ramsified" proposition which can then be investigated in a (more or less) straightforward way.

C2.P43

Beyond this, though, there remain a third class of cases of feature introduction by system completion, for which the respects of similarity between frame and subject are not sufficiently well articulated to be cashed out by Ramsification. As Richard Boyd (1979/1993) puts it, metaphors (and, I would add, other frames) of this class can play a "programmatically research-orienting" role in investigation, not despite, but *because* of their intuitive, open-ended, indeterminate status. For instance, Evelyn Fox Keller (1995) argues that the "code" model of genetic action, and the "organism" model of machine systems, were reciprocally effective frames in early 20th century precisely because the operative theories of the framing domains were in each case so inchoate that they left open a wide range of candidate mappings to the other domain.

C2.P44

For a frame to play a fruitful "programmatically research-orienting" role, it must already be substantive enough to significantly constrain the search space of hypotheses. It needs to establish a profile of cognitive and pragmatic interests and goals, point toward a restricted region within a broader domain as worth probing, impose some differentiating structure on that region, and suggest potential causal and other explanatory connections to features within that region that are better understood. At the same time, though, such a frame can be genuinely *generative* to the extent that the possible solutions to those analogical equations are not yet themselves fully articulated in a way that leaves just the verification or falsification of precisely defined propositions to be carried out. Instead, the perspective's intuitive, holistic

nature plays an essential role in parsing the domain of possibilities at a quite basic level, by guiding investigators first in what they intuitively notice as a feature at all, or treat as the same feature again, and second in how they hypothesize that disparate features might be connected.

### 3. Perspectives at the “End” of Inquiry

C2.S6

C2.P45

In §1 I argued that although characterizations are often messy, inchoate, contextually malleable, and idiosyncratic, they are not essentially noisy and context-bound. Frames can crystallize perspectives into stable interpretive principles which can be deployed by an individual agent across multiple cognitive contexts, and shared by multiple individuals in and across contexts.

C2.P46

In §2 I cataloged a range of ways in which frames, and the perspectives they express, can function as epistemically valuable tools for thought: by facilitating effective navigation among existing information; by guiding how an agent updates their overall thinking, including beliefs and other reflective attitudes, in light of new information; and by influencing how they seek out new information. In each of these respects, frames and perspectives can provide agents with a more robust and reliable epistemic grip on the world. And in all of these respects, perspectives accomplish this, not just despite but *because* they differ from straightforward conceptual thought in the ways identified in §1—because they are open-ended dispositions to produce intuitive, holistic characterizations.

C2.P47

Negatively, these points undercut the objection that according epistemic value to perspectives and characterizations is inappropriate because they are mere associationist noise, too idiosyncratic and fickle to be amenable to systematic analysis, let alone to contribute to intersubjectively shared cognitive projects. Positively, they establish that perspectives can play a distinctive role in support of distinctively epistemic ends. Indeed, perspectives are arguably unavoidable for the kinds of epistemic beings we are. As cognitively sophisticated but limited agents embedded in complex environments, in flexible pursuit of multiple long-term goals, we need broad, ongoing cognitive principles in order to select relevant details from a teeming manifold of stimuli within a given situation, to synthesize those details into more or less coherent wholes, and to mobilize for immediate action. As I emphasized in §1, these functions support, but are distinct from, the core function of conceptual thought, which is to track, combine, and deploy information in systematic ways across

contexts. And while frames are not cognitively unavoidable in the same way, they do help to bring perspectives and characterizations within the fold of rationality, by increasing their intrapersonal stability and breadth and their interpersonal accessibility.

C2.P48 Thus, given that we are creatures for whom intuitive, holistic, experientially- and affectively-laden patterns of thought are both deeply natural and rationally functional, the best course of action would seem to be to determine how to use frames and perspectives for epistemic good, rather than how to eliminate them from serious inquiry altogether. However, granting that frames can express epistemically valuable, perhaps even indispensable, heuristics for guiding cognitively limited agents in the process of acquiring and managing information is compatible with insisting that their epistemic value is merely instrumental and temporary. In this section, I argue that perspectives can contribute to understanding even at the (nominal) end of inquiry, by implementing characterizations that accurately reflect the structure of the world.

C2.P49 One prima facie source of support for the claim that frames and perspectives are only instrumentally epistemically valuable comes from the shifting role that they typically play in actual scientific investigation. Scientists frequently and happily employ frames, but—as attested by the examples of the “code” model of genetic action and the “organism” model of machine systems above—typically only at the early stages of investigation. Scientists ultimately aim to eliminate those frames, or to restrict their role to pedagogical contexts, where they are treated as mere gateways to a more nuanced, genuine understanding. The prevailing attitude is aptly encapsulated in the dictum from the mathematician George Pólya (1954): “And remember, do not neglect vague analogies. But if you wish them respectable, try to clarify them.”

C2.P50 Metaphors in particular characteristically exhibit a trajectory or “career” of increasing literalization (Bowdle and Gentner 2005), in both ordinary and theoretical discourse. As we saw in §2.1, a metaphor like “machine systems are organisms” can play a productive “research-orienting” role in part because it is inchoate and intuitive. But investigation typically consists in a series of attempts to precisify the frame, by articulating and systematizing tacit assumptions about both the framing and subject domains, by identifying putative matches between specific features in the frame and subject, and by probing whether the subject actually possesses anything in the ballpark of the proposed match.

C2.P51 Sometimes the end result is that the metaphor dies into the new life of literal meaning, as has plausibly happened with the model of the mind as a computer. Sometimes it remains as a merely pedagogical tool, as with the model of the atom as a solar system. Often, it is discarded as a potentially misleading first approximation, as has arguably happened with the metaphor of DNA as software. But whatever the ultimate status of the framing metaphor, as the research program it encapsulates is implemented and its interpretation becomes increasingly articulated, stable, and precise, scientists' attention increasingly focuses on the myriad actual details about the target domain that it enables them to identify, rather than on the suggestive powers of the frame itself.

C2.P52 Further, although this transformation from indispensable to ancillary is most obvious in the case of metaphorical frames, a similar shift occurs even with frames that are literally true. Most complex natural phenomena are unlikely to be as systematically unified as a frame suggests. As theorists develop an increasingly firm grip on the details in their own right and come to recognize details that are left out of or obscured by the frame's simplifying handle, we should expect catchy sloganeering to give way to a more nuanced, multidimensional perspective that cannot be crystallized by any single proposition.

C2.P53 At a more fundamental theoretical level, at the "end" of inquiry, when all the evidence is in, there is by stipulation no need to generate hypotheses, assimilate information, or make predictions; and all explanations and other connections between disparate bits of information have been established. Thus, at that point the open-ended cognitive function of perspectives in general—whether or not they are encapsulated by frames—is rendered otiose. All that remains are a host of particular, complex characterizations, each embedding a manifold of specific facts and explanatory connections. Further, many theorists consider perspectives to essentially involve a kind of epistemic limitation: a partial and selective view from a particular "somewhere," in contrast to an omnipresent, omniscient panorama (e.g., Currie 2010). On this construal, perspectives are naturally contrasted with an ideal theory that is completely general in scope and encompassing in detail—more specifically, with a theory that embeds successive reductions of higher-level properties and kinds to lower-level implementations. While metaphors and other frames might initially aid us in pursuit of such a "top-down research strategy" (Pylyshyn 1993: 557), once that strategy had been fully implemented, we would ultimately be left with a single unified set of claims,

each of which is true simpliciter and all of which are related by epistemically familiar, straightforward relations like entailment.

C2.P54

Fully addressing the argument for dispensability just sketched would take more space than I have here. But I think that this model of ultimate theory radically undersells the depth and robustness of perspectives' epistemic contribution, not just in the course of actual inquiry by cognitively limited agents, but even on a highly idealized construal of understanding as such. First, as I said in §2, a perspective presupposes a conceptual taxonomy plus a set of practical and explanatory ends: a commitment to which distinctions are worth making, and why. Even if we set aside practical interests as not relevant to “genuine” understanding and focus exclusively on explanatory interests, different conceptual taxonomies will more directly instantiate, or at least more smoothly integrate with, different explanatory interests, by imposing classifications that more closely track relevant statistical distributions and that more directly entail relevant explanatory connections. Given this, even if we take taxonomies to be narrowly conceptual resources as opposed to the broadly “non-conceptual” phenomena of characterizations, perspectives, and frames, a perspective still affects which of those resources an agent should employ, given their operative explanatory purposes. The sense of “should” here is one of serving distinctively epistemic, and not just practical, ends. But as Carnap (1932) and many others have argued, the choice of a conceptual taxonomy cannot itself be fully articulated, let alone justified, within that taxonomy. Thus, at least in this sense, a perspective is more basic than the set of true propositions determined by any theory, even an “ultimate” one.

C2.P55

Second, it is highly unlikely that the sort of systematic reduction that would determine a univocal conceptual taxonomy is possible, even in principle. Even if we grant some kind of ontological unitarianism, according to which all there really is are fundamental physical forces and (perhaps) particles, we will almost certainly need to embrace explanatory pluralism—not just in virtue of variations in practical purposes and pragmatic constraints on explanatory tractability, but simply in order to capture the highly diverse patterns of structural contingencies that actually obtain among distributed clusters of the basic forces and particles. The world is massively complex, with individual features multiply connected to one another at radically distinct temporal and spatial scales (e.g., Cartwright 1999; Mitchell 2003). Different disciplines—scientific and humanistic—don't just operate on different domains and scales, but legitimately prioritize different types and degrees

of generalization (Ismael 2018). And when these differences in explanatory focus and purpose bottom out in differing taxonomies, they cannot always be reconciled just by embedding a single, consistent feature within multiple explanatory networks, since what counts as a feature at all relative to one taxonomy may depend on a pattern of commitment and neutrality with respect to other lower-level features within that same taxonomy, and where this pattern may conflict with the principles of individuation that are employed by other taxonomies. Thus, even if we do reach a point where we have “all the facts,” we will still need multiple, irreducibly distinct perspectives in order to articulate and explain them.

#### 4. The Ultimate Characterization

C2.S7

C2.P56

Suppose, however, that we grant not just ontological, but also explanatory unitarianism—either from a faith in the ultimate conciliation of explanatory purposes, or from a severe restriction on which explanatory purposes we treat as ultimately “legitimate.” Under that assumption, the ideal end of inquiry will indeed, by stipulation, produce one ultimate, internally coherent, all-inclusive perspective. Because the open-ended, inquiry-guiding function of perspectives will have been exhausted at that point, this ultimate perspective will in effect collapse into a maximally coherent and inclusive characterization, subsuming many layers of complexly linked subsidiary characterizations of increasingly specific subjects.

C2.P57

Thus, our final question is whether this highly idealized characterization itself makes a distinctive epistemic contribution, beyond knowledge of the truth of the constituent facts that it subsumes. More specifically, given the assumption that the ultimate characterization will include “all the facts,” in the sense of an exhaustive catalog of attributions of base-level features to subjects, what we need to determine is, first, what becomes of the structures of prominence and centrality that a characterization imposes on those base-level facts; and, second, what epistemic value that structure itself might have.

C2.P58

In normal cognitive circumstances, prominence is closely tied to the allocation of attention: assignments of prominence reflect assumptions about what is worth paying attention to, and function to guide attention to those features that matter. Specifically, in §1.1, I defined prominence as a function of intensity and diagnosticity, where intensity is a context-sensitive measure of the signal-to-noise ratio of the subject  $a$ 's possessing the feature  $X$  that

depends both on the external environment and on the agent's assumptions about how common  $X$  is for subjects of that type; and where diagnosticity is the evidential relevance of a feature for classifying the subject relative to a presupposed taxonomy and a profile of practical and explanatory purposes. The idealized context we are currently envisioning diverges radically from these normal cognitive circumstances. Limitations on attention have been lifted; a unified taxonomy has been achieved; and contextual variations in environmental conditions, and in practical and explanatory purposes, have been eliminated. Fully implementing these abstractions would thus necessitate a wholesale transformation of the notion of prominence, which I cannot undertake here. However, as we also noted in §1.1, a key component of the ordinary function of prominence is to track departure from a statistical baseline, insofar as a feature warrants attention when its instantiation is surprising or distinctive. Thus, perhaps we can grant that assignments of the prominence of a given feature in application to a given subject within the ultimate characterization will reflect, and perhaps reduce to, assignments of the statistical distribution of that feature's occurrence and of its correlation with other features in application to other subjects of the same and other types.

C2.P59

What about centrality? As the embeddedness of a given feature within causal, logical, and other explanatory connections, it requires a less radical idealization than prominence. In normal circumstances, those connections depend on and are answerable to the agent's operative practical and explanatory purposes. By hypothesis, at the nominal end of inquiry those purposes have been purified and reconciled, producing a single overarching explanatory structure that embeds every feature attributed to every subject within a vast, intricate network of logical and counterfactual connections operating at different temporal and spatial scales. While this structure will depart dramatically in shape and complexity from the structure of any ordinary characterization, this departure is more a matter of degree than of kind.

C2.P60

It should not be controversial that statistical distributions and explanatory connections are epistemically important even at the ultimate end of inquiry. Rather, the question is whether characterizations make any epistemic contribution beyond simply specifying or expressing those assignments. In §1.1, I granted that the *content* of a characterization can be specified propositionally in terms of higher-order structural relations, but insisted that *having* a characterization goes beyond entertaining or even endorsing that set of propositions, and instead involves actually instantiating the relevant structure in one's intuitive thinking, so that prominent features really do jump to



attention and central features really do connect in explanatory associations that one is actually disposed to draw. Thus, what is currently under dispute is whether the intuitive, holistic grasp afforded by characterizations makes any epistemic difference over and above the assignments they embody and which can be used to specify them. The skeptic insists that the endorsed truth of the higher-order structural propositions articulating those assignments is all that matters, while I want to argue that the intuitive grasp of those assignments is also crucial.

C2.P61 Jonathan Kvanvig (2009: 99) presses a similar point about the value of understanding, as “the grasped relatedness of the items that constitute a body of information possessed by the individual in question,” thus:

C2.P62 [I]t is not enough that the explanatory connections exist or that they could be discovered easily by the individual with only a little effort or reflection. Understanding involves an already-possessed awareness of the explanatory and other connections involved in the subject matter in question, an already-mastered grasp that involves or generates the illumination of a subject we resort to the language of intelligibility and sense-making to convey.<sup>4</sup>

C2.P63 The challenge for a defender of understanding is to articulate what “having” a characterization or “grasping” a holistic set of relations amounts to, in a way that is even at the putative end of inquiry and that does not reduce to grasp of a set of propositions.

C2.P64 One commonly invoked candidate appeals to the feeling of insight that we experience when a perceptual or cognitive gestalt clicks suddenly into place, or dawns gradually over a domain. However, while this feeling is satisfying in its own right (Hills 2016: 678), it is easily dismissed as a mere subjective, phenomenological state—and worse, one that is prone to mislead, in particular by producing epistemic complacency precisely because it is cognitively satisfying (Trout 2002).

C2.P65 A more plausible candidate appeals to the role of understanding in generating open-ended explanatory abilities. In §2, I emphasized the open-ended role of perspectives in acquiring and assimilating information. At

P1.N4 <sup>4</sup> Cf. Catherine Elgin (2006: 202): “Science seeks, and often provides, a unified, integrated, evidence-based understanding of a range of phenomena. A list, even an extensive list, of justified or reliably generated true beliefs about those phenomena would not constitute a scientific understanding of them. Veritism, in concentrating on truth, ignores a host of factors that are integral to science. These factors cannot be dismissed as just instrumentally or practically valuable. They are vital to the cognitive contributions that science makes.”

the end of inquiry, those functions have been exhausted; but even then a significant practical difference remains between merely endorsing a set of higher-order structural propositions and actually having a characterization. Even putting aside the role of characterizations in guiding attention and facilitating recall as of merely instrumental value, it is only when a characterization is implemented as a cognitive structure that an agent can perform the sorts of tasks we treat as markers of understanding: tasks such as explaining why a given subject has the particular features it does, or what further permutations would be produced by a specific change to it, or how clusters of features within one subject compare with those in another. That is, actually having the characterization, as an implemented, intuitive, holistic cognitive structure, is what provides the “cognitive control” that is characteristic of understanding (Hills 2016: 663). Further, this cognitive control is inherently epistemically relevant, and not just instrumentally useful, insofar as such higher-order explanations often constitute justifications of lower-level claims. Thus, the ability to construct such explanations constitutes a distinctively epistemic ability, and one that makes a significant contribution to an agent’s knowledge of the lower-level claims (cf. de Regt 2009).

C2.P66

In response, the skeptic of understanding will want to insist that the epistemic value here resides not in the cognitive control or ability itself, but rather in the higher-order propositions that it generates—for instance, the answers to a set of “why” questions. Kvanvig (2009: 101) objects to this reductionist move by pointing out that at least in some cases, there cannot be an exhaustive set of answers for why things happen as they do, because indeterministic systems by definition lack any such answers. A more ambitious and general response would accuse the skeptic of over-intellectualization. On the one hand, in many domains we credit an agent with understanding the subject when they display a flexible ability to navigate among, draw connections between, and imagine appropriate counterfactual modifications to particular facts, even if they are unable to explicitly articulate those connections in themselves, let alone form higher-order explanations for why those connections and counterfactual modifications obtain. And on the other hand, if an agent cites a particular higher-order structural proposition in response to a particular “why”-question, without displaying any more general ability to explain why that proposition is true, then this will call into question our ascription of both understanding *and* knowledge-why to them.

C2.P67

These considerations favor ascribing the value that we ordinarily accord to understanding to the actual instantiation of the relevant explanatory

structure in an agent's cognition, rather than to the grasp of the higher-order proposition *that* this is the appropriate structure in which to relate the base-level propositions. Further, emphasizing the practical difference between actually implementing an explanatory structure within cognition and merely endorsing a proposition specifying that structure opens the way to a final, more theoretical avenue for ascribing inherent epistemic value to characterizations. Alison Hills (2016: 679) argues that just as part of the inherent epistemic value of true beliefs derives from their being accurate reflections of the world in their contents, so too can a set of beliefs have inherent epistemic value in virtue of accurately reflecting the world in their *form*: in the network of dependence relations in which the individual beliefs stand. While a mere statement of those relations does accurately reflect the content of the world in its content, accurate mirroring through structural instantiation reflects that structure in a deeper and more direct way.

C2.P68

Hills claims that such structural reflection is valuable in its own right, and not just because of the cognitive control it underwrites. We might add that it is such direct instantiation of the structure that underwrites appropriate cognitive control, rather than the reverse. That is, just as a map is a reliable tool for navigating through the world because it represents spatial relationships between represented objects by directly instantiating those very spatial relationships, so that transformations in the representing relationships automatically reflect transformations in the represented relationships (Camp 2018d), so too is an apt characterization a reliable tool for navigating the explanatory structure of the world because it directly instantiates those very relations.

C2.S8

## 5. Conclusion

C2.P69

In assessing these last arguments for the epistemic value of characterizations, it is important to remember just how far we have come. We began with the thought that while frames are effective manipulators of attention and interpretation, they and the perspectives and characterizations they produce are at best quick and dirty heuristics for achieving a simulacrum of genuine rationality, and at worst distractions from genuinely rational thought. Against this, I argued first, that frames can play a programmatic, research-orienting function precisely because they are open-ended, intuitive, and indeterminate, and so can suggest the potential attribution of features, and even

the individuation of features, in ways that cannot currently be cashed out in independent terms. Second, I argued that while most frames are eventually transcended as simplifications, perspectives continue to play a role not in the acquisition and assimilation of information, by establishing a conceptual taxonomy that subserves a profile of practical and explanatory purposes. Thus, someone who rejects a distinctive epistemic contribution for characterizations given the assumptions of ontological and explanatory unitarianism at the end of inquiry should still grant their epistemic relevance in all but the most ultimately idealized epistemic contexts.

C2.P70 The fact that frames, perspectives, and characterizations *can* make genuine epistemic contributions does nothing to dislodge the point that they can also manipulate cognition and occlude understanding. As tools for thought, frames and perspectives are indeed double-edged swords. Their potential epistemic gains are counterbalanced by commensurate epistemic risks—especially, the risk of epistemic complacency. Given the depth and pervasiveness of perspectives in human cognition, however, the solution is not to abjure them in favor of a fantasy of purely logical thought. Instead, we need to harness the powers of logical articulation and reflection, as well as the interpretive disorientation that is produced by trying on conflicting perspectives, in order to employ frames actively and productively, and in order to assess the characterizations that they produce critically.

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C2.S9

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C2.S10

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