

# *Origins of Objectivity*

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# PART I

*The answer may be after all . . . that general considerations fail or mislead, and that even the fondest of artists need ask no wider range than the logic of the particular case. The particular case, or in other words his relation to a given subject, once the relation is established, forms in itself a little world of exercise and agitation. Let him hold himself perhaps supremely fortunate if he can meet half the questions with which that air alone may swarm.*

Henry James, Preface to *The Spoils of Poynton*

*Wenn euer Lied das Schweigen bricht  
Bin ich nicht ganz allein.*

Schubert/Lappe, *Der Einsame*

# 1 *Introduction*

What does it take for an individual to represent the physical world objectively? More specifically, what are minimum constitutive conditions necessary for an individual to represent the physical environment in such a way as to attribute, sometimes accurately, specific physical attributes to physical particulars? What conditions must be met if an individual is to represent particulars in the physical environment as having such attributes as sizes, shapes, locations, distances, motions, colors, textures, and kinds like being a body? What psychological and environmental resources are necessary if such representation is to be possible?

In effect, these questions ask what it takes to represent a mind-independent world in a way that attributes some of the primary attributes that that world in fact has. They ask about minimum conditions for obtaining the simplest, most primitive form of objectivity.

Psychologically speaking, the most basic type of representation of the physical environment is *empirical* representation. I shall be primarily concerned with empirical representation.

‘Empirical’ has two related uses. One concerns the nature of warrant or justification for belief or decision. An *empirical warrant* is one whose warranting force depends partly on perceptual belief, perception, or other sensory states. The other use concerns the nature of representation. *Empirical representation* is a type of representational state, occurrence, or activity. From here on, I often shorten ‘state, occurrence, or activity’ to ‘state’. An empirical representation either *is* a perception, or is a representational state that constitutively depends on perception for being the kind of representational state that it is, or is a representational state that constitutively depends on the exercise of other *sensory* capacities besides perception for being the kind of representational state that it is. Both uses of ‘empirical’ figure in the discussion. The second dominates.

An example of empirical representation that is itself perception is a perception of, and as of, a moving silver sphere.

An example of a representational state that depends on perception for being the kind of representational state that it is is a belief that *that* silver sphere is moving. I assume here that the belief depends for its representational nature on a perception as of some particular silver sphere and its movement. Depending for its representational nature on a perception might reside in the belief’s taking over some aspect of its own way of presenting its subject matter (the sphere, the color,

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the movement) from the way the specific perception presents the same subject matter.

An example of a representational state that depends, for being the representational state it is, on exercise of non-perceptual sensory capacities is a belief I am feeling a tickle or I am in pain. I will later maintain that *in themselves* pains and tickles are not instances of perception, or any other sort of representation, as I use 'perception' and 'representation'. These beliefs are, however, products of sensory capacities. I assume that they are the beliefs that they are because of their relations to actual sensory feelings.

All three of these types of example are species of empirical representation.

Empirical representation, indeed perceptual representation, is psychologically and developmentally central to all representation. Representing specific aspects of the physical environment is surely psychologically impossible without it.

Some philosophers go further. They regard empirical representation as conceptually necessary for representation of all other things. I do not accept this view. I think that certain types of representation of mathematical, ethical, and psychological subject matters are conceptually and epistemically independent of empirical representation. But perception and empirical thought about the physical environment are certainly primary in three respects: developmentally, psychologically, and phylogenetically.

Empirical representation of the physical environment is thus a central instance of representation. Understanding such representation is a way of deepening understanding of all representation. Representation—intentionality—is, along with consciousness, the most striking feature of mind. So understanding empirical representation deepens understanding of mind.

Commonsensical and natural-scientific knowledge have their roots in empirical representation of the physical environment. So understanding such representation forms an essential background for understanding developmental and phylogenetic origins of knowledge. This point extends to the main norms closely associated with knowledge—truth and epistemic warrant. By understanding conditions on elementary sorts of representation of the physical environment, we deepen our understanding of these matters as well.

Elementary types of empirical representation of the physical environment constitute central instances of objectivity. Objectivity is a value for mental representation. How is this value realized? What is its place in the development of mind and of knowledge? Understanding minimal conditions on objective representation of the physical environment yields insight into the basis of many of the more sophisticated types of objectivity.

Representation, perception, objectivity, mind, veridicality, knowledge, warrant are closely interconnected. My primary focus will be representation, perception, and objectivity. It is well to remember, however, that reflection on minimal constitutive conditions on empirical representation of the physical environment affects a wider circle of ideas.

The questions with which I began have phylogenetic and developmental corollaries. We can ask what species attain objective representation. We can ask at what stage in their individual development do humans and other animals attain objective representation. These questions hinge on what sorts of psychological equipment an individual must have to engage in objective representation. They also hinge on what sorts of relations an individual must bear to the environment to effect such representation.

The original questions are about *constitutive conditions*. At a very rough approximation, these are “conceptual” questions. There is a conceptual dimension in the very understanding of the key *terms* of the questions. What, more precisely, do they mean? How are we to understand such terms as ‘representation’, ‘perception’, and ‘objective’? I discuss the terms in more detail later. It should be clear, however, that, on big questions like these, there is room for misunderstanding. Smoke represents fire in a certain sense. That is not what I mean by ‘represents’ in my questions. What understanding of the term motivates interest in the questions and admits of interesting answers?

There is another “conceptual” dimension that bears on answers to the questions, even once an understanding of the terms of the questions is provisionally stable. Suppose that we substitute ‘perceive’ for ‘represent’ for the moment. Perception is a type of representation. We know that the number three cannot perceive a body. We know that a rock floating in another galaxy outside the light cone of the explosions of the World Trade Towers cannot perceive those explosions. We know these things without having to engage in special investigations. We know them by knowing something about conditions under which perception is possible—conditions under which perception can be what it is: *perception*.

By associating such knowledge with a “conceptual” dimension, I do not mean that the knowledge follows from the nature of the concepts alone. I did not merely consult and analyze my concepts of perception, numbers, moving bodies, rocks, light cones, and buildings to arrive at answers. That is why I have used the term ‘conceptual’ in scare quotes. Some of the relevant knowledge and understanding is empirically warranted, but very general and secure. Some of it is *a priori*, but not a matter of analysis of concepts. Little if any of it derives from analysis of concepts into component parts. In saying that our knowledge has a conceptual dimension, I mean merely that our background knowledge and our understanding of specific types of representation can yield insight into general conditions that bear on what makes objective representation possible.

A certain type of “conceptual” question is a constitutive question—a question about what are called *constitutive conditions*. I explain these notions in more detail in Chapters 2 and 11. The intuitive idea is that a constitutive question concerns conditions on something’s being what it is. Constitutive conditions ground explanations of something’s *nature*, the aspect of what it is that could not possibly be different if it is to be and remain what it is. Thus a simple constitutive condition on accurate perception of a particular of a certain kind is that it be caused by what it is a perception of. Part of the explanation of what it is to

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be an accurate perception of such an entity is that it be caused by what it is a perception of. Something could not be an accurate perception of a particular of a certain kind if it did not meet that condition.

The cases of the number and the rock were meant to suggest relatively trivial constitutive conditions on perception. They bring to mind that a perceiver must have certain psychological equipment that neither numbers nor rocks have. They bring to mind that even individuals with the right psychological equipment must be in the right causal relation with what they perceive in order to perceive it. Neither numbers nor that rock can be causally affected by the body or the explosion. We know these things through briefest reflection. The cases illustrate the kind of knowledge of constitutive conditions that I have in mind.

Sometimes knowledge of such conditions is less trivial. Relevant conditions can be matters of serious controversy. I think that sometimes even difficult issues can be settled in a knowledgeable way.

One task for philosophy is to deepen knowledge and understanding of constitutive conditions. Our questions concern what psychological abilities an individual must have and what relations to the environment an individual must enter into if objective empirical representation is to be possible—indeed, if it is to be what it is. The questions ask for explanations that enable us to understand constitutive conditions on the natures of perception, representation, and objectivity. Answering the evolutionary and developmental versions of our initial questions is largely a task for the empirical sciences. These sciences tend not to use such notions as objectivity at all. Their uses of notions like representation and perception may or may not coincide with uses that figure in the general questions that interest philosophers and that appeal to common-sense reflection. So there is a natural interplay between clarifying terms and reflecting on general conditions that are tasks for philosophy, on one hand, and empirical knowledge about organisms offered by sciences like psychology, ethology, and zoology, on the other.

I am interested in developmental and phylogenetic origins of objectivity. In fact, reflection on what is known empirically about these origins will help guide and clarify answers to the questions regarding minimal constitutive conditions on empirical objectivity that are my primary interest. These minimal constitutive conditions are *constitutive* origins of empirical objectivity. These origins are not in themselves temporal. They are the first grounds in the order of constitutive explanation.

Answers to questions about all three types of origins of empirical objectivity—developmental, phylogenetic, and constitutive—are closely interwoven. In a sense, answers to questions about constitutive origins are the most basic. One cannot fully and deeply understand empirical results about the temporal emergence of kinds of psychological state unless one understands the notions (about the kinds) that one uses in understanding those results. On the other hand, empirical work on the developmental or phylogenetic order in which kinds of psychological state emerge can affect understanding the kinds themselves, and the conditions that are constitutively necessary for the kinds to be what they are.

In the past century philosophy has had a lot to say in answer to the questions that I began with. In fact, answering these questions has been one of its main preoccupations.

Like mathematics, physics, biology, history, law, and other rich disciplines, philosophy is not subject to simple characterizations. It confronts a wide variety of problems. No one problem drives it. But a credible case can be made for holding that our initial questions regarding minimal conditions for objective empirical representation constitute a defining problem of twentieth-century theoretical (as distinct from practical) philosophy. By that I mean that most major twentieth-century theoretical philosophers place the problem near the center of their work, and that the problem brings together many of the primary concerns that are most characteristic of twentieth-century philosophizing.

In the twentieth century a definite bias marked nearly all philosophical answers to our questions. The main thrust of the answers was that, to represent aspects of the physical environment, an individual must have psychological resources that can represent *preconditions* under which such representation is possible. The individual was supposed at least to be *capable* of representing such conditions internally, thereby doing the objectifying him- or herself.

This required objectifying representation took one of two forms. Either the individual was required to have psychological resources that are explanatorily more primitive and from which objective representation of the physical environment could be constructed. Or the individual was required to embed representation of the environment in a broader array of supplementary representations that in effect specified some necessary preconditions for objectivity. Some resources to *explain* objective representation were required to be present among the individual's psychological resources. Unless the individual could, in some way, represent such conditions internally, attribution of basic properties, relations, and kinds of the physical environment was held to be impossible, even unintelligible.

This requirement was never stated at the level of generality that I just employed. But instances were repeatedly articulated. The requirement in one form or another was so widely agreed upon, and presented with such seeming authority, that it came to inform popular intellectual culture, even though it had implications that were surprising to common sense.

The requirement is very restrictive. Given relatively uncontroversial empirical assumptions, it implies that non-human animals cannot represent, through perception or perceptual belief for example, the physical environment as having specific macro-physical attributes. It implies that children must grow into any ability to represent the world.

It was commonly maintained that a fish, bird, ape, or human infant has visual stimulations, but that these cause either mere awareness of sensations or merely reflexive sensitivities that connect with the environment in ways that satisfy the individual's needs. Especially after mid-century, it was often held that unless language or some other relatively sophisticated conceptual structure is present,

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there is no sense to asking whether human children have states that are, in any literal way, accurate or inaccurate in representing physical reality.

The constraints were supposed to rest on “conceptual” grounds, in the broad sense discussed earlier. The conceptual grounds were understood to have a priority that would show any view that flouted the constraints to be naive or confused.

Claims of priority in philosophy are not always a bad thing. Sometimes a philosophical framework can guide a science, particularly in its early stages. Philosophy has repeatedly played a salutary role in the early development of sciences. Philosophy can make contributions that are neither simply generalizations of what sciences already tell us, nor guesses about what sciences will come to tell us.

When philosophy tries to lead, however, it must take care that its lead be good. Where its accounts are surprising to science and common sense, its arguments had better be strong. I believe that the arguments for answers given to our initial questions were not strong.

The scientific issues associated with our questions were *not* parts of mature sciences during much of the twentieth century. While the relevant psychological sciences were immature, the idea that philosophy could instruct science was not to be rejected out of hand.

Moreover, for much of the century, large movements in psychology seemed to reinforce philosophical viewpoints. This reinforcement was no accident. The beginnings of experimental psychology were just as influenced by traditional British empiricism as were the philosophers who dominated early responses to our questions. Thus Wundt and William James were just as steeped in empiricist conceptions of perception as Russell and Moore were. Further along in the century, Piaget’s work in psychology was just as influenced by Kantian ideas as was the work of Strawson. Philosophical accounts of objectivity seemed to dovetail with psychological accounts.

Of course, a large movement in psychology ignored our questions altogether. Behaviorism rejected theoretical appeal to representation. When, however, Quine tried to combine behaviorism with some acknowledgment of the representational character of language, he appealed to generic constraints already prevalent in philosophy. Philosophy was not at odds with large parts of psychology through much of the century.

Late in the century, a divide did develop. A significant stream in psychology turned against this syndrome of views. This stream matured into serious, well-grounded science, particularly the science of visual psychology. Yet philosophy continued on its own path. By the last third of the century, restrictive accounts of minimal empirical objectivity were taken by many philosophers to have a force that made input from science unnecessary or irrelevant. Even now, it is common to regard objective representation of the physical world as the special achievement of human beings, once they have acquired enough conceptual sophistication or language.



At present, only a few philosophers have squarely opposed the syndrome of views that I shall criticize. Among those who oppose the syndrome, most are driven by reductionist projects that, I believe, lack independent plausibility or appeal. Some of these projects seem not so much to reject the earlier views as to change the subject by employing new notions of representation.

The reductionist projects do invoke a broad but recognizable use of the term ‘representation’. Roughly, on this use, one set of phenomena represents another set if there is a systematic correlation between the sets. One can add that the representing set is the causal product of the represented set, or is reliably associated with the represented set. And one can go further, maintaining that the representing set functions to enable an individual to cope with the represented set.

These ways of using the term ‘representation’ occur in psychology as well as philosophy. They are so broad that they apply to the states of furnaces, plants, and bacteria. Moreover, the use is easily dispensable in favor of the terms in which I just explained the usage. Information, correlation, causation, function, and so on are not distinctively psychological terms. There is nothing in itself wrong with this use of the term ‘representation’. But it is dispensable, redundant, and misleading. More importantly, the usage tends to obscure a more narrowly circumscribed kind that *is* distinctive to psychology.

I believe that there is a kind, *representation*, that is distinctively instantiated in perception, language, and thought. This kind is a fundamental and distinctive feature of mind. It lies at the origins of primitive forms of objectivity and of perspective or point of view. It is a kind distinctively associated with explanations in terms of states, occurrences, or symbols with *veridicality conditions*—conditions for being accurate, or for being true or false. It is a kind that involves attribution and reference to the world.

This kind, *representation*, has been obscured in philosophy and psychology. The kind has been seriously and systematically mischaracterized by the large current in philosophy that I alluded to—the current that required, as a condition on representation, that it be accompanied by a capacity to represent preconditions on representation. The kind is largely ignored in the more recent currents in psychology and philosophy that employ the term ‘representation’ in such a broad way that it has no distinctive psychological application. I believe that, without being fully aware of its own accomplishment, the science of perceptual psychology has discovered a kind, distinctive of psychology, that the term naturally applies to.

My objective in this book is to go some way toward answering the questions with which it opened. Answering the questions requires developing an understanding of representation as a distinctively psychological kind, associated with distinctive types of explanation in terms of states with veridicality or accuracy conditions.

The most primitive type of representation is perception. I take perception itself to be a distinctive kind, clearly distinguished from mere sensory registration or sensory discrimination. So I shall explicate the notion of perception so as to

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clarify this distinction. The account of perception will be closely associated with the science of perceptual psychology. Both kinds, *representation* and *perception*, are best understood through their constitutive association with a primitive sort of *objectivity*.

Three primary themes of the book are that objective representation is the basic sort of representation, that objectivity and representation begin in perception, and that perception is a very widespread and primitive capacity, present in numerous animals other than human beings.

After setting background in Part I of the book, I lay out and criticize, in Part II, the philosophical tradition sketched earlier—the tradition that mischaracterizes representation by claiming that it must be accompanied by representation of some preconditions for representation. In Part III, I isolate *representation* as a distinctive psychological kind—I think *the most important psychological kind*—from broader types of “representation”. And I distinguish perception from non-representational types of sensory discrimination.

I show that the narrower conception of representation has a significant explanatory role in science and philosophy. I do so partly by developing a distinction between perception and sensory discrimination. This distinction hinges on a distinctive sort of objectification present in perception, an objectification that provides substance to the role of veridicality conditions—hence representational states—in explanation. I touch on some of what is known about the perceptual systems of various animals.

The beginnings of perception in the evolution of various animals are simultaneously the beginnings of a primitive sort of objectivity. Those beginnings are also beginnings of a primitive sort of mind. Representation, perception, and objectivity are where mind begins.

Much of the discussion—essentially all of Part II—is historical and critical. Let me comment on these two orientations.

The historical orientation is necessary to convey the breadth and depth of the syndrome of views that I will be discussing. The syndrome appears in philosophies of many types and orientations, and even in popular intellectual culture. I try to give some sense for the breadth and depth of the syndrome in Chapters 4–7.

Criticism of some of the views that I reject is no longer needed. The views that dominated the twentieth century’s first half have long been widely, and rightly, rejected. I discuss them in a summary way in Chapter 4. It is illuminating, however, to see that the positions that replaced these older views carry much of the same baggage. The constraints that the newer views place on objective representation are hardly better grounded than those that they replaced. But the newer proposals, roughly from the middle of the century onward, cannot be rejected so summarily, since they retain many adherents. So I cannot discuss effectively very many of the latter-day proposals. I shall, however, criticize, in detail, some prominent representatives of these views in Chapters 6 and 7.

My perspective stems, of course, from a positive philosophical standpoint. The standpoint is an outgrowth of a thesis that I first argued for in 1979. This

thesis is known as *anti-individualism*. Anti-individualism is the claim that many mental kinds constitutively depend on relations between individuals and a wider environment or subject matter. Being in specific mental states constitutively depends, not just on psychological capacities, but on relations to specific aspects of a broader environment. In the case of empirically based psychological states, the states are what they are partly by virtue of non-psychological, causal relations between individuals and a wider environment. I explain these matters further in Chapter 3. Here I sketch the position in broad strokes.

Crudely, the effect of the position on our questions is to render unnecessary many of the ways that individuals were thought to have to build up an internal representation that mirrors preconditions for objective representation. The individual's being embedded in an environment and bearing non-representational relations to it do much of the work that was supposed to be done by supplementary representational capacities under the individual's control.

This description oversimplifies enormously. Anti-individualism in its most general form is compatible with some forms of the view that I want to criticize. What lies behind my criticism is reflection on the specific nature of perception and on scientific work on perception. This reflection informs elaboration of anti-individualist principles regarding perception. Anti-individualism regarding perception is thus informed by reflection on empirical knowledge in perceptual psychology, physiological psychology, and ethology.

Elaborating perceptual anti-individualism and explaining how science is at odds with prominent philosophical approaches to explaining objective empirical representation constitute the beginning of a different philosophical understanding of empirical representation. The different approach takes objective empirical representation to be an evolutionarily primitive capacity, present in a wide variety of animals.

Objective empirical representation is not an achievement special to human kind. This capacity lies at the phylogenetic, developmental, and constitutive beginnings of representation. Veridical representation of the physical environment does not depend on a psychological development that breaks through subjective types of representation. Nor does it need supplementary representational capacities that represent other matters. It does not need language, generalization, or an appreciation of an appearance/reality distinction. Objective empirical representation is the starting point.

In fact, it constitutes three starting points. Perception, representation, and objectivity begin together. The point is constitutive as well as phylogenetic. Explaining this claim and making it plausible require elaborating all three notions, especially the first two. Perception is distinct from other sorts of sensory registration. A sensation/perception distinction is often alluded to in psychology, but rarely well explained. I hope to do better. A better conception of perception distinguishes perception not only from sensation but also from propositional thought.

I believe that such a conception of perception sharpens our conception of representation. I will explicate a distinctively psychological notion of representation.

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The mistake about representation that marked most of twentieth-century philosophy was to require too much—a superstructure that represents preconditions for representation. A correlative mistake, now common in psychology, is to require too little. It is common to rest with a use of ‘representation’ that does not distinguish perception from sensation, or even from the sensitivity to stimulation involved in plants. I criticize resting with this use in Part III, especially Chapter 8.

These more specific notions of representation and perception are supported, not only by common sense, but by scientific practice. They are not sharply articulated in science. Articulating them is a task for philosophy. I hope to make clearer that representation and perception are significant psychological kinds that already ground scientific explanation. The kind *representation* is to be sharply distinguished from the kind *information registration* and from various other types of correlation. The kind *sensory-perceptual system* is to be sharply distinguished from the more generic kind *sensory system*.

The kind *representation* constitutively involves capacities to represent veridically, and to have accuracy or veridicality conditions with non-trivial explanatory potential. The kind *perception* constitutively involves capacities to represent objectively—to represent some of the basic mind-independent features of the environment veridically, as they are. Since representation of the mind-independent physical environment is phylogenetically primary, objectivity and representational mind begin together, in elementary perceptual capacities. My main interest, however, lies in the fact that objective perceptual representation is a beginning that delineates the lower border of representational mind. These phenomena provide a basis for understanding *what mind is*, in its most basic form.<sup>1</sup>

I sketch only a part of what is a very complex story—both historical and substantive. I hope that, nevertheless, something of interest will come through.

In the remainder of this chapter, I go over, in more detail, some of the same ground just traversed. I say more about the syndrome that dominated twentieth-century philosophizing regarding constitutive conditions for empirical representation of the physical environment. Then I say more about my standpoint. That standpoint is grounded in anti-individualism. This view provides a starting point for distinguishing representation from broader correlational phenomena, and perception from more generic sensory capacities.

### INDIVIDUAL REPRESENTATIONALISM

A certain syndrome of answers to the questions that I have raised dominated thinking in the twentieth century. I call this syndrome *Compensatory Individual*

<sup>1</sup> This phenomenon is *representational* mind at its most primitive. The relation of this phenomenon to consciousness is complex and unobvious. The relation will come up now and again. As noted in the Preface, note 1, what conscious aspects of mind are at *their* most primitive is a subject for another day—perhaps era.

*Representationalism—Individual Representationalism*, for short. There are many positions within this syndrome. Most fall into one of two families. The two families are deeply opposed to one another on some matters. However, they share a general assumption about objective empirical representation. It is this assumption in all its forms that I reject.

The core assumption of the syndrome is that an individual cannot empirically and objectively represent an ordinary macro-physical subject matter unless the individual has resources that can represent some constitutive conditions for such representation. *Objective* representation of a macro-physical subject matter is attribution of some of the specific macro-features that the physical environment in fact has.

Thus, on this view, objective empirical representation of physical, environmental particulars cannot stand on its own, among an individual's representations. It must be derived from, supplemented by, or embedded in other sorts of representations available in the individual's psychology. These other sorts must represent some constitutive conditions for veridical representation of environmental particulars.

These modal claims ('cannot stand', 'must') are usually regarded as conceptual, in a fairly strong sense of 'conceptual'. They are often supposed to mark the very intelligibility of attributing representation of physical particulars as having specific physical properties.

To put the point in a way that suggests its motivations: Individuals qualify as engaging in objective empirical representation by having resources for explaining what they are doing. The individual's own representations incorporate within themselves conditions that can be used constitutively to *explain* objective representation of the environment.

All forms of the syndrome constitute hyper-intellectualization of constitutive requirements on perception, although some forms, especially continental forms, themselves inveigh against hyper-intellectualization.

The name that I have chosen for this syndrome of views, 'Compensatory Individual Representationalism', does not trip off the tongue. It is meant to provoke caution and reflection. Each of the three terms in the name indicates something important about the syndrome.

The syndrome maintains that there is an inherent insufficiency in empirical representation of ordinary particulars in the environment as having ordinary specific physical attributes. The insufficiency is *compensated for* by the individual's having *further* representational capacities that provide an explanatory basis for the idea that the individual can represent particulars in the environment objectively, more or less as they are. The further representational capacities make this capacity intelligible by representing constitutive explanatory preconditions.

The syndrome is counted a *representationalism* because it holds that some constitutive preconditions for objective representation of the physical environment must be mirrored *representationally*, or in capacities to represent those

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conditions.<sup>2</sup> It is a mark of the syndrome to hold that constitutive conditions must be internalized and representable.

The syndrome is counted Compensatory *Individual* Representationalism because the relevant representations are required to be available in principle to individuals' consciousness or use. The *individual* makes objectivity possible by being able to represent preconditions for it.

Contrary to the syndrome, I believe that objective empirical representation of the environment is possible even though *no* constitutive preconditions for such representation are representable in the individual's psychology. Empirical representation of physical particulars as having specific physical attributes is *representationally* sufficient in itself.

I mentioned two families of views included in Individual Representationalism. These families divide with respect to how the individual's own representations represent preconditions of objective representation. One family maintains that the individual builds representation of the physical environment from *more primitive* representational material, which represents elements, including *particulars*, that are preconditions for objective representation. The particulars are claimed to be subjective or proto-objective. They are not ordinary particulars in the physical environment. The other family maintains that the individual makes representation of the physical environment possible by employing supplementary representation of *general constitutive preconditions* or principles of objective representation. In either case, objective representation of the environment depends on the individual's having a representational capacity to meet fundamental conditions on objectivity *by representing them*.

The first family denies that objective representation of physical environmental particulars is constitutively *primitive*. Such representation is derived from more primitive representation of particulars. Usually the derivation amounts to a kind of definition or description that is supposed to constitute the representational content of ordinary representation of physical particulars. Sometimes the derivation is more analogical than logical or definitional. In all cases, representation of ordinary physical particulars is conceptually posterior to another sort of representation that is not in itself about the physical environment. The primitive representations of other particulars, together with more general representational capacities, are supposed to figure essentially in forming representations of ordinary physical particulars.

The more primitive *representata* (referents or indicants) were commonly said to be sensations, sense data, or appearances. Sense data and appearances were not always regarded as mental. In fact, they were more often regarded as non-mental,

<sup>2</sup> Compensatory Individual Representationalism is to be sharply distinguished from another view in philosophy called 'representationalism'. Representationalism holds that all "qualitative" mental states, like pain, are to be fully explained as representational states. I do not accept representationalism, but it plays almost no role in this book. The notion of representation that I develop will, however, recast the terms of debate over representationalism.

though mind-dependent.<sup>3</sup> Even where they were taken to be mind-independent and “objective”, they were commonly taken to be apprehended in an infallible or authoritative way. The apprehension was modeled on introspection of phenomenal aspects of perceptual experience—on introspection of appearances or seemings. Apprehension of the purported relevant subject matter corresponds point by point with phenomenal aspects of sensory experience.

An example of a complex representation constructed from more primitive representation of particulars is a description like: the cause of these sense data or the constant law-determined element in this series of sensations. Representation of a physical subject matter is achieved when the individual can form such complex representations out of the simpler material. On such views, the capacity to represent causation, constancy, or law enables the individual to transcend representation of the primitive particulars, which are in effect only subjectively available. Proponents of these views maintain that unless such generic features of the world are represented, perception cannot represent physical particulars as having physical properties.

On some views, the representation need not represent law as such, as long as it represents law-determined patterns of sense data. The fact that the sense data are in a law-determined pattern grounds explanation of representation of physical reality. Sense data that fall in the pattern are still part of a precondition for objective representation. Thus again, representation of physical entities is supposed to be conceptually posterior to representation of other sorts of particulars that enter into preconditions of objective representation.

First-family views tended to take a first-person phenomenological perspective as the natural starting point for philosophy. They motivated their starting point, in awareness of sense data, by arguing from a conception of what is fundamental for consciousness or what is a basis for knowledge or certainty.

These lines of thought owed much to traditional British empiricism. Although not all first-family philosophers were empiricists—notably, Russell was not—

<sup>3</sup> Russell and others took different positions on this matter during their careers. Sense data were often counted “objective appearances”. C. D. Broad, for example, whom I discuss in Chapter 4, maintained that there are non-physical, “neutral” objective appearances or *sensa* that perception represents. Some philosophers nowadays maintain that there are “objective appearances” that are relational properties but part of the physical optical world. They too are counted ‘objective appearances’. They are, like Broad’s sense data, explained as relational, phenomenologically accessible properties. I believe that perceptual representation of, and as of, ordinary bodies, events, and their properties is explanatorily and developmentally more basic than representation of any such objective appearances. I believe that postulating these appearances as the first objects of perception is a variant on the mistake of *sensa*-data theorists—confusing mode of representation with object of perception. Given appropriate conceptual abilities and given appropriate attention, we can perhaps attend to and take as objects such phenomena. But in primitive perception, such phenomena are not commonly primitive objects of perception. Moreover, inasmuch as such appearances are objective, psychology must explain veridical perception of them, how particular properties (size versus shape or color) are extracted in perception of them, under what conditions we have illusions of them, and so on. For more on this matter, see my ‘Disjunctivism and Perceptual Psychology’, *Philosophical Topics* 33 (2005), 1–78, especially 69 note 19.

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most were. For some traditional empiricists, such as Hume or Berkeley, objective empirical representation is merely a complex concatenation or sequence of references to mental items. These items might be ideas, sensations, or sense data. For philosophers influenced by Russell, objective empirical representation is a logically complex description that connects objective matters to sense data. For early Carnap, influenced both by Russell and by Kant, objectivity lies in constant, individual-independent, law-like patterns extractable from the stream of sense data.

These forms of Individual Representationalism dominated philosophy in the first half of the twentieth century. Although this sketch is over-simple, I hope that it marks a recognizable trend. Representatives of the view are Russell, Moore, Broad, Price, Ayer, Schlick, early Carnap, Husserl, Merleau Ponty, William James, C. I. Lewis. I discuss this family of views in Chapter 4.

In mid-century, first-family views gave way to a second family of individual representationalist positions. Second-family views specifically criticized first-family views for taking the root of objective empirical representation to lie in types of apprehension modeled on introspection. The newer views avoided taking the phenomenality of experience as the starting point for accounts of objectivity, and for philosophical reflection generally. These views concentrated on use, function, and inferential connection. They tended to take the *basic, first* subject matter of empirical representation to be physical particulars and their attributes.

Second-family versions of Individual Representationalism do not maintain that prior representation of non-physical particulars is essential to forming representations of particulars in the physical environment. They maintain that representation of physical particulars must be backed by capacities to represent *general* conditions that are constitutively basic to objective representation of physical particulars. In this way, aspects of the nature or structure of objectivity are represented within the subject's own perspective. Whereas first-family views deny that empirical representation of physical particulars is representationally *primitive*, second-family views merely deny that such representation is *autonomous*.

In effect, the second family requires individuals' representations to contain *general* materials to *make sense* of objective representation. Again, ostensibly simple, direct empirical representation of the physical environment is held to be impossible without help from further representational resources of the individual. The individual must have the representational resources to make empirical representation objective—in effect to do the objectifying himself. The further representational resources are general.

For example, perception or perceptual belief about bodies as having shapes and locations might be held to be impossible unless it is supplemented by higher-level cognitive capacities. Examples of supplementary capacities are a capacity to represent a distinction between appearance and reality, or a capacity to represent laws or causal generalizations, or a capacity to represent criteria for identity or individuation. The distinction between appearance and reality, the existence of laws or law-like patterns, and conditions for identification and



individuation are constitutive conditions on objectivity. Second-family views maintained that individuals must represent such conditions—have conceptualizations for them—in order to represent the physical environment empirically.<sup>4</sup>

In rejecting the phenomenological starting point for philosophy, second-family views took a more third-person perspective on empirical representation. They tended to motivate their views by asking what differentiates objective representation from mere sensation or mere response to stimulation. They asked, what in the individual's psychology certifies that representation is to a reality beyond sensations and proximal stimulations? They maintained that, if their requirements were not met, nothing in the individual could differentiate objective representation from a stimulus response mechanism, or a thermometer. Thus an important motivation lay in safeguarding attribution of empirical representation to individuals from the threat of replacing representation with something altogether different. Objectivity of perceptual representation was supposed to depend on internal validation of objectivity through the individual's own collateral representational resources.

Whereas first-family Individual Representationalism, at least in mainstream philosophy, has its roots in British empiricism, the historical antecedents of second-family Individual Representationalism lie primarily in rationalist ideas.

Recall that Plato's cave metaphor indicates that, unless an individual masters general principles or has insight into essences, he or she will be looking at shadows that are misleading distortions of reality. Such an individual would be trapped in a provincial cave. Descartes holds a similar view. He maintains that one will be confined to a representation of misleadingly shallow, not-fully-objective aspects of the world unless one grasps fundamental mathematical and physical ideas or principles. Kant is perhaps the most significant historical inspiration for the tradition.

I do not claim that the rationalist antecedents are individual representationalist. Some are, but not all are. The rationalist antecedents are usually embedded in theories of *knowledge*—in fact, often theories of *scientific knowledge*—not theories of elementary forms of representation.

Individual Representationalism radicalizes this rationalist tradition in a certain respect. The claim is that, not just to know, but to *represent*, physical entities, one must supplement perception and perceptual belief with cognitive capacities that apply to general *conditions* for objectivity. Often it was required that such conditions be not only representable, but *known*.

<sup>4</sup> Sometimes I write of an individual representationalist requirement of *representing a principle*. Unless the context shows otherwise, I will mean by this phrase 'representing the conditions that the principle describes and explains'. The idea is not that Individual Representationalism requires that a principle be *referred to*. Rather, it requires that some state or capacity of the individual have the representational content of a principle that describes and explains constitutive conditions. *Principles* are explanatory propositions consisting of representational content. So the idea is that a relevant principle must be the representational content of a perception, thought, or capacity, within the individual's psychological repertoire. I usually write around the shorthand 'representing a principle', but sometimes I allow convenience to trump explicitness.

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Second-family Individual Representationalists were mostly *not* rationalists. Most did not believe in non-trivial apriori knowledge.<sup>5</sup> Empiricism dominated mainstream philosophy after Frege and Russell. Second-family Individual Representationalism had a further source of inspiration, independent of rationalism: reflection on language. Many proponents of the position viewed perceptual belief through the lens of requirements on linguistic use or communication. Still, second-family versions of Individual Representationalism are inspired by intellectualist emphases in traditional rationalism.

Representatives of second-family Individual Representationalism are Frege, Cassirer, Kripke's Wittgenstein, Sellars and Sellarsians, Dummett, Strawson, Evans, other Strawsonians, Quine and Quineans, and Davidson.

To recapitulate, the most important difference between the two families concerns whether empirical representation of the physical environment is derivative or primitive. Representatives of the first family maintained that perception and perceptual belief about physical particulars are to be defined, constructed, or otherwise accounted for, in terms of representations of other particulars. Members of the second family held that empirical representations of ordinary macro-physical entities are primitive, not derivative. Proponents of second-family views maintained a type of *holism*—that representation of ordinary physical particulars must be embedded in a supplementary network of representation of general conditions on objectivity.

The mid-century shift from first- to second-family views constituted a major turn in philosophy. The turn was toward understanding representation as being more fundamentally objective from the start. The move highlighted the role of patterns of activity and interconnections among psychological states in making representation possible. Focus on such patterns, rooted in Kant and Frege, was much more fruitful in leading to richer understanding of mature representation than was focus on phenomenological appearances.

From the point of view of our project, however, this shift was not fundamental. The second family is more similar to the first than its members realized. Like first-family philosophers, they required an internal mirroring of conditions of objective representation as a condition on such representation. Both families maintain that empirical representation of physical particulars is in itself representationally deficient. Both require that the deficiency be compensated for by the individual's representation of preconditions of objective representation.

First-family views take this compensation to lie in representation of particulars that are representationally more basic than ordinary physical particulars. The more basic particulars are then connected to elements in the physical environment by descriptions of the relation between the basic particulars and the

<sup>5</sup> *Apriori knowledge* is knowledge that is warranted, but not warranted through sensory material or perception. Apriori knowledge is typically warranted purely through understanding or reason. It is important *not* to assimilate apriority to certainty, unrevisability, or dogmatism. It is a status that concerns purely the nature of epistemic support.

elements in the environment, or through falling into patterns that signified or constituted patterns in the physical environment. First-family views might require any of the following capacities to connect the allegedly more basic particulars with entities in the physical environment:

- (a) a capacity to use a descriptive or quantificational apparatus that describes a relation between sense data and an environmental cause of the sense data;
- (b) a capacity to use counterfactual concepts or principles that define bodies as would-be possibilities of patterns of sense data;
- (c) a capacity to represent, or at least be sensitive to, invariant patterns or laws in representation of sense data or phenomenal entities;
- (d) a capacity for phenomenological recognition of mental acts or events that bestow objective meaning on otherwise neutral phenomenological material.

Second-family views also take perceptual representation of the physical environment to be deficient unless it is compensated for by the individual's objectifying representation. They do not postulate non-physical particulars as initial *representata*. They take the needed compensation to reside in representation of general conditions on the representation of physical particulars. Second-family positions might require any of the following:

- (e) a capacity to use the notion of objectivity itself;
- (f) a capacity to represent a seems/is or an appearance/reality distinction;
- (g) a capacity to use concepts of truth or falsity, as applied to beliefs or sentences;
- (h) a capacity to track, in one's beliefs, bodies, including one's own, through a comprehensive spatial order;
- (i) a capacity to represent general constitutive conditions of individuation or reidentification;
- (j) a capacity to represent causal relations or causal laws;
- (k) a capacity to be conscious of oneself as a representing being;
- (l) a capacity to unify representations into a coherent theory, represented as one's own;
- (m) a capacity to use such linguistic devices as quantification, identity, sortal predicates;
- (n) a capacity to represent linguistic standards that make public discourse possible.

Both first- and second-family views hold that objectivity is possible only through the individual's capacity to produce objectivity internally—by representing some of its conditions. The simplest-seeming empirical representation depends on *the individual's* capacity to represent *further* matters.

A picturesque and common version of Individual Representationalism, in both philosophy and psychology, takes *developmental* form. The idea is that individuals begin by being able to represent only subjectively, or in a parochial way. A child or animal is taken to begin in a pre-individuative, subjectively limited, or even solipsistic stage. Perhaps the individual begins with a capacity only to represent its own sensations, or appearances. Or the individual represents an

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unarticulated physical smear. Or the individual is stuck with chaos or simple stimulus-response mechanisms. Then the individual is passed through stages that lead to mature representation of the physical world.

Maturation was supposed to depend on acquiring further capacities that either build objective representations out of subjective ones, or enable the individual to represent *general* constitutive conditions determining objectivity. For example, maturation might involve grasping a principle for determining when entities are the same or different, or having a conception of the difference between true and false belief, or having a notion of mind-independent existence. These further representations enable the individual to transcend an initial subjectivity or parochialness, and to represent the objective physical world.

Members of the second family sometimes took up a halfway house. They maintained against the first family that the initial representations are of physical subject matters. Yet they claimed that the subject matters are very different from what mature human beings represent. For example, the subject matters might be undifferentiated masses, or features unconnected to stable physical bodies.<sup>6</sup> Such representation was treated as inchoate with respect to macro-attributes in the physical environment.

Some philosophers denied that there is an empirical or conceptual stage prior to objective representation of physical bodies.<sup>7</sup> These philosophers invoked holism about representation. According to such a holism, objective light 'dawns only over the whole representational system',<sup>8</sup> and is in no way built up or analyzable piecemeal from subjective stages or components. On such views, genuine objective representation is not preceded by a prior stage (developmental or conceptual) that could ever stand alone. Such views were *still* commonly forms of Individual Representationalism.

Although developmental pictures figured in individual representationalist views, the main philosophical issue does not concern development. Whether there is a *stage* of representation that precedes representation of physical particulars is not the primary issue. The initial stage may be the final stage. The key issues are constitutive, not developmental.

In barest summary, Individual Representationalism is marked by a negative view and a positive view about objective representation of ordinary macro-physical entities. The negative view is that ostensibly ordinary perception and perceptual belief regarding such entities is in itself constitutively deficient. It needs further *representational* help to be what it is. The positive view is that the representational help must be the individual's capacity to represent some pre-conditions for the relevant representation. The individual must validate

<sup>6</sup> Strawson postulates a primitive representation of features. Quine postulates a primitive representation of masses. See Chapters 6–7.

<sup>7</sup> Davidson, for example, avoids postulating a proto-objective stage, both developmentally and conceptually.

<sup>8</sup> The dawning metaphor comes, I think, from Ludwig Wittgenstein, *On Certainty* (London: Blackwell, 1969).

objectivity by being the source of objectification through resources for further types of representation, which provide resources for explaining or making intelligible the individual's representation of physical reality.

I want to note some variants of these core ideas that still come within our purview. Some philosophers asserted that the very notion of thinking of specific entities, or representing something in a certain way, is deficient. Behaviorists rejected mentalistic and semantical concepts altogether. On some interpretations, Wittgenstein holds that there is no fact of the matter regarding what rule an individual follows. Quine holds that there is a fundamental indeterminacy in attributions of representation.

Some qualification is needed if one is to take such views to be versions of Individual Representationalism. I think the qualifications less significant than the association. Quine's view and the views attributed to Wittgenstein are motivated by the core negative idea of Individual Representationalism. Although they take talk of representation to be misleading or second class, they propose compensatory supplements that parallel the proposals of Individual Representationalists who are less sceptical or more realist about representational states.

A striking feature of the history of this issue is that most Individual Representationalists, at each stage, accused their predecessors of being overly subjectivistic in their explanations. The initial sense data theorists—Russell, Moore, Broad, and others—took themselves to be freeing philosophy from the vagaries of idealism. Second-family individual representationalists—Sellars, Strawson, Quine, Davidson, and others—took themselves to be freeing philosophy from the subjectivistic methods of the sense-data theorists.

First-family members tried to resist this charge. Several insisted that apprehending appearances is an objective matter and that appearances are themselves objective, not mental.

I believe that first-family Individual Representationalists did model their accounts of objective representation too much on subjective forms of apprehension. If appearances are objective, one needs to ask what perspective one has on them, how one comes to represent them, how one makes mistakes about them. Such questions were not pursued. First-family members took up a first-person point of view on appearances.

Even second-family Individual Representationalism can be counted subjectivist in an extended sense. In requiring objectivity to involve individuals' representing its preconditions, the approach gives *perspectives* too large a role in explaining objectivity.<sup>9</sup>

<sup>9</sup> It would be misleading, however, to call second-family versions of Individual Representationalism subjectivistic, except in the extended sense just indicated. It would be a more serious mistake to think of either family as essentially *idealist*—as holding that all reality, including the physical environment itself, is to be explained in mentalistic terms. Some first-family individual representationalists were idealists. But the position does not entail idealism.

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It is hard to identify a single underlying mistake that leads to Individual Representationalism. As we shall see, certain philosophical ideologies abetted different versions of the view—verificationism, vestiges of idealism, descriptivism, the quest for epistemic certainty. I conjecture that a tendency to overrate the role of individuals in determining the nature of their representational powers might be close to the common root. I leave this question open.

The Individual Representationalist standpoint dominated serious philosophical reflection about empirical objectivity throughout the twentieth century. The standpoint's claims, especially second-family claims, seemed to many to be a paradigm of philosophy. They seemed to provide a framework for understanding common sense and science. The claims had an air of excitement and depth. I think that all of them are mistaken.

Usually Individual Representationalism is supposed to be supported by general reasons that do not rely on any *specialized* empirical knowledge. Not one of the claims of Individual Representationalism is supported by argument, or other considerations, with any real force. All lean on a *Zeitgeist* that bred confidence that the core idea of the syndrome is sound.

The claims of individual representationalists are not self-evident. They run against common sense. They are incompatible with a sound philosophical understanding of empirical representation, and with empirical work in developmental, perceptual, and animal psychology.

I shall discuss and criticize a wide range of individual representationalist claims. I will try to expose their lack of cognitive substance. First-family views that held that there is a more primitive representation of particulars were driven by philosophical commitments that turned out to be dead ends. There is wide agreement on this point in philosophy today. I will not criticize first-family views, except cursorily. My task is to bring out the Individual Representationalism common to such views, and to connect this common feature to second-family views.

Second-family views contain, I think, more insight. They nonetheless rest on misdirected dogma about what is necessary to make objective representation possible or intelligible. They rest on mistaken theories of perception. I believe that both philosophical and empirical considerations undermine all forms of these views.<sup>10</sup>

### A DIFFERENT STANDPOINT

Individual Representationalism has things backwards. Objective representation in perception is more basic than both representation of appearances and general representations of conditions on objective representation.

<sup>10</sup> A condensed overview that overlaps key passages in Chapters 1, 3, 6, and 7 is my article 'Perceptual Objectivity', *The Philosophical Review* 118 (2009), 285–324.

Contrary to first-family views, representation of ordinary macro-physical particulars in the physical environment precedes and does not depend on individuals' being able to represent other subject matters. Representation of elements of the physical environment, including bodies, precedes, both constitutively and developmentally, representation of sense data, appearances, or phenomenological features, even ones that are counted objective or non-mental. Perception and perceptual belief take as their first *representata* the physical particulars and properties that make up the physical environment.

Contrary to first-family views, objective empirical representation of the physical environment is *primitive* in that no other empirical representation is more basic—either developmentally or in the order of constitutive explanation or intelligibility. Objective perceptual representation of ordinary environmental particulars and their attributes is not constructed from perceptual representation of anything else. Such representation operates under principles that mark it as perceptual, and meets conditions of objectivity. It is fallible and does not rest on some more authoritative form of representation.

Contrary to second-family views, objective empirical representation of the physical environment is not contingent on any capacity to represent general preconditions on objectivity. Objective perceptual representation of the physical environment precedes and does not depend on an individual's ability to represent such general conditions. It precedes and does not depend on having thought, let alone language.

Both forms of Individual Representationalism rule out perceptual representation of physical particulars by animals and very young children. These rulings cannot be sustained *a priori*. In fact, they are empirically refuted. In many animals, objective perceptual representation occurs without the presence of higher cognitive abilities. Even in humans and apes, perception does not depend for its objectivity on relations to such higher abilities. In fact, many of those higher abilities—perceptual belief, for example—obtain their objectivity from perceptual capacities that operate under principles governing objectification.

An account of *objectification* in perceptual systems will be central in Chapter 9. The rough idea is that certain processes in perceptual systems systematically distinguish effects of stimulation that are special to the individual and the context from perspective-independent attributes of the wider environment. Explanation of the formation of perception keys on processes in perceptual systems that make this distinction. Such processes constitute the ground of perception, representation, and objectivity. They are unconscious. They are not imputable to the individual perceiver. They occur within perceptual systems. The principles governing processes in which idiosyncratic individual states are distinguished from effects (perceptions) of objective environment conditions are not themselves represented within the system. The system simply operates according to law-like patterns described and explained by scientific principles. This minimal objectivity in an individual's perception and perceptual belief is completely independent of abilities of the

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individual to represent the sorts of general conditions on objectivity required by second-family Individual Representationalists.

Objective representation need not be derived, rationalized, validated by the individual. The most elementary forms of empirical objectivity are the products of conditions that the individual has no perspective on. They are the products of *subindividual* conditions and *environmental* conditions. Subindividual conditions are unconscious, automatic, relatively modular aspects of perceptual systems and belief forming systems. Environmental conditions are twofold. They are the actual properties and relations in the environment that the individual interacts with and discriminates. And they are patterns of causal relations between the environment and the individual's perceptual and cognitive capacities, relations that ground individuals' sensory discriminations (including pre-perceptual discriminations) and that fulfill individuals' biological and practical functions.

The elementary forms of empirical objectivity are not products of the individual's doing any objectifying, or the individual's representing preconditions of objectivity. Objective empirical representation must conform to conditions of objectivity, including both environmental and psychological conditions. It does not depend on any of these conditions' being *represented* by or within individuals.

Philosophy can make objective representation intelligible without requiring that it be built from some more primitive form of representation, or embedded in a set of supplementary, higher-level representational abilities. The most elementary type of objective representation is fully present in perception, unaided by any higher cognitive capacities. Perception makes reference to particulars in the physical environment. Perception attributes physical properties, kinds, and relations to those particulars—categorizes or groups them. It is from a perspective. But it does not represent appearances or perspectives. It does not represent generalizations of any kind.<sup>11</sup>

Perception and perceptual grouping of entities in the physical environment is a primitive, autonomous capacity. A wide range of animals have objective representation through perception. Probably all mammals, perhaps all birds, many fish and reptiles, and some insects perceive physical particulars in the environment as having specific physical attributes. Their perceptions attribute spatial position and spatial relations, shape, motion, texture, color. These animals represent objectively in the sense that they represent mind-independent or constitutively non-perspectival physical particulars as having ordinary physical attributes that these particulars in fact instantiate. The perceptual states of these animals can be veridical or non-veridical about such a subject matter. Such capacities in perception do not depend on supplementation by other representational capacities.

<sup>11</sup> Of course, the attributions attribute kinds, properties, and relations that can be instantiated by various particulars. Attribution is general in this sense. But, at least in primitive occurrences, attributions always modify and guide representations of particulars. They do not constitute generalizations. General principles are not among the representational contents of any perceptual system, although perceptual systems operate under and are explained by general principles.



The simpler forms of perceptual belief inherit the objectivity of perception. Perceptual *belief* no more depends on the individual's capacity to produce objectification than perception does. Like perception, perceptual belief that attributes specific physical properties to bodies (as such) does not depend on the individual's being able to represent general conditions of objectivity. Perceptual belief conceptualizes attributions of perception and embeds its own attributions in capacities for propositional inference. Propositional inference does not require representation of principles of propositional inference. The objectivity of perceptual beliefs regarding the physical environment is not any more correctly explained by Individual Representationalism than is perception.

My view has three main sources.

The first is philosophical. An old view in philosophy that I have developed and provided with grounding is *anti-individualism*. I explain this view in Chapter 3. The key idea is that the natures of many mental states, including perceptual states, depend constitutively on relations to specific aspects of the physical environment. Some of these relations are non-representational. For empirical representation, the key non-representational relation is causation. Relevant relations need not be describable in the individual's psychology. The individual need not be able to produce supplementary descriptions of what he or she represents. For example, the individual need not have correct individuating descriptions of bodies to perceive or think of them as bodies.

Although anti-individualism, especially anti-individualism regarding perception, figures in my rejection of Individual Representationalism, the relations between the doctrines are complex. I want to stress very emphatically that *Individual Representationalism is not to be identified with individualism*—the contrary of anti-individualism. Individualism maintains that all or most genuine mental states do not depend for being the states that they are on any relations to entities beyond the body of the individual. Individualism says nothing about an individual's having to represent preconditions for empirical representation of the physical environment. Many individual representationalists, especially second-family ones, are not individualists at all. Many are anti-individualists. Reflection on anti-individualism about *perception* helps undermine Individual Representationalism. But even anti-individualism about perception is not logically incompatible with Individual Representationalism.

Anti-individualism, *properly elaborated*, provides a foil for Individual Representationalism. It elicits oversights that underlie claims of the syndrome. It indicates sources of individuation for representational states overlooked by Individual Representationalism. The dialectical effect of elaborating anti-individualism is to show that there are other resources for explaining constitutive conditions on objective empirical representation—besides those insisted upon by Individual Representationalism. Anti-individualism indicates ways in which perception and perceptual belief represent the environment—without requiring that the individual be capable of representing conditions for objective representation.

These issues are delicate. In Chapter 3, I explain in more detail why generalized anti-individualism is not incompatible with Individual Representationalism. By reflecting on the specific nature of perception and perceptual belief, however, anti-individualism can be elaborated so as to undermine Individual Representationalism's claims to plausibility. It provides a context in which the failure of Individual Representationalism seems natural.

Anti-individualism also provides a framework for understanding the empirical psychology of perception. It gives philosophical point to the empirical science.

A second source of my positive view is empirical science, primarily perceptual psychology. Ethology, physiological psychology, and developmental psychology are also relevant. Results in perceptual psychology, particularly the psychology of vision, since the 1970s undermine Individual Representationalism. They indicate that perception of physical particulars in the environment, and perceptual grouping of them as instances of specific physical attributes, do not depend on resources that Individual Representationalism requires.

Perceptual psychology is a large subject. I convey some sense for how science supports my positive view in Chapters 3, 8–10.

I believe that perceptual psychology implicitly assumes—indeed, requires—anti-individualism, and makes use of its general principles in framing its own methods and theories. Anti-individualism is embedded in the method and theoretical framework of the science.

Fertilization can work reciprocally between philosophy and science. Philosophical articulation of anti-individualism can yield for science insight into its basic presuppositions. Philosophy can help sharpen distinctions (such as that between perception and sensory discrimination, or between different conceptions of representation) that in scientific work are not as sharp as they might be. Science, in turn, provides applications, empirical content, and cases that enrich philosophical understanding and places limits on tenable philosophical positions. The first and second sources of my positive view are intertwined.

A third source, common sense, is intertwined with the first two. It is natural and commonsensical to hold that many animals and normal human babies perceptually categorize bodies and simple physical properties, without either building up this capacity from subjective representations or having a supplemental apparatus for representing general conditions of objective representation. Empirical representation of the environment does not seem to depend on the individual's ability to represent anything else.

Philosophy often insists that common sense is naive. On this topic, I think that the insistence needs re-evaluation. Argumentation against common sense on this matter has been deficient. In fact, it usually has devolved into dogmatic pronouncement. Philosophy was carried along by the momentum of initial mistakes by intellectually powerful thinkers. Its brief against common sense, in this case, can be shown by philosophy to be empty.

All these issues are complicated by a truly bewildering array of views on representation itself. There have been attempts to eliminate representational

notions (such as belief and perception) from descriptive or theoretical contexts. Such efforts are, I think, driven by unscientific ideology. They lack support in the actual practices or theories of science. An impressively maturing science—perceptual psychology—makes fundamental use of representational notions.

A few philosophers and scientists have stretched or deflated representational notions so far as to claim that everything represents something or other. Tree rings represent age, smoke represents fire; the earth's orbit represents the gravitational powers of the sun; and so on.

A more common view is to assimilate representation to some form of *functioning* information registration and processing. *Information* is simply some sort of systematic statistical or law-like correlation between one system and another. Some correlations have a function—for example, the biological function of contributing to fitness for survival and replication. Thus tree rings do not function to correlate with age; smoke does not function to correlate with fire. So, on this slightly less broad notion of representation, tree rings and smoke do not “represent” what they correlate with.

The effect of using either of these broad conceptions of representation is to miss fundamental distinctions among scientifically relevant kinds. Even users of the latter notion, which I will be discussing in some detail, tend to take differences between plant sensitivity to light and visual perception by lower mammals to be mere differences in complexity, not in kind.

More specifically, these conceptions tend to miss a distinctively psychological kind that constitutively and non-trivially involves perspective and conditions of accuracy. And they tend to miss origins of objectivity.

My aims are to avoid the hyper-intellectualized theories of representation that dominated twentieth-century philosophical thinking and to improve on a leveling or deflationary conception of representation that reduces the notion of representation that are not at all distinctive of mind or psychology. Usage and understanding in psychology are no more uniform than they are in philosophy. I think order can be found only by reflecting on explanation. I return to these matters in Chapter 3 and Part III.

I assume that talk of perception, belief, desire, and intention has a place in scientific as well as in common-sense descriptions of the world. I assume that these types of psychological states are representational in the sense they are about something, indicate a subject matter as being a certain way, and (constitutively and non-trivially) have veridicality conditions—conditions on being accurate or true. These assumptions have been richly supported in empirical psychology and philosophical work. I believe that they are sufficiently well entrenched, not only in common sense but in serious scientific theory, not to require extensive support. What they need is explication, sharpening, delineation.

I think that explanation in terms of distinctively psychological representational notions is, as far as we now know, basic and ineliminable. That is, we have

no reason to believe that psychological explanation in terms of representation can be reduced to some other type of explanation. I will not rely on this anti-reductionist assumption in most of this work, though I shall defend it a little in Chapter 8.

I use a robust notion of representation, not any of the leveling notions alluded to six and seven paragraphs back. This point is of some dialectical import. In disputing the views of individual representationalists, I do not simply change the subject. I do not invoke a conception of intentionality, or representation, that makes it trivially true that “representation” of physical entities precedes the supplementary resources invoked by individual representationalists. *Of course*, the amoeba’s functional sensitivity to light and response to it in moving to congenial environments does not require a capacity to track its own position through a comprehensively represented space, or to represent an appearance/reality distinction, or to have a language. One does not need philosophy to understand that point.

Unlike generalized notions of information registration *cum* function, my notion of representation has specifically psychological import. I will not elaborate it further at this point. So far I have associated the notion with perception, belief, and intention—and with veridicality conditions. Chapters 8–10 will delineate my conceptions of perception and representation.

Let me map my route from here.

Part I sets the stage for more specific discussion. In Chapter 2, I refine the terms in my initial questions. In Chapter 3, I discuss philosophical background for opposition to Individual Representationalism—specifically anti-individualism. I also sketch some general points about the science of perceptual psychology.

Part II characterizes and criticizes purported support for various versions of Individual Representationalism. Chapter 4 centers primarily on first-family versions in the first half of the twentieth century. Chapter 5 offers an overview of some issues in the second half of the twentieth century. Chapters 6 and 7 center on Individual Representationalism in two prominent second-family versions. Specifically, in Chapter 6 I discuss the neo-Kantian tradition articulated by Strawson and Evans. In Chapter 7, I discuss the tradition of linguistic interpretation articulated by Quine and Davidson.

Part III develops a point of view meant to replace Individual Representationalism regarding origins of objective representation of the physical world. It elaborates conceptions of the key explanatory kinds: *representation* and *perception*. Chapter 8 sets the stage for distinguishing the distinctively psychological kind *representation* from broader kinds (often also called ‘representation’) shared by psychology with biology. It introduces a distinction between sensory registration and perceptual representation, sketches an account of primitive agency, and illustrates, in greater depth than I do in Chapter 3, types of explanation that are characteristic of perceptual psychology. Chapter 9 is the key chapter in the book. It attempts to isolate the psychological kind, *perceptual representation*, and further develops the distinction between sensory registration and perception.

Chapter 10 centers on perceptual origins of four representational categories that figure prominently in the perceptual systems of a wide variety of animals: body, certain elementary mathematical representation, space, and time. It also discusses which if any of them is constitutively necessary to having perceptual representation itself. Chapter 11 points forward to further issues suggested by main themes of the book.

## 2 *Terminology: What the Questions Mean*

Let us return to our original questions:

What does it take for an individual to represent the physical world objectively?  
What are minimum constitutive conditions necessary for an individual to represent the physical environment in such a way as to attribute, sometimes accurately, specific physical attributes to physical particulars?

Before confronting the questions, I want to explicate key terms in them. Explication in this chapter is preliminary. It serves to set background assumptions and guard against confusion. Development, especially of the term ‘represent’, will come later.

The terminological discussion may seem overly analytical to some readers. But offhand use of some terms in the questions, particularly ‘representation’ and ‘objectivity’, have made a remarkable amount of mischief. Confused use of the former term has held back philosophy in major ways over almost its whole history, largely because aspects of ordinary usage encourage confusion. I want to avoid mischief and confusion right from the start. Those with little patience for terminology might skip this chapter. They can perhaps catch on to the terminology as it is used. If difficulty arises, the impatient reader can return to these sections, I hope chastened. The more patient reader will understand that ostensibly terminological and taxonomic issues set the framework for an investigation in ways that are not sharply separable from development of theory. The theoretical development in this book depends on careful use and understanding of basic terms and concepts. Patience regarding the terminological/conceptual underpinnings of the project will, I think, be rewarded.

### REPRESENTATION

Some readers coming to this work from the history of philosophy may be inclined to associate the term ‘representation’ or even ‘representational content’ (which I introduce later), with traditional views according to which representations are the immediate objects of perceptual reference. On such views, representations

are perceived. Or they are *objects* of perceptual awareness, or of some other awareness. Representations, on such views, are themselves represented: they are *representata*. Such views are often termed ‘representationalist’.

I have absolutely no sympathy for such views. To understand what I am up to, the reader must take my term ‘representation’ and its variants as I use them, and not import historical doctrines into the discussion, unless I import them.

I begin by discussing my use of the term ‘reference’. Reference is a central type of representation. *Reference* is both a certain *relation* to an entity in a subject matter, and a *function* (or exercise of the function) of a state, event, or activity to establish a reference relation. Exercises of the function may or may not fulfill the function.

In the first use, we may say ‘Bill refers to Fido with his phrase “that dog”’. A reference relation holds between Bill, or between Bill’s use of his phrase, and Fido. In the second use, we may say ‘Bill engaged in reference by using his phrase “that pink elephant”’, even though no reference relation is established between Bill, or his use of his phrase, and any entity.

The *reference relation* holds between a psychological state or event, or a piece or use of language, on one hand, and a subject matter, on the other. When I say ‘*x* refers to *y*’, I intend the reference relation. The relational use entails some state or activity with a *referential function*. But not all states or activities with referential functions establish a reference relation. When a reference relation is established by a person or animal—when the person or animal *refers to* something, some entity—the relation is always established *by way of* some thought, cognition, perception, or other psychological state or event, or by way of some piece or use of language, or other symbolism.<sup>1</sup>

States or events that *function* to refer have the constitutive representational function of connecting to a subject matter. Such connection is what the relation *reference*, as a successful fulfillment of the function, is.

Reference contrasts with *indication* (to be explicated shortly). Indication is also dually a relation and a function (or exercise of a function) to establish a relation, between psychological states or events, or pieces of language, and entities in a subject matter. The function of referring differs from the function of indicating in that the former does not have the further constitutive representational function of *attribution* or *functional application*.<sup>2</sup> Most reference—whether it

<sup>1</sup> Thus, when I speak of reference by an individual, there is at least a three-place relation, involving individual, subject matter, and psychological or linguistic mode. Equally, I think, if a thought, perception, or piece of language refers, it is always the thought, perception, or linguistic item employed by an individual or by individuals—or at least an abstraction from the perceptions, thoughts, or linguistic uses of individuals. We can think of the relation of reference between an English word and a subject matter. But we are idealizing or abstracting from uses by English speakers. So ultimately, reference involves mode, subject matter, and individual or individuals.

<sup>2</sup> Usually, reference depends on attribution or functional attribution, perhaps together with further operations. In referring to something, an occurrence of ‘that body’ involves attribution (through ‘body’). Here reference is not possible apart from *some* attribution. But even in cases in which reference depends on attribution, attribution is not one of its functions.

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be relation or function—does not occur apart from attribution or functional application. But, when a representational device (like a name or a perceptual demonstrative) functions to refer, it does not constitutively have the further function of engaging in attribution or functional application. In this respect, reference is the simplest type of representational relation and function.

Reference can be singular or plural. I concentrate on singular reference. When reference is singular, it is so in two respects. First, in singular reference, if *A* refers to *b*, then *A* refers only to *b*. *A* cannot singularly refer to two things. Second, in singular reference, if *A* refers to *b*, the reference occurs in a singular way. Examples of singular ways are ‘the only chimp in the room’, ‘this worm’, ‘Aristotle’ (intending the philosopher), ‘3’, a perception as of a particular object.

Examples of singular reference are these: Al’s occurrent thought that *that* chair is red refers to a particular chair (imagine Al looking at a chair). More particularly, the occurrent thought component that chair also refers to the chair.<sup>3</sup> Bert’s visual perception refers to a bone—it singles out the bone. Al and Bert also refer to their respective objects.

Reference need not be to *objects*. It can be to events, to instances of properties or relations, to abstractions. Reference can be to anything real or existent. ‘2’ refers to the number 2. A thought may refer to an abstract property or relation. The thought redness is a color property refers, specifically through its singular element (redness), to redness. A perception may refer to an instance of redness or an instance of a spatial relation, or an event, or a body.

I turn now from reference to *indication*. Recall that functioning to refer does not constitutively carry with it a function to engage in attribution or functional application. Since attribution is a constitutive representational function of the predicate ‘is red’ and the concept is red, they do not refer to anything. They *indicate* the property of being red. A primary representational function of predicates in language and predicative concepts in thought is *attribution*. So predicates and concepts indicate entities—bear relations to aspects of a subject matter. Their doing so is fundamentally in the service of attribution, attributing such aspects to further entities (often entities that are referred to). In occurrences in which no logical operations, such as negation, are involved, the predicate and the concept function to *attribute* what they indicate. For example, in That apple is red, is red functions to attribute what it indicates—the property redness, or the property of being red—to what That apple refers to. In attributing a property, they represent something *as* having that property. Similar points apply to relational predicates and relational concepts.

When such attribution is to something that is referred to, it characterizes or groups that something as such and such, or as being such and such. In a thought the barn is red (which I will suppose to be true), the thought attributes (through its component is red) the property of being red to a barn. The thought also attributes

<sup>3</sup> I refer to representational contents by underlining. Italics indicates either emphasis or attributes, which representational contents might represent.



(through barn) the kind, being a barn. Both these attributes are attributed to a barn, assuming that the thought, through its component the barn, succeeds in referring to a barn. The thought, through the singular subject description the barn, refers to a barn, and attributes being red, as well as being a barn, to the barn, through the attributive elements is red and barn.<sup>4</sup> The thought also indicates the kind *being a barn* and the property *being red*. It does so through the attributive concepts is red and barn.

Of course, attribution can occur in a thought or sentence that contains no singular elements, as in the thought some barns are red.

Like reference, indication and attribution occur in perception as well as in thought and language. A perception of an object as red (or as square) indicates the property of being red (or square) and attributes it to the object. The attribution depends on the perception's grouping instances of red (or squareness) together. The perception attributes an indicated property to a perceptually referred-to particular.<sup>5</sup> Perceptual attribution is the freely re-applicable element of grouping in perception.

In nearly every case in which an individual, perception, thought, thought component, or piece of language refers to something, it does so partly through some attribution.<sup>6</sup> The attributive element indicates a property, relation, or kind, assuming there *is* a relevant property, relation, or kind. And it attributes what it indicates to the referent. The attributive characterizes or groups what is referred to as having (or as being an instance of) the property, as entering into (or as being an instance of) the relation, or as being of the kind. The attributive barn plays these roles in the singular form that barn.

An attribution might not be veridical. Dalton might think: that piece of gold is the same element as the metal in my mother's ring. The metal in his mother's ring might be a cheap alloy. Then he would have referred to some gold and veridically attributed being gold to it, but misattributed a further property. Dalton might perceive something as yellow that is green. Then his perception mistakenly attributes the property of being yellow to what he perceives.

Dalton might think, looking at a lump of copper, that gold there is valuable. Then even the attribution that is part of his *primary way of referring* would fail to be veridical of what he refers to (the copper). In such cases of thought and

<sup>4</sup> For further elaboration of this account of attribution, of which predication is a specific case, see my 'Predication and Truth: Review of Donald Davidson, *Truth and Predication*', *The Journal of Philosophy* 104 (2007), 580–608. Some philosophers and linguists take definite descriptions not to be referring expressions, because of a purportedly deeper grammatical analysis. Bracketing substantive disagreements, I follow surface grammar as signaling singularity. Since 'the oldest barn in the world' has the surface grammar of singularity, I count it a referring expression. Nothing in what follows depends on the point.

<sup>5</sup> I think that a perception perceptually represents (refers to) *instances* of properties that it indicates. In effect, perception attributes indicated properties to property instances, as well as to entities that *have* the properties. In veridically seeing an object as green, one sees not only the object as green; one also sees an instance of greenness and sees that instance as being green.

<sup>6</sup> The few exceptions involve individual constant concepts: 3, God, that someone is tall. I think that even I, we, you, now, here, involve implicit attributive restriction.

perception, I believe that there is always a further primary attribution, somewhere in the individual's psychology, that *is* veridical.<sup>7</sup> Dalton can think of some copper as gold only because he thinks of the copper, or perceives it, in some veridical way—for example, as a lump. Such an attribution is part of a singular mode of reference that figures in a further thought or perception that Dalton has.

*Representation* includes reference and indication as subtypes. It is a generic notion. Thus, in indicating the property of yellow and attributing it to various lumps of metal, Dalton represents the property of being yellow. In the veridical thought, that lump is gold, Dalton represents the kinds *gold* and *lump*, as well as the particular lump of gold.

Representation also includes whatever relation obtains between functional notions and functions, and between operators (say, logical operators) and operations. 'Representation' stands for any sort of intentionality in perception, cognition, or language.

As I explain below, representation can transpire even if there is nothing represented. But, when 'represents' takes a specific direct object, representation is said to be successful in representing something—to have a *representatum*. I use '*represents* \_\_\_' (with direct object in the blank) to apply both to successful reference to any entity (*representatum*) and to successful indication of kinds, properties, or relations (all *representata*) in a subject matter.

#### REPRESENTATION-AS AND REPRESENTATIONAL CONTENT

The term 'represents', of itself, does not signify any *specific* way in which representation is effected. Let us again focus first on 'refers'. If Dalton referred to gold, he referred to gold in some way. But the locution 'Dalton referred to gold' does not say how Dalton referred to gold. The quoted locution does not indicate that Dalton referred to gold as gold, or as the most widely valued precious metal, or as the metal in his mother's ring. It does not say whether Dalton used language, thought, perception, or what not.

The 'refers to — as \_\_\_' locution does provide partial specification of *how* the referent — is referred to. Suppose that Dalton thinks a thought that gold there is heavy, referring in thought to a particular lump of gold. Then Dalton, and his thought, referred to the lump partly by attributing to it the kind, gold. He refers to it as gold. He could have referred to it instead as a rock (that yellowish rock), or as a lump, or as a shiny thing on the laboratory table. He would still be referring to the lump of gold in these ways, but not referring to it *as* gold.

In his thought, that gold there is heavy, Dalton also attributes to the lump the property of being heavy, and thinks of the lump as being heavy, though this

<sup>7</sup> In some cases, perhaps the veridical attribution lies in the psychology of someone on whom the individual is relying through communication.

attribution of heaviness is not part of the way he effected the reference. Strictly, it is not part of the way he refers to it. Strictly, he referred to it as gold and as being in a certain position. He attributed to the lump being gold, being in a certain position, and being heavy.

We can allow such attributions as ‘ways he referred to it’, in a secondary sense. If Dalton thinks that lump of gold is valuable, referring to a lump, he refers to the lump as a lump and as being of gold in the primary sense and as valuable in the secondary sense.

Other types of representation besides reference invite the *as* terminology. There is, for example, indication of gold as gold.

An individual—or an individual’s perception, thought, other type of psychological state, representational content, or piece of language—*represents* something *as such and such* if and only if it represents something by way of a such-and-such type of representation (or representational content). Thus a perception represents something as square if and only if it does so by way of a square-type of representation. The sense of ‘square-type’ is, of course, not that the representation is square. Rather the relevant representational kind is individuated in terms of the representational kind (representational content) square.

The explication holds even if there is no successful representational relation to a subject matter. Suppose that there is no such kind-attribute as *phlogiston*. A thought represents something as phlogiston if the thought is a phlogiston-type of thought. Most such thoughts, other than conditionals and negative existentials, will be mistaken.

Most but not all representation-as involves attribution. Representation-as can occur through individual constant concepts (see note 6). The first concept in the thought 3+5=8 represents 3 as 3, because it is a 3-type of representation, or representational content. Similarly, that brown hair (as applied in a context) represents something not only as brown, as hair, and as brown hair, but also as that brown hair—as long as one compensates for the context appropriately.

I understand ‘represents as \_\_\_\_’ in a specific sense. Just having a \_\_\_\_-type representation as an element in a representation or representational content is not sufficient to represent as \_\_\_\_\_. If I think that is blue or yellow or that is not red (successfully perceiving something), I do not represent something as blue, or as yellow, or as red. I represent something only as blue or yellow, or as not red. Not red is a red-type of representation (as well as a not-red-type of representation). To use a red-type presentation to represent something as red, the use must be representationally committal—whether it is an attribution, functional application, referential application, or use of an individual constant. Thus, in the thought that choreographer is intelligent and not arrogant, the individual is represented as a choreographer, as that choreographer, as intelligent and not arrogant, as intelligent, and as not arrogant. The individual is not represented as arrogant. Arrogance is indicated but not attributed. In the thought there is no such thing as phlogiston, there is an attributive occurrence of phlogiston, but there is no committal attribution. Nothing is attributed or indicated. Nothing is represented

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as phlogiston, though the thought involves a phlogiston-type of representation, a representation as (of) phlogiston.

I said that the ‘as \_\_\_\_’ locution provides *partial* specification of how something is referred to in a primary or secondary sense. How much specification? That Dalton referred to the gold as gold entails that Dalton used a gold-type representation or representational content. Since as a lump, as spherical, as the metal in a given ring, and as an element with atomic number 79 are not in themselves gold-types of representation, or representational content, referring to something as gold is not the same as referring to something in any of these ways.<sup>8</sup> So the locution ‘as gold’ provides some information about how something is referred to.

On the other hand, there are many ways of referring to something as gold. One can use language or thought. One can use the singular term the gold in my pocket, or the attributive gold and yellow, or the attributive piece of gold, or simply the attributive gold. If something is a gold-and-yellow-type of representation, it is a gold-type of representation.<sup>9</sup>

Reference-to — as \_\_\_\_ occurs in perception. One can perceptually refer to something as cubic in perceiving it as cubic. It is crucial that one not *assume* that *perceiving* something *as* such and such entails anything about *conceiving* or *thinking* of it *as* such and such. Perception-as (equally, as we shall see later, perception-as-of) is simply perceptual attribution. I will be discussing conditions under which perception, including perceptual attribution, is possible. One of the issues is whether perceptual representation requires thought.

The primary *concepts* (equivalently, conceptual ways of representing or conceptual representational contents) are attributives in *propositional* structures. I use ‘thought’ to apply only to propositional attitudes, or representational contents with propositional structure. I believe that perception is not propositional and hence is not thought. Perception lacks propositional structure. So perceptual attributives are not concepts, and perceptions are not thoughts.

Many perceptual attributives represent entities as square. Different *visual* perspectives can represent something as square in different ways (for example, corresponding to different visual angles on a square something). Thus there are many square-types of perceptual attributives. I discuss this point in more detail in subsequent chapters.

Reference to — as \_\_\_\_ is a form of representation of — as \_\_\_\_\_. Indication-as and attribution-as are further forms of representation-as.<sup>10</sup>

<sup>8</sup> Element with atomic number 79 applies to exactly the same thing(s) that gold does. The equivalence is even, in a strong sense, necessary. And certainly gold *is* the element with atomic number 79. But element with atomic number 79 does not count as a gold-type representation. It was a discovery that gold is the element with atomic number 79. Gold was represented as gold before it was represented as an element with atomic number 79.

<sup>9</sup> On the other hand, I think that an elm-type of representation is not *ipso facto* a tree-type of representation.

<sup>10</sup> I have used the locutions ‘represents [or refers to, or indicates] — as *such*’. These locutions are shorthand for ‘represents [refers to, indicates] — as —’, with the understanding that the same

A certain type of *representation as* will be prominent in later discussion. I call this type '*specification*'. A representational state (or representational content) *specifies* an attribute *A* if and only if the state or content represents *A* as *A* and does so in any context of use and with respect to all possible situations (worlds). For example, if a representational state (or representational content) specifies aluminum, it represents aluminum as aluminum and represents aluminum in any context of use and with respect to any possible situation (or world).

I have written of *ways* in which entities are represented. I shall discuss ways of representing that are more specific than the representation-as terminology suggests. There are always different ways of representing such and such, for any given such and such. There are different ways of representing *as* such and such, for any given such and such. There can even be different ways of *specifying* exactly such and such, for any given such and such.

When I write of a *way* of representing, I mean 'way' in a special sense. I have in mind not causal mechanisms, but *modes* of referring, indicating, attributing, functionally applying. Such modes have roles in psychological as well as semantical (representational) explanation. Such modes *mark* or *help type-individuate* psychological states. That is, they are aspects of representational psychological kinds. A particular way of representing something as a body helps type-individuate a *kind* of psychological state. The way of representing is an aspect of the kind of state.<sup>11</sup>

Such modes of representation constitute the *perspective* of an animal or person. They mark how the world is, representationally, for an individual.

Thus 'way of representing' or 'mode of representation' indicates both the way that the act, state, event is typed representationally and the way that the act, state, event functions to represent. In cases of representation failure, to be discussed in the next section, there remain *ways of representing* that type-individuate acts, states, events, or pieces of language.<sup>12</sup>

Expositional convenience supports nominalization. I have written of modes of representation as *representational contents*. Representational content is an abstraction that has three explanatory functions. It is a way of representing, or a

expression substitutes in both blanks. Thus 'Dalton represents gold as such' means 'Dalton represents gold as gold'.

For 'Dalton refers to — as —', I allow extraction of the largest attributive expression in the expression filling the first blank to occur in the second blank, without repeating the whole first-blank expression. Thus 'Dalton refers to the gold as gold' is admissible as a paraphrase of 'Dalton refers to the gold as such'. 'Dalton refers to the gold as the gold' is also admissible.

<sup>11</sup> Marking and type-individuation are fundamentally not things we do. They are constitutive conditions or aspects of natures. They are factors in entities' being what they are.

<sup>12</sup> Modes of representing in the sense that I am developing (representational contents) can be associated with pieces of language or linguistic acts. I do *not* assume that representational contents are to be identified with meanings, on just any legitimate conception of meaning. I am developing a specifically psychological notion. I believe that language sometimes expresses representational contents. Representational contents may be one type of meaning. But I do not assume, or believe, that an account of all types of linguistic meaning can rest with invoking representational contents.

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perspective. It is a fundamental aspect of psychological and linguistic kinds, at their finest explanatory grain. And it constitutes the veridicality conditions—accuracy conditions or truth conditions—of psychological and linguistic kinds.

A fundamental attribute of most psychological and linguistic phenomena is that they are representational in specific ways. Representational contents constitute, or help constitute, modes in which an individual thinks about, intends, or perceives a subject matter. One function of representational content is to constitute a mode of representation, or perspective. This first function is closely related to the second. Representational content helps constitutively mark, or type-individuate, psychological or linguistic states, capacities, acts, events. They are structured, perspectival, representational kinds. What kind of belief an individual has is determined by *what* the individual believes. What kind of perception an individual has is determined by how the individual perceives the world to be. These ‘what’s’ and ‘how’s’ are rough colloquial versions of representational content. The representational content of a belief is a *kind* of belief. The representational content of a perception is a kind of perception. Similarly, for other psychological and linguistic phenomena.<sup>13</sup>

Just as different instances of perception (or belief, or intention) can be of the same kind, so a representational content can be common among different perceptual states (or belief states, or intentional states). Some representational contents are shareable thoughts (thought contents); some are shareable concepts (elements in thought contents); some are shareable perceptions; some are shareable perceptual attributives (elements in perception contents). This potential for sharing is one basis for calling representational contents abstractions. The sharing is no more unfamiliar than the commonality of kind among different instances of a kind.

The third, and equally fundamental, function of representational content is to constitute, or help to constitute, a veridicality condition. Elements of representational contents *help constitute* a veridicality condition. The concept green helps constitute the veridicality condition the forest is green. The full representational content of a perception, belief, or intention *constitutes* a veridicality condition. Representational content is a perspectival way of representing at the finest explanatory grain relevant both to determining psychological or linguistic kind and to determining veridicality conditions. When a veridicality condition is fulfilled, there is a veridical representational content.

Representational contents of beliefs and declarative sentences can be evaluated for truth or falsity—just as beliefs and assertions can be. Beliefs and assertions are true (or false) if and only if their representational contents are. Similarly, the representational contents of intentions and imperatives can be evaluated for whether their veridicality conditions are fulfilled. The veridicality condition (representational content) of an intention comes to be fulfilled, or is

<sup>13</sup> As will emerge, these kinds occur at various levels of abstraction, even for a given belief or perception.

made veridical, if the intention is carried out in relevant action. The veridicality condition of an imperative comes to be fulfilled if the imperative is obeyed. The representational content of questions is to be understood analogously. The representational content of a perception can be evaluated for accuracy or inaccuracy—just as perceptions can be. Perceptions are accurate (their way of being veridical) if and only if their representational contents are. Since I am primarily interested in the representational contents of beliefs and perceptions, I will be primarily concerned with propositional truth and perceptual accuracy, when veridicality is at issue.

A *veridical* perception is a *correct* or *accurate* perception. A *veridical* thought is a *true* thought. Truth and accuracy (correctness) are subcases of veridicality. For example, the representational content of a belief that cats need their mothers is the thought content cats need their mothers.

All representational contents have or serve representational functions.<sup>14</sup> All representational contents either function to represent—as do singular referring contents, attributives, functional representation (the successor of)—or operate on representational contents—as do logical connectives and quantifiers—or are composites of representing representational contents—as are whole thoughts.<sup>15</sup> Thus a cat is not a representational content. A concept of a sphere, or a perceptual grouping of spheres, is a representational content.

A further constitutive role of representational contents was mentioned earlier—that of *marking*, or helping to type-individuate, psychological states or representational aspects of psychological states. This function is often overlooked. I emphasize it. Representational contents are aspects of psychological kinds. They help type-individuate a perceptual state, or a thought event, or a belief, as being an instance of a certain psychological kind of perceptual state, thought event, belief, or capacity. A perceptual or conceptual representational content

<sup>14</sup> Here the notion of representational function can be taken to be intuitive. I give it a more technical meaning in Chapter 8.

<sup>15</sup> I do not assume that logical connectives do not represent; I simply allow the possibility. I also leave open whether whole representational contents of thoughts have their own form of representation, as opposed to relying on their non-propositional components to represent. Full representational contents of perceptual states are always composites of representational contents, and always function to represent.

The plural of 'representation' can apply to particulars that instantiate representational content, or to vehicles that *express* representational content. Some philosophers, notably Jerry A. Fodor, in *The Language of Thought* (1975; Cambridge, MA; Harvard University Press, 1979), think that such vehicles in a psychology can be individuated *independently* of the representational content that they express. I doubt this view, at least as a general position about psychological states and events. I certainly believe that current psychological explanation does not imply or depend on the view. What I say in this book is largely independent of these matters. I believe that the notion of representation, like that of representational content, in scientific explanation, functions mainly as an abstraction that helps demarcate kinds of psychological states. Representational content, and instances of states with such content, also serve as structured entities on which computational explanations and other explanations of psychological transitions center. It is simply a mistake to think that computational explanations must assume the existence of psychological kinds that are individuated independently of their representational content.

that represents something as a body helps type-individuate a different psychological state (occurrence, capacity) than does a content that represents something as an event, or as being spherical.

Because of this aspect or role of representational contents in type-individuating psychological states, the question of whether there *are* representational contents (including propositional representational contents) is as outlandish as the question whether there are kinds of representational states (including propositional attitudes).

Representational contents are finer grained than the representation-as locution captures. Thus the contents lump of gold, gold, gold statue, and yellow and gold (assuming committal occurrences) are all gold-types of representation. All of these representational contents can be used to represent something as gold. ‘Representational content’ will be a basic explanatory term. ‘Representation-as’ is less basic. I took pains to introduce it because it will be useful in a lot of exposition that does not depend on the finest grain of explanation.

It must always be remembered, however, that the kind-discrimination provided by the representation-as locution is too crude to identify basic explanatory psychological kinds. It is representational content that marks psychological kinds. The ‘as’ and ‘as such’ expressions (and, later, the ‘as of’ expression) do not fully individuate a particular mode of representation, or representational content. They only indicate *genera* of representational contents. There are many representational contents for any given kind, property, relation, or particular that is represented in these ‘as’ expressions. The representational content is always more fine-grained than the *as* locution suggests.

There are, for example, many ways of representing bodies as such. One can represent bodies as such in language, thought, or perception. Each medium is associated with different ways. There are different perceptual modalities in which one can perceive a body as a body. The representational content of a visual perception of something as a body is inevitably different from that of a touch perception of something as a body.

There are intermodal non-conceptual contents. There is a scientific story about how the different modes of perceptual representation in the different perceptual modalities are related to one another, and how the overall psychology manipulates the different ways of attributing the kind *body* to perceived entities. Any perceptual attributive in a touch system that indicates the kind *body* is different from any visual perceptual attributive that indicates the same kind. Any intermodal system that mediates between different perceptual modalities, or between perception and action, represents the kind *body* differently than any of the perceptual modalities (vision, touch, and so on) do. The explanations in perceptual psychology as well as common sense require different representational typings of the different psychological states—different representational contents.

There are different ways of *visually* perceiving something as a spherical body—different visual representational contents that represent as (or as of) a spherical body. One can see a body as a spherical body and have different



perceptual representational contents. One can, for example, see a body as a spherical body from different perceptual perspectives, deriving from different angles or distances. These perspectives commonly correspond to different types of visual perceptual states—all perceiving something as a spherical body. Visual perceptual systems will be in significantly different perceptual states, marked by different representational contents, when they form perceptual representations from the different angles or distances from an entity perceived as a spherical body. Introspectively, in conscious perception, there will be different ways the spherical body “looks” to be a spherical body. The different kinds of perceptual states and looks are type-individuated by different visual-perceptual representational contents.

The reason for this fine-grained typing of visual states is that a major objective of the science of vision is to explain how vision can attribute the same attribute by way of importantly different kinds of perceptual state—by way of different perceptual representational contents. There are detailed empirical explanations of how visual perceptual systems form visual states with representational contents so as to function to be of, and as of, a single property in the physical environment—for example, *spherical-bodihood*.

One can *conceptually* represent mercury—even exactly as mercury—in different ways. One can conceive of mercury *exactly* as mercury using the conceptual representational contents mercury, mercury and an element, mercury or a round square.<sup>16</sup> Representational content is more fine-grained than what is signified in the representation-as locution.

As is intimated in the foregoing, differences in ways of representing a given property or kind as such can derive from different levels of abstraction. Perceptual as well as conceptual attribution occurs at various levels of abstraction. A perception can represent a body as a body or as a cylindrical body. In both cases, the perception represents the body as a body. Representing something as a cylindrical body and representing something as a body are different ways of representing. But they are both representation of something as a body.

There are other reasons why representational contents are more fine-grained than what the representation-as locution suggests. But the foregoing considerations should suffice to get the main point across.

At bottom, representational contents are just kinds, or aspects of kinds, of psychological states. The structure of representational contents marks structural aspects of the capacities embodied in the psychological states.

For example, the state of believing that the frog has visual perception involves having certain inferential capacities. The belief involves a capacity to infer that something has visual perception, that the frog has perception, that the frog has

<sup>16</sup> Mercury and quicksilver are different concepts, different representational contents, even though they *represent* exactly mercury. I am assuming that quicksilver is not a mercury-type of representation. Representing something as mercury and representing it as quicksilver are different, even though the two expressions are (near) synonyms.

vision, and so on. These capacities are systematically related to inferential capacities associated with a belief that the frog has auditory perception. These capacities (and the beliefs themselves) have structural aspects inasmuch as they are systematically related to one another and to a more general capacity to carry out deductive inferences. The structural aspects of the representational content of the belief mark structural aspects of the relevant belief, and of inferential capacities constitutively associated with it. Both the representational contents and the psychological entities (states, occurrences, capacities) that they type-identify have structural aspects. Structure and representation are integral to the nature of the psychological kinds. These kinds partly *are* representational contents. Psychological explanation makes use of these structural aspects of psychological states, as well as their representational aspects.

I think that representational contents are abstract entities. But ontological issues will not be primary. I believe that the nominalization ‘representational content’ is theoretically secure. But the main *critical* line of argument in this book could dispense with it in favor of talk of kinds of psychological states or events. The theoretical vocabulary is, however, useful expositionally; and it allows deeper development of positive theory.

#### REPRESENTATION FAILURE AND REPRESENTATION AS OF

Representational contents and states can fail to represent anything. A person, perception, thought, or piece of language can fail to refer to anything. A perceptual content or perceptual state can be pure referential illusion. A singular thought—through failure of description or failure in demonstrative-marked application—can fail to refer to anything. An attributive element in a perception, thought, or piece of language can fail to indicate a real property, relation, or kind.

As I use the terms, failures to refer to, or indicate, anything real are failures to refer to, or indicate, *anything*. The perception, thought, concept, or piece of language has the function of representing (referring, indicating)—it still has a representational role. In such cases, I shall say that the perception, thought, concept, or piece of language *represents there being* \_\_\_\_, or *represents as of* \_\_\_\_. Then representation (referring, indication) is instantiated, but nothing need be represented (referred to, indicated).

In fact, even in successful cases of representation, there is representation-as-of. Representation-as-of occurs whether representation is successful or not. In the broadest sense, representation is representation-as-of. The point of the locution is to emphasize that representational states need not be successfully representational—need not represent anything. There need be no *representatum*.

For example, as I use the terms ‘indicates’ and ‘represents’, a thought or piece of language about phlogiston indicates and represents nothing, in the sense that it has no *representatum*. But there are entities or states that function to refer or

indicate—that engage in (unsuccessful) reference or indication. Unsuccessful reference or indication is reference or indication without referring to or indicating anything—reference or indication without a *representatum*. A mistaken scientific theory tried to explain combustion with the term ‘phlogiston’ and the representational content phlogiston. Phlogiston is not a real kind and never existed. No thought or piece of language represents, refers to, or indicates phlogiston.

A thought or piece of language about Ossian refers to nothing. Since there is no real subject matter, there is no *representatum*, hence no representational relation to anything. In the famous literary hoax, some people pretended that Ossian existed, and many others believed that Ossian existed. But Ossian never existed. Nothing represents Ossian, ever. Ossian-type representation fails to represent anything.

Of course, the relevant sentences and terms that fail to refer, represent, or indicate are not meaningless. Similarly, there are genuine thoughts and concepts “about” Ossian and phlogiston. Thinkings about Ossian and phlogiston have representational contents typed as Ossian- or phlogiston-contents. There are Ossian- or phlogiston-representations, or representational contents. The thoughts have specific entailment relations to other thoughts. The language and thought just lack *representata*. As I use the terms, one can refer or indicate (in the sense of engage in an act of referring or indication), even though the representational content and the instances of reference or indication have no *representata*—no *objects* of representation. One can think, have perceptual states, or use language—each of which involves acts or psychological occurrences of reference—without succeeding in connecting to *representata* in a real subject matter. In such cases one does not represent, refer *to*, or indicate any entity. If there is nothing real or existent to refer to, indicate, or represent, no *representatum* is represented. I deplore introducing unreal or non-existent subject matters to be “objects” of reference or representation, when nothing but superficial grammar recommends doing so.<sup>17</sup>

Again, there *is* an Ossian-way of representing or referring. There *is* a phlogiston-way (or *ways*) of representing, indicating, or referring. There *is representation of there being* Ossian (phlogiston) and *representation as of* Ossian (phlogiston). In a certain sense, there is representation “about” Ossian (phlogiston).<sup>18</sup> The representational content is about Ossian (phlogiston) in the sense that

<sup>17</sup> Frege’s work provided the keys to avoiding such introductions. Russell also showed ways to avoid the unwelcome result, with his theory of descriptions. In my view, Russell succumbed to the key error, however: that of thinking that all representation must be successful, must have an entity that is the object of representation. This view distorts his theory of perception and thought. I discuss some consequences of this error about perception in Chapter 4.

<sup>18</sup> In such cases, ‘about \_\_\_’ suggests a mode of representation, or representational content. It does not signify a relation (an ‘about’ relation) between an event, state, vehicle of representation, or representational content, on one hand, and a represented entity, a *representatum* (or referent, or indicant), on the other. Confused use of the term ‘about’ is one of the most common bases for confusion regarding representation. Confusion resides in postulating a *representatum* (or “object” of representation, or “intentional object”) wherever talk of representation is meaningful. Grammatical

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it is an Ossian- (phlogiston-) way of representing, or a type of representation with Ossian- (phlogiston-) significance or meaning. But there is no object, or *relatum*, or *representatum* of the representational content. The event, state, or vehicle of representation is typed in terms of its mode of representation—in terms of how it functions to represent—not its *representatum*. This mode of representation is the representational content of the representation. The representational content remains, even though it lacks a successful object of representation, a *representatum*, in the world, or in a real subject matter.

It is certainly colloquial to say that the name ‘Ossian’ represents, or refers to, Ossian. Such uses are colloquial even in full knowledge that Ossian did not and never will exist. It is colloquial to say that a thought about phlogiston represents phlogiston, even knowing that there never was such a thing as phlogiston. In avoiding such usage, I am not criticizing English. Colloquial usage is acceptable for colloquial purposes. But such usage can mislead and has misled in philosophy, and even in science. Surface grammar blurs a distinction that is important for understanding language and thought.

Similar points apply to perception. A perception can fail to represent a particular. It can be a perceptual referential illusion. Then the individual perceives nothing. Perceptual failure can go further. A perceptual content can fail to indicate or attribute any real property, relation, or kind. Then it might fail to represent *anything*—particular or attribute. I mean not just that no instance of the attribute is perceived. I mean that there is no attribute at all that the content indicates or attributes. Perceptual attributives can in principle be like the concept phlogiston. I think it likely, and certainly possible, that there have been perceptual attributions as of certain specific textures that do not indicate any texture that has ever existed or ever will exist.<sup>19</sup>

Thus a perceptual state can be an illusion in any of three ways. It can be an illusion by constituting a perception of something (perceptually representing or referring to a particular), but failing to attribute certain attributes to it veridically. An individual could perceive a hologram and mistakenly perceive it as a body. Or a perceptual state can be a singular referential illusion in which no particular is perceived. For example, an individual could have a perception as of there being a particular moving sphere, where the perceptual state arises from artificial stimulation of the retina. There would be referential illusion: no object or event is

object and subject-matter object are then frequently confused. Representation that involves representation failure, lack of *representata*, is a function of a state, event, or representational content—not a relation to a subject matter.

<sup>19</sup> I assume, in these cases, that if there never was or will be any physical instance of a (would-be) physical property, there is no such physical property. I do not intend, however, to lean on any particular ontology of properties. I want the reader to understand how I am thinking about the distinction between *representatum* and mode of representing. I intend a sharp distinction both with regard to representation of particulars and with regard to representation of properties, kinds, and relations. In cases of indication failure, I believe that the individual must associate the attributives that fail to indicate anything with other attributives that do indicate something. Thus phlogiston can fail to indicate only because further attributives, perhaps stuff or body, succeed.

perceived at all, not even the relevant stimulation. Or, thirdly, there can be perceptual illusion that extends to indication. Certain types of perceptual states can fail to indicate or attribute genuine properties or kinds. One could perceive some particular as of having Escher-like figurations that are impossible, or as of being of some texture that does not exist. The second and third types of representational failure could combine.

Even perceptual states that involve reference or indication failure are representational. They represent there being a particular, or they represent as of a specific attribute. The perceptual state, marked by a representational content—the mode of perceiving associated with the perceptual state—remains even as it fails to connect to *representata*, even if nothing is perceived, and even if nothing is indicated or attributed. I have been characterizing failures of reference in terms of conditions for veridicality associated with the perceptual states. Kinds of perceptual state are individuated in terms of their ways of referring, indicating, attributing. These *ways* are the representational content. Representational content incorporates conditions under which a perception is veridical or non-veridical. Similar points apply to thought.

All representation is representation-*as*. In itself, representation-*as* is representation-*as-of*.<sup>20</sup> My term ‘representation-*as-of*’ is intended explicitly to allow for representation failure; but, as noted, it also comprises representational success. ‘Representation-*as*’ allows for such failure as well, except where it takes the form ‘represents — as \_\_\_\_’. Then the direct-object expression before ‘*as*’ has a *representatum*. In representing the lump on the table *as* gold, Al engages in representation *as of* gold. Here, representation-*as* and representation-*as-of* are successful: gold is indicated and attributed. But no one can represent phlogiston, since phlogiston does not exist. The colloquial ‘Al represents phlogiston as involved in combustion’ is to be rephrased as “Al represents combustion as involving phlogiston” or ‘Al represents *there being* phlogiston in combustion’. Then, Al engages in representation *as of* phlogiston. No phlogiston attribute is indicated, attributed, referred to, or represented—since there is no phlogiston (no *representatum*) to represent. Thus talk “about” phlogiston is to be rephrased—with less tendency to mislead—into *as* and *as of* talk—or into talk of phlogiston-type representation, or of representational content containing the attributive phlogiston. Representation-*as* and representation-*as-of* locutions are to be construed in these ways.

Representation is rather like shooting. Some shots do not hit anything, but they remain shootings. A way of representing, or mode of representation, constitutes a kind of representation (as of), and helps type-individuate kinds of psychological states and events. It has been a peculiar philosophical disease to warp theory so as

<sup>20</sup> I believe that all perceptual representation contains both applied-singular-demonstrative and attributive elements. There is no *purely* demonstrative representation. I think, however, that even demonstrative singular elements are perspectival. A given perceptual occurrence (application) of a demonstrative capacity (or this type) must be distinguished from other occurrent uses (applications) of the same capacity (or type). I understand my ‘*as*’ locutions to cover these distinct occurrences, even though in these cases the ‘*as*’ locution does not signal attribution as of a kind, property, or relation.

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to exclude the possibility of representational failure, in language, thought, and perception. We will come upon some epidemics in what follows. My intent is to explain terminology so as to make it easier to avoid the disease.

### OBJECTIVITY

I asked initially, ‘What does it take for an individual to represent the physical world objectively?’ ‘Objectively’ here means (approximately) veridically or accurately. But the answers to the question that I give will bear on a wide range of types of objectivity. In this section I reflect on some of these types.

I begin with conceptions of objectivity that apply to *subject matters*. We sometimes think of the objective world, or of an objective subject matter. We normally think of the physical world as an objective subject matter.

An element in some subject-matter conceptions of objectivity is *mind independence*: an objective subject matter is a subject matter that is constitutively mind-independent.<sup>21</sup>

On a narrow conception, an objective subject matter has no dependence whatever on mind or the mental for its nature, constitution, essence, or individuation. The simpler elements in the natural physical environment are objective in this sense. Planets, oceans, mud, water, space-time, atoms, trees, bacteria, and the simplest animals such as cnidaria are uncontroversially objective in this sense, philosophical idealisms aside.<sup>22</sup> Minds play some role in bringing *some instances* of these things into being. A person can intentionally plant a seed or breed maggots. But what it is to be a tree or a maggot has nothing constitutively to do with minds.

By contrast, minds, beliefs, feelings, organizations, nations, languages, and theories are not constitutively mind-independent, and hence not objective, in this sense.

As I noted three paragraphs back, there are strange philosophical views—idealist views—according to which the physical environment is, in one or another sense, a projection of mind. Such views nearly always reject any application for the conception of objectivity as mind-independence that I just set out, since they hold that although not all reality is non-objective, all reality is mental. I reject idealist views, and do not want to engage them. Idealisms tend to concede that untutored common sense regards much of the physical world as mind-independent. They rely on other conceptions of objectivity, including ones that distinguish between

<sup>21</sup> Some materialists regard mental states as identical with physical states. Identity is not a form of independence. So, in the absence of sharpening, no physical states that underlie mental states would count as objective. The relevant notion of independence surely needs sharpening. I waive this issue. These issues are deep, but my purposes in expounding subject-matter conceptions of objectivity do not require depth in this direction.

<sup>22</sup> I believe that certain abstract subject matters, such as the numbers and various mathematical structures, also do not depend on mind for their natures.

the (objective) physical world and fallible mental perspectives on it. Although I do not reject other conceptions of objectivity, I stand with common sense in maintaining that much of the physical world is constitutively independent of mind.<sup>23</sup> I will largely ignore idealisms.

I characterized the initial conception of objectivity as narrow. The narrowness is evident from the fact that the conception counts hammers, buildings, and other artifacts as non-objective, since, constitutively, they are made or used with some intention or other, and hence are not mind-independent. Counting such physical artifacts non-objective is certainly odd. The oddity points to further conceptions of objectivity, which I shall discuss shortly.

Narrowness emerges also in the fact that normal animals of some complexity, like normal birds and mammals including humans, probably must have minds, on any reasonable understanding of ‘minds’. It seems impossible for the bodies that such animals have (always and normally) to lack consciousness or representational capacities. Perhaps this necessity is constitutive. Yet it is odd to think of such animals and their bodies as non-objective, because they bear constitutive relations to mind. So, again, this initial conception of objectivity as constitutive mind-independence is a narrow and crude one. It does correspond to one conception of objectivity. Since I will often be concerned with the simpler elements of the natural physical environment, it will often be sufficient to construe an “objective” subject matter in this narrow sense. But there are more liberal notions.

A central idea behind the mind-independence conception of objectivity is a contrast between elements of reality that are perspectival and those that are not. Perspectives or points of view are representational elements. They can be veridical or non-veridical. Or they can present some goal as to-be-pursued. The relevant central idea suggests a second conception of subject-matter objectivity: an objective subject matter is one that is *constitutively non-perspectival*. To be constitutively non-perspectival is constitutively not to have, employ, or be representational content. Thus representational contents, minds, belief states, some feelings, organizations, nations, languages, theories, and people are constitutively perspectival—whereas planets, oceans, mud, water, space-time, atoms, trees, bacteria, and cnidaria are constitutively non-perspectival.

Objectivity as being constitutively non-perspectival is a somewhat broader conception than objectivity as mind-independence. Thus hammers, buildings, and other artifacts that do not literally ‘make a statement’—that are not about something further—are constitutively non-perspectival. They were made by beings with perspectives, but they are not perspectives and do not constitutively have or employ perspectives. So they count as objective on this conception.

<sup>23</sup> It is customary to bracket issues about God in reflecting on idealism. So mind-independence here means independence of any finite non-divine mind.

Moreover, the bodies of animals that have minds, as distinct, I think, from the animals themselves, do not constitutively have perspectives or employ perspectives.<sup>24</sup> They do not represent anything; they lack veridicality conditions. So this second subject-matter conception of objectivity is broader than the first.

A further subject matter exerts possible pressure on conceptions of objectivity that center on mind-independence. There are large, persistent disputes among philosophers about the nature of color. Some regard color as a fully mind-independent property, something like surface reflectance. Others regard it as partly mind-dependent. For example, some regard color as a ‘secondary quality’—as constitutively a power in physical entities to cause a certain type of phenomenological experience. A few philosophers think of color as a representational illusion of a property in the physical world. The first view is, of course, compatible with taking color to be objective on the complete mind-independence conception of objectivity. The second view is incompatible with taking color to be objective on that conception. But it is plausibly compatible with taking color to be objective on the constitutively non-perspectival conception. On most versions of the secondary-quality view, color is not, and does not have, representational content. On such versions, color is a dispositional aspect of physical entities; it is represented by experiences that have certain qualitative aspects. Most versions of the third view of color, as an illusory mental projection on reality, are incompatible with taking color to be objective on either of the views of objectivity so far set out. I reject this third view. I find the grounds for not taking color to be a property of physical entities to be unconvincing. I have some sympathy for the first view of color, although both the first and second views have some plausibility.<sup>25</sup> Nothing that I say hinges on choosing between the first and second views of color. I will, however, assume that color is a property of physical entities, including some physical entities whose natures are in themselves often mind-independent in the strongest sense.

Subject-matter conceptions of objectivity that center on mind-independence, or even on being non-perspectival, cannot stand alone. They are too narrow to capture all that is meant by an objective subject matter. They must be supplemented.

A broader notion of an objective subject matter is *all that is real*. An objective subject matter, in this sense, is one that exists or that is real—that is

<sup>24</sup> I am assuming a distinction between necessary relations to minds, which some bodies may have, and actually having or employing representational content. Animal bodies do not represent anything, though animals do. But, as I noted, it is nevertheless arguable that such bodies bear necessary relations to minds (and to animals) that do employ or have representational content.

<sup>25</sup> Thus the second, secondary-quality view of color maintains that color is not a mind-independent property of physical entities. Its nature depends partly on relations to minds. I think that untutored common sense probably sides with the first view—the view that holds that color is a constitutively mind-independent property of physical entities. I believe that Locke and others were consciously opposing common sense when they first proposed the second, secondary-quality view, which takes color to be partly dependent on mind. As I say, I incline toward the common-sense view. But the issues are complex, and nothing in this work hinges on them.



not illusory.<sup>26</sup> On such a conception, minds and manners are as objective as stars and stalagmites. Ultimately, I believe that this conception is the most useful one.

I turn now to a related family of notions of objectivity—ones that center on *objective mode of representation* rather than *objective subject matter*.<sup>27</sup> These notions hinge both on the nature of the subject matter and on how the subject matter is represented. One obtains different notions by varying the conception of an objective subject matter and, equally, by varying the conception of how it is represented.

For example, one could take the very narrow, mind-independence notion of an objective subject matter that we began with; and one could add to it a relatively narrow conception of objective mode of representation. The relevant notion of an objective mode of representation might be a veridical representation of properties, kinds, relations that are mind-independent. For example, the veridical thought pure water is translucent would count as an objective representation in this sense. It attributes only unproblematically mind-independent kinds and properties. It does so without representing any mind-dependent matters. By contrast, translucence is Uncle Harry's favorite attribute would not be an objective representation in this sense (even if Uncle Harry's favorite attribute is translucence) because it represents mind-independent matters by representing mind-dependent matters. Thus the representational content represents translucence by way of representing preferences, which are mental.

Alternatively, one could combine the broad notion of an objective subject matter (all that is real) with a correspondingly broad conception of an objective mode of representation. An example of a broad notion of an objective mode of representation is the notion of a true or veridical representation.<sup>28</sup> This combination would allow veridical judgments about one's own "subjective" mental states to count as objective. The judgments I am in pain and I am hallucinating would be objective on this conception, assuming them to be true in a context.

Another family of notions of objectivity concern *law* or *law-likeness*. This family is in one respect narrower than the notions just sketched. Not all subject matters (specifically attributes) enter into laws; and not all truths concern law. On the other hand, this set includes cases that the narrow notions of complete mind-independence exclude. A pattern of laws or law-like patterns might hold among some mental kinds or properties. But laws seem not to hold among such properties as being the first property Uncle Harry attended to on his seventieth birthday.

<sup>26</sup> One must be careful here. Strictly, no illusory subject matter is real. So, although we talk of illusory subject matters, 'illusory' does not indicate a property of a subject matter. No such subject matters exist or are real, and thus no such subject matters can have properties. 'Illusory' indicates a property of representational contents or mental states that purport to represent subject matters that, in fact, do not exist, are not real. The illusions, the non-veridical representational contents or non-veridical beliefs, themselves are real. So they are part of 'objective reality'.

<sup>27</sup> Here it is the mode of representation, whether the representation represents objectively, rather than the status of the representation itself as a subject matter, that is at issue.

<sup>28</sup> I take truth to be propositional. It is one sort of veridicality. The *accuracy* of photographs, representational paintings, and perceptions are other sorts of veridicality.

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Particular individuals' happen-so attendings are not, or need not be, the topics of psychological laws. Similarly, although we can give law-like explanations of the behavior of particular instances of mud, by focusing on their components, *mud* is not a property that enters into laws.

This family of conceptions of objectivity have both subject-matter versions and mode-of-representation versions. A subject matter is objective, in this sense, inasmuch as it consists of properties, kinds, relations, and particulars realizing them, that enter into laws or law-like patterns. A representation of the subject matter represents objectively, on this type of conception, insofar as it veridically formulates laws or law-like patterns, or instantiates such formulations—or does so in a way conducive for explanatory formulations of laws.

A further family of conceptions of objectivity centers on representationally associated *procedures* or *systems*. A procedure or system of representations represents objectively insofar as it meets methodological norms that are independent of the whims of a *particular* mind. At its broadest, a notion of this type might include procedures for determining illusory astrological predictions, as long as the procedures are not dependent on a particular whim or decree. Narrower conceptions of procedural objectivity are more to the point in most philosophical discussions. Rational procedures in logic or mathematics or empirical experimental procedures in natural science are often taken as prime examples. More broadly, any rational or reasonable procedures can be objective in this sense.

Another family of notions centers on *impersonality*. This family is blood related to notions centering on law. Impersonality conceptions are usually motivated by law-related conceptions, inasmuch as laws are widely regarded as appropriately formulated in impersonal terms, terms that are as far removed as possible from particular contexts or personal points of view. Objective representation in this sense is representation in impersonal form—form that eschews as much as possible personal pronouns, or perhaps even demonstratives and indexicals. One can add further restrictions—veridicality, procedural rationality, and so on.<sup>29</sup>

One further set of notions of objectivity center on *intersubjectivity*. A subject matter is objective in this sense if it can elicit agreement, or, more narrowly, rational agreement. Objective representation in this more narrow sense is representation that is rationally shared or shareable by appropriately equipped individuals.

An idea behind the procedural, impersonality, and intersubjectivity conceptions of objectivity is *relative independence of particular perspective*. In Thomas Nagel's words: 'A view or form of thought is more objective than another if it

<sup>29</sup> I think that all representation presupposes representation that involves analogs of indexicals and demonstratives. So this notion must be qualified. See my 'Belief *De Re*', *The Journal of Philosophy* 74 (1977), 338–362; reprinted in *Foundations of Mind: Philosophical Essays, Volume 2* (Oxford: Clarendon Press, 2007).

relies less on the specifics of the individual's makeup and position in the world, or on the character of the particular type of creature he is.<sup>30</sup>

All representation is necessarily from some perspective or standpoint. Every representational content is one of many possible representational ways, standpoints, or perspectives for representing any given particular, property, relation, or kind. Some types of representation, those generated in scientific theories, are relatively more common or shareable for a wider range of thinkers. They are relatively less open to contextual, historical, perceptual, or species-dependent parochial limitations. According to a traditional ideal, representations that are least limited in such ways are available to any rational being.

There is a rough generic division among all these conceptions of objectivity. Some center explicitly on subject matter, or on representational relation to subject matter. All of the subject-matter notions, the notion of veridicality of representation, and the notions involving lawfulness are examples of this type. By contrast, some conceptions of objectivity center, at least in explicit formulation, on relations among representations. The conceptions that feature procedure, impersonality, and intersubjectivity are examples of this type. Call the first group *vertical notions*. Call the second group *horizontal notions*. All these notions have some legitimacy and use. They are not in themselves in competition with one another.

I believe that the root notions are the vertical ones. The narrow conceptions of objectivity as mind-independence and the broader conceptions of objectivity as any real subject matter, or as veridicality, are, I think, more basic than the ones that center on procedure, impersonality, or intersubjectivity. Where we are concerned with the objectivity of representational activities that bear on correctly representing the world, these latter conceptions borrow their force, I think, from the presumption that relevant "horizontal" patterns are conducive to representing a subject matter well.<sup>31</sup> Attempts to explain vertical conceptions in terms of horizontal conceptions are idealist.

A second important division among conceptions of objectivity lies within the vertical conceptions. Some vertical conceptions concern subject matter. Others concern relations of representations to subject matter. The latter require that a representation veridically, or rationally, or lawfully represent a subject matter. For example, a perceptual representation might successfully represent a body as a body and thereby count as objective. Here the subject-matter vertical conceptions

<sup>30</sup> Thomas Nagel, *The View from Nowhere* (Oxford: Oxford University Press, 1986), 5.

<sup>31</sup> I have not discussed conceptions of objectivity that appeal to epistemic warrant. A representation can count as objective if it is warranted or, more narrowly, warranted and true. Depending on the account of warrant, such conceptions can count as either (partly) vertical or purely horizontal. I think that any legitimate conception of warrant must partly depend on vertical conceptions explained in terms of veridicality (truth or correctness). Warrant is, I think, objective partly but constitutively because it entails conduciveness to truth, even though not every warranted representation is true. Similar points apply to the particular type of warrant involved in rationality. See my 'Perceptual Entitlement', *Philosophy and Phenomenological Research* 67 (2003), 503–548.

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are explanatorily more basic than the relation-to-subject-matter vertical conceptions. The latter are constitutively explained in terms of the former, and not vice versa.

As I have indicated, the requirement of veridicality can be supplemented by some requirement that the representation reflect a standpoint or a method that is not necessarily special to a particular mind.<sup>32</sup> Most of the more interesting conceptions along this line are again explained in terms of some relation to veridicality.

I asked,

What does it take for an individual to represent the physical world objectively? What are minimum constitutive conditions necessary for an individual to represent the physical environment in such a way as to attribute, sometimes accurately, specific physical attributes to physical particulars?<sup>33</sup>

I take the physical world itself to be an objective subject matter. As noted, I assume that idealism is mistaken and that some aspects of the physical world are constitutively mind-independent. As a subject matter for empirical representation, these are the aspects that will be most prominent. But colors and bodies of animals with minds are elements in the physical world that are relevant physical *representata*. I assume that they are an objective subject matter at least on the second, constitutively non-perspectival conception of objectivity. The exact nature of various elements in the physical world will not be of great importance. For the most part, the reader can take 'physical world' in an entirely intuitive, common-sense way.

I believe that the constitutively non-perspectival aspects of the world (whether physical or abstract-mathematical) are not any *more* real than artworks that *are* constitutively perspectival, or than constitutively perspectival thoughts, intentions, conscious sensations, emotions, and perceptions. So I regard the most liberal conception of subject-matter objectivity (*all that is real*) as the most useful conception in broad attempts to understand the "world". These issues

<sup>32</sup> I believe that this requirement is additional, and applies primarily to the broad conceptions. Thus, given that pain is a real subject matter, a first-person attribution like I am in pain might count as an objective representation without the requirement, but fail to count as objective with the requirement. For the first-person attribution I am in pain is necessarily from a standpoint on a particular pain that is available only to the individual who has the pain. In the case of the narrow conceptions, the requirement that the mode of representation reflect a standpoint or a method that is not necessarily special to particular minds is often implicit in the requirement that the representation attribute properties (as such) that are mind-independent. Thus a perception of and as of a physical body to the left involves a general standpoint that another perceiver could in principle have on the same subject matter, if another perceiver were in the same position with respect to the subject matter.

<sup>33</sup> I do not say 'represent physical bodies as physical bodies', because I think that at primitive levels of perceptual representation, there is representation of physical bodies as bodies, even though the perceptual system lacks the representational content physical. Bodies *are* physical, but the perceiver lacks anything as general as the attributive physical and lacks any attributive for a contrast class (for example, mental or abstract).

will not, however, be central here. I am primarily interested in primitive empirical veridical representation of *physical* entities in the environment.

The occurrence of ‘represent the physical world objectively’ in my question must be understood very specifically. One condition packed into this phrase is that the representation be objective in the broad sense that it be a veridical, or approximately veridical, representation (of the physical world).<sup>34</sup>

So representing objectively is, for our purposes, representing veridically. One of the points at issue will be whether objective representation in this sense *must* represent the physical environment by representing mental matters. My view is, firmly, negative. Since the representational content of elementary representation of the physical environment will be in question, I want to pose the question without prejudging the issue. So any representation that veridically refers to, indicates, or attributes physical entities counts as veridical representation of the physical world.

A second condition is packed into the phrase ‘represent the physical world objectively’ in the questions that opened Chapter 1. The representations, or representational contents, that I am concerned with meet two conditions: (1) they succeed in representing actual physical entities, and (2) they represent physical entities in such a way that, given that the representational content is successfully representational, the content *entails* that the attributes are in fact physical.

Condition (2) does not require that the representation have the very content is physical or represent anything as physical. I am interested in representation of the physical environment by beings that may lack the abstraction capabilities implicit in the representational content is physical. Such beings might have a representational content like is a body. Is a body successfully represents a physical kind, and, since being a body entails being physical, its content entails that it indicates something physical if it indicates anything. (At any rate, I understand ‘body’ in that way.) Similarly, a veridical specification of a physical property in the form the space-occupying cause of these sense data entails an indication of a physical attribute (*space-occupying cause*) and a reference to a physical particular (the particular cause). The indication would, if it were assumed to be veridical, entail that a physical entity is represented. For being a space-occupying cause entails being physical. In each case—is a body and the space-occupying cause of these sense data—use of the representational content *represents the physical world objectively* in the way required by the questions that opened Chapter 1.

<sup>34</sup> In the philosophical traditions that I will discuss, it is sometimes held that individuals have physical-object representation, but that such representation bears little systematic relation to the physical attributes in the world. Such representation is not objective representation. Other traditions maintain that we “represent” the physical world only in the sense that we represent a structurally analogous array of entities that are entirely mind-dependent. Such representation is not objective representation of the physical world, because it is not even approximately veridical.

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By contrast, a specification like Cousin Bette's favorite property does not entail that the relevant property, if any, is physical—even if Cousin Bette's favorite property were in fact physical. The representational content does not entail that the relevant property is physical. Similarly, condition (2) rules out representational contents like the cause of this representation. Even if all causes and all representational states were physical, this content would not entail this fact, as a matter of its meaning or content.

The point is that all parties to the discussion are interested in giving an account of elementary forms of physical-property- (physical-kind-, physical-relation-) attributions.

In summary, my initial question can be paraphrased:

What does it take for an individual to engage in empirical representation that veridically (accurately) represents a physical subject matter and that has a representational content that entails that the attributed properties, relations, or kinds are physical if they exist at all?

I assume that the physical world is an objective subject matter on one or both of the first two conceptions of subject-matter objectivity. It is mind-independent or constitutively non-perspectival.

Again, I am *not* asking what it takes to have a representation with the very content objective subject matter, or physical subject matter, or mind-independent subject matter. Many of the beings that I am interested in lack any representational contents remotely so sophisticated. I am interested in representations with contents like spherical body, red, or to the left of that body.

### PARTICULARS, ATTRIBUTES, PROPERTIES, RELATIONS, KINDS

Let us return to some of our questions:

More specifically, what are minimum constitutive conditions necessary for an individual to represent the physical environment in such a way as to attribute specific physical attributes to physical particulars? What conditions must be met if an individual is to represent particulars in the physical environment as having such attributes as sizes, shapes, locations, distances, motions, colors, textures, and kinds like being a body? What psychological and environmental resources are needed if such representation is to be possible?

What are particulars, attributes, characteristics, properties, relations, kinds?

*Particulars* are non-shareable, non-repeatable, non-multi-realizable entities. Fido and a given spherical body are particulars. Redness, being-to-the-left-of, being spherical, and moving are not particulars—since they can be shared or realized by different particulars. I will be primarily concerned with *concrete particulars*, particulars in time. The number 3 and the null set can be considered abstract particulars, but I will not make use of such considerations.

Particulars may be individuals like Fido or events like the explosion of a bomb at a given time. They may also be *tropes* or *instantiations* (*instances*) of properties or relations. Thus the instance of redness on the surface of a wall, or the instance of sphericity in the moving body, counts as a particular. Particulars may also be instances of relations. Thus the instance of the relation *larger-than* that holds between two particular bodies can count as a particular.

Some philosophers maintain that the only particulars, or more liberally the only concrete particulars, are bodies, masses, and events. They reject the existence of property- and relation instances. I think that in the theory of perception, allowance of instances of such attributes is theoretically fruitful. I do not, however, care to fight this battle. Those who reject such entities can translate my locutions into their favored idioms.

I use ‘*attribute*’ (the noun) as a generic term to cover properties, relations, and kinds, including elements and substance-kinds.

I use ‘*property*’ and ‘*characteristic*’ interchangeably. Properties are shareable aspects of particulars, or—at a higher level—of properties, relations, or kinds. Properties are aspects of single entities. *Relations* hold or fail to hold between, or among, more than one entity. Thus, intuitively, sphericity is a property; and being-bigger-than is a relation.<sup>35</sup>

The distinction often depends on one’s level of analytical or ontological rigor. Tallness is intuitively a property, but, on closer reflection, tallness is seen to be relative to a comparison class. Speaking intuitively, tallness is a property of Shaquille O’Neal. But, speaking more analytically, Shaquille O’Neal is tall for a human being but not tall for an upright physical body on earth. I sometimes use ‘property’ to cover what are, at some levels of analysis, relations as well as properties. Mostly, I make the distinction in an intuitive way, without resting any great ontological weight on the distinction.

Properties and relations come in levels of generality. The property *scarlet* is a subspecies of the property *red*, and the property *red* is a subspecies of the property *colored*. The relation *being-a-cousin-of* is a subspecies of the relation *being-kin-to*.

*Kinds* are intuitively basic demarcations of entities. Thus being a dog is the kind of individual that Fido instantiates. Being brown is a property of Fido.

Like properties and relations, kinds can group or categorize at different levels of generality or abstraction. Thus being a mammal and being a living creature are also kinds that Fido instantiates. Being a perception as of a spherical body, being a perception as of a body, and being a perception are kinds of psychological state at different levels of generality or abstraction.

A kind is a demarcation that cannot change easily, or cannot change at all, while the entity that is an instance of the kind remains the same. Thus Fido could turn grey or gain weight, but he could not—at least could not easily—remain Fido and not be a dog or mammal. Moreover, what it is to be Fido is to be explicated in

<sup>35</sup> I take identity to be a property, although there are *representations* of identity that have relational form. ‘*Feature*’ is a non-technical term that is often approximately equivalent with ‘*attribute*’.

terms of his being a dog and being a mammal. Sometimes kinds are counted as basic or fundamental properties. Again, rigorous ontological issues will not be foremost in my account. So I use the term ‘kind’ in a relaxed, intuitive way, without insisting on deep metaphysical consequences. Certain kinds play a relatively central role in explanation. Such kinds will be of special interest.

‘*Entity*’ is a catch-all ontological term. It applies to particulars (concrete or abstract), attributes, and whatever else there is.

## RESOURCES AND CONDITIONS

My initial questions ‘what does it take?’, ‘what resources are needed?’, ‘what conditions must be met?’ are intentionally vague at this stage.

I am interested in two kinds of resources or conditions as answers to these questions. The most obvious kind concerns psychological resources or psychological conditions. I ask what sorts of psychological, particularly representational, resources an individual constitutively must have in order to represent the physical environment as having specific physical properties. Must an individual know certain things in order to represent the physical environment? Must an individual represent something else in order to represent the physical environment? What sorts of psychological abilities must attend, or be integral to, perception and perceptual belief?

More specific questions are as follows. To perceive particular bodies as bodies, must an individual have beliefs about bodies? What sort of capacity to represent spatial relations is necessary? Does perception of the physical environment depend on perception of a more basic kind—perception of appearances, for example? Must an individual be able to represent mistakes about the physical environment to represent it successfully? Is language necessary for perceptual representation of bodies or spatial relations as such?

The other kind of resource or condition has to do with relations between the individual and the individual’s environment. By understanding something about the role of environmental conditions, one is in a better position to understand what psychological conditions must also be met. As intimated in Chapter 1, fuller understanding of the role of individual–environment relations in objective representation might lead one to recognize that fewer or different psychological abilities are necessary for objectification.

For example, if the specific properties in the environment play a role in determining the representational contents of an individual’s perception or perceptual belief, there may be less pressure to require that the individual be able to describe or know about the distinguishing features of what the individual represents in order to represent it. Suppose that an individual’s having the concept body constitutively depends on the individual’s systematic interaction with bodies, including perceptual discrimination of bodies from other relevant types of entities in the environment. Then it may appear less exigent to require, as a



condition on representing bodies as such, that an individual have a criterion for when bodies, in general, are the same or different.

I am interested in knowing at what stages of psychological development particular types of animals have or fail to have primitive sorts of objective representation. And I am interested in knowing what species are capable of objectivity and what species are not.

These empirical questions figure in the discussion. My primary questions are, however, more general. When I ask what sorts of conditions must be met, or what resources are needed, I am asking a *constitutive* question—a question about constitutive conditions and about natures.

### CONSTITUTIVE CONDITIONS AND NATURES

Constitutive questions are a subset of what in common parlance are known as ‘conceptual’ questions. Some philosophers whom I discuss take the questions as conceptual in a narrower sense. They ask, what psychological resources must an individual have if it is to be *intelligible* that the individual empirically represents an objective subject matter objectively? I am sceptical of such approaches, and of correlative claims of inconsistency or unintelligibility.

Even so, the questions that I am asking have a certain priority. They underlie and are more basic than the questions about development and species. Investigating these latter questions can shift one’s understanding of the former. Empirical investigation often shows that putative answers to conceptual questions (even questions purportedly conceptual in the stricter senses) are mistaken. Still, whether a child represents the physical environment in an objective way depends on what it is to represent the environment in an objective way. This ‘what it is’ question is a constitutive question.

A constitutive question concerns necessary (or sufficient, or necessary and sufficient) conditions under which something is what it is. Such a question concerns conditions under which something has the *nature* that it has. As I conceive them, natures are approximately essences. I want, however, to push to the background many of the traditional metaphysical questions about essence.

Natures are associated with fundamental, or relatively fundamental, kinds or properties that have the potential to figure in systematic explanations. What counts as a relatively fundamental explanatory kind must be determined in the rough and tumble of explanation. Gerrymandered kinds, such as *being green* or *being divisible by 13*, are not relatively fundamental. Kinds that are adventitious, such as *being the nearest tree to Uncle Harry when he sang ‘Die Fiorelle’*, are not relatively fundamental. Kinds like *mess* or *list* are not relatively fundamental. The natures I discuss are of obvious explanatory interest.

A constitutive question asks for necessary or sufficient conditions for something’s being what it is or having the nature that it has. The relevant conditions are, however, a subset of all such necessary and sufficient conditions. To be an

answer to a constitutive question, the answer must help *explain* something's having the nature that it has. Citing a relevant condition must aid in understanding something's nature.

The conditions cited in such answers need not be *parts* of the nature. The explanation that the cited conditions serve may be quite different from the explanation that the nature, or the explanatory kind, might serve.

The nature of a tree is being a tree, being a plant, being a living thing, and so on. The nature of a perception as of something's being spherical is being a perception as of something's being spherical, being a perceptual state, and so on. These answers as to what it is to be something are relatively straightforward. But the answers can grow more interesting. Natures can include conditions that constitute the kind, constitute what the kind "really is". For example, some type of DNA sequences, with allowances for certain variations, might help constitute what it is to be a tree. Being a physical object, developed to a certain stage, with such a DNA profile, might be what being a tree "really is".

Reductive explanations of this sort are, I think, fairly rare in science. Even in science, controversy attends most attempted reductive explanations. The just-sketched explanation regarding the nature of a tree is a case in point.

We have no reductive explanation for what it is to be a perception as of something's being spherical, or for what it is to represent something in an objective way. I do not expect such explanations. I will initially assume and later argue that, as far as we can now tell, psychological kinds are explanatorily primitive, in the sense that specifications of them are not exhaustively reducible in scientific or other explanatory enterprises to specifications that are not distinctive of psychology. In such cases, explanation makes reference to the natures—employs reference to natures in its law-like principles. There need not always be a further scientific explanation of the natures themselves.

Constitutive questions about psychological states can nevertheless remain interesting, even though the answers are not likely to provide illuminating reductive substitutes for ordinary specifications of the natures being asked about. To be an instance of a kind or to have a nature, something must meet certain collateral *constitutive conditions*. These are conditions that are necessary, sufficient, or necessary and sufficient to be something of that kind or with that nature, and that are in principle potentially relevant to explaining, understanding, illuminating the kind or nature. Of course, the kind or nature, and the associated constitutive conditions, are what they are independently of any actual explanations or understanding. The point is that constitutive conditions bear sufficiently directly on the natures being what they are that such conditions can ground explanation and understanding.

What it is to explain or illuminate in this context must be left somewhat open. I assume that for an animal's objective representation to be possible, the atmosphere in which the animal lives must be within a certain range of temperatures; there must be certain types of protein synthesis and transfer in the animal's body; and so on. These conditions do not count as constitutive. They are causally

relevant. They may even be metaphysically necessary conditions. But they do not illuminate the nature of objective representation in the right way. Saying something about the difference between an animal's perception and a plant's sensitivity to light, on the other hand, might help illumine what perceptual representation is, and therefore what objective empirical representation is. Or saying something about whether perception must be accompanied by a capacity for belief, or by a capacity to represent laws, might illuminate the nature of perception or objectivity. Or showing that something could not possibly be a psychological state that represents sphericity, unless instances of the psychological system in which the state occurs had entered into causal relations with three-dimensional bodies, might illumine the nature of representation of shape.

The 'could not possibly' is not a point about biological necessity or evolution. The point concerns a stronger type of necessity, one that bears on our very understanding of the relevant nature or kind. The claim about necessity tends not to be a matter of analysis of concepts or of definitions. In this respect, it is rarely if ever 'conceptual' in a narrow sense, much less definitional. Sometimes such a claim is *a priori* warranted. That is, sometimes its epistemic warrant does not make reference to empirical sources. The warrant may be grounded in reflection or understanding alone—even though the reflection is not just a matter of analysis of internal conceptual structure. On the other hand, answers to constitutive questions, even those that are "philosophical" and "armchair", often have empirical warrants.

Constitutive questions often have the generality, elusiveness, and difficulty of philosophical questions. They are commonly different from scientific questions. But I know of no sharp, general distinction between constitutive questions and questions asked by empirical science. Fortunately, progress does not depend on explaining the nature of constitutive questions in advance. Whether an answer is constitutive and illuminating must be determined in philosophical back and forth. I think that readers can recognize constitutive, illuminating answers when presented with them. I hope that what follows will elicit such recognition.

## SUMMARY

When I ask, 'what does it take for an individual to represent the physical world objectively?', I am asking what conditions must be in place if an individual is to engage in accurate, empirical representation of an ordinary macro-physical subject matter. The accuracy must involve indicating and attributing some of the central physical attributes that the subject matter in fact has, and doing so in such a way as to entail the physicality of those attributes. The objectivity of such representation lies not only in its accuracy and its specifying relevant attributes in a way that entails their physicality. It also lies in the physical subject matter's being mind-independent, or at least constitutively non-perspectival. The *conditions* that I am primarily concerned with are psychological and environmental

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conditions that are constitutive. They are conditions that must be in place if the relevant representation is to be possible, and that help make the relevant representation what it is.

Before discussing Individual Representationalism in detail, I next sketch basic outlines of anti-individualism.

# 3 *Anti-Individualism*

The philosophical standpoint that underlies my rejection of Individual Representationalism is *anti-individualism*. In general form, this standpoint is compatible with some types of Individual Representationalism. In the specific form that it takes through reflecting on *perception*, anti-individualism is incompatible with all types.

Anti-individualism is a view about constitutive conditions for individuals to be in certain representational states. It is not specifically about conditions for objective representation. Many mental states whose constitutive conditions it is concerned with, however, do represent an objective (mind-independent or constitutively non-perspectival) subject matter objectively (veridically). By reflecting on anti-individualism in both general and specific forms, one better understands origins of objectivity.

## ANTI-INDIVIDUALISM: WHAT IT IS

In its general form, anti-individualism is the claim that

(A) the natures of many mental states constitutively depend on relations between a subject matter beyond the individual and the individual that has the mental states, where relevant relations help determine specific natures of those states.

It follows from (A) that *being in* many mental states constitutively depends on relations between an individual and a subject matter beyond the individual.

I am primarily interested here in mental states that represent the physical environment empirically. Adapted to these cases, anti-individualism claims that

(A') The natures of mental states that empirically represent the physical environment depend constitutively on relations between specific aspects of the environment and the individual, including causal relations, which are not in themselves representational; the relevant environment–individual relations help determine specific natures of the states.

Unless context indicates otherwise, 'mental state' is a catch-all term for mental states (properly so-called), mental events, mental acts, and mental

capacities, abilities, competencies. The view that I am discussing specifically concerns *representational* mental states, those that function to “be about” something—those that have veridicality conditions.<sup>1</sup>

There are disputes over whether all mental states are representational. The disputes hinge partly on what is meant by ‘representational’. It is *undisputed* that the states that I discuss—beliefs, perceptions, and so on—are representational. They are naturally regarded as *constitutively* representational. By their natures, they function to represent-as.

(A’) notes that causation is a *non-representational relation*. I mean merely that causal relations are not representational simply by virtue of being causal, although causation is a constitutive aspect of some representational relations, like perceptual reference. Examples of *representational relations* between a mental state and a subject matter are *reference, indication, being veridical of*.<sup>2</sup>

Recall our notion *nature*. Natures are kinds that potentially ground fundamental, or relatively fundamental, explanation. An example of a mental-state nature is a belief that aluminum makes foil—a different kind of mental state from a belief that water is translucent. I write ‘kinds that potentially ground relatively *fundamental* explanation’ because I am interested in kinds that are relevant to non-trivial explanations. A belief held by men weighing more than 200 pounds is perhaps a kind of mental state. It does *not* ground relatively fundamental explanation.

I rest little weight on ‘fundamental’. There are different dimensions of interest, different explanatory purposes. I allow natures to be *relatively* fundamental because I do not want to wrangle over whether natures are absolutely basic

<sup>1</sup> In framing these principles, I do not count among *mental states* factive states like knowing, or other states like (veridical) seeing or (veridical) remembering whose specifications necessitate in each instance representational success. The standard specification of such states *entails*—as a matter of the most elementary and superficial understanding—truth, veridicality, or some relation, such as perceptual reference, to the environment. Knowing something entails that it is true. Seeing something entails perceptually referring to it and being causally related to it. Anti-individualism is *trivially* true of such states. For truth entails relations to the environment; seeing and reference *are* relations to the environment. There are reasons to count as mental states in the strictest sense only states whose standard specifications do not entail representational success in each instance. These are states like belief and having a memory or perception *as of*. By contrast, states like knowing and (veridical) seeing are partly mental or psychological (knowledge involves belief, seeing entails having a perceptual state as of). But they have other aspects as well. One reason for not grouping them with ordinary mental states, or thinking of them as analytically prior to ordinary mental states, is that explanations in psychology center on kinds of psychological states that do not entail veridicality. The point is very clear in perceptual psychology, the most developed psychological science. The factive-type states are explanatorily less fundamental in psychology (though they are motivationally central for epistemology). See my ‘Disjunctivism and Perceptual Psychology’, especially note 28. The present discussion does not hinge on whether one includes factives and similar states among the mental states. Including the factives and factive-like states under the thesis is harmless, as long as it is understood that the thesis does not apply only or primarily to them.

<sup>2</sup> Some causal relations that are constitutively necessary to specific kinds of representational states have a representational state as one of their relata. Others are causal relations between relata neither of which is a representational state or event—for example, causal relations between an entity in the environment and a surface sensory receptor, or between a non-representational act of an individual and some entity in the environment. Causal relations *in themselves* are not representational: they are not relational by virtue of being causal.

according to some strict canon. I do think of natures as being as basic as kinds get. I am interested in kinds that ground serious explanatory enterprises. I believe that these kinds are objectively fundamental, explanatorily primitive.<sup>3</sup>

I think that representational psychological states are explanatory kinds that cannot be reduced to any others. For present purposes, it is enough to assume that they are not *obviously* reducible, or dispensable.

Anti-individualism contributes to understanding *what it is* to be a given kind (or instance of a kind) of mental state and what it is to be *in* a mental state.

As indicated in Chapter 2, natures can be taken to be essences. I use the less fraught term ‘natures’, because I think it unnecessary to take a strong position on the metaphysics of natures or kinds. One might think of the ‘what it is’ enterprise as the most fundamental philosophical account of mental states, whatever the metaphysical status that that account has. I intend the notion of a nature of a mental state to be compatible with common-sense ideas about when kinds of mental states are the same or different, and about what kinds are central in explanatory and descriptive enterprises.

Anti-individualism claims that the natures of many mental states are *constitutively dependent* on relations to the environment. I will not try to define the notions of nature and constitutive dependence. I will elicit understanding through explication and example.

It is not to be assumed that constitutive dependence is one-way. Frequently, dependence is reciprocal. For example, being an individual with representational mental states is constitutively dependent on having a memory that can re-employ some of those mental states.<sup>4</sup> There are circularities here. They are not vicious. For the explications of constitutive dependencies are not intended as definitions or reductions of the natures whose dependencies are being elucidated.

<sup>3</sup> When I say, here or elsewhere, that certain terms or concepts are *explanatorily primitive*, I mean that they have genuine explanatory uses and that the explanations that they serve cannot be reduced, without remainder, to other explanations that lack the terms or concepts. Some reductions in science do succeed in showing that certain theories, terms, or concepts are convenient but explanatorily reducible. Their explanatory and descriptive work can, in principle, be *completely* taken over by theories in other terms. Explanations in terms of heat seem to be thus reducible. They were reduced, seemingly without remainder, to explanations that appeal to motion of particles. If so, ‘heat’ is not explanatorily primitive. Being explanatorily primitive in this sense does not mean that the term or theory can provide full explanatory understanding without supplement. For example, most biological terms and theories are not explanatorily reducible without remainder to terms and theories in chemistry or physics, though perhaps a few biological concepts have been. (The fact that biological entities are all made up of physical entities does not show that biology is reducible to physics.) On the other hand, a full understanding of biology depends on supplementary explanations in chemistry or physics. I believe that representational elements in psychology are not reducible, without remainder, to other terms or concepts—and that theories that cite representational states are not reducible without remainder to theories that do not. Obviously, this point does not imply that psychology can operate in a vacuum, without supplement from other sciences. The notion of explanatory primitiveness hinges on a technical, if generic, conception of reduction. Constitutive explications or explanations of psychological kinds are rarely, if ever, types of reduction.

<sup>4</sup> For more on this matter, see my ‘Memory and Persons’, *The Philosophical Review* 112 (2003), 289–337.

Constitutive dependence is to be distinguished from causal dependence. It is trivial that many mental states causally depend on relations between environment and individual. Acquiring such states depends on being caused to have them. Constitutive dependence is dependence that figures in determining a nature. It is dependence that bears on the natures or constitution of mental states, on what it is to be, or be in, such states. Constitutive dependence is indicated in explanations, or explications, of the natures of mental states.

There is a modal claim here. If the nature of a mental state constitutively depends on certain relations to the environment, it is impossible to be in that mental state, if the relevant relations are not in place. The impossibility is stronger than causal impossibility. It goes more deeply into our understanding of how mental states and representation must, to be what they are, be connected to other things. Even construed non-causally, the modal claim is not all there is to constitutive dependence.

Constitutive dependence is stronger than causal dependence, nomically necessary dependence, and metaphysically necessary dependence. Constitutive dependence implies metaphysically necessary dependence, but is a yet stronger relation.

Constitutive dependence figures in explanations of the nature, essence, or “whatness” of the relevant mental states. Some necessities do not. It is necessary of every mental state that either the state is in a world in which  $2+2=4$  or it is made of sheep’s cheese (since necessarily every mental state is in a world in which  $2+2=4$ ). It is necessary of every mental state that it is not a number or a mountain. These necessities are not referred to in explanation of the nature of any mental state. They are not constitutive necessities or constitutive dependencies.

A more delicate point applies to constitutive dependence. To say that the nature of a mental state constitutively depends on relations to an environment is not to say that the mental state *is* or ‘contains’ a relation to the environment. The relations need not be *part* of the structure or nature of the mental state. It is enough that they be cited in a correct explanation of conditions necessary for the state to be what it is.

Anti-individualism *per se* does *not* claim that mental states *are* relations to the environment, or that mental states are not in the head, or that entities in the environment are part of the mental state or of the state’s representational content.<sup>5</sup> I reject these claims. Mental-state kinds ground psychological

<sup>5</sup> Hilary Putnam popularized the slogan ‘Meaning ain’t in the head’ in ‘The Meaning of “Meaning”’, in K. Gunderson (ed.) *Language, Mind and Knowledge*, Minnesota Studies in the Philosophy of Science VII (Minneapolis: University of Minnesota Press, 1975); reprinted in *Philosophical Papers*, ii (Cambridge: Cambridge University Press, 1975). Although the slogan is colorful, I think it deeply misleading, and in fact based on confusion and error. Representational content is abstract, and thus not anywhere. Moreover, nothing in anti-individualism—or in what Putnam himself successfully argued—implies that states or events marked by representational content cannot be in the head. See the discussion of hearts and tectonic plates immediately below in the text. I criticize some of the confusions and errors in ‘Other Bodies’, in A. Woodfield (ed.), *Thought and Object* (London: Oxford University Press, 1982), reprinted in *Foundations of Mind*. For further



explanations. Most constitutive relations between the individual and the environment are not kinds that are cited in psychological or other scientific explanations. Still, they are relevant to a constitutive explanation of an individual's being in specific psychological states.

Individuals' mental states and events themselves do not have a location that would be surprising to common sense. They are not themselves outside the individual. Nor are they relations to things outside the individual. *Versions* of anti-individualism claim that mental states are not in the head, or are just relations to the environment. I regard these versions as incorrect. The thesis does not depend on any such claims.

In large measure, explaining constitutive conditions of natures or kinds is a philosophical enterprise. Philosophers have a special and persistent stake in it. But the enterprise is not exclusively for philosophers. Most intellectuals, including scientists, have a sense for what the enterprise is; and many make claims within it.

Let me give some examples of constitutive conditions. What it is to be a physical being is partly to occupy space, and also perhaps to have such properties as force or mass. What it is to be water is partly to be made up of hydrogen and oxygen. The kind oxygen is constitutively associated with having a certain number of electrons, protons, and neutrons. Life is constitutively associated with a capacity for reproduction and for carrying on certain functions. Being a heart constitutively involves functioning to pump blood in a circulatory system. Being an ape constitutively involves having certain DNA. Being a tool has something to do with being meant or used for some purpose. Being a prime number is being a natural number and not being divisible without remainder by other natural numbers except 1. Having knowledge constitutively requires having true belief. Being a moral person bears some constitutive relation to having good motives and acting well with respect to living beings, especially persons—and constitutively depends on a world in which change is possible. To be in a representational mental state is partly to be in a state that can be veridical or non-veridical.

Some of these constitutive points have been discovered by a science. They are certainly not all "philosophical" points. Philosophy does have a special interest in constitutive explanations—explanations of what it is to be a certain kind, or of constitutive conditions for being a certain kind. Some kinds, or classes of kinds, are of special interest to philosophy. In this work, the relevant kinds are representational mental states, especially perceptual states.

Anti-individualism about mental states that represent, or that represent as of, entities in the physical environment claims that what it is to be such states

criticisms, see Robert Stalnaker, 'On What is in the Head', in J. E. Tomberlin (ed.), *Philosophical Perspectives, 3: Philosophy of Mind and Action Theory* (Atascadero, CA: Ridgeview, 1989), 187–216. Putnam's mistake may also derive from a misinformed view of perception. See note 23 in Chapter 5 below.

constitutively depends partly on causal relations between specific aspects of the environment and the individual that is in those states. I want now to remark on the role of *relations*, particularly causal relations, in the constitutive account of the natures of mental states. I lead up to the case of mental states by discussing other examples.

Constitutive accounts are often thought of as centering on the *intrinsic* constitution of a kind of thing. We think of the nature of oxygen as depending purely on the atomic structure of the oxygen atom. It is easy to have the intuition that this structure can be fully understood without invoking relations between the atom and anything beyond it.

I think that this intuition is nearly always mistaken. One must reflect on what is required for this “intrinsic” structure. Even in the oxygen case, the component parts of the structure, the protons, neutrons, and electrons, constitutively depend on properties like force and mass. These properties have constitutive relational implications. The constitutive structure of the atom also depends on spatial relations. What it is to be a spatial relation depends partly on relational structure that goes beyond the atom’s interior.

Not all constitutive accounts of natures or kinds seem, even initially, to be as “intrinsic” as those involving chemical structure. What is it to be a heart? It is constitutively necessary that to be a heart, an organ must have the function of pumping blood through a circulatory system. Pumping blood functions to nourish the organism’s body. Anything that lacked these functions could not be a heart. Having these functions entails bearing relations—in normal conditions—to blood, blood vessels, and the rest of the organism’s body, outside the heart’s boundaries. The relations figure in explanation of what it is to be a heart.

Note that the relations to these other entities are not part of the internal structure of the heart. Nor is the heart itself a relation. Thus the nature of the heart is constitutively dependent for being what it is on relations to things beyond it. But the heart itself has a structure that is not made up of those relations. I think that representational mind is like that.

Let us take another example. Tectonic plates are what they are only by virtue of bearing relations to a wider geological environment.<sup>6</sup> If the plates were not in causal relations to other plates and to forces within the earth, they would not be plates. If the plates were never spatially related to other geological masses, or masses over which they slide and into which they bump, they would not be plates. What it is to be a tectonic plate is constitutively dependent partly on bearing relations to other things.

The plates are not themselves these relations. They have an internal structure. Each plate must be a relatively rigid, coherent mass, if it is to be a tectonic plate.

<sup>6</sup> The example comes from my ‘Individuation and Causation in Psychology’, *Pacific Philosophical Quarterly* 70 (1989), 303–322, reprinted in *Foundations of Mind*. Similar examples can be given for planets, electron orbits in an atom, cell nuclei, and so on. The points about location that follow apply to all these examples.

Still, being a tectonic plate is constitutively dependent on a plate's bearing relations to things beyond its boundaries.

Anti-individualism claims that the natures of many mental states depend constitutively on relations between the individual in those states and other things. The natures of many mental states can be constitutively explained only by reference to a wider environment or subject matter. As with hearts and plates, mental states constitutively bear *relations* to things beyond them.

As with the heart and tectonic plates, no part of the structure of the mental states themselves is outside the individual in the wider environment. Mental states are not themselves relations to the environment.<sup>7</sup> The structures of mental states include the structures of their representational contents.<sup>8</sup> *These* structural features are not only constitutive. They are aspects, 'parts', of the states' natures.<sup>9</sup> The representational content of a belief and its structural elements are aspects of the nature of the belief (in addition to the belief's being a belief, as opposed to a hope or supposition). They are part of what it is to be that mental state. Psychological explanation makes explanatory use of these structures.

Anti-individualism is compatible with several positions on the mind-body problem. Certainly, mental states do not float free of underlying physical states. They are located where the individual who has the mental states is. Their *loci* in causal transactions are where common sense and empirical psychology take them to be. Analogies to hearts and tectonic plates are again worth bearing in mind. The fact that these kinds constitutively depend on relations to entities beyond their boundaries is fully compatible with hearts' and tectonic plates' being localized in space. They are not located where the relations, or the other entities to which they are constitutively related, are.

Anti-individualism as applied to empirical mental states that are as of physical entities claims that such states constitutively could not be the kinds they are if specific causal relations did not hold between the environment and the individual that is in those kinds of states.

As prelude to elaborating anti-individualism further, I will discuss the following principle, which I accept:

<sup>7</sup> We do speak of believing *of* a particular that it is such and such. Such talk suggests hybrids. The hybrids consist of the particular believed of and a mental state, usually only partially specified, that refers to the particular. These hybrids play some role in common-sense explanations. But they are less prominent in scientific explanations that seek laws or law-like patterns. The mental state is fundamentally a belief not a believing of. Similarly, genuine mental states are veridical or non-veridical, not merely veridical-of or non-veridical-of.

<sup>8</sup> In some cases, it may include qualitative aspects of mind. Some hold that it includes a neural or other physical basis for the mental states.

<sup>9</sup> In my view, these structural aspects or "parts" of the mental states' natures, such as the propositional contents and propositional structures, are themselves dependent for being what they are on there being relations to a subject matter beyond the individual, and on relations to other representational states. Thus not all, and perhaps in the end not any, of these structural features are 'intrinsic' in the strongest sense. Here too, I think it important to distinguish the natures that constitutively depend on relations from the relations themselves. They differ in the explanatory enterprises that they ground.

(B) For an individual to have any representational state (such as a belief or perception) as of a subject matter, that state must be associated with some *veridical* representational states that bear referential, indicational, and attributional representational relations to a suitably related subject matter.

The key claim of (B) is that having *any* representational states requires bearing certain “associational” relations to some *veridical* representational states. The idea behind (B) is an analog of the common idea that *successful* realization of a function forms a basis for understanding the function, and for understanding failures in realizing the function. To understand a hammer’s function of pounding nails, one focuses on poundings, not on misses or on uses of hammers to decorate walls.

(B) is a very abstract thesis. Possible types of association are various. Although a ‘suitably related subject matter’ can be particulars or attributes that the initial representational state represents, it need not be. I begin with the latter point.

In the thought phlogiston figures in burning, the concept phlogiston lacks a *representatum* altogether.<sup>10</sup> To have the thought, an individual must bear certain relations to other thoughts or perceptions that are veridical and that bear representational relations to the physical environment. Since the environment includes neither the kind *phlogiston* nor instances of the kind, the “associated” veridical states (distinct from the thought phlogiston figures in burning) represent a different subject matter. The subject matter includes entities like physical bodies, events of burning, properties of mass or weight, and so on. A thought phlogiston figures in burning can have its phlogiston content only through relation to veridical representation in other mental states—veridical representation of physical subject matters suitably relevant to attributions as of phlogiston. In this case, there are veridical perceptions and beliefs from which the mistaken theory was inferred and in terms of which the theory was partly explained. Veridical representation involving indication of other attributes (*body, burning, mass*) forms the constitutive basis for theory involving the concept phlogiston. Psychological states with phlogiston-content are constitutively related, through inference and theory, to veridical representational states regarding relevantly related subject matter. These veridical representational states help ground the representational content phlogiston, even though there is no attribute that is the *representatum* of the concept phlogiston. They do so partly through their representational relations to real entities in the physical environment.

The representational contents of most representational states do have *representata*. In such cases, *veridical* representational states that indicate those *representata* play a constitutive role in enabling those representational states (both veridical and non-veridical ones) to be what they are.

<sup>10</sup> Phlogiston theory was a failed seventeenth- and eighteenth-century account of what we now regard as oxidization. It postulated a fire-like substance that was supposed to be released during combustion.

I turn to the notion of *association* in (B). The relations to veridical representation need not be in the psychology of the individual that has the representational states. A novice just learning phlogiston theory from an expert might not know any of the true observations that were used to support the theory, or any other truths relevant to giving the concept of phlogiston a use. The novice has the relevant representational states through communication with others. In such a case, the association with veridical representation that (B) requires consists in relations to the veridical representation in others.

Dependence by one individual on another's veridical representation can be more radical. A perceptual attributive may partly depend for its being the type of attributive that it is on employment in a perceptual system in the system's evolutionary history, before the individual was born. An individual frog might have been given only illusory, non-veridical perceptions as of moving bodies of such and such a size. The frog can have such illusions with such representational content because its perceptual system had evolved from ancestors in which relevant *veridical* perceptions occurred. In this case, it is plausible to think that the ancestral veridical perceptions were of, and as of, moving objects of the relevant size.

The idea of (B) is that representation *as of* is impossible apart from psychological relations, perhaps through a chain of inheritance or communication, to veridical representation of some generically related subject matter.<sup>11</sup>

I believe that principle (B) is necessary and apriori. Constitutive explanation of any representational states depends on their relations to veridical representational states. The principle leaves open which specific types of associational relations to veridical representational states occur, and what suitably related subject matters are.

(B) is closely related to anti-individualism. It is not strictly part of anti-individualism. Anti-individualism is about the role of individual–environmental relations in determining the specific natures, or kinds, of representational states. (B) does not make a claim about natures. It does not require that *specific* relations to the environment help determine the specific natures of representational states. In the cases of empirical mental states that represent as of the physical environment, anti-individualism claims that the environment–individual relations must include some that are not themselves representational relations.

Let us return to principle (A'). I believe that (A') is necessary and apriori. The principle requires that *empirical* representational states as of the environment constitutively depend partly on entering into environment–individual causal relations. Such relations are constitutively necessary to the type-determination of empirical representational states.

Causal relations are not, by virtue of being causal (or in themselves), representational relations. The relevant constitutive causal relations include specific

<sup>11</sup> (B) is closely related to various versions of the principle of charity. See W. V. Quine, *Word and Object* (Cambridge, MA: MIT Press, 1960), ch. 2.

causal relations in which *no factor* in the causal relation is a representational state. In actual perception there are constitutive causal relations between the environment and pre-representational bodily sensors. For example, in vision, light causally affects retinal receptors. Registration of light on those receptors does not itself involve representation. Such causal relations are among the constitutive causal relations that help determine the natures of perceptual states.

I do not claim that it is *apriori* that the causal relations that are constitutively necessary to empirical representational states include causal relations that are fully non-representational. Perhaps we know only empirically that perception is never a relation purely between a subject matter—even a *physical* subject matter—and a disembodied perceiving spirit. I think that if it is empirical, the point is at least obvious. Among the constitutive causal relations in perception are relations between environmental entities, on one hand, and organisms' bodies and pre-perceptual sensory states, on the other. Some of these causal relations figured in the early phylogenetic stages of the formation of perception.

Causal relations that are constitutive to determining empirical representational states can take many forms. They can occur in the life history of the individual or in the evolutionary developmental prehistory of the individual's perceptual system. They can be involved in perception, veridical or not. They can connect the environment to non-veridical perceptual states through other representational (usually other perceptual) states. They can hold together chains of communication among people. They include both the causal impress of the environment on sensory systems and the practical causal actions by individuals on the environment.<sup>12</sup>

I emphasize that causal relations can enter into the constitutive condition for a mental state with a given representational content in quite indirect ways. For example, it is possible to be in a mental state that visually and mistakenly represents a body as having a particular concrete shape (like the jagged ridge of a mountain range), even though nothing even approximating the represented shape ever existed. No instance of that mental-state type ever bore causal relations to instances of that shape type. The mental-state type is what it is because it is systematically related (by psychological law-like patterns embedded in visual shape representation) to other mental states that do bear causal connections to (at least approximate) instances of other shapes.

The phlogiston example discussed earlier is again relevant here.

<sup>12</sup> For more on the variety of forms of causal relations, see my 'Perceptual Entitlement'. I emphasize the stimulus effect of the environment on perceptual systems, because this is the type of causation that is most central to empirical explanations of perceptual representation. Perceivers' functional *responses* to the environment are also a constitutive factor in determining perceptual content. Arguments that *action* plays no constitutive role in perception are given by Galen Strawson, *Mental Reality* (Cambridge, MA: MIT Press, 1994), ch. 9. I am not persuaded by these arguments. But I leave open here whether *action* or some broader category of functional response is required. I do think that perceptual content depends partly on use, in a broad sense of 'use'. See Chapter 8 and Chapter 10, the sections PERCEPTION AND ORIGINS OF SPATIAL REPRESENTATION AND PERCEPTION AND ORIGINS OF TEMPORAL REPRESENTATION.

As with the *association* with veridical representational states required by (B), the causal relations required by (A') need not occur in an individual's history. An individual can perceptually represent there being a property even if the individual never interacts with any instance of the property, or even any instance within a range of properties that includes the property. Again, a frog could be given illusions as of moving objects by artificial retinal stimulation. It might never visually interact with moving bodies or with any shapes in its physical environment. It can still visually represent there being a moving body. The individual frog's perceptual system yields specific representational contents in response to specific patterns of retinal stimulation because its nature was formed through prior causal relations to the environment in the evolutionary development of the type of visual system that the individual frog has. Antecedent interactions between moving bodies and operations of perceptual mechanisms are central to the explanation of the kinds (primarily the representational content) of perceptual states that the frog has.

Anti-individualism regarding *perception* is an abstract thesis. It claims that a range of non-representational relations, including causal relations, between environment and individual must constitutively be in place, if there are to be perceptual states. Causal interactions with specific elements in the environment must underlie and help in the constitutive explanation of specific perceptual representational states. Anti-individualism allows a wide range of causal relations. It is the task partly of philosophy, but largely of empirical science, to determine their specific characters for specific cases.<sup>13</sup>

In this work, I focus on empirically based mental states. But general anti-individualism (principle (A)) and principle (B) both apply to mathematical beliefs and beliefs in logic. To hold beliefs in pure mathematics, one must have capabilities to form true beliefs about at least some simple aspects of mathematical subject matters, and perhaps other subject matters to which the mathematics applies. The true beliefs depend on relations, primarily semantical relations like reference and being true of. Such subject matters are not in general internal to the individual. I believe that such relations are partly constitutive of the relevant mental states. The *subject matter* is part of the determination of what the mental state is.

<sup>13</sup> Principles (A), (A'), and (B) are very general and abstract. They are not intended to be informative about what specific sorts of relations help determine the representational content of specific mental states. The ways in which theory and perception determine representational content (for example, in phlogiston theory) without relying on perceptual or other causal-based relations to *representata* are enormously varied, and probably impossible to codify. An individual can have concepts that *do* have *representata* without the individual's bearing causal relations to the *representata*. Some elements in the periodic table were specified before they were discovered. Even common-sense, kind-concepts such as water or aluminum could in principle be associated, perhaps by aliens, with imaginings and theoretical knowledge that would suffice to fix their content, without any veridical representations of, or causal relations to, *particulars* of which the concept is true. In such cases, representation depends on association with other representational states that are veridical and that bear causal relations to a suitably related subject matter. See the last pages of 'Other Bodies'.

Pure (unapplied) logic and mathematics do not involve *causal* relations to their subject matters. I conjecture that the representational relations themselves are the sole constitutive relations. To think mathematical thoughts, one must get things right about mathematical structures, functions, and objects. There is, however, an asymmetry in the constitutive determination of content: getting things right must be explained in terms of the subject matter—the things gotten right. Some claim that there must be *perceptual* applications of mathematical notions to non-mathematical objects. Perception is certainly necessary for learning mathematics. I do not see that a relation to perception is *constitutively* necessary, much less epistemically necessary, for attitudes in pure mathematics or logic. I do think that thought about mathematical subject matters requires *de re* applications to non-mathematical subject matters. But the entities could be thought events that are not perceived.<sup>14</sup>

A consequence of the claim that being in many mental states constitutively requires that there be relations between those mental states and a subject matter is that, for many mental states, being in them constitutively requires that there *be* a subject matter. This point bears on scepticism. Representational mental states cannot *all* be illusory.

I believe that generalized scepticism about the existence of the physical world postulates a metaphysically impossible situation. The issue about any scepticism is not, however, its modal status. It is not about constitutive conditions. It is about reasons and warrant. Can our warrant to reject scepticism be shown not to beg a reasonable question? This is a complex matter.<sup>15</sup> Grounds for believing anti-individualism are multiform. Some begin with particular cases that rely on empirical assumptions. These assumptions seem to beg the question against a sceptic. Negotiating this territory is a task for another occasion.

Another set of difficulties stands in the way of quickly mobilizing anti-individualism to answer scepticism. Earlier I noted the variety of causal relations that support a type of representational content. The example of phlogiston carries a cautionary tale. Whether a thought with any given representational content is supported by a causal relation to instances of the very sorts that it represents there being, or whether on the contrary it is supported by indirect causal relations that are infected by theory (explicit or implicit), is a question that scepticism can exploit. One must know which type of causal relation a given representational state is supported by, if one is to use anti-individualism to answer the sceptic regarding most specific beliefs. This point certainly applies to empirical beliefs

<sup>14</sup> See my 'Five Theses on *De Re* States and Attitudes', in J. Almog and P. Leonardi (eds.), *The Philosophy of David Kaplan* (Oxford: Oxford University Press, 2009), 246–316; and 'Postscript to "Belief *De Re*"', in *Foundations of Mind: Philosophical Essays, Volume 2* (Oxford: Clarendon Press, 2007). Of course, the *de re* applications that figure in the emergence of applied mathematical notions in *de facto* human development are empirical and do concern perceived entities in the environment.

<sup>15</sup> See my 'Some Reflections on Scepticism: Reply to Stroud', in M. Hahn and B. Ramberg (eds.), *Reflections and Replies: Essays on the Philosophy of Tyler Burge* (Cambridge, MA: MIT Press, 2003).



about environmental kinds, as I pointed out many years ago.<sup>16</sup> And one must know which type of causal relation is relevant without begging any reasonable or dialectically open question that a sceptic asks. Not all cases of reference failure, even of kind terms, derive from theory that we are introspectively aware of having constructed.<sup>17</sup>

Thus, although anti-individualism opens new ways to think about the mind–body problem and about scepticism, it does not *by itself* purport to resolve either issue. I say ‘just as well’, for present purposes. There is enough to do without taking on more.

I have briefly expounded the main notions in anti-individualism. Even more briefly, I have related it to some large philosophical issues. I want now to sketch grounds for believing it to be true.

#### GENERAL GROUNDS FOR ANTI-INDIVIDUALISM

Representational states are type-individuated partly in terms of their representational contents.<sup>18</sup> That is to say, such states are what they are partly by virtue of their representational contents. A visual perception as of a cylindrical solid is type-individuated as a visual perceptual state, of course. It is also type-individuated in terms of a specific perceptual way of representing cylindrical solidity. A belief that New Orleans is under water is type-individuated in terms of being a belief, and a particular way of thinking of the city New Orleans, a concept for water, and one for the relation *being-under*—all put together into a propositional thought content.

I said *a way* of perceptually representing cylindrical solidity, *a way* of thinking of the city New Orleans, *a concept* of water, and *a concept* of being-under. Ways of representing are representational contents.

As noted in Chapter 2, a perceptual representational content that represents as of a cylindrical solid is more specific than is conveyed in the phrase ‘perception as of a cylindrical solid’. For any attribute (or attribute instance) such as solidity or cylindricality, there are many ways to perceive it—many perceptual perspectives on it, even *visual* perspectives on it. Further, for any attribute (kind, property, relation) *A* and for any way of perceiving something as *A*, there are many perceptual perspectives all of which are ways of perceiving something as *A*. For example, one can visually perceive something as being a certain size in numerous ways, depending on whether the size is closer or farther away. One can visually perceive there being a cylindrical shape in numerous ways, depending on the angle from which the shape is viewed.

<sup>16</sup> See my ‘Other Bodies’.

<sup>17</sup> Descartes was sensitive to this point in *Meditation I*.

<sup>18</sup> See Chapter 2, note 11.

So the phrases ‘perception as of being cylindrical’ and ‘perception of there being cylindricality’ do not fully specify, or type-individuate, a representational content. They signify some content that indicates the property cylindricality, and that does so in a way that entails that it (the content) indicates the property of cylindricality if it indicates anything. Indicating that property is necessary but not sufficient for the identity of the content. Further, indicating that property as cylindricality is necessary but not sufficient for the identity of the content. The precise content depends on the precise way that, or on the precise perspective from which, cylindricality is indicated and attributed. The same point holds for concepts (as) of New Orleans, water, and being-under.

In common sense and empirical psychology these fine-grained ways of type-individuating mental states are the ones that enter into psychological explanation. These fine-grained ways help mark the natures of the representational mental states. The state could not be the same mental state and have a different representational content.<sup>19</sup> Representational contents help mark the natures of, and figure in the most serious explanations of, representational states.

A key fact about these ways of type-individuating representational states is that the representational contents can be veridical or non-veridical. Perceptions and imaginings (or their representational contents) can be accurate or inaccurate. Beliefs and suppositions can be true or false. Intentions, wants, wishes can be fulfilled or not. Then they *become* veridical or *are made* veridical, or they fail to become or to be made veridical.

Perceptions, beliefs, and intentions—the states themselves as distinct from their representational contents—undergo a type of representational failure if they (or their representational contents) are not veridical or fulfilled. A supposition can be non-veridical without failing as a supposition. Perceptions, beliefs, and intentions are not like that. It is part of their natures that they themselves undergo *a certain* failure, if they are not veridical (or, for actional states like intentions, if their veridicality conditions are not fulfilled). A belief undergoes a type of failure if it is false. A perceptual state undergoes a failure if it is inaccurate. An intention undergoes a type of failure if its representational content is not acted upon and made veridical. Perceptions, beliefs, and intentions are *committal* representational states. These points are *a priori* knowable.

Non-committal states, like perceptual imagination or propositional supposition, can have the same representational content as committal counterparts. The non-committal states have their representational contents only by bearing relations to committal states, those that have the representational function of being or becoming veridical. Thus I think that perception, actional goal representation,

<sup>19</sup> A few philosophers maintain that such specifications are non-essential. I think that this view serves only ideology, and is patently false. There is no basis in intuition or empirical explanation for it. On the other hand, as Arnauld insisted against Descartes, there is nothing either in common sense or in empirical explanation to show that the representational aspects of mental states constitute the states’ *full* natures. I leave open whether some physical properties are essential as well. Physical properties certainly appear to be at least necessary conditions for mental states.

and belief have a constitutive priority over states like imaginings, storytellings, and suppositions. And representational successes of these committal states have a constitutive priority over their representational failures. Those states' natures constitutively depend on relations to conditions for success of their instances. That is to say, committal states are type-individuated in terms of a *function* to be representationally successful—to be veridical or to have their veridicality conditions fulfilled.

Type-individuation of states that attributes to some basic types of states (such as perception and belief) a representational function to be veridical—and to others (such as intentions and actional states) a function of inducing fulfillment of their veridicality conditions—associates a *specific sort of teleology* with the natures of those mental states. It is part of the nature of perceptions and beliefs that they have the representational function of representing veridically. These states succeed or fail, *in one respect*, depending on whether their representational contents are veridical. It is part of the nature of intentions, willings, and non-propositional representational actional states that they have the representational function to help induce fulfillment of their representational contents.<sup>20</sup> These actional states succeed, in one respect, if they induce action that fulfills their representational contents. Otherwise they fail, in the same respect. Success and failure are marks of teleology.

A type of state's having the representational function of being veridical (a type like perception or belief) is the fact that underlies that state's being committal with respect to its representational content's being veridical. Such states' being committal does not vary with context. Part of their natures is their having the representational function that they have. Talk of states' aiming at veridicality, or even presenting their representational contents as veridical, is metaphorical.

Of course, beliefs, perceptual states, and actional representational states can have other functions besides their representational functions. Some have practical or biological functions. Fulfilling these functions marks other sorts of teleology, distinct from the teleology involved in representational function.<sup>21</sup>

Many mental states have representational contents regarding the physical environment. How are we to understand constitutive conditions for these mental states? What makes representational connection to the environment possible?

A fundamental reason to believe anti-individualism derives from answering these questions. There are accounts of the natures of mental states that fail badly as answers to these questions. Generalized anti-individualism is, of course, a very abstract and limited account. It is filled in through more specific accounts of specific types of mental states. I believe, however, that any account, specific or general, that does not accord with it will fail.

<sup>20</sup> I assume as terminological matter that intentions and willings are conceptual, hence propositional.

<sup>21</sup> These points are developed in Chapter 8. See also my 'Perceptual Entitlement', *Philosophy and Phenomenological Research* 67 (2003), 502–548, especially section I.

For example, a behaviorist or functionalist reductionist account that tries to explain the natures of representational states by holding that they consist in a network of causal or dispositional relations (specified independently of representational contents) that is limited to connecting registrations of proximal stimulation with movements of the body completely fails to explain how representational states are even relevant to environmental entities beyond the surfaces of the body. Distal causes of proximal stimulation can vary wildly while proximal stimulation remains the same. So an account of the natures of mental states that centers on registrations of proximal stimulation leaves those natures constitutively irrelevant to the environment. Such accounts either ignore the representational natures of mental states or expect a representational relation to consist in something that bears no intelligible relation to it.

A similar point applies to accounts that try to explain the natures of states that represent the physical environment purely in terms of neural or physiological occurrences in the body. Since the same types of occurrences can be induced through artificial stimulation that bears no relation to elements in the distal physical environment that are represented by the states, the account again fails to explain the representational connection to the environment. The account is irrelevant to the fundamental thing to be explained.

A more traditional approach that fails in similar ways holds that the natures of representational states consist entirely in their subjective phenomenological features. Unless such features are invested with representational characteristics to begin with—in which case they cannot illuminate representationality—this approach has the same empty pretensions. Qualitative or phenomenological features of perceptual states do not *in themselves* bear any explanatory relation to the environmental properties that perceptual states represent.

Phenomenal features *are* systematically integrated into the representational competencies realized in many perceptual systems, including human perceptual systems. Phenomenal features are commonly aspects of perceptual representational content. They are often aspects of the *way* perceptual *representata* are presented in perception. Perceptual states that are phenomenally different are normally different kinds of perceptual states, with different representational contents, even if the perceptual states are of, even as of, the same entities. But phenomenal features cannot in themselves suffice to fix the environmental *representata* of the perceptual states in which they figure. Since phenomenal features cannot in themselves suffice to fix *representata*, they cannot in themselves suffice to fix the representational content, or natures, of perceptual states in which they figure.

The reason is that perceptual representational contents “semantically” determine their *representata*, if any. In particular, perceptual attributives semantically determine, or *specify*, the attributes that they attribute. They are not only *as of* the attributes; they are *as of* the same attribute in every context of use and with regard to any possible situation. (See Chapter 2, the section REPRESENTATION-AS and REPRESENTATIONAL CONTENT.) The aspect of a perception that groups something as a body, or as cylindrical, indicates the kind *body* or the shape *cylindricity*, if

it indicates anything—and does so in every context of use and regardless of what possible situation is under consideration. So, if a phenomenal feature is insufficient to determine the *representata* of perceptual states, it is insufficient to determine their representational content.<sup>22</sup>

A recurrent error in this area is to believe that anti-individualism is true of how referents are established, but that some entirely different account is true of how referents are perceived or thought about. For example, it has been thought that perceptual reference is determined causally, but perceptual mode of presentation is a purely phenomenological, “internal” matter—that is, a matter that anti-individualism does not apply to. Or it has been thought that a kind concept like water applies to whatever stuff is causally responsible for descriptive conceptions of water (colorless, odorless liquid in oceans, lakes, and rivers), but that *the way we think of or know things of water* is entirely captured by such descriptions. It is often added that in other possible environments our word ‘water’—given what it means in English—or our concept water, would refer to whatever would be the prevalent colorless, odorless liquid in prevalent bodies of liquid, even if that liquid were not water.

These views are mistaken at every turn. The *ways* things are perceptually presented (their representational contents), *not just perceptual representata*, are determined to be what they are partly through systematic patterns of relations to the environment. This point will be developed throughout the book. Similarly, the *ways* things are thought of (particularly, what concepts occur in thoughts) in nearly all empirical states, *not just the referents of thoughts*, are determined to be what they are partly through patterns of relations to the physical environment. This point applies not only to the kind concepts, but to the descriptive conceptions associated with kind concepts (colorless, liquid, ocean, and so on) themselves.

The descriptive conceptions associated with concepts like water do not capture the semantical, epistemic, or psychological behavior of the concept water. Specifying something in thought *as water* is quite different—semantically, epistemically, and psychologically—from thinking of something as the colorless, odorless liquid in oceans, lakes, and rivers. One could think of something, and specify it, as water and wonder whether (doubt that) such descriptive ways of thinking apply to water.<sup>23</sup> So the associated descriptive ways of thinking,

<sup>22</sup> I believe that the whole argument—and the arguments soon to follow—can be given with the representation ‘as of’ terminology. It does not require the stronger terminology of specification. But most ordinary representation (indication) of environmental attributes, in perception and thought, is both specification of the attributes and representation as of the attributes.

<sup>23</sup> Hilary Putnam in ‘Is Semantics Possible?’ (1970), in *Philosophical Papers*, ii, made the important point that one could use a natural kind term and *not believe that the standard stereotypical description associated with the term applies to the term’s referent*. He concluded that the referent of the term was not determined by the stereotypical description, and he conjectured that the meaning of the term could be captured by pairing its referent (or extension) with a stereotypical description associated with the term. (I criticize this idea in ‘Other Bodies’.) Putnam should have made a further observation. He should have noted that one can *specify the natural kind in thought* (for example, one can think of a lemon *as a lemon*) and not believe the stereotypical description to be true

however closely associated with a kind concept they may be, are not to be identified with the ways of thinking that contain the kind concept—that indicate kinds like *water* as such.

Here is a further argument that one cannot assimilate a way of thinking associated with a specification of an attribute (a specifying, ‘as-such’ representational content) to stereotypical descriptions, whether or not one supposes that the referents of the stereotypical descriptions vary with environment. Suppose that one individual thinks of one metal, aluminum, and a second individual thinks of a type of metal that is *not* aluminum. Each individual *refers in thought* to a different metal. One refers to aluminum; the other refers to some other metal. Neither individual ever refers to the other individual’s metal. We can suppose that neither individual ever heard of the other’s metal, and never encountered any instance of it. Suppose, in fact, that the second individual lives on a distant planet. Suppose that the individuals share stereotypical descriptions of the respective metals. Each thinks of his metal as a light metal, of such and such an appearance, that is commonly used to make pots and pans. Neither individual knows enough science to think his metal’s chemical formula. And neither would recognize a difference if he were presented with the other metal (but neither one is ever presented with the other metal).

Now suppose that the first individual thinks in such a way as to *specify* aluminum *as* aluminum (or simply thinks of aluminum *as* aluminum—see note 22), even though he knows nothing of its atomic formula. He learns English in a normal way. He is taught that aluminum (specified as aluminum) is a particular type of metal. He interacts with aluminum, thinking of it *as aluminum* in his daily life. I claim that the preceding scenario is a possible situation, not even a very outlandish one.

I think that the following is a logical truth:

In specifying (or simply thinking of) something as aluminum in thought, one’s thought refers to or indicates aluminum (through the as aluminum aspect of the thought), if to anything.

No way of thinking can specify (or simply represent) something as aluminum unless it refers to or indicates aluminum. To put the point another way, if someone’s thought does not refer to or indicate aluminum, that individual cannot specify anything as aluminum—and cannot think of anything as aluminum. One can think of only aluminum as aluminum. Since the second individual does not think of (refer to) aluminum, he does not specify anything as aluminum in

of the kind (not believe that lemons are as the stereotypical description describes them). Moreover, even if an individual believes the stereotypical description to apply to the natural kind, that description could in fact fail to apply to the kind that one thinks of through a standard specification. The stereotype for lemon could fail to apply to lemons, thought of as lemons. These observations show that thinking of something as a lemon is not the same as thinking of something through the stereotypical description. They are different ways of thinking. I elaborate this point below.

thought—and does not think of anything as aluminum. Since the second individual does think of his metal as a light metal with such and such an appearance commonly used to make pots and pans, that stereotypical-descriptive way of thinking is not the same as thinking of his metal as aluminum. *The two individuals' ways of thinking, not just their referents, are different.* Their psychological states are different. Since anti-individualism concerns ways of thinking *as*—and often specifications in thought—its points cannot be captured by claiming that it concerns only reference, while ways of thinking are captured by stereotypical descriptions.<sup>24</sup>

Again, most non-compound concepts and perceptual attributives *specify* the properties, relations, kinds that they indicate. (Certainly, if they indicate attribute *A*, they are *as of A*.) Specifying something in thought as water is a generic type of thinking that is absolutely not to be identified with thinking of water as the colorless, odorless liquid that fills lakes, oceans, and rivers. That generic type of thinking is not to be identified with any ways of thinking that do not specify water as such.

These points generalize to all empirical thought that specifies attributes, all perceptual specifications of attributes, and all specifications in mathematical thought. That is, the point is applicable to virtually every non-compound attributive way of thinking. These generalizations are not important for present purposes. It is enough if one understands the basic point about the focus of anti-individualism.

All theories that try to confine anti-individualism to points about reference fail to match its relevance to specification, and even thinking *as of*. Ways of thinking and perceiving, not just their *representata*, are constitutively determined by patterns of interaction with the environment beyond the individual.<sup>25</sup> Anti-individualism helps explain not only reference and indication, but ways of representing referents and indicants in thought, perception, and other representational states. It applies to the natures of individuals' perceptual and conceptual attributives.

There is a non-reductionist individualist view. It maintains that nothing can be said about constitutive conditions for being in representational mental states that represent aspects of the physical environment. It holds that there are thoughts as of aluminum and perceptual states as of body, but adds that nothing whatever can be said about constitutive conditions for being in such states. The states simply are what they are.

<sup>24</sup> I made substantially this argument, in somewhat different form, in 'Other Bodies'.

<sup>25</sup> Thus the first and second individuals above differ in their ways of thinking because of differences in their relations to their respective environments. See my 'Other Bodies'. Even now, much two-dimensionalist thinking (roughly, thinking that associates *ways* of representing with stereotypical descriptions) simply transcribes errors that Putnam made (in thinking that meaning is to be understood exhaustively as a combination of descriptive stereotype and extension) into a slightly different technical vocabulary. This is, in effect, the mistake criticized in 'Other Bodies'. See also my 'Introduction', in *Foundations of Mind*, 11–13.

This view is not easily vulnerable to attack, inasmuch as it advances no positive thesis. But it is unacceptable. A thought as of aluminum is one thing. Aluminum is another. That type of thought has something essential to do with aluminum. It is as of aluminum. The idea that nothing whatever can be said about what constitutive conditions make it possible for it to be as of aluminum seems to me quite incredible, even obscurantist.<sup>26</sup>

The most general grounds for believing anti-individualism are independent of thought experiment. The celebrated twin-earth thought experiments are just illustrative. No one such experiment provides general grounds for anti-individualism. General grounds are twofold, and simple. They reside in two features of representational states already discussed in this chapter.

Here is one ground. Part of what makes representational states what they are—indeed, an aspect of their natures—is that they set veridicality conditions, which when fulfilled are true or accurate. Take a thought that aluminum is a light metal, where aluminum is thought of as aluminum, being a metal is thought of as such, and lightness is thought of as such. The thought is true if and only if aluminum is a light metal. This setting of veridicality conditions is an aspect of the nature of the thought. This aspect of the nature of the thought bears a non-accidental relation to aluminum, to lightness, and to metal. More generally, in setting veridicality conditions, which can be fulfilled by conditions in the physical environment, representational states bear systematic, non-accidental representational relations to the environment. It is not an accident that a thought as of aluminum bears a non-accidental relation to aluminum. And this sort of non-accidental relation is massively systematic. There is no other possible reasonable explanation of the systematicity and non-accidentality of the relevant representational relations than to hold that the representational kinds are grounded in specific causal interaction between environmental entities that are represented and competencies associated with the mental states. Such interaction is both afferent (the environment's forming and triggering the competencies) and efferent (the individual's responding to the environment). The explanation is not reductive. It appeals simply to background conditions that help constitute systematic connection between environmental attributes and states that representationally specify them.

Again, the representational contents of mental states that are *as of* specific types of environmental entities must be explained in such a way that the relation between the natures of representational states and the environmental attributes is shown to be systematic and non-accidental. A thought that aluminum is a metal (where the thought is as of aluminum and as of metal) has something to do with

<sup>26</sup> Of course, Descartes postulated a situation in *Meditations I*, in which an individual thinks as if there were a physical environment, but there is no physical environment, ever. See *Meditations on First Philosophy* (1641), in *The Philosophical Writings of Descartes*, volume ii, ed. and trans. J. Cottingham, R. Stoothoff, and D. Murdoch (Cambridge: Cambridge University Press, 1985). Descartes argued that this situation is impossible. His reasons were broadly anti-individualistic. See my 'Descartes on Anti-Individualism', in *Foundations of Mind*.



aluminum and metal; and analogous points apply to one after another representational state. This system of non-accidental connections between the natures of psychological states and non-psychological environmental attributes can be in place only if there are specific systematic, non-representational, typically causal, relations between environmental entities and the psychological states. These relations ground constitutive explication of both the representational relation and psychological states' representations of environmental entities *as being* ways that they are.

Again, it is not true that each representational content is constitutively dependent on causal inter-relations with instances of the particular type of entity that it represents there being. Sometimes a representational content fails to represent anything. Sometimes the causal relation between environment and mental capacities is indirect. The basic idea is still the natural one. The relevance of mental states' empirically based representational content to environmental entities is secured through systematic patterns of causal connection.

Here is the second consideration. An aspect of the nature of committal psychological states, like belief, perception, and intention, is to function to be veridical or to make their representational contents veridical. These states undergo a kind of failure if they are not, or are not made, veridical. Anti-individualism provides a framework for explaining this teleology. The representational function of committal psychological states must be constitutively associated with causal patterns that forged relations between functioning state and environmental satisfiers of the function. The fact that an intention to eat the banana succeeds or fails depending on whether a banana gets eaten must be constitutively associated with causal patterns that forged relations between such intentions and actual eatings of bananas, or at least some related type of eating. Again, the nature of the representational actional state is grounded in perceptual systematic relations between teleological notions (success or failure in representation) and non-representational causal notions. No other account fits the teleology of the fundamental representational states, the committal ones, into a broader causal framework.<sup>27</sup> Generalized anti-individualism is a modest thesis. But it has a certain epistemic inevitability.

I think that explanations in representational terms do not reduce to explanations in other terms: psychological states described in such terms are explanatorily indispensable.<sup>28</sup> Some of the most rigorous, powerful parts of psychology use

<sup>27</sup> Again, the systematic, non-accidental relation between the nature of the state and the physical world must allow for reference- and indication-failure, and so on. The natural anti-individualistic framework incorporates these complications.

<sup>28</sup> Some reductionistic accounts are compatible with anti-individualism. I believe, however, that all reductionist accounts of representational states, even anti-individualistic reductions, fail. Certainly, all extant reductions have been obviously inadequate. For example, all functionalist accounts require removal of representational terms in favor of terms like 'causes' and specifications of behavior and response. Such reductions are patently inadequate. One cannot remove the theoretical terms from *any* scientific explanation and expect to have comparable theoretical explanation—much less the same meaning. Depending on whether they are analyses of meaning or scientific reductions, reductionist

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representational terms. Explanation of perceptual accuracy and illusion, and explanation of the formation of perceptual states, are ineliminably in representational terms. Such terms are a secure part of science. See note 3.

Anti-individualism does not explain particular representational successes or failures. Such explanation is the task of perceptual and cognitive psychology. Anti-individualism provides a framework for explanations by empirical sciences insofar as they are relevant to understanding veridicality and failure of veridicality. The framework explains how the law-like patterns found by such explanations illuminate constitutive relations between representational kinds and environmental *representata*.

No philosophical account of the natures of representational mental states that is incompatible with anti-individualism can explain why representational mental states, through their representational content, bear the representational as-of relations that they bear to entities in the environment, or have the teleological natures that they have. These considerations form the most basic and powerful grounds for anti-individualism.

### ANTI-INDIVIDUALISM REGARDING PERCEPTION<sup>29</sup>

Grounds for believing anti-individualism regarding *perceptual states* are instances of the grounds just sketched.<sup>30, 31</sup> To solidify a sense for the key application of

functionalist accounts are wildly out of touch, with the meaning of mentalistic terms or with actual scientific explanation. See my 'Postscript: Mind–Body Causation and Explanatory Practice', in *Foundations of Mind*, note 25.

<sup>29</sup> Although I focus on anti-individualism regarding perception in this work, anti-individualism is much broader. In addition to the general considerations advanced in the previous section, I have produced three arguments for anti-individualism that center on phenomena other than perception—schematic appreciation of what a natural kind is, linguistic communication, and questioning received wisdom. Each argument hinges on objectivity in representation. Each highlights a different aspect of anti-individualism. Each centers on psychological capacities that are relatively sophisticated in comparison to perception. Since my focus here is on origins of objectivity, I do not discuss these arguments. Here is a compact bibliography: The arguments use the twin-earth methodology introduced by Hilary Putnam in 'The Meaning of "Meaning"', in *Philosophical Papers*, ii. I discuss the relation between Putnam's thought experiments and mine in the Introduction to *Foundations of Mind*; in the 'Postscript to "Individualism and the Mental"' in *Foundations of Mind*; in 'Individualism and the Mental', *Midwest Studies in Philosophy* 4 (1979), 73–121, note 2; and in 'Other Bodies'. The three arguments occur respectively in 'Other Bodies'; 'Individualism and the Mental'; and 'Intellectual Norms and Foundations of Mind', *The Journal of Philosophy* 83 (1986), 697–720. Relevant to the second argument is my 'Wherein is Language Social?' in A. George (ed.), *Reflections on Chomsky* (London: Basil Blackwell, 1989). All my papers cited here are reprinted in *Foundations of Mind*. For an overview, see the Introduction to *Foundations of Mind*.

<sup>30</sup> In the mid-1980s I produced a thought experiment designed to show that the natures of perceptual states are constitutively dependent on relations between perceptual systems and the environment. See 'Cartesian Error and the Objectivity of Perception', in J. McDowell and P. Pettit (eds.), *Subject, Thought, and Context* (New York: Oxford University Press, 1986); and 'Individualism and Psychology', *The Philosophical Review* 95 (1986), 3–45, both reprinted in *Foundations of Mind*. I believe that this thought experiment works as far as it goes. But it depends on very special conditions. (Note 30 continued, and note 31 begun, next page.)

anti-individualism in this book, I beg the reader's indulgence and go over some of the same ground in more detail.

Perceptual states are the kinds that they are partly by virtue of the representational contents that they have. Perceptual representational contents constitute accuracy conditions. Take a visual perceptual state as of a cylindrical solid. There are two aspects of perceptual representational content of the state—general and singular. The *singular* aspect functions fallibly to single out (refer to) perceived particulars. When successful, the perceptual state refers to a particular cylindrical solid, and perhaps particular instances of cylindricality and solidity. The *general* aspect in the representational content functions fallibly to group or categorize particulars by attributing some indicated kind, property, or relation to them. When successful, the perceptual state attributes cylindrical solidity to a particular cylindrical solid.

Since the singular aspects depend on context to refer to particulars, they are individuated in terms of occurrences. That is, the singular aspects of the representational content are the representational content parts that they are partly through being associated with particular occurrences in time. Such singular aspects are called '*singular applications*'. Singular aspects of perceptual representational content depend for successful *referential* representation on being caused by particulars (that are appropriately singled out in vision). The singular aspects do not have referents, nor do they have the specific referents that they have, through context-free characterization of referents. Perceptual reference cannot succeed unless general elements guide singular elements. The point is that the general elements cannot do all the referential work. Some of the work is done by the perceptions' being caused by particulars that are referred to.

Context-bound perceptual singular applications can be retained in memory. A perceptual memory can share a singular aspect with the perception that it

I believe that it was a strategic mistake to center defense of anti-individualism about perception on cases involving special conditions. For this reason, I do not rehearse the thought experiment.

Ironically, reflection on why it is so hard to get perceptual cases in which two individuals are behavioral and physical duplicates while differing in their perceptual states provides strong ground for believing anti-individualism about perception. Bodies and behavior are so finely tuned to perceptible environmental attributes that we are almost forced to conceive of a world with different physical laws, connecting environment and individual, in order to elicit cases in which an individual is behaviorally and physically the same as an actual individual (as far as is relevant to psychological explanation), but differs in perceptual states. Given the point of thought experiments, imagination of different physical laws is legitimate. But the thought experiments that imagine such cases are not the real point. The very pressure to appeal to different physical laws elicits the centrality of physical laws' connecting environment and individual in the individuation of perceptual states. This centrality is what anti-individualism regarding perception insists upon. See Introduction to *Foundations of Mind*, 16–22. For fuller developments of remarks that follow, see 'Perceptual Entitlement'; and 'Disjunctivism and Perceptual Psychology'.

<sup>31</sup> I will focus on elaborating the argument from veridicality conditions broached in the previous section. I leave to the reader elaboration of the argument from the teleology of committal representational states.

preserves. So, although singular elements are ultimately individuated in terms of particular context-bound occurrences, an occurrent singular element in a memory can be bound to a token singular element in a perception, as tokens of the same type. Thus singular elements can hold together temporally separate psychological states as instances of a fine-grained singular application type.

The kind of individuation that is primary for psychological explanation centers on the *general* attributional aspects of perceptual representational content. I focus on these aspects.<sup>32</sup>

The representational content of perceptual states partly determines perceptual state kinds. It also sets veridicality conditions—conditions for veridical, accurate, perception. The veridicality conditions of perceptual states are constitutive to their natures.

Consider what these veridicality conditions are. Not only is perception inevitably as of particulars. It also inevitably groups particulars as being of certain types. It attributes these types—properties, relations, or kinds—to particulars. The particulars can be individuals, events, or instances of properties or relations. A perceptual state is accurate inasmuch as it both refers to particulars and attributes to them attributes that it indicates, and that the particulars have.

A visual state might be a perception as of a smooth cylindrical solid on a rough-textured surface. An auditory state might be as of a sound of a certain pitch whose source is at such and such a distance directly to the right (where ‘certain’ and ‘such and such’ stand for particular perceptual ways of indicating a specific pitch and distance). The perceptual state is the mental kind that it is partly by virtue of its ways of representing properties, relations, and kinds. The representational content constitutes a fallible perspective on such attributes (and particulars), and sets conditions for being veridical, accurate, regarding these environmental entities.<sup>33</sup>

It cannot be accidental that the perceptual state is type-individuated in ways—by their accuracy conditions—that bear on specific physical properties, relations, and kinds. In cases of successful indication, a perceptual state as of *A* is non-accidentally related to the attribute *A*. That is, the conditions for representational success that partly *constitute* kinds of perceptual state bear a systematic, non-accidental relation to the physical attributes that they not only indicate, but represent *as such*. The natures of perceptual states are non-accidentally related to specified physical attributes.

It is not credible to think that the perceptual states are just what they are, without there being any more to be said about conditions under which they have

<sup>32</sup> For more on particular and general elements in perception, see my ‘Five Theses on *De Re* States and Attitudes’, and ‘Disjunctivism and Perceptual Psychology’.

<sup>33</sup> In given cases, attributives may fail to indicate. The key point is that the representational content, which is a fallible perspective as of an attribute, must be distinguished from any of its *representata*. See ‘Disjunctivism and Perceptual Psychology’.

the representational natures that they have. There must be some account of the connection between the perceptual states, with their representational contents, entailing veridicality conditions *as of*, and physical environmental entities that satisfy the conditions. What conditions must be in place if a perceptual state is to indicate some environmental attributes, and represent them in such a way as to specify them? What network of relations grounds explanation of the non-accidentalness of the systematic connection between a perceptual state's being the kind it is by virtue of being *as of* specific environmental entities, on one hand, and the environmental entities, on the other?

The only remotely credible answer is, I think, a necessary truth: the natures of the perceptual states are what they are through a systematic network of causal relations between instances of the environmental attributes and processes that entered into the formation of the specific kinds of perceptual states that an individual is capable of being in and that are *as of* (and even specify) those environmental attributes.

Again, even though perceptual states depend on underlying physical states, a reduction of one vocabulary or theory to another is not to be expected. Both explanatory vocabularies are probably scientifically ineliminable. Of course, the physical cannot be reduced to the representational. The idealist stratagem of explaining perceived physical properties in terms of perceptual states is unacceptable. Our deepest understanding of the world takes much of the world to have no mental attributes at all.

So both the physical properties that are perceived (perceptually attributed) and the representational perceptual states that represent them are what they are, and are not to be unmasked as something further. Both are explanatorily irreducible, ineliminable. A representational state's being fundamental in this sense is consistent with being dependent on other kinds—physical kinds, biological kinds, environmental kinds, neural kinds, for example. Moreover, psychological explanations must be integrated with other types of explanations.

What I claim is that it is not acceptable to leave things with this anti-reductionist point. There must be systematic specific constitutive connections involving causal patterns between the specified (or simply indicated) physical conditions and representational perceptual states. The constitutive explication of these connections must not leave what is obviously a close, non-accidental connection between the two seeming brute, surd, or coincidental. See note 3.

Constitutive explications that appeal purely to neural, behavioral, or functional features that stop at an individual's surfaces cannot account for the relation between the representational content's having specific veridicality conditions—being *as of* environmental entities—on one hand, and the environmental entities, on the other. There is nothing *per se* within the limits of an individual's body from which one could recover anything relevant to specific properties in the environment that perception is *as of*.

To explicate the background of systematic connections between the veridicality conditions of perceptual states and physical attributes in the environment

that the states are *as of*, one must recognize that the nature of the perceptual states constitutively depends on systematic patterns of causal interaction with attributes in the environment. This conclusion entails perceptual anti-individualism.

The constitutive explication takes the direction of the constitution relation to be asymmetric. The standards for being veridical that are parts of the natures of perceptual states are constitutively dependent on attributes in the environment. The attributes in the environment are not constitutively dependent on those veridicality conditions.

Any view that acknowledges error in perception must recognize that the subject matter of perception has constitutive priority over the standards of veridicality, the conditions for getting the subject matter right. Standards of veridicality must be explained in terms of veridicality. Even non-veridical perceptual states are type-individuated in terms of standards of accuracy—in terms of conditions under which they would be veridical. Veridicality must be *semantically*, as well as *constitutively*, explained in terms of something further—that which renders the states veridical. This “something further” is the subject matter of the perception—including the types of entities that successful, veridical perceptions are perceptions of, and *as of*. Since a veridical perceptual state is contingently veridical, both veridical and non-veridical perceptual states are explicated partly in terms of the nature of the subject matter. The nature of the subject matter is not similarly explained in terms of veridicality, or contingently veridical perceptual states.<sup>34</sup> Traditional views that maintained that the *esse* of a perceptual object is its being perceived collapse the constitutive asymmetry. I reject such views. The existence and representational nature of perceptual states are asymmetrically dependent on the existence and physical nature of environmental entities.

I re-emphasize that asymmetrical dependence of the natures of perceptual states on a perceived subject matter holds at a very abstract level. Perceptual states can represent there being properties (kinds, relations) that never existed. Such perceptual states are constitutively dependent on systematic relations to other representational states (primarily perceptual states) that *are* successful. The success is not just referential or indicational success. It is also success in representation (usually specifications) *as of*. Thus every perceptual state is constitutively dependent for its representational nature partly on relations to some

<sup>34</sup> I believe that this point holds even for secondary-quality views of color. See Chapter 2, the section OBJECTIVITY. On such views, colors are taken to be physical dispositions to cause certain phenomenological experiences. Not only do colors lack veridicality conditions; the phenomenological experiences are specified not in terms of *their* veridicality conditions (otherwise the account would be circular), but in terms of their phenomenological qualities. I am not committed to any secondary-quality view, but I believe that such views should be able to recover a version of the asymmetry that I am discussing.

environmental attributes, at least indirectly through other states.<sup>35</sup> This constitutive asymmetry lies at the heart of anti-individualism.<sup>36</sup>

Perceptual anti-individualism is an abstract thesis. It indicates that mental states cannot be what they are in isolation from a surrounding environment. The main considerations that support it do not require specialized background knowledge.

## THE SHAPE OF PERCEPTUAL PSYCHOLOGY

The considerations just advanced to support perceptual anti-individualism are supplemented by reflection on method and theory in perceptual psychology. I shall sketch some points about the science that will help elaborate perceptual anti-individualism and help undermine Individual Representationalism.<sup>37</sup>

I believe that the science of perceptual psychology presupposes anti-individualism about perception. It presupposes that perceptual-state kinds are constitutively dependent for being the kinds that they are on patterns of relations to attributes, laws, and other regularities in the physical environment. The science determines specific ways in which kinds and operations in perceptual systems reflect environmental attributes, laws, and other regularities. Perceptual psychology makes anti-individualism about perception empirically specific.

Perceptual psychology has become serious and mature science since the 1970s. It has empirically well-grounded mathematicized results. In this section I present some elementary facts about the science to serve two purposes. The facts indicate how the science embeds anti-individualism, and they form background for criticisms of Individual Representationalism in Chapters 4–7. In Chapter 8, I provide more detailed sketches of explanations in the science. These sketches illustrate connections to anti-individualism in more depth. They provide a framework for my positive accounts of perception, representation, and objectivity.

The science of perceptual psychology is motivated by the goal of contributing to an explanation of how individuals perceive. More particularly, vision science assumes that individuals have approximately accurate visual perception some of

<sup>35</sup> Some hold that properties like color are purely in the mind. I do not accept such accounts. But even if colors were in the mind, they would be mistakenly attributed to environmental entities. This attribution must be accounted for anti-individualistically, inasmuch as it contains some representation as of a physical environment. Secondary quality views hold that colors are dispositions in physical entities to cause certain qualitative experiences. Even if the qualitative experiences have their natures independently of relations to the physical environment (as I believe some qualitative experiences do), the perceptual attribution of color to physical dispositions must, again, be explained anti-individualistically.

<sup>36</sup> Idealist views can accept anti-individualism in a certain sense. They can accept an asymmetry at a certain level of explanation. But they cannot accept that anti-individualism and this asymmetry are part of the final story about perceptual state individuation. They must take the non-representational environmental entities to be non-representational only from a limited point of view. (Kant's transcendental idealism would make such a claim.) They cannot take them to be non-representational from the fundamental explanatory point of view, as I do.

<sup>37</sup> What follows in this section condenses and refines discussion in *DISJUNCTIVISM AND PERCEPTUAL PSYCHOLOGY*, especially section III.

the time. And it tries to contribute to an explanation of how such perception comes about to the extent that it does. The formation of non-veridical perceptual states—various sorts of perceptual illusions—is a further target of explanation. For reasons that will emerge, this second target is a natural corollary of the primary goal—to help explain how accurate perceptual states are formed.

These points about the goals of the science, and associated points about the anti-individualism that describes a framework in which the science is embedded, should not be cartoonized. The science is clearly motivated by the goal of helping to explain veridical and non-veridical perception. But the idea that there are neatly and easily discernible types in the world that match neat categories in perception is an oversimplified idealization at best. Not only is a lot of perception inaccurate. Most accurate perception is only approximately accurate. A large part of the science is devoted to explaining the range of accuracy of the “estimative” perceptual states. For example, distances are attributed to within some degree of accuracy. In some domains, notably color perception, the precise physical property that is being matched is in dispute and may vary from context to context. The nature and extent of representational matches between the contents of perceptual states and the particulars and attributes in the environment are matters of empirical investigation. A corollary is that both the attributes in the environment that are perceptually attributed and the natures of the representational contents of the states are matters of empirical investigation.

Both the science and anti-individualism are motivated by a very *general assumption*: that individuals’ perceptions are *approximately* accurate with respect to *some* environmental particulars and attributes *enough* of the time to ground a form of explanation that takes states with veridicality conditions to be the product and participants in the law-like formation patterns being explained. This general assumption is, of course, in accord with common sense. The assumption has been richly supported through the explanatory success of the science. So *wholesale* error theories about perception and theories that maintain that representational vocabulary cannot enter into an explanatory science are at odds with empirical explanation. Of course, the empirical explanation and its guiding assumption are not meant to address generalized scepticism about perception. That is a further philosophical issue. The science assumes that veridical perception occurs, and tries to explain it. The fact that explanations have become richer, more rigorous, more refined, and in their broadest outlines stable, provides grounds for confidence in the science and in its general assumption.

The primary contribution of the science of perceptual psychology in explaining how individuals perceive, and how their perceptual systems form veridical visual perceptions, to the extent that they do, is to explain, by appeal to law-like generalizations, the processes by which perceptual states with specific veridicality conditions are formed from specific types of proximal stimulation, stimulation of individuals’ sensory receptors. The science also explains conditions under which a given type of proximal stimulation can give rise to illusions as well as veridical perceptions. The difference between veridical perception and illusion



often depends on differences in the actual, occurrent distal antecedents of a given type of proximal stimulation. As we shall see, explanations of the formation of perceptual states from proximal stimulation provide insight not only into veridical perception but into conditions under which illusions occur. The full explanation of veridical perception depends, of course, not only on the account of the law-like operations by which perceptual states are formed from proximal stimulation. The relation between proximal stimulation and perceptual state is only one part of the full causal relation between environmental *representata* and perceptual states. The full explanation also depends on explaining the other main part of the causal relation between environmental *representata* and perceptual states. The other main part consists of causal relations between the *representata* and stimulation of individuals' sensory receptors. Such relations are not specifically psychological. Perceptual psychology here appeals to what is known in other sciences to fill out the explanation of how veridical (as well as illusory) perceptual states are formed. For example, vision science appeals to explanations from optics to fill out the explanatory story of seeing. A lot is known about how types of entities project light frequencies onto the retinas of perceivers. In relying on the natural sciences to help with this part of the explanation of veridical perception, psychology must take care to make reference to attributes that are plausible candidates for *representata*, at least as elements in the relevant causal chains. *Swarm of micro-particles* is a less relevant attribute than *macro-physical body*, for example.

The contribution of perceptual psychology centers primarily on the parts of the causal chains that lie within the psychologies of individuals. Perceptual psychology focuses mainly on explaining how specific types of representational perceptual states with veridicality conditions are formed from specific types of proximal stimulation. I shall return to this overall scheme for explaining veridical and illusory perception in Chapter 8, the section REPRESENTATIONAL FUNCTION AND NATURAL NORMS, and Chapter 9, the section PERCEPTION AS REPRESENTATION.

I want to focus now on the distinctively psychological part of this overall scheme for explaining veridical perception and perceptual illusion. Since *vision* is the best understood type of perception, I center on it in what follows.

The *primary problem for the psychology of visual perception* is to explain how perceptual states that are of and as of the environment are formed from the immediate effects of proximal stimulation—principally from registration of patterns and spectral properties of light striking the eyes. Such registration itself corresponds to a spatially and temporally organized pattern of firings by retinal detectors. Perceptual states that veridically represent the distal environment are formed from a series of transformations that begin with this sort of registration.

There are other sources of input into the visual system—proprioceptive input, including extra-retinal registration of eye position, and top-down higher-level input. For many basic explanations of fundamental visual processes, the retinal stimulations are primary. For simplicity, I focus on retinal registration of light arrays as input into the system.

A key to the interest and difficulty of solving the primary problem is a fact about the relation between registrations of proximal stimulation and representation of the distal environment. The information available in registrations of patterns and spectral properties of the light striking the retina—and the registrations of such light arrays—significantly *underdetermine* the distal causes of those registrations, hence the objects and properties that are represented in perception, hence representational content as of those objects and properties. The same firings of retinal sensors are compatible with numerous possible (even physically possible) causes. So any given pattern of sensory registrations underdetermines the types of entities in the environment that are perceived by humans and other animals.

The initial sensory registration of proximal stimulation in itself also underdetermines what perceptual representations the perceptual system will form. Apart from further factors, the sensory registration does not and cannot determine what perceptual states are formed. So it underdetermines how the individual perceives the environment *as being*. That is, the registrations of proximal stimulations on the retina—both more or less immediate ones and more temporally extended ones—are compatible with a variety of types of distal causes. And the registrations of proximal stimulations do not in themselves entail the formation of the perceptual representations that are in fact formed. The same points apply to the results of augmenting retinal registrations with sensory registration of all other proximal input, such as proprioceptive input, into the visual system.

The same (or indiscernible) types of light array could be produced by a distant large object or a closer smaller object, if certain further conditions are met. The registrations of proximal stimulation could have been caused artificially, with no natural environmental antecedents. Or they could have been caused by natural but non-standard antecedents in the environment. In either case, the individual and the perceptual system undergo illusions. Whereas the perceptual system can only respond to proximal stimulations, it forms perceptual states that are as of specific types of distal antecedents. Often these perceptual states are veridical.

Perception is *as of* particulars, properties, relations, and kinds that occur distally, in the environment. The initial states of the perceptual system, the initial sensory registrations of proximal stimulation, are not perceptual. The registrations of arrays of light intensity carry information, but are not perceptual representations. The light intensities registered on the retina are not perceived. Ordinarily, there is no perceptual state, conscious or unconscious, that represents them or is *as of* them. Objects of perception are entities in the environment. How are perceptions that are as of environmental entities formed, given that the proximal stimulations that the system has immediate causal access to are not fully determined by the distal properties that the perceptions represent as being there? This question is the central question of vision science. Answering it is solving what is commonly called '*the underdetermination problem*'.<sup>38</sup>

<sup>38</sup> The framework in which the underdetermination problem is stated is a cousin of Noam Chomsky's argument for the psychological reality of a grammar from poverty-of-stimulus

The fact that the same registrations of proximal stimulations are the possible, and sometimes actual, products of different environmental antecedents motivates the primary problem of visual psychology, the undetermination problem. That problem, to repeat, is to explain how information contained in the registration of light arrays is converted into perceptions of, and as of, entities in the distal environment.

A major part of this problem is to explain the transformation of the registrations of light intensities on retinal receptors—a two-dimensional array—into perceptual representations of, and as of, entities in three-dimensional space. Again, all retinal registrations, together with all further input from proximal stimulation, underdetermines the physically possible distal causes.

Underdetermination takes a great variety of forms. Intuitive considerations, however, suffice to illustrate the basic fact of underdetermination.

Underdetermination is exhibited in visual illusions. The Ames room is a trapezoidal room with a sharply receding back wall. From certain positions, it is misperceived as rectangular. The sizes of familiar objects in it are also misperceived because distance relations are misperceived. The same sensory registration of proximal stimulation could have been produced by a rectangular room with objects rescaled appropriately. Then the same registration of proximal stimulation would have produced a veridical perception of, and as of, a different distal cause. The same registration of proximal stimulation is compatible with either of these two possible distal causes, yet we perceive the situation as being one way rather than the other.<sup>39</sup>

A suggestive intuitive consideration that illustrates underdetermination lies in reflection on the geometrical considerations raised earlier. The light intensities that constitute the primary proximal stimulation are registered on the retina in a two-dimensional array. The registration is on an array of receptors—each corresponding to a surface area of stimulation. The registered information can be constructed as a two-dimensional array giving information correlated with light intensities. There is a determinate solution to how light from a three-dimensional scene projects onto a two-dimensional surface. The visual system must, however, use the two-dimensional array of information—the registration of light intensity on the bank of retinal receptors—to perceptually represent a three-dimensional scene. This ‘inverse problem’ has infinitely many mathematically possible solutions. Some of these solutions are not physically possible. There remain many physically possible solutions in most cases. What principles

considerations. See *Aspects of Syntax* (Cambridge, MA: MIT Press, 1965). The underdetermination problem is the older cousin. It was stated by Helmholtz.

<sup>39</sup> Most textbooks on perceptual psychology discuss the Ames room. See Stephen E. Palmer, *Vision Science* (Cambridge, MA: MIT Press, 2002), 247–248. Gibson and others noted that the Ames illusion depends on the observer’s not moving. See J. J. Gibson, *The Ecological Approach to Visual Perception* (Boston: Houghton Mifflin, 1979). The point does not affect the example. Psychology must explain why the illusion occurs in the absence of motion. Of course, there are illusions that persist through bodily motion.

lead to perceptual representation as of just one of these cases, representation that is often accurate?

I oversimplify the problem. The problem has a dynamic dimension. There are feedback loops at various stages of visual processing. There is input from other sensory modalities. For all that, the form of the primary problem that I have outlined has guided a lot of research and yielded a considerable amount of scientific knowledge.

The primary problem is to explain how the visual system overcomes underdetermination. Despite the fact that individuals fall into perceptual illusion, they and their visual systems overcome this problem in the overwhelming majority of cases. Often, they do so with proximal stimulation limited by short time exposure and lack of auxiliary information.

The dominant scheme in the psychology of vision for explaining how these problems are overcome goes back to Helmholtz.<sup>40</sup> The idea is to explain a series of unconscious, largely automatic transformational processes that lead from registration of the array and spectral properties of light striking the retina to the formation of perceptions as of specific aspects of the distal environment.

The transformations operate under certain principles that describe psychological laws or law-like patterns. These laws or law-like processes serve to *privilege* certain among the possible environmental causes over others. The net effect of the privileging is to make the underdetermining proximal stimulation trigger a perceptual state that represents the distal cause to be, in most cases, exactly one of the many possible distal causes that are compatible with (but not determined by) the given proximal stimulation. I call psychological principles that describe, in an explanatory way, these laws or law-like patterns *formation principles*.<sup>41</sup>

Formation principles describe processes that begin with selective filtering of the initial sensory registration. Such processes eventually yield perceptual states whose representational contents are underdetermined by the information registered by the initial proximal stimulation. So they are subject to perceptual error. The formation principles have the force of inductive principles, although they can be formulated as deductive or computational principles ('If the registration of proximal stimulation is of type P, then perception as of an F is formed').<sup>42</sup>

<sup>40</sup> H. von Helmholtz, *Treatise on Physiological Optics* (trans. of 3rd German edn.), iii (New York: Dover Publications, 1867/1925).

<sup>41</sup> In 'Disjunctivism and Perceptual Psychology', I called these principles 'biasing principles', to emphasize the fact that they were biased toward certain possible environmental causes (or possible *representata*) over others. I came to think that uses of 'bias' in perceptual psychology might conspire to make this term mislead some into thinking that the principles somehow distort reality. In fact, the principles usually track the most likely environmental cause. But nothing in the proximal stimulation itself explains this tracking. Thus the laws yield states that represent, in a pre-set way, one among many equi-possible environmental antecedents of given proximal stimulation. The pre-set way derives from prior causal patterns explained by anti-individualism. *This* bias tends to be beneficial to accurate representation.

<sup>42</sup> Most points made here occur in any mainstream text in visual psychology. See Palmer, *Vision Science*, 9–11, 18–24, 55–59; and Vicki Bruce and Patrick Green, *Visual Perception: Physiology, Psychology, and Ecology* (1985; 4th edn., Hillsdale, NJ: Lawrence Erlbaum, 2001).

Although the basic problem and basic explanatory scheme are stated by Helmholtz, the approach began to yield mathematically rigorous and empirically plausible solutions with the advent of the computer model and computer simulations, in the 1970s. Work by David Marr and colleagues consolidated a methodology and offered solutions to a variety of problems in visual perception, in a way that signaled the arrival of visual psychology as a maturing science.<sup>43</sup> The solutions they proposed have been improved upon. Their methods have become entrenched.

Explanations postulate principles that govern the visual system's forming perceptions, in effect, to solve numerous particular problems. There are principles governing representation of an edge, given certain types of luminance

<sup>43</sup> David Marr, *Vision* (San Francisco: W. H. Freeman and Company, 1982). As noted in the Preface, philosophers often refer to Marr's work in superficial ways. Some even suggest that this work—and mainstream visual psychology in general—does not apply to human *sight*. (See note 57; Chapter 8, note 97; and Chapter 9, note 3.) They suggest that the science applies *purely* to enabling, subindividual processes—either to processes in the brain, or to information processing that is not concerned with mental, person-level representation of particulars in the environment, and is not concerned with visual attribution of properties, locations, kinds, and relations to those particulars. Such suggestions are out of touch with the science. The science explains how individual vision, including human vision, connects representationally to the world. Some of the states and nearly all the processes that it describes are unconscious subindividual and modular; some states are imputable to the perceiver, but unconscious. But most of the perceptual states that are final products of the formation processes that it describes and explains are imputable to the perceiver, and in human beings are usually quite conscious. This orientation to explaining the sight of humans and other animals is explicit in the experimental method, as well as in the science's theories. Although the theories focus on the referential, or more broadly representational, aspects of the conscious states—and are not about consciousness—they provide a very systematic and full account of the representational aspects of perceptual states, conscious and unconscious. And this account explains perceptual relations to the environment (as well as illusions), whether the perceptions be conscious or unconscious. Part III of this book develops these distinctions in some detail. Marr himself was not ideally clear about the distinction between sensory registration and perception that I elaborate. But see his *Vision*, 343–344, where he reflects on at least a related distinction.

Marr's three levels of explanation are often misunderstood. I will say a few words about them. The three levels are: (a) Computational, (b) Representational and Algorithmic, and (c) Hardware Implementational (see *Vision*, 24 ff.). Despite Marr's title for it, level (b) is often thought to be a purely syntactic level. But level (b) invokes specific representational contents, as well as specific relatively deterministic rules for processing them. (Although labeled 'algorithmic', such routes always allow for interference, including noise, and for malfunction.) The mainstream work in vision science that I discuss is primarily at levels (a) and (b). Marr's extreme idealization in specifying the levels is commonly underestimated. In actual scientific work, these two levels are not segregated; they are mixed. Few explanations leave the nature of the representational contents or the nature of the causal process unconstrained—beyond *whatever* processes and representational contents would solve an abstract computational problem. There are, for example, constraints on causal order, referential and other constraints on the representational content of states, and so on. Few explanations are purely at level (a). Similarly, few explanations are absolutely specific and complete as to either algorithm or *exact* representational content. Often the specifications of content go only a little beyond 'as of' specifications. Thus few explanations are purely at level (b). Understanding computational solutions to visual-representational problems—which Marr highlights as the point of explanations at level (a)—is certainly central to scientific work on vision. But most theories that center on explaining how problems are solved constrain the nature of the representational contents and the temporal order and main elements in the causal process. Thus most theories go some way toward realizing level (b) explanations.

contrasts in the registration of proximal stimulation. There are principles governing representation of lightness or color of a surface as distinct and separate from illumination of the surface. There are principles governing representation of depth from binocularity, texture, shading. There are principles for representing whole objects, even though parts of them are occluded. A lot is known about how the visual system works in a wide variety of animals, including humans.

To summarize what I have said so far. The visual system's primary receptors register dynamic patterns and spectral properties of light. These arrays are consistent with many types of distal stimuli that could (and sometimes do) cause a given type of registration of proximal stimulation. No processing of the arrays could infallibly correlate with the environmental conditions that cause them. Perceptual representation is consequently sometimes mistaken, even in cases where its internal workings are optimal. The psychology of vision tries to explain how the perceptual system normally gets things approximately right, to the extent that it does, on the basis of registration of light arrays and other types of input.

To solve its paradigmatic problem, perceptual psychology tries to discover formation principles *governing* (describing and explaining) the laws (*formation laws*) by which perceptual systems form perceptual states. The states are type-individuated by perceptual representations that are veridical in the cases where things are as the outputs of the formation principles indicate. Perceptual errors are also explained: registration of a given type of proximal stimulation is caused by conditions other than those that the formation laws treat as normal by yielding default representations of them.

The formation principles tend to serve the representational function of the perceptual system in providing veridical perception of entities in the environment. The relevant entities are the explanatorily relevant environmental antecedents of the proximal light arrays. The theory assumes that perception represents elements in the distal environment. This intuitive assumption is grounded in a larger explanatory point of view. What count as potential perceptual objects—as *relevant* distal antecedents—are roughly those that can be discriminated under certain conditions, that the internal processes are best explained as bearing perceptual constancies with respect to,<sup>44</sup> and that are ecologically relevant to the individual's basic functions—functions such as eating, navigating, mating, fleeing danger.

None of the transformations that occur in the visual system are attributable as acts to the perceiver. They are operations within the perceiver's visual system, determined by laws describable in terms of computational formation principles. They are inaccessible to consciousness and not under the perceiver's control. I believe that there is no sense in which the principles are "accessible" to the perceiver or the perceiver's perceptual system. The content and form of the

<sup>44</sup> I discuss perceptual constancies in Chapter 9. This condition can sound empty in the abstract. In concrete explanation, it eliminates alternatives.

principles are not the content or form of any states in the perceptual system. The principles describe laws or law-like patterns of transformation according to mathematicized principles. Most or all of the *perceptions* that result from these patterns of transformation *are* attributable to the perceiver. Humans and animals have the perceptions (perceptual states with representational content) whose formation the theory explains. The point of the theory is to explain human and animal perception.

The transformations that lead from registrations of light intensities to perceptions are in effect automatic. The transformations are, with allowances for interferences and special cases, effective procedures, procedures that follow an algorithm. The principles governing them (describing and explaining their transformations) are *computable*. The states, with their content, and the principles governing the states can be modeled on a computer. I count both the transformations, or transformational operations, and the principles *computational*.

For many philosophers, the notion of computational states or explanations is theory-laden in a way that I do not intend. When I call states or explanations ‘computational’, I do not mean that there are transformations on syntactical items, whose syntactical or formal natures are independent of representational content. I also do not mean that the principles governing transformation are instantiated in the psychology, or “looked up”, even implicitly, in the system.

A common philosophical picture of propositional-attitude psychology maintains both of these points. On this picture, psychological systems “access” both *primitively* syntactical items (vehicles of representation that are what they are independently of any content) and rules for manipulating the syntactical items. Transformations in the psychology are regarded as changes in a syntactically formulated proof-system, with syntactical structures and look-up rules both formulated in the system.<sup>45</sup>

<sup>45</sup> The common picture derives from Fodor, *The Language of Thought*. Fodor is primarily concerned with the psychology of thought (belief) and speech perception. But he envisions applying his account to all perception. See pp. 42–51, 116 ff. Some philosophers take a “computational” theory to imply such a picture. This view is not standard in psychology. Vision theory is computational in the sense discussed in the text. It does not involve the commitments that Fodor’s account does. The problem is not just that perceptual states lack a *sentential* syntax. The main problem is that there is no formal or syntactical structure of any kind that is individuated independently of the laws instantiated by perceptual—contentful—states. Here there is perhaps a disanalogy to psycho-linguistics. Chapters 8–10 below return to issues regarding principles governing perceptual transformations. Such principles are certainly not implicitly “looked up”. They are not the representational content of any states in the system, however unconscious. Fodor sometimes writes as if the principles are present in the system in the way inference rules are *formulated* in a logical system—only not in natural language, and not consciously.

It is important not to assume that psychological theories of syntax carry over to psychological theories of vision. I am sceptical over whether Fodor’s account applies even to all instances of ordinary thought, though it is a useful idealization. One should be cautious about common metaphorical slogans like ‘the visual system is a syntactical engine’ or ‘the brain is a syntactical engine’. I criticize confusion engendered by such metaphors in ‘Disjunctivism and Perceptual Psychology’, 75 note 54.

Two things are wrong with applying this picture to visual systems. One is that there is no explanatory level in the actual science at which any states are described as purely or primitively syntactical, or purely or primitively formal. One will search textbooks and articles in perceptual psychology in vain to find mention of purely syntactical structures. No explanatory work is given to them. No laws are formulated by reference to them. Invoking them derives from ideology that provides no ground for insisting that the science has overlooked or failed to distinguish purely syntactic kinds as important elements in perceptual systems. The picture mislocates the point and force of the science's explanations. The explanations center on law-like patterns of transformation among contentful perceptual states. The representational content of perceptual states has form and structure. But any purely syntactical descriptions of such states are abstractions from the states' representational content. Such abstractions depart from the nature of the patterns and the focus of the theory. In the science there are no purely formal structures that provide an independent underpinning for the representational, contentful, perceptual states. The principles of the science center on instances of representational kinds individuated by representational content (and their relations to registered information).

The following point is of great importance: the formulations of principles in terms of representational content are *primitive*, not a further commentary on a primitive non-representational structure. The vehicles of representational content are states in the perceptual system. But these vehicles are not individuated separately, as a word shape might be individuated independently of its meaning. Although there is certainly a supplementary theory to be discovered about the physical underpinnings of perceptual states, there is currently no empirical reason to think that underlying physical states will have a syntactic form that can be specified independently of the structures of representational contents of perceptual states.

The representational content of the perceptual states are constitutively determined by relations to environmental entities. This point, entailed by anti-individualism, is evident in the characterizations of perceptual states in the science. The science characterizes such states as perceptions (as) of shape, color, motion, body, and so on. No syntactical state is characterized in such ways. Explanations in the science specify states with representational content. The transformations that explanations specify depend essentially, according to the science, on the representational contents of the states involved.

The other thing wrong with the picture as applied to visual systems is that there is no evidence that the principles of transformation are themselves in the psychology, in the sense of being the content (or form) of any state or event.<sup>46</sup> Such principles are not "consulted", "looked up", "accessed" in the system. Psychological states change as a result of proximal stimulation, according to

<sup>46</sup> As intimated in note 43, not all expositions of the language-of-thought hypothesis maintain that rules of transformation are accessible within the system.



patterns described and explained by the mathematicized formation principles. But those principles are not in any further sense accessible or embedded in the perceptual system.

The formation principles describe and explain laws instantiated in transformations in the system. They are not *applied* in reasoning or cognition, even “implicit” reasoning or cognition, within the system. Thinking of them as applied by the system hyper-intellectualizes the system, and invokes the ideas of accessibility and implicit look up. Such views are residues of Individual Representationalism. They take the system to contain representations of the laws determining its operation. Thinking of visual systems this way would be almost as bad a mistake as thinking of the planetary system as applying principles governing its motion.<sup>47</sup>

The states (both representational states and non-representational states) of the visual system change according to laws or law-like patterns described and explained by the formation principles. The principles include mathematics and references to perceptual states that are not representationally available to perceptual systems, much less most perceivers. There is no evidence for postulating implicit lookings-up of the relevant principles. The principles are not formulated or represented in the system, much less by the perceiver. Perceivers need not have any state, however unconscious or “implicit”, that has the content of the principles. There must be some psychological patterns in the system that make the principles true. But the principles are not the content of any state or capacity in the system.

By contrast, the registrational and representational states whose transformations are explained by the principles *are* states of the perceptual system. Most of the representational states are states of the perceiver as well as the perceptual system. That is, not only does the perceptual system produce a perception as of a cylindrical solid. The perceiver perceives something as being a cylindrical solid by having that perception. The representational states have representational content. This content helps determine the representational natures of the main entities, the psychological states and events, described and explained by the theory.

The idea that the visual system is analogous to a purely formal, content-free proof theory does not square with the science. What is correct about counting the theories computational is that they attribute (approximately) algorithmic laws of transformation among states in the perceptual system. The laws can be modeled on a computer. The laws, however, *cannot be described in purely syntactical or purely formal terms*. The principles that describe the transformations among states in the visual system concern specific kinds of perceptual—representational—states. Nor are the laws formulated *in* the perceptual system. The theory containing the principles is computable. But the principles are not the content of any state or states in perceptual systems, nor are the forms of the principles embedded in the systems.<sup>48</sup>

<sup>47</sup> Only ‘almost’ as bad, because the planetary system does not contain representational states.

<sup>48</sup> Although the theory makes no use of a representationally neutral formal structure, the theory can be expected to connect with theories of neural structure and process. How neural theory relates to

The science of perceptual psychology is in its early maturity. It is clear, however, that its methods yield rich returns. The methods of visual psychology apply to other perceptual systems besides vision—principally hearing and some aspects of proprioception and touch.

#### PERCEPTUAL PSYCHOLOGY PRESUPPOSES ANTI-INDIVIDUALISM

Empirical psychology does not theorize much about constitutive conditions. It explains processes not natures. It operates at a lower level of abstraction than anti-individualism. Nevertheless, its basic methodology and the general character of the psychological laws that it postulates involve commitment to anti-individualism.

How is the empirical psychology of vision committed to perceptual anti-individualism? In a nutshell, its kinds are partly determined by representational contents. Representational contents of states are fixed by laws that explain how approximately veridical perceptual states are formed. These laws and the kinds that they embed, in turn, are typed by relations to attributes, regularities, and laws in the environment. Let me open the nutshell a bit.

As I have indicated, the central methodology of the science is driven by the same consideration that drives anti-individualism—the explanation of representational success. The psychology explains perception—an ability of individuals veridically to represent elements in the environment as being certain ways. It explains the representational success of perceptual states whose representational contents provide numerous perspectives on any given attribute *A*, where all of these perspectives are perceptions of *A as A*. Failures of approximate veridicality—illusions—are explained primarily in terms of abnormal environmental conditions' producing proximal stimulations that would yield veridical representations under more normal conditions. Of course, the specific abnormal conditions are spelled out.

In every case, formation principles—and the states and transformations that they describe—mirror basic facts in the broader physical environment. These are facts regarding spatial relations, natural forms of motion, the way light patterns tend to correlate with shadows and edges, the way surfaces tend to have unseen backsides, and so on.<sup>49</sup> They mirror either environmental laws or deep environmental regularities that hold for the most part.

vision theory will play out empirically. I think that there is no armchair argument that the physical underpinnings must constitute a syntax that matches that of the perceptual states, or that the psychological forms can be applied directly to neural states. However, in the very early stages of vision, connections between psychological theory and neural theory are fairly close.

<sup>49</sup> For illuminating discussion of ways formation principles reflect the environment, see Elizabeth Spelke, 'Principles of Object Perception', *Cognitive Science* 14 (1990), 29–56; Roger N. Shepard, 'Ecological Constraints on Internal Representation: Resonant Kinematics of Perceiving, Imagining, Thinking, and Dreaming', *Psychological Review* 91 (1984), 417–447; P. J. Kellman, 'Kinematic Foundations of Infant Visual Perception', in C. E. Granrud (ed.), *Carnegie-Mellon Symposia on*

The natures of perceptual states—the perceptual-state kinds—are constitutively interdependent with psychological laws or law-like processes that embed them. These psychological kinds and laws reflect and are partly constitutively determined by attributes, laws, and deep regularities in the environment. The psychological kinds, marked by their representational contents, are constitutively interdependent with the general character of the psychological laws determining their formation and causal potential. These laws, in turn, depend on and reflect attributes, laws, and patterns in the distal environment. The psychological laws and operations are what they are because they were causally determined as counterparts of attributes, laws, and patterns in the distal environment. So the natures of specific perceptual states are constitutively associated, via causal relations, with specific attributes, laws, and patterns in the environment.<sup>50</sup>

There is no getting around the fact that the laws determining the formation of perceptual states are laws that determine formation of states *with representational content*. The basic kinds, both *explananda* and *explanans*, in perceptual psychology are representational. Perceptual-state kinds are what they are by virtue of their representational content, together with the perceptual modality.<sup>51</sup> Commitment to representational contents as type-individuating perceptual states and abilities is central to the science's objectives, methods, and explanations. The representational contents of the states are fixed by the general character of transactions into which they enter and by the normal causal and discriminative relations that perceptual states and their associated transformations bear to the physical environment.

The reliance in visual psychology on postulating representational states derives partly from the fact that the primary problem of the theory of vision is to account for how individuals come to perceive accurately or inaccurately. The postulation of representational content also derives from the role of representational content in marking ability. The abilities that representational content marks have turned out to be very complex. The processes that lead from registration of light arrays to perception are layered, interdependent, and sensitive to a large number of conditions. Attempts to account for perceptual ability without

*Cognition*, vol. 23, *Visual Perception and Cognition in Infancy* (Hillsdale, NJ: Erlbaum, 1993); E. S. Spelke, P. Vishton, and C. Von Hofsten, 'Object Perception, Object-Directed Action, and Physical Knowledge in Infancy', in M. S. Gazzaniga (ed.), *The Cognitive Neurosciences* (Cambridge, MA: MIT Press, 1995).

<sup>50</sup> Although the term 'anti-individualism' is not used among psychologists, there are many instances of awareness of these points. See Marr, *Vision*, chapter 1; Shepard, 'Ecological Constraints on Internal Representation', especially 422; Spelke, 'Principles of Object Perception'; Roger N. Shepard, 'Perceptual-Cognitive Universals as Reflections of the World', *Behavioral and Brain Sciences* 24 (2001), 581–601; W. S. Geisler, 'Visual Perception and the Statistical Properties of Natural Scenes', *Annual Review of Psychology* 59 (2008), 10.1–10.26. See also my 'Individualism and Psychology' and 'Disjunctivism and Perceptual Psychology'.

<sup>51</sup> Thus neither states characterized entirely in neural terms nor states characterized in "syntactical" terms that abstract from representational content play any significant role in the explanatory principles of the theory.

postulating representational content have failed in systematic ways, on empirical grounds.<sup>52</sup>

The methods of perceptual psychology take it that part of what it is to be a perceptual state of a given kind is to enter into the psychological formation laws and processes. These laws and processes are described by the formation principles. Exactly what the laws are is, of course, empirically discovered. The theory is, however, committed to a general view of what the laws are like. They parallel and reflect environmental laws or deep regularities commonly associated with proximal stimulations. The laws are explicable only by reference to the way in which patterns in the perceptual system's natural environment have molded the nature of the perceptual system and its perceptual states. The science is thus committed to perceptual anti-individualism.

Thus, in solving its primary problem, visual psychology presupposes anti-individualist principles, and fills them in with empirically supported laws. The methods and results of visual psychology presuppose and make use of perceptual anti-individualism.

It is independently plausible that the natures of perceptual states depend on patterns of relations between them and attributes of the physical environment. The relation between a perception as of a moving sphere and moving spheres is clearly not accidental. The nature of the perception is partly specified in terms of environmental attributes. Some attributional states are molded by the attributes that they represent through systematic patterns of causation.

The idea that such states have a representational nature that is completely independent of the environment that they represent is not only implausible. It constitutes explanatory wand waving. Either the idea postulates a nature that already implicitly includes representational content, in which case no explanation is given. Or it postulates a representational power on the basis of a feature that does not explain the power.

For example, attempts to individuate perceptual states *purely* or *primarily* in phenomenological or neural terms cannot provide anything like satisfying insight into the representational nature of perceptual states. Reflection on the role of formation laws or law-like processes in determining perceptual kinds yields an empirical elaboration of anti-individualism. Such reflection shows how perceptual anti-individualism both informs and is made specific through empirical explanation.

<sup>52</sup> A prominent psychologist who rejected visual representational content was J. J. Gibson (see *The Ecological Approach to Visual Perception*). I discuss empirical failures of Gibson's program in 'Disjunctivism and Perceptual Psychology', especially note 21. See also Shepard, 'Ecological Constraints on Internal Representation'; Bruce and Green, *Visual Perception, Physiology, Psychology, and Ecology, passim*; Palmer, *Vision Science*, 10, 53–56, 74, 82–84, 318–319, 409–413. There are other attempts to avoid appealing to representational content in the psychology of perception. I cannot discuss all of these. I think it fair to say that they are not mainstream and that the prospects for dispensing with representational content in perceptual psychology are remote.

The primary grounds for holding that there are perceptual systems are empirical.<sup>53</sup> The explanations provided by psychology are, of course, warranted and constrained by specific empirical evidence. But the psychological kinds indicated by these explanations can be understood only in an anti-individualistic framework. In both its basic explanatory kinds and its basic methods, perceptual psychology is committed to anti-individualism.

#### PERCEPTUAL CAPACITIES SHARED ACROSS SPECIES

All these perceptual systems involve *objective* representation—representational states that make veridical attributions to aspects of physical reality. Three general features of explanations in perceptual psychology are relevant to our theme of the conditions on objective representation.

One is that perceptual systems are domain specific. Purely perceptual representational contents represent only attributes that an animal can discriminate as a result of processes that begin with sensory states that are sensitive to a specific causal medium—light, sound, contact, and so on. Most visual perceptual systems form representations as of a small number of types of environmental attributes—integrated body, shape, spatial relations, motion, texture, brightness, color, and perhaps functional properties like food, danger, shelter. Representation *as such* of kinds like elementary particles, teacups, pianos, and recessions depends on capacities that go beyond the perceptual system proper.

I know of no *a priori* principle of separation. Separation derives from empirical theory.<sup>54</sup> The science focuses on discriminative abilities that have access only to proximal stimulation in a given medium. It focuses on discovering formation principles that concern perceptual states that attribute attributes that are ecologically important to the basic biological needs and activities of animals. Empirical science indicates that perceptual systems (and actional systems that are guided only by perceptual systems) have representational primitives that are confined to a relatively limited set of attributes.

A second feature of perceptual systems is that transformations in them are relatively independent of specific input from other systems—particularly from higher-level cognitive systems such as belief and language. This feature is called *encapsulation*.<sup>55</sup> The point requires qualification. It has been overstated. Input into one perceptual system often affects perceptual representations of another. If touch is given input that would normally yield representation as of one width for a

<sup>53</sup> I leave open here whether there may be additional grounds that are non-empirical.

<sup>54</sup> These issues are well discussed by Zenon Pylyshyn in 'Is Vision Continuous with Cognition? The Case for Cognitive Impenetrability of Visual Perception', *Behavioral and Brain Sciences* 22 (1999), 341–365.

<sup>55</sup> See Jerry A. Fodor, *The Modularity of Mind* (Cambridge, MA: MIT Press, 1983); Zenon Pylyshyn, 'Is Vision Continuous with Cognition?'

body, and vision is given input that would normally yield representation as of a very different width, the perceptual representations in each system are affected. Similarly, there is feedback between primitive action systems and perceptual systems.<sup>56</sup> In humans and other higher animals, beliefs can affect what is attended to; and attention affects perceptual operations. In humans and higher animals perception interfaces with conception and belief in complex ways. Nevertheless, the processes of perceptual systems, even in humans, are *relatively* independent of higher-level cognitive states. (Language perception is a special case and requires further qualification.) Many of the primary operations in perceptual systems have been successfully studied while provisionally abstracting from crosstalk among sensory and cognitive systems.

Third, many perceptual capacities are shared across species. The first two features of perceptual systems help explain this sharing. Take domain specificity. Since the range of attributes that visual systems deal with is relatively limited and of importance to the survival of many species, it is not surprising that similar solutions to perceptually representing those attributes evolved.

This point requires qualification. Some senses are explained better in informational than in representational terms. There are specializations among representational perceptual systems that produce failures of overlap. Fish use sensitivity to the motion of fluids by touch. Rays are sensitive to electrical fields. Spiders are sensitive to vibrations in their webs. There are differences in degrees of acuity and in dominance of different senses in different animals. The same perceptual problem often admits of various solutions.

Still, the perceptual systems of a wide variety of species often embody similar solutions to perceptual problems. Nearly all mammals have visual systems that are in their basic formation principles broadly similar to human visual systems. Some principles governing visual perception apply to a much wider array of animals than mammals. Many of the ways that visual systems achieve depth perception are common to mammals, birds, fish, and certain insects like bees, locusts, and a few types of spiders. For example, localization of the distance of an object is partly explainable in many species by principles of convergence that describe transformations that depend on the distance between the two eyes and the angles of sight established by the eyes.

Relative encapsulation also helps make sharing across species possible. Since, empirically, the nature of perceptual representations and the principles governing their formation are relatively independent of background information, different species can share at least some types of representation and formation processes.

I discuss perceptual psychology in more detail in Chapters 8–10. Here, I hope to have signaled the importance of the science and something of its basic shape. I hope also to have indicated how perceptual anti-individualism forms a background for the science. What I have said so far should suggest how the science

<sup>56</sup> See A. Gemma, C. S. Calvert, and B. E. Stein (eds.), *The Handbook of Multisensory Processes* (Cambridge, MA: MIT Press, 2004).

might indicate that a wide range of animals have accurate perceptions as of many macro-attributes of the physical environment.

#### INDIVIDUAL REPRESENTATIONALISM AND PERCEPTUAL PSYCHOLOGY

The approaches to perception characteristic of Individual Representationalism are very different from the approach just outlined. First-family individual representationalists hold that a layer of perception is prior to perception of the environment. Representation of the environment is built up from representation of appearances or sense data or of perceptual states. Second-family individual representationalists have little detailed to say about perception. They do hold, however, that perceptually to represent the physical environment as having specific attributes, an individual must have further cognitive abilities. These include abilities to represent general conditions that make objective representation of the physical environment possible.

I will evaluate Individual Representationalism from the standpoint of both anti-individualism, especially perceptual anti-individualism, and mainstream empirical perceptual psychology. Almost no discussion of perception by Individual Representationalists is informed by what is known about the topic. Nevertheless, we can ask whether there are resources in the doctrine to deal with the considerations just sketched.

Proponents of Individual Representationalism could reject the psychology. Or they could hold that the psychology may be right about non-human animals but must be at best incomplete in its account of human perception. Or they could maintain that philosophical accounts of individuals' perception have a different subject matter from that of empirical psychology, so Individual Representationalism and perceptual psychology are not in competition.<sup>57</sup>

In Part II, I think that it will become clear that Individual Representationalism lacks resources to defend such lines. The doctrine rests largely on unargued assumptions that are not in themselves plausible. The doctrine commonly rests on the bare claim that objective representation would be 'unintelligible' if it did not meet proposed requirements. Often it is enough simply to reflect on the intelligibility of an alternative to realize that a version of Individual Representationalism should be rejected. I cannot discuss all versions of the doctrine. I confront a significant sampling. The reader will have to extrapolate.

<sup>57</sup> I discuss this last line briefly in Chapter 6, the section *EVANS ON CONSTRAINTS ON OBJECTIVE REFERENCE IN PERCEPTION*, and in more detail in 'Disjunctivism and Perceptual Psychology'. See note 43 above; Chapter 8, note 97; and Chapter 9, note 3. The position is untenable. Psychology clearly assumes, and makes systematic methodological use of the assumption, that humans and animals—whole individuals—have the perceptual states that are attributed in the theory. I believe that the position rests on remarkable ignorance of the science. The other lines mentioned in the text are discussed more fully in the following chapters.

In what follows I distinguish between perceptual and conceptual representational contents. As explained in Chapter 2, on my usage, *concepts* are certain elements of the representational contents of *propositional thought*. I believe that in principle, both particular thoughts and particular perceptual states *can* sometimes occur only at subindividual levels—that is, only in modular subsystems. In such cases, the representational natures of the states are still determined by causal patterns indicated by anti-individualism. But, paradigmatically, both perception and propositional thought are imputable to individuals. Unlike perception, propositional thought essentially involves an ability by individuals to engage in inference that depends on propositional form or structure.

I think that perception is not propositional, hence not conceptual. Although both perception and propositional belief categorize, group, and attribute, they do so in different ways. I believe that the perceptual capacities of perceivers and perceptual systems are not organized propositionally. *Explanations* are, of course, carried out propositionally. The perceptual content is referred to in a propositional theory. But I believe that the representational content on which computational operations in perceptual systems operate is not itself propositional. Such content is not structured or organized propositionally. Explanation tends to operate on categorizational (perceptual-attributive) capacities whose structure is that of various magnitudes. The most prominent magnitude structures in perceptual representational content map onto structures of spatial magnitudes in nature.

Computational propositional *explanations* explain and describe these sorts of non-propositional perceptual content. But the computations within perceptual systems operate on the magnitude structures themselves, not on the propositional structures of explanations in psychology. Although perception contains both singular and attributive elements, and although the attributive elements categorize at various levels of abstraction, the singular and attributive elements are not combined in true propositional structures.<sup>58</sup>

Pre-theoretically, it seems unnecessary in accounting for the perceptual capacities of various lower animals—say, amphibians, insects, pigeons—to take them to engage in propositional inferences. This view accords with the mainstream of perceptual psychology. The science has shown no need to attribute propositional capacities to these animals. However, quite extensive scientific work on the sensory systems of many of these animals shows them to perceive, to have perceptual memories, and to act on representational content that derives from perception. Thus there is empirical reason to distinguish between conception and propositional thought, on one hand, and perceptual attribution and perceptual states, on the other.

The distinction between perceptual attribution and conception will arise periodically. But *the main argument that I make against Individual Representationalism*

<sup>58</sup> I discuss this abstract notion of organization somewhat further in Chapter 11, the section THE UPPER BORDER OF THE PERCEPTUAL: PERCEPTION AND PROPOSITIONAL ATTITUDES.



*does not depend on the distinction.* Even if perception *did* involve conception and propositional structure, perception would not, of itself, supply the representational *apparati* required by the views that I will criticize. Such views hold that to perceive the physical world, a perceiver must have certain *specific* capacities. Whether or not perception is conceptual, I believe that it will become clear that perception itself does not involve or require any of the relevant capacities.<sup>59</sup>

## ANTI-INDIVIDUALISM AND INDIVIDUAL REPRESENTATIONALISM

An overview of relations between anti-individualism and Individual Representationalism may help orientation for what follows.

I believe that the intuitive and theoretical considerations that support anti-individualism, both about perception and about thought, are so basic that they leave no reasonable alternative. Failure to accept the view, once presented with it, tends to derive either from being distracted from the central considerations or from misunderstanding what is being claimed.

Anti-individualism reapportions the contributions of individual and environment in determining the natures of individuals' mental states. An individual's resources to represent-as are not determined by the individual's ability to represent constitutive conditions, or by anything else that is located within the boundaries of the individual. Non-representational relations to specific attributes of the environment play an ineliminable role in constitutively determining what perceptual representations or empirical thoughts the individual has, and can have.

The thrust of this reasoning is uncongenial with Individual Representationalism. Individual Representationalism holds that an individual cannot represent an objective subject matter unless the individual can represent preconditions of objectivity. The individual is required to be able either to build up representation of objective particulars partly from subjective representations, or to represent fundamental general features of objectivity.

Anti-individualism can be used to show, against first-family views, that representation of objective matters are not, and cannot be, built up from subjective representation. Descriptive and constructional resources together with appeal to apprehension of appearances do not suffice to fix representations of the physical environment. This point had been made, independently, by numerous critics of sense-data theories. Anti-individualism enriches the negative point with an account of why sense-data theories fail.

The requirement of second-family versions of Individual Representationalism—the requirement that the individual be able to represent fundamental, general features of objectivity—is the harder one.

<sup>59</sup> For example, perception does not provide a capacity to represent a *seems/is* distinction (required by certain neo-Kantians), or the apparatus of quantification (required by Russell and Quine), or linguistic capacities (required by Quine and Davidson).

Anti-individualism shows that an ability to represent objective subject matters does not require the individual to have representational control over them. Anti-individualism, in its most general form, shows that causal relations between empirical representational mental states and some environmental entities must play a constitutive role in determining specific representational identities of some of these states. Thus it shows that the individual cannot do all the work in determining the identities of empirical representational mental states.

Anti-individualism also shows that having particular perceptions and thoughts does not require being able to provide explications that determine what types of entities they refer to or indicate. Having a perceptual attributive or a concept does not depend on the individual's being able to represent, *separately*, specific conditions for its application. Having particular perceptual attributives and particular concepts depends ineliminably on psychology–environmental relations.

These points do not, however, show that individuals need not have the competence to represent general features of objectivity in order to apply percepts and concepts to an objective subject matter. Generalized anti-individualism does not entail that the *only* factors that constitutively determine the nature of mental states are specific causal relations to the environment.<sup>60</sup> In fact, all representational states can be what they are only by being associated with other psychological competencies, including specific representational competencies. Thus both psychology–environment relations and intra-psychological relations are constitutively necessary to representational states' being what they are.

Individual Representationalism, particularly in its second-family form, is compatible with anti-individualism in its most general form. Individual Representationalism can accept anti-individualism, but insist that some intra-psychological relations that help determine the nature of mental states include relations to capacities to represent general conditions on objectivity.

Thus Individual Representationalism can hold, compatibly with generalized anti-individualism, that to apply specific perceptual attributives and concepts, say, to physical bodies or spatial relations, the individual must be able to represent general conditions for objective representation. For example, it might require that the individual be able to represent a distinction between appearance and reality. Or it might require that individuals be able to represent general causal principles or general criteria for reidentification. P. F. Strawson, Evans, and Davidson, whose work is anti-individualist in letter or spirit, maintained Individual Representationalism.

<sup>60</sup> Some philosophers hold that no more is needed to have a perception or concept *as of* a property than to be differentially responsive to that property. On such views, representational capacities do not constitutively require relations among psychological states. They require only capacities to respond to environmental circumstances. Such views are commonly anti-individualistic, but are not entailed by anti-individualism. I reject them. See Chapter 8.

Nevertheless, I believe that all forms of Individual Representationalism are mistaken. Specific elaboration of anti-individualism undermines Individual Representationalism, and places origins of objectivity in a very different light.

Origins of empirical objectivity lie in perception. Perceptual anti-individualism and scientific accounts of perception show that there is no need for compensatory capacities that individual representationalists insist upon. Proponents of Individual Representationalism must maintain that perceptual anti-individualism and mainstream perceptual psychology are incomplete or mistaken as accounts of individuals' perception.<sup>61</sup>

The issue is whether the philosophical views underlying Individual Representationalism can support such contentions. I believe that the views are strikingly ungrounded. First-family Individual Representationalism is untenable on numerous grounds. Second-family proponents have undeveloped, indeed unsophisticated, accounts of perception. Their views grew and flourished in an intellectual milieu that uncritically backed their general lines of thought. They hyper-intellectualized objective representation without good reason. I trace sources of Individual Representationalism in the next four chapters.

Part of understanding the failure of Individual Representationalism lies in appreciating the weakness of the considerations given to support it. Often the doctrine was so basic to philosophical (and at times, psychological) work that it received no argument at all. Where there was argument, it tended to be cursory, overconfident, and conclusion driven.

Deeper understanding of the failure of Individual Representationalism derives from reflecting on science—particularly perceptual psychology, developmental psychology, and ethology. Some of this science matured only since the 1970s. But the basic modern way of explaining perception has nevertheless been a significant current in psychology since the late nineteenth century. During the first half of the twentieth century, when perception was a focal point of philosophical discussion, proponents of first-family Individual Representationalism failed to engage with this current. From mid-twentieth century to the last years of the century, perception was not a central concern for mainstream philosophy. When perceptual psychology matured into a science in the 1970s, second-family proponents of Individual Representationalism paid little attention. Throughout the century, empirical work on perception had astonishingly little impact on philosophical reflection on perception.

<sup>61</sup> These moves are sometimes made to seem less vulnerable by two supplementations. One is to claim that the required capacities are tacit or implicit. I criticize this claim in Chapter 9, the section PERCEPTION AS OBJECTIFICATION. The other is to maintain that although in non-human animals, perhaps, a kind of perception occurs, in humans the relevant perception must be supplemented by a capacity to represent constitutive conditions of objectivity. I criticize this move in Chapter 5, the section INDIVIDUAL REPRESENTATIONALISM AND ANTI-INDIVIDUALISM: AGAIN. There is overwhelming empirical evidence that human perceptual systems operate in broadly the same way as those of non-linguistic animals, and even animals that clearly lack propositional thought. The same empirical evidence shows that perceptual representation of the physical environment does not, in *any* perceivers, depend on capacities required by individual representationalists.

A better account of origins of objective representation must center on better understanding of perception. Elaboration of anti-individualism about perception and appreciation of the science of perception not only help undermine Individual Representationalism. They point toward a different understanding of origins of objectivity.

In Part II, I discuss Individual Representationalism critically. In Part III, I develop a more systematic account of perception. That account shows how the objectifying jobs that Individual Representationalism attributes to individual representation are filled by specific environmental–individual relations and by subindividual psychological capacities. Origins of objectivity are more primitive than individual representationalists recognized.