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Introspective Evidence in Psychology

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Introspection was once the mainstay of psychological research, the primary source of psychological evidence. But, as history has it (e.g., Lyons, 1986, chs. 1–2), in the first part of the twentieth century introspection was discredited by behaviorists in psychology, and by the likes of Wittgenstein and Ryle in philosophy. These critics purportedly showed that introspection was unscientific, conceptually impossible, or akin to believing in ghosts. As a result, introspection disappeared as a source of evidence in psychology and philosophy alike (Lyons, 1986).

This standard account, as most do, contains a grain of truth. Introspection, broadly conceived, was once the primary source of evidence in experimental psychology—although it was never, in any period of psychology's long past, considered to be the only source of evidence (Hatfield, 2003b; Titchener, 1912a). Even as one among several sources of evidence, introspection was in decline by the middle of the twentieth century, both in philosophy and psychology, largely because of attack from the behaviorists. Although the use of introspective evidence was not fully abandoned, criticisms from within psychology put an end to *analytical introspection*, narrowly defined to mean a specific method of seeking the "atomic" elements of experience.

Interest in introspection has recently revived, in two contexts. In connection with questions about first-person knowledge, some authors have offered positive accounts of self-knowledge of some mental states, especially opinions and convictions (e.g., Moran, 2001). In connection

with theories of consciousness, the question of introspective access to the self, or to private conscious states, has drawn considerable attention (e.g., Armstrong, 1980; Lycan, 1997). All the same, the notion of introspective awareness of specifically phenomenal aspects of perceptual states remains deeply suspect (Dretske, 1995, ch. 3; Jackson, 1998, ch. 4; Tye, 1995, ch. 5).

I am a friend of introspection; I introspect regularly. I think I find things out—though not everything there is to know, even about my own mind. I turn to introspection frequently in thinking about perceptual experience, and in testing claims made by perceptual psychologists. More importantly, I believe that introspection maintains an ineliminable role in psychology itself, as a source of evidence. This is especially apparent in perceptual psychology, which will be my ultimate focus.

In preparation for examining the place of introspective evidence in scientific psychology, I begin by clarifying what introspection has been supposed to show, and why some concluded that it couldn't deliver. This requires a brief excursus into the various uses to which introspection was supposed to have been put by philosophers and psychologists in the modern period, together with a summary of objections. I then reconstruct what I take to have been some of the actual uses of introspection (or related techniques, differently monikered) in the early days of experimental psychology. Here, I distinguish broader and narrower conceptions of introspection, and argue that recent critics have tended to misdescribe how introspection was supposed to work. Drawing upon the broader conception of introspection, I argue that introspective reports are ineliminable in perceptual psychology. I conclude with some examples of such ineliminable uses of introspective reports in both earlier and recent perceptual psychology.

Introspective Objectives

Introspection, broadly conceived, describes a mental state or activity in or through which persons are aware of properties or aspects of their own conscious experience. Being aware that one feels cold, is seeing red, or is worried, if mediated by awareness of conscious experiences that include feeling cold, seeing red, or being worried, are all instances of introspection. This broad description (which I refine in the text that follows) is intended to cover the variety of uses ascribed to introspection in the history of philosophy and psychology.

Introspection has been undertaken with the aims of both self-knowledge and knowledge of the self or mind. Self-knowledge, the use of introspection

most typically discussed now by philosophers (e.g., Armstrong, 1980; Moran, 2001; Myers, 1986; Shoemaker, 1996), is knowledge of what is peculiar to a given person. This may include their beliefs and memories, and also may describe allegedly private or wholly subjective states of consciousness (experiences of sense-data were supposed to be such). By contrast, the search for knowledge of the self or mind is undertaken with the aim of attaining general, or intersubjectively common, descriptions of the self or mind. This general knowledge is to be achieved via introspective observations and their report. Psychophysics, in which subjects might match stimuli according to their appearances in specified circumstances, is an example. In such cases, introspection is supposed to serve as a basis for generalizations about all (or most) human selves or minds.

With this distinction between differing aims for introspection in place, let us consider the most important objectives for introspection, actual or purported, in the history of philosophy and psychology.

Explicit appeal to introspection is found in Augustine and Aquinas, and such appeals became widespread and prominent in the seventeenth century (Lyons, 1986, ch. 1). Descartes especially is linked with the early history of introspection. His *Meditations* contain a studied turning away from the body, a "looking within" to find the foundations of knowledge. Purportedly, he discovered these foundations in incorrigibly known states of mind, from which he sought to infer the properties of a world beyond the mind.

What did Descartes claim to find when he turned inward? Opinions vary. Later philosophers, including Hume and Kant, argue as though Descartes or his rationalist descendants claimed to perceive the soul as a simple substance, by a kind of direct inspection. Such perception of the soul or mind is our first purported objective for introspection:

(1) To perceive the mind as a simple substance.

Hume and Kant did not describe what they believed philosophers such as Descartes held this perception to be like; they merely asserted that *they* did not find a simple soul manifest in their inner experience.[1] One might assume that they believed Descartes and others had claimed to "see" a punctiform entity, a speck of immaterial substance.[2]

Although there was talk in the early modern period of whether the soul should be regarded as a point, Descartes refused to attribute to the soul any predicates derived from extension (1641/1984, 266). More importantly, he never claimed to perceive the soul itself directly, as a simple substance. Rather, he claimed to perceive important features of the "nature of mind" via reflection.[3] According to Descartes, the mind manifests various characteristic

types of experiences and various types of mental activity in relation to those experiences, which include perceiving through the senses, making judgments about such perceptions, imagining, remembering, and understanding, or willing various things, feeling bodily sensations such as hunger and pain, and undergoing various passions or emotions—or at least seeming to do, feel, or undergo these acts and experiences (1641/1984, 19). From further reflection on and conceptualization of these mental activities, Descartes arrived at some conclusions about the nature of the human mind: that it is essentially an immaterial substance; that intellect and will are the two basic faculties of mind; and that mind is distinct from, but interacts with, the human body (1644/1985, 204, 208–19).

We thus have another objective for introspection:

(2) To discern the nature of mind.

This objective might be intended to rest upon the sort of intellectual perception (or intuiting) of the essence of mind that Descartes claimed to achieve: not "seeing" a speck, but understanding an essence. Alternatively, this objective might arise from the aim of knowing what a mind is by describing what it does, that is, by cataloging various mental activities. This more specific objective is:

(3) To discern the characteristic states and activities of mind.

An example of such a characterization is the claim (made prominent in the eighteenth century) that the three main divisions of mental life are perceiving, feeling, and desiring, rather than (as Descartes had it) perceiving and willing only.

Those investigating the mind by reflecting on their experience might observe that they can know more particular qualitative and temporal features of their mental states, or at least of those available in consciousness. Such features might include the division of sensory perceptions into various quality groups, or modalities, such as vision, touch, hearing, taste, and smell. Such investigators might claim to compare the intensities or durations of various sensations, feelings, desires, and thoughts. This objective is:

(4) To ascertain the qualitative features and temporal relations of conscious states.

Such claims can be found in Descartes, but also in Hume, the mental geographer (1748/1999, 93). In the latter part of the nineteenth century, experimental psychology took as two of its principal aims (a) characterizing

quality groups through the experimental techniques of psychophysics, and (b) measuring temporal relations in mental processes.

One might hope, from observations of such qualitative features and temporal relations, to discover or infer the basic psychological processes or operations of the mind. We thus have a more specific version of (3), which is our fifth aim:

(5) To discover or infer the character of mental or psychological processes.

This aim was vigorously pursued in various theoretical contexts in the late nineteenth and early twentieth centuries. On the basis of observations, various psychologists claimed to discover characteristics of psychological processes:

(5.1) That they involve pure acts of intellect or imageless conceivings

(5.2) That they are always imagistic

(5.3) That such processes manifest genuine activity, as in attending or willing

(5.4) That some processes are unconscious.

Findings (5.1) and (5.2) report the opposing views in the imageless thought controversy that raged in the early twentieth century (see Kusch, 1999). Some psychologists claimed to discover a phenomenology of thought processes in the absence of any mental images. Others claimed that thought is always directed toward or involves images. During the same period, psychologists disagreed over whether instances of genuine psychological activity are found introspectively (5.3), or whether we in fact have available only experiences that are not direct manifestations of activity, even though the language of activity is used to label them (see James, 1912). Many psychologists in the nineteenth century (and before) used introspective evidence as a basis for positing unconscious (or perhaps unnoticed) psychological processes or operations (5.4) that yield conscious experience, whereas others sought to rule out such processes (see Hatfield, 1990, chs. 2–5; 2003b). These various areas of disagreement fueled the fires of behaviorists and other enemies of introspection.

Uses (1) through (4) are found in earlier philosophical and psychological writings. Uses collected under (5) were taken up by the new experimental psychology in the nineteenth century. Use (4) and some parts of (5) are, or should be, of interest in philosophy and psychology today.

Philosophers interested in epistemology also have made claims for the power of introspection (or "immediate perception") of perceptual data. In the first half of the twentieth century, sense-data were said to be immediately perceived objects of perception, perhaps incorrigibly known, and in any case were the basis for all other empirical knowledge. We thus have a sixth use:

(6) To perceive (incorrigibly known?) sense-data, as the foundation for other knowledge.

Such data were supposed to be private, and to provide an initial basis from which to construct or infer the external world and other minds. Bertrand Russell (1919) developed this talk of "construction," which led him to a position of "neutral monism" that he shared with Ernst Mach and William James (Hatfield, 2004). On this view, only sense-data (or rather "momentary particulars") are affirmed as existing; external objects and minds (including one's self) are regarded as constructions from such data. Adherents of a "representative" theory of perception treat private sense-data as the epistemic basis for knowledge of really existent external objects and other minds (Broad, 1923, pt. 2).

Finally, introspection has been taken to provide individual knowledge about the self. To the extent that Augustine's *Confessions* are seen as the report of a personal spiritual journey, they contain introspective reports of Augustine's personal experiences and reactions. This gives us a seventh use:

(7) To know the particularities of one's self (hopes, aspirations, beliefs).

This is introspection as affording self-knowledge, that is, as providing privileged access to specifically first-person facts. The extent to which this source of knowledge can provide full insight into one's beliefs and desires has long been questioned. But the notion that at least some specifically first-person knowledge is available retains many advocates.

Of these uses, the first five purport to provide evidence for claims about mind, or mental states and processes, in general. They are not intended to provide special knowledge of an individual's own thoughts and beliefs, but are instead aimed at what I term "knowledge of self or mind": knowledge of the characteristics of the mind, or of mental processes, in general. In this context, individual introspective observations are taken to reveal characteristics common to all minds. The claims made on behalf of such uses range from knowledge of the nature of mind, as in (2), to knowledge of its states and processes, as in (3) through (5).

Uses (6) and (7) focus on specifically individual knowledge. Use (7) in particular describes the sort of introspection (broadly conceived) that has been defended of late, under the title "first-person knowledge," by moral psychologists such as Moran (2001) and epistemologists such as Shoemaker (1996). They observe that, in many such cases, we attain self-knowledge by deliberating about what we hope or believe. Because they are *our* deliberations, we attain a specifically first-person knowledge of our beliefs, in the very act of deciding what they are. Moran (2001: 11–20) distinguishes this sort of first-person access from introspective knowledge of the phenomenal aspects of perceptual experience, which he thinks has been discredited. He associates the latter sort of "introspection" with a "perceptual model" of first-person knowledge that allegedly is directed toward a special inner object.

Although uses (6) and (7) fit the broad conception of introspection described above (since they involve conscious awareness of an allegedly private perceptual object, or of one's convictions), they are not my focus here. My primary concern is with reports or responses that serve as evidence for the characteristics of perceptual experience. Such reports or responses were conceived by earlier advocates—and should, I will argue, be so conceived today—as providing intersubjectively valid observational knowledge of (at least some of) the characteristics of perceptual states (and other sorts of mental states). The remainder of this chapter therefore leaves aside the specifically personal knowledge that has been the focus of some recent philosophers, and considers introspection as a source of evidence for general statements about mind, ultimately focusing on its use in providing scientific evidence in the study of perception. In considering objections to introspection in the next section, I therefore focus on uses (1) through (5); ultimately, I seek to vindicate aspects of uses (4) and (5).

Objections to Introspective Evidence

Many objections have been raised against actual or alleged uses of introspective evidence. Some of these objections are powerful and on target, while others have been based on a misdescription or caricature of introspective evidence or its objectives. I want to consider some telling objections, which limit the scope of introspective knowledge, and some misdirected objections, which I hope can be put aside.

Against use (1), which seeks direct introspective awareness of the soul or self as a simple substance, Hume's and Kant's reflections, as described earlier, are persuasive. However, alleged direct phenomenal acquaintance with the soul as a substance was not a mainstream position among metaphysicians of the soul (e.g., Descartes or Leibniz). Rather, they used arguments

(which might include phenomenally based premises), rather than direct inspection, to arrive at their conclusions. In any case, it should be granted that introspection does not directly reveal the soul as a simple substance.

The more plausible claim of Descartes and others was that introspection revealed the nature of mind by revealing its characteristic states and activities as in use (2). In this use, Descartes and others could allow that the mind is always perceived through its properties (acts and states); perception of these properties allows one to grasp the mind's essence or nature. I suppose that few philosophers today believe that the nature of mind can be discerned in this way, in part because there are now few philosophical dualists who believe mind to be a separate substance with its own nature or essence. But even taking "nature of mind" more broadly, to include functionally defined characteristics that have been popular of late (e.g., the mind is constituted of symbol-crunching processes), few to none would believe that this nature can be discovered directly through introspection.

Use (3) aims at discerning "the characteristic states and activities of mind." This objective supposes that such characteristic states are accessible to consciousness. Yet it is widely accepted today that many cognitive processes are not accessible to consciousness. One needn't endorse the Freudian unconscious to make the point. Cognitive psychology observes that many processes underlying perception and cognition—from simple visual capacities such as stereoscopic vision, in which minute spatial differences between the two retinal images are compared, to the recognition of a friend by her appearance—take place outside consciousness. Although the *results* may be available to consciousness (in the experience of depth, or in the conscious recognition), the processes are not manifest. Acceptance of the point that some mental states and processes are not present to consciousness would not preclude introspection as a source of evidence, but it would limit its scope.

Three further objections seek to rule out uses (4) and (5). One urges that introspection is unreliable; a second casts aspersion on its object; the third proclaims it to be conceptually impossible. The charge of unreliability was prominent in J. B. Watson's arguments against introspective psychology. He pointed to several examples, including the imageless thought controversy, disagreements over the number of "degrees" of attention, and disagreements over the number of elemental sensations (Watson, 1914: 6–7). These charges seek to undermine the use of introspection, in uses (4) and (5), for determining the character of mental or psychological processes, and the fundamental elements entering into them, by observing the qualitative features and temporal relations of conscious states.

If the aim of psychological introspection is to find the "least elements" of mind, or to fully reveal the fundamental acts of mind (as in levels of attention), then Watson's charges stand. However, the problem may not be with introspection itself, but with the theoretical framework in which it was used. The notion that there are least elements of sensation to be discerned introspectively is, as James and the Gestalt psychologists (among others) observed, a theoretical construct. No one ever experiences a bare least element of sensation; such elements are posited by theory (see Hatfield, 1990, chs. 4–5). If the theory is wrong, then the sought-for least elements will not be discovered. As for the notion of levels of attention, it may have been an attempt to attribute overly fine phenomenological distinctions to the dynamics of attention. In a wider context, introspective techniques (broadly construed) are still used in studying attention, and to good effect (as discussed below).

Finally, the imageless thought controversy attempted to use introspection to discern facts about the content and structure of higher cognitive processes. The techniques were in many ways dissimilar from those used to elicit introspective reports in perception, because the object of experience was less restricted and defined. Such methods, which were sometimes called "systematic experimental introspection," came in for strong criticism from other introspective experimentalists (as reviewed by E. B. Titchener, 1912b). Presumably, the adjective "systematic" was supposed to promote the legitimacy of the techniques in question, in which subjects might simply be asked to record observations on their thought processes after having carried out a given cognitive task. We may agree with Titchener's (1912b) conclusion that this form of introspection is of dubious reliability. However, the question of the reliability of introspective techniques in other contexts remains open.

The remaining two objections seek to rule out the possibility of introspection by casting aspersion on its objects or by claiming that it is conceptually impossible. These objections start from the assumption that to characterize introspection as "inner perception" or "inner observation" is to presuppose a special inner object. In the case of sense perception, which is my focus in this chapter, this object is supposed to be an existent thing that is distinct not only from external objects but also from perceptual experience of external objects. The existence, or the knowability of such inner objects is then challenged on various metaphysical and epistemological grounds.

Metaphysically, it has been suggested that experiential states containing their own mental or subjective content should not be countenanced, because to do so would be like believing in ghosts or other "unnatural" entities. Watson (1914: 20) and B. F. Skinner (1963) championed this sort of claim, and it can be found in many recent philosophers who would banish all mentalistic notions that cannot be "naturalized." Such philosophers may

hold that notions such as "information" and "representation" can be naturalized by employing an engineering conception of "information" that rests on natural relations (such as conditional probabilities) among properties or states of affairs. Hence, the notion of representation may be retained, but, they argue, qualitative experiential states would be spooky entities that don't fit into a naturalistic outlook (see, e.g., Rey, 1997: 255, 301).

This argument is directed against the alleged object of introspective awareness. It denies that introspection can provide a distinctive source of knowledge of the phenomenal, on the grounds that in order to do so, introspection would have to be directed upon a phenomenal object of dubious metaphysical status. It seeks to restrict the sort of evidence that psychologists should countenance, on the basis of a metaphysical assertion about what is natural and what is not. And yet the basis for the claim of what does or does not "belong to nature" is not spelled out. With the decline of philosophers' presumptions to have distinctive *a priori* insights into the fundamental elements of nature, such claims must in some way make contact with empirical knowledge. One typical way to decide on the range of natural states, processes, and objects is to look to the generalizations of the natural sciences. But if psychology is included among the natural sciences, the question of whether introspectible experiential states are found in nature reduces to the question of whether they are the object of generalizations (or other scientific assertions) in psychology. Philosophers' intuitions about what is natural and what is not would in this case give way to the question of what is being (or can be) studied in, and what is posited by, perceptual psychology.

Turning to the epistemological objection, introspection is supposed to be conceptually impossible because it would require inward-looking descriptions of a sort that will not bear scrutiny. Wittgenstein's "private language argument" is supposed to tell against such descriptions. As the story goes,[4] the language in which we describe our perceptual experience is parasitic upon, and perhaps presupposes the existence of, external objects. As it was sometimes put, "is red" is more fundamental than "looks red." This means that our descriptions always start from attributions of properties to publicly perceivable things. From this, it is concluded that there is no conceptual space for knowledge or description of what is private or internal. Such descriptions would be forced to employ concepts proper to external objects, which is incompatible with the purportedly private status of their objects. Hence, the old idea that we start from awareness of inner states, so described, and work out to awareness, belief, or knowledge of an external world is considered to be conceptually undermined. On this argument, uses (4) through (6) are ruled out.

Any reply to this argument must distinguish various purposes one might have in attempting to describe one's phenomenal experience. If one proceeds from the traditional philosophical aim of describing the foundation or basis for knowledge of the external world, then, if that foundation or basis is supposed to be conceptually independent of beliefs or knowledge about an external world, the "private language" argument could have some bite. But if the aim of describing or attending to phenomenal experience is simply to discover how things look, in the sense of how the world is perceptually presented to observers under specified conditions, then the matter is not so clear. In these circumstances, I might use the descriptive language applied to external objects in order to direct attention to aspects of how those objects are experienced. This is the case in contemporary perceptual psychology, which supposes that one can describe one's own experience using terms that are also used for describing the properties of external objects.

Let us take an example from color perception. In asking for reports on the colors of things, psychologists may instruct subjects to distinguish between the color they take an object actually to have, and the way in which the object looks or appears.[5] If, as I examine a piece of paper on my desk, I am asked what color the paper looks to be, I may unhesitatingly say that it looks white. I perceive it to be white. An experimenter might then ask me to attend carefully to how the paper looks, and to respond to whether it appears with the same whiteness all over. Noting my uncertainty about the task, the experimenter may explain that I am to distinguish the question of whether I would judge or estimate the paper to be uniformly white (as opposed to being dyed or otherwise colored at any place), from my report on its current *appearance* as regards sameness or variation of color. Under such instructions, I report (let us imagine) that although I certainly judge the paper to be the same white everywhere, and I do so because of how it looks, nevertheless the paper appears darker and lighter in different areas across its surface, and it has a reddish tinge in one portion. Warming to the task, if I were next asked to go beyond simply describing the paper's appearance so as to explain why it looks this way, I would say that because of its slight curvature and the direction of the light, the paper appears darker and lighter across its surface, and that it is next to a red ceramic cup that has reflected some reddish light onto it. I would still be in no doubt that the paper *is the same white* across its entire surface. I would not say that it looks to me as if it is a piece of paper that is white in some areas but has been colored darker (or grey) in another area, and red in yet another. It looks to me as uniformly white paper does in many ordinary circumstances. All the same, I am able to use terms such as "white," "grey," and "red" to describe the varying appearance

across the surface of the paper (even if I were myself unable to explain those appearances, but simply reported how the paper looked).[6]

In these circumstances, the experimenter has co-opted my ability to use color words to recognize the colors of objects by asking me to describe subtle variations in appearance. If I were claiming that the descriptions of the appearance were epistemically primary and provided the conceptual basis for constructing my knowledge of the external world, I might be in trouble. But if the aim is simply to describe in detail how the paper looks—where I've distinguished the attempt to describe the paper's appearance from what I would conclude about how the paper is physically constituted—then this problem about what is conceptually primary does not arise. I may develop and elaborate concepts of the phenomenal using whatever materials are available, including predicates normally used to describe external objects.

There is, however, another objection raised against "inner" description, or describing the looks of things. It is a phenomenological objection, based upon a report of how things look. According to this objection, phenomenally our experience seems to be "out there," not "in here." But introspection is supposed to be a "looking within," and is supposed to take as its object something besides the external object.

This objection has been stated by many authors (e.g., Dretske, 1995: 54, 62; Harman, 1990; Tye, 1995: 30). Georges Rey sums it up as follows: "as a number of writers (e.g., Harman, 1990; Dretske, 1995) have stressed, a great deal of what passes for introspection of one's 'inner' experience consists of reports about how the *outer* world seems: we don't so much report on the features of the 'inner movie' as upon what that movie *represents* (e.g., that *barns* seem red, *the sky* a dome)" (Rey, 1997: 136–37). That is, we don't seem phenomenally to be attending to a special inner object. Rather, when asked to report, say, on the color of a piece of paper, it seems to us that all we see is a piece of paper.

Rey (1997: 136) describes this as a "problem" for introspection. How so? In fact, two points are compressed together here. Harman (1990), Dretske (1995), and Tye (1995) all wish to reduce qualitative content in perception to the bare representation of properties of external objects. Hence, they deny that in perceptual experience we are presented with qualities that arise from how we subjectively represent objects (what Tye [2002] calls "qualities of experience"), such as is thought to be the case if we treat color as a subjective quality that serves as a mere "sign" for its cause in the object (Hatfield, 2003c). They don't want there to be features of our experience that depend on the subject's way of representing things, rather than on external-world content about objects. This sort of point cannot, of course, be decided just by reporting on the "diaphanous" or "transparent" character of our experience (names for the fact that in visual perception we seem to see the external world directly, without anything intervening, particularly

not our own mental states); it depends on a substantive account of the metaphysics of perceptual qualities (such as color). But surely a decision on the metaphysics of qualities shouldn't be required before we can decide whether it is possible to describe phenomenal aspects of our perceptual experience. For even if these authors were right about the metaphysics, we could still ask how the external thing looks. Hence, this part of their "transparency" position is not relevant to my inquiry into the use of introspection as a source of evidence in psychology. The question of whether we can report on our experience does not require a prior solution to the metaphysical problem, even if such a solution might influence our view of what there is to report.

This brings us to the second point, which concerns what it is like to attend to our own experiences. The phenomenological point about transparency is supposed to undermine a notion of introspection as describing "inner" experience.[7] Our experiences seem "transparently" to be of external things; we don't seem to be aware of some inner object. But introspection is supposed to be "inner." Hence, at least in the case of sense perception, introspection does not find its intended object and so can be dismissed.

This objection is founded upon a misconstrual, or caricature, of how introspection has long been supposed to work. If we distinguish (a) the metaphysical question of whether introspection is directed upon objects that are distinct from external objects (as "sense-data" are posited to be, or as phenomenal qualities might be), from (b) the phenomenal locating of the objects of introspection, we will find that very few authors in the history of psychology or philosophy held that sense-perceptions are experienced as "inner." The early experimental psychologists who advocated introspection certainly did not. The relevant question then is not whether our experience seems to be "in here" or "out there," but whether any relevant differences exist between simply observing external objects and observing the experiences we have in doing so. Classical experimental psychology held that such differences exist. This point requires elaboration.

Actual Practices of Introspection in Psychology

The notion of introspection was refined over the course of the nineteenth century, partly in response to various charges that introspective observation is impossible. Comte (1830–42/1855: 33) argued that direct introspection of mental processes is not possible, because it would interrupt itself. The initial response to this charge was to grant that, although any attempt to observe our own thought processes directly would interrupt itself, we can "observe" by seeking to remember our thought processes just after they have taken place (J. S. Mill, 1865: 64); introspection could operate via memory. Franz Brentano

(1874/1995: 29–36) refined this response by allowing that introspective *observation* is possible only through memory, but he contended that there is also a kind of "incidental" perception of our mental states while we are having them. He called the fleeting awareness that we are having a certain sort of mental state an "inner perception," distinguishing it from introspection proper, which he called "inner observation."

These discussions took place before the widespread use of introspective techniques in experimental settings, which increased dramatically after 1880. At first, experimental psychologists such as Wilhelm Wundt agreed with Brentano's point that self-observation (*Selbstbeobachtung*) of mental states and processes is unreliable because it interrupts itself (Wundt 1882/1885: 136–37). But he soon reversed himself on this point, and refined his position.

In a lengthy study on introspection, Wundt (1888) distinguished inner perception from self-observation (introspection proper). He characterized self-observation as the "deliberate and immediate observation of inner processes" (1888: 297). The key terms all require explanation.

"Deliberate" implies that the subject directs his or her attention to the states or processes being observed. Although deliberate observation need not be previously planned (a botanist may observe with deliberateness a specimen that she has found serendipitously during a walk), it does suggest that the observer is paying careful attention to the object of observation. Wundt described "scientific observation" as the "deliberate direction of attention to the phenomena" (1888: 293). The observer is prepared to discriminate or discern characteristics of the observed phenomena, and to remember the results of such discrimination. The observer may direct his or her attention to selected aspects of the phenomena. Without this directing of attention, mere "inner perception" may allow us to be aware of the contents of our minds, but not in the deliberate manner of introspection. Introspection proper involves deliberate consideration with the intent of discriminating among psychological states or processes.

"Immediate" rules out the sort of memory-mediated introspection that Mill and Brentano allowed. According to Wundt, observation requires the presence of what is observed. Hence, retrospection does not count as introspection ("self-observation") of the remembered state or process; rather, it is observation (or introspection) of a present memory of the past state or process (1888, 294: 297–300). As such, it need not be wholly untrustworthy, but it introduces the usual limitations on memory as a source of evidence.

According to Wundt, experiment makes deliberate introspection possible (1888: 301–3). Experimental conditions allow the subject or observer to maintain an object of observation over a period of time, as when an

observer is asked to match color samples. The samples can be examined for a preset period (two seconds, say), or subjects might simply be asked to declare the match only when they are sure. Also, an experimenter can elicit the same (or closely similar) psychological processes by arranging for an exact repetition of external conditions.[8] If higher thought processes were the object, the immediate results of techniques of directed attention would be suspect if considered to be observations of a constant object, for the directed attention of introspection might interrupt the thought process, and the thoughts themselves might alter from trial to trial as the result of learning or speculation by the observer. But in color matching, observation of properly arranged color stimuli for a few seconds introduces minimal change, and if proper precautions are taken, later observations will not be systematically altered by physiological or psychological after-effects from previous observations.

"Inner" is the main offending term, according to those who emphasize the "transparency" of perception (Dretske, 1995; Harman, 1990). Many philosophers have supposed that this term must imply that the object of introspection seems to be "in the mind" or "in the head," rather than in the world—otherwise, the point about transparency would have no bite. They have also supposed that it implies an ontologically distinct entity, a "sense-datum" or a subject-dependent *quale*. Finally, they have supposed that, failing the existence of such an entity, there would be nothing to do in introspection except report on the external object; there could be no "observation" of one's own experience.[9]

None of these assumptions applies to the classic notion of introspection as experimental psychologists such as Wundt developed it. In describing the objects of introspection, Wundt did not posit an "inner" location or require a specific metaphysical theory of qualia, but he nonetheless did allow an attitude of observation toward one's own experience. According to him, introspection takes the same (phenomenal) objects as ordinary perception, but approaches them with a different attitude or "point of view." Whatever may be the truth about the relation between the physical and the psychical (in sense perception, let us say), the objects of observation are the same. Wundt rejected the definition of psychology as the "science of inner experience," for the reason that "it may give rise to the misunderstanding that psychology has to do with objects totally different from the objects of so-called 'outer experience'" (1901/1902: 2). Various perceptions, as of "a stone, a plant, a tone, a ray of light," can be viewed either as natural phenomena, or as "ideas" or presentations to a subject.

As a psychologist, Wundt was not concerned to determine the metaphysical status of perceptual experience. He regarded sense experience as presenting external objects (4, 13). Methodologically, psychologists can

study the same observational phenomena as do physicists, but they do so from a different point of view: "the expressions outer and inner experience do not indicate different objects, but *different points of view* from which we take up the consideration and scientific treatment of a unitary experience" (3).[10] And again: "from this point of view, the question of the relation between psychical and physical objects disappears entirely. They are not different objects at all, but one and the same content of experience" (1901/1902: 11).

In physics and chemistry, one seeks to describe objects by abstracting away from a subjective point of view as much as is possible (1901/1902: 3, 357). Those sciences develop their own concepts, which describe objects in terms of stable physical and chemical properties (e.g., mass, force, acid, base, etc.). Psychology, by contrast, studies all aspects of experience, including those that are momentary, or that depend on momentary relations between the subject and an external object. Even though the objects in introspective studies of perception typically are existing external objects,[11] psychologists have developed special phenomenological concepts for describing them. These include notions such as "sensation," and, for a given sensory modality, the range of sensory qualities, such as hue, brightness, and saturation in the case of color. In a psychological investigation, one may ask subjects to describe the objects of perception phenomenally, in terms of how the objects look from moment to moment.

As an example of the two viewpoints, consider first a student of chemistry in the chemistry lab who simply wants to know whether the litmus paper she has just dipped into a liquid has turned red or blue. She isn't interested in whether the appearance of those colors varies with the variations in the lighting found in the chemistry classroom. Rather, the classification into *red* or *blue* (depending on whether the liquid was an acid or a base) is binary. In the psychology classroom down the hall, a student might simply report the classification into red and blue introspectively, as his awareness that the paper looked red or looked blue.

But that bare classification into color classes need not exhaust the experimenter's interest in the look of the colored papers. In a study of color perception, a subject might be shown colored papers matching the red and blue of litmus paper under various conditions of illumination, and be asked to compare how they look (their appearances). Far from simply declaring "red" or "blue," the student might note that (under ordinary illumination) the "red" sample would more accurately be described as pink, and the "blue" sample as bluish-violet. He might also note that the samples take on differing phenomenal hues under variations in lighting, that the two swatches nonetheless continue to be distinguishable in color, and that under a wide range of illuminations he could still easily classify the samples

as "red" or "blue," even though each sample doesn't look exactly the same under all those conditions.

In describing how the litmus paper looks during the experiment, the psychology student employs concepts of phenomenal appearance rather than binary color classification. He never once need conceive of himself as accessing a special inner object that seems to be located within himself: he is always describing how the colored papers *look*.[12] Hence, whether the colors he reports are in fact subject- or perceiver-dependent (a metaphysical question we have, for now, put aside), the traditional object of introspection in the study of visual perception is characterized as *phenomenally* outer.

Wundtian experimentation took place in highly controlled conditions and used trained observers. When Wundt and others coupled this experimental practice with certain further theoretical assumptions, such as that sensory experience is constituted out of punctiform sensational "elements" or "atomic sensations," they evolved the introspective practices that are classed under the name of "analytical introspection."[13] In a broad sense, analytical introspection simply means introspection undertaken in order to discriminate and classify experiences (Titchener, 1912b: 495–96). Here, "analytical" means classificatory, and the notion is unobjectionable. But in the narrow sense, it means introspection undertaken to uncover atomic sensations (1912b: 495). Here, "analytical" means resolution into least elements; in vision, these elements were (by hypothesis) punctiform sensations. In this latter guise, analytical introspection came in for heavy criticism from James (1890, ch. 6) and the Gestalt psychologists.[14]

Wolfgang Köhler devoted a chapter of his *Gestalt Psychology* (1947) to criticizing this form of introspection. He was especially concerned to question the notion that "hidden" elements, called "pure sensations," underlie phenomenal experience as we have it. The Gestalt psychologists emphasized that ordinary experience is of a world at a distance, experienced in three dimensions. They held that objects nearby are ordinarily experienced under conditions of spatial "constancy." This means that a dinner plate seen across the table (and so, at an angle of 45° to the line of sight) is nonetheless perceived as circular, rather than as an ellipse (its projective shape on the retina).[15] By contrast, an analytical introspectivist might hold that the "real" sensation conforms to the two-dimensional projection, while the fact (or—depending on the particularities of the theory—the report) that the plate looks round would be ascribed to learning.

The Gestalt psychologists held that an accurate phenomenal report of how the plate looks would say that it looks *round*. They would ascribe the perception of it as an ellipse to circumstances in which the observer has adopted a special attitude, sometimes called the "painter's attitude," such as

one might learn in drawing class when attempting to produce a perspectival picture of the plate. According to Köhler and his colleagues, such deliberately elicited experiences should not constitute the starting point in the psychology of perception. Perceptual psychology, or indeed any psychology, must start from the external world "as we have it": "There seems to be a single starting point for psychology, exactly as for all the other sciences: the world as we have it, naively and uncritically. The naivete may be lost as we proceed" (1947: 3). He called the world as we have it the world of "direct experience." And he contended that such experience is "the raw material of both physics and psychology" (1947: 34).

Although rejecting analytical introspection, the Gestalt psychologists nonetheless relied on introspection, more broadly conceived. In their writings, they use demonstration drawings as a means of making readers become aware of aspects of their perceptual experience. The drawings illustrated figure/ground relations, grouping of phenomena, and other Gestalt principles. A familiar example is the Necker cube, which is like a drawing of a wire cube seen from one of its faces. The cube reverses in depth as one looks at it. One experiences this reversal, and can attend to it and report on it. Such reports, although not labeled introspective by Köhler (who limited that term to analytical introspection), are examples of the less-restricted (or broader) practice of introspection, on which the Gestaltists relied heavily.

I classify the Gestalt approach, and the general Wundtian experimental approach (distinct from the assumptions of analytical introspection), as forms of introspection in a broad sense—forms of psychological investigation that are mediated by observers' or subjects' responses to their own experience. This form of introspection has limits, as Wundt knew. He realized that many processes cannot be fully observed in consciousness. We should not expect introspection to directly reveal the nature of mind or the structure of psychological processes.[16] The development of cognitive and perceptual psychology has only confirmed this limitation. Nevertheless, the perceived qualities of objects, the temporal structure of experience, and the effects of experimental manipulations on experience can be investigated by techniques that rely on subjects' responses to what they experience, and they can be used as evidence in investigating the structure of underlying psychological processes.

Introspective Reality

There are many examples of the use of introspection (broadly construed) in present-day psychology. Every textbook in perception employs demonstration drawings, sometimes similar to those used by the Gestaltists, to

illustrate various perceptual phenomena. All of them depend upon the reader's being able to attend to the way the drawing looks, and to recognize appropriate aspects of how he or she experiences the drawings, including, in the case of figure/ground reversal, changes in phenomenal organization that occur while the physical object (the line drawing itself) remains the same on the printed page.

I want to examine some experiments in which subjects attend to or respond to aspects of their occurrent experience. I describe some psychological experiments on shape perception in some detail, and also mention some work on color perception and attention.

One phenomenon studied in perceptual psychology is *shape constancy*, the tendency of objects to appear to have a constant shape despite differences in viewing conditions (especially viewing angle, in the case of flat objects). Consider again a circular dinner plate. It appears circular when viewed at various angles, say, from 45° through 90°. At 90°, perpendicular to the line of sight, the plate projects a circular shape on the retina; at 45°, an ellipse (as at other angles, until the plate is seen edge-on, when it flattens to a long, thin shape with parallel edges, perhaps half-rounded at each end). In studies of shape constancy, the aim may be to distinguish the conditions in which full (or nearly full) constancy is obtained from those in which perception tends toward projective shape. One such set of conditions might include brief exposure to a set of stimuli that are generated as projectively equivalent shapes when viewed at predetermined angles (e.g., a circle viewed perpendicularly, and various ellipses that project a circle when rotated to various angles, say, 39°, 52°, and 65°). Experimenters may then elicit reports of perceived shape by, for example, asking subjects to pick out the one shape on a sheet of comparison shapes that most closely matches the perceived shape of an object they've just seen.

In studying shape constancy, experimenters have discovered that it is important to instruct observers concerning their attitude about what they are to report (Epstein, Bontrager, and Park, 1963). If observers believe that their job is to report the *perspective projection* of a shape, their reports will deviate from shape constancy (except at 90°). But such deviation may simply reflect their attitude about the task, not their perceptual experience of the shape. If subjects believe that they are to report what the actual or *objective shape* is, they may "correct" the appearance; under conditions of brief exposure, they may try to guess the objective shape. This could lead to reports closer to shape constancy than their perceptual experience would warrant. In consequence, subjects are typically instructed to report *phenomenal shape*, as opposed to *projective* or *objective* shape.

Subjects are instructed to base their report on what the shape of the object looks to be, not what they would guess it to be, nor what they think

it should be.[17] Given such instructions, subjects have been found to report good shape constancy under conditions of binocular viewing (using both eyes, and without moving the head), when viewing an object illuminated for less than one-fifth of a second, followed by darkness. When their viewing is interrupted by a visual "mask" (small, irregular white shapes on black) at very brief periods (from 0 to 50 milliseconds) after offset of the illumination on the object, they tend to report projective shape (Epstein, Hatfield, and Muise, 1977). They also tend to report projective shape when viewing the shapes monocularly, that is, with one eye and no head movement (Epstein and Hatfield, 1978).

We need not enter into the theoretical significance of these reports. What is interesting to note is that, under instructions to report the shape as it appears, subjects exhibited shape constancy when the stimulus object was illuminated for less than one-fifth of a second, and they tended toward projective shape when uninterrupted viewing time was very brief, or when binocular depth information was eliminated. These findings are consistent with the conclusion that the observer's experience of the same objective shape at the same slant changed under differing conditions of observation. The changes are in the direction expected by theory. Hence, the consistency of the data suggests that these techniques, which draw on subjects' responses as mediated by their attention to their phenomenal experience, allowed experimenters to study aspects of that experience.

Color perception has been studied in the laboratory for more than 150 years. The methods of study, called "psychophysics," have been highly refined. Palmer (1999: 665) defines psychophysics as "the behavioral study of quantitative relations between people's perceptual experiences and corresponding physical properties." The studies are behavioral because they rely on subjects' responses, whether verbal (saying "yes" or "no") or manual (pressing a button, adjusting a dial). They depend on perceptual experience because they concern color appearances. In studies of color matching (Kaiser and Boynton, 1996: 124–25), subjects may look at a round area or disc that is illuminated by two different sources. On the left hemifield, a monochromatic light of known wavelength is projected. On the right, a mixture of two monochromatic lights is projected. The subject is asked to vary the mixture by turning a knob until the disc appears uniform (no border or difference between the two hemifields is apparent). The subjects' responses are mediated by the appearance of the disc: how it looks to them. The resulting color matches are among the fundamental data for color theory. The results are highly consistent (with very tight error bars) for normal human observers (normal trichromats).

Finally, work on attention has blossomed in the experimental literature in recent decades. Many techniques are used to measure the effects of

attention, either directly or indirectly. Indirect measures may include subjects' abilities to report one sort of thing while attending to something else (say, to report on the shapes of objects they saw recently, when they had only been told to look for a specific color).[18] One striking technique, which has been used to study attentional processes, is called "pop out." It is based on the phenomenological observation that in a field of uniform objects, say, letters or shapes, even under brief exposure (too brief to allow eye movement or redirection of attention), a non-matching shape (calibrated to be of similar size and color to surrounding shapes) will "pop out" or become phenomenally salient. If subjects are asked to detect the presence or absence of a diagonal line-segment among vertical line-segments of the same length, the time it takes them to do so is not affected by the number of vertical segments (ranging from 2 to 32). This finding led Triesman and Gelade (1980) to conclude that subjects process the identity of such shapes preattentively and in parallel (that is, all at once, as opposed to serially, one after another). Details of the studies aside, the important point is that subjects' responses are mediated by directed attention and phenomenal salience. Here again, experimental psychology uses introspectively mediated responses that exactly fit Wundt's broad conception of introspection.

Introspection as Evidence

When introspection is defined as deliberate and immediate attention to certain aspects of phenomenal experience, we see that it continues to be used as a source of evidence in perceptual and cognitive psychology. The psychologists who use it need not be, and often are not, committed to the existence of distinct entities that, like sense-data, have phenomenal properties of their own, distinct from those involved in the direct perception of external objects. The key to introspection is not "looking within," but attending to relevant aspects of experience. Such relevant aspects include phenomenal variations in the looks of things. These variations may be at the coarse grain of object description ("the thing looks red"). For the purposes of perceptual psychology, however, the concepts involved will classify how things look at a finer grain of description than is used in ordinary typing of objects and their properties. Introspectively based responses may require persons to attend more closely to phenomenal shape than they normally do, or to inspect shades of color more closely than they usually do (except, perhaps, in the paint store).

Such responses are treated as scientific evidence in the literature of experimental psychology. The evidence purports to reveal facts about attention, or shape perception, or color perception in general. One person's introspectively based response is treated as yielding information

about how others will respond as well—subject to known, or discovered, individual differences (as in color blindness).

This literature shows little or no concern with an epistemological worry raised by philosophers: that introspection is inherently "private" or "subjective." When philosophers make this objection, they may contrast the alleged privacy of introspection with the epistemologically more worthy perception of, or response to "public" objects, such as tables and chairs. As philosophers often conceive these things, tables and chairs have properties that all of us can perceive and compare, by contrast with sense-perceptions themselves, which are private to each subject. I can't have yours, you can't have mine, so we can't check or compare them.

This framing of the problem of privacy retains the earlier confusion about what the object of introspection is supposed to be in perceptual psychology. In the standard case, the focus of attention is how the distal object looks. In fact, knowledge of the "public" object depends on the same phenomenal experience. There are not two experiences: one of the table as public, one of the experience of the table as private.[19] The only difference between objective property reports and introspective reports are the concepts that are used to classify the experience. In the first case, the subject has learned to attribute determinate properties of color and shape that are counted as remaining the same under large variations in lighting and in viewing distance. We know to expect that the table's shape and color are stable. In the second case, we are interested in subtler variations in phenomenal color and shape. We may be describing the same table, looking exactly the same, in the two cases. But the concepts are of different grain and application. We classify a table we've just painted as "a uniform red across its surface" when we apply object-color concepts. But we may describe variations in the appearance of the uniformly red pigment (due to lighting variation, shadows, glare, etc.) when we adopt an attitude of phenomenal description.

It is true that two observers can't directly compare their phenomenal experiences in such cases. But they can't directly compare how they perceive the table as an external object, either. In both cases, we as observers coordinate our descriptions with repeated samplings of how the table looks, and we develop language for conveying those looks, with the stable table as the coordinating factor. There need be no mystery in this, as Köhler (1947: 19–33) has explained. The physical world itself is known to us directly only by our experiencing it—visually, according to how it looks, and tactually, according to how it feels.[20]

Introspection may be taken as a reliable source of data about objects of consciousness. In perception, introspectively based responses go to how things look. These responses provide data about phenomenal experience,

and such data are legitimate objects of explanation in perceptual psychology. Introspectively based responses are no longer considered to provide direct access to the structure and functioning of the psychological processes that underlie visual perception. Rather, these processes must be inferred from, or hypotheses about them must be tested against, various patterns of data. The relevance of introspection for discovering fundamental psychological processes has been reevaluated more than once during the past century. Introspection can yield data to mediate inferences or to test hypotheses. It is not and need not be seen as an oracle whose pronouncements can, by their immediacy, lay psychological processes bare. It provides evidence, and that's all. But that should be plenty.[21]

NOTES

1. Hume (1739–40: 252): "when I enter most intimately into what I call myself, I always stumble on some particular perception or other, of heat or cold, light or shade, love or hatred, pain or pleasure. I never can catch myself at any time without a perception, and never can observe any thing but the perception." Kant (1781/1787: A 355): "It is however obvious that through the I attached to thought the subject of inherence is designated only transcendentally, without noting any quality in it whatsoever, or in general being acquainted with or knowing anything from or of it"; also Kant (1781/1787:, A 346/B 404, A 360, B 408, 420). As is usual, "A" and "B" refer to the original pagination of the first and second editions of Kant (1781/1787).

2. Neither philosopher ascribes this view directly to an opponent, but they do make clear that it would be inappropriate to view thoughts or the soul as mathematical points or as directly perceivable objects. Hume (1739–40: 235): "Neither ought a desire, tho' indivisible, to be consider'd as a mathematical point." Kant (1783/2004: 90): "to think of the soul as a simple substance already amounts to thinking of it as an object (the simple) the likes of which cannot at all be represented to the senses." A mathematical point is not visible, hence could not be seen; Kant might instead be alluding to the idea that "things in themselves" have no spatial properties at all, hence cannot even be described as points.

3. In his correspondence, Descartes (1991: 306, 354–55, 356–57) distinguished between merely having a sensation, and reflecting upon, or becoming aware of, the facts about and characteristics of the sensation (or other act of mind). Both sorts of mental state are "conscious," but the first sort may not happen to be remembered. Further, the reflective act is performed by the "pure intellect," and it is characterized as a "perception" that takes the sensation (or other act of mind) as its object. These reflective acts are akin to "introspection" considered as the perception of facts about a mental state. I discuss Descartes on consciousness in Hatfield (2003a: 122–25, 325–27).

4. I leave aside the question of whether Wittgenstein (1953) actually intended his "private language argument" to tell against introspective awareness; the matter is under dispute (Sluga, 1996).

5. This introduces the notion of a phenomenal-report sense of "looks," which is distinct from Austin's notion of "looks" as introducing doubt about the reality of things or the reliability of current perception. Mundle (1971: 15–20) admirably defends a phenomenological sense of "looks." I must confess, however, that I disagree with some of his phenomenal reports, as when he takes "perspectival shape" to indicate the "real" looks of things (1971: 27–28).

6. In the technical literature of color perception, some theorists use the term "lightness" for the perceived object color of the paper itself (as white or gray), and "brightness" for the phenomenal variations of darker or lighter white (Rock, 1975: 503–04). In this technical context, it is incorrect to say the paper looks "grayer" in a certain region, when this is not intended to ascribe an object color (pigmentation) to that region. But in nontechnical language, shadow may be described as "graying" a region of the paper.

7. Our authors offer various views on introspection, but Rey (1997: 136–7) presents the "transparency" point as a problem for the phenomenology of introspection. Harmon (1990) is directly negative about the possibility of introspection. Dretske (1995, ch. 2) allows introspection in the form of beliefs about the content of perception, but thinks it can have no experiential content or phenomenology peculiar to it. Tye (1995; 2002) is the most liberal in his willingness to countenance introspective experiences, but he goes to heroic lengths to preserve the theory that their content is exhausted by external-world content; thus, in the case of things that look blurry (due to nearsightedness, let us say), he maintains that the content is as of a vague or blurred object in the world, thereby avoiding ascribing any specifically subjective content (Tye, 2002). As stated in the text, my arguments in this paper supporting introspection do not rely on any particular conception of the metaphysics of sensory qualities; elsewhere, I support the view that subject-dependent phenomenal qualities exist (Hatfield, 2003c; 2004).

8. Factors such as sensory adaptation and habituation limit the extent to which "the same" phenomena can be observed over time and in repeated trials. Such effects can be controlled for, and may be counted as experimental error, or they can be studied in their own right (Palmer, 1999: 674).

9. Dretske puts the point as follows: "If there is an inner sense, some quasi-perceptual faculty that enables one to know what experiences are like by 'scanning' them, this internal scanner, unlike the other senses, has a completely transparent phenomenology. It does not 'present' experiences of external objects in any guise other than the way the experiences present external objects. If one is aware of experiences in the way one is aware of external objects, the experiences look, for all the world, like external objects. This is very suspicious. It suggests that there is not really another sense in operation at all" (1995: 62). However, the notion of an "inner sense," or of a "perceptual model" of introspection is ambiguous. Dretske and others have interpreted the analogy between introspection and sensing or perceiving to mean that there must be a distinct object of sense, and that "perceiving" such objects introspectively must presuppose a perceiver-perceived relation distinct from that already extant in the perception of external objects. But one may interpret the notion of "perception" more broadly. If we include cognitive aspects of perception (Palmer, 1999: 13), such as classifying objects (seeing something *as a book*, rather than simply seeing its shape and color), as part of the perceptual act (and its phenomenology), then the "perceptual model" of introspection can be interpreted as the application of introspective concepts within everyday perceptual experience. To introspect would be to apply concepts in classifying one's immediate experience, for example, to conclude that the paper looks grayish here and reddish there, where this classifying is understood to be distinct from ascribing a surface-color property (a pigmentation) to the paper itself.

10. In saying that a sensation is not a "different object" from external objects, Wundt may appear to be taking a metaphysical stance and adopting a form of monism. In fact, he preferred not to adopt a metaphysical "hypothesis" on the mind-body problem; in equating "inner" and "outer" sense perceptions as objects of experience, he was not making an assertion about their ontological status. Wundt himself subscribed to a form of

psychological parallelism as a methodological principle, but he did not purport to refute materialism or idealism (spiritualism); rather, he characterized them as empirically sterile (1901/1902: 352–63). In this regard, he shared the position of Helmholtz (and others in the late nineteenth century) that the data of science are the materials of observation, and that these can be known independently of "metaphysical" notions such as material or mental substance. One might suspect that this position leads to the "neutral monism" common to Mach, James, and Russell, which itself may be thought to tend toward phenomenalism or idealism; but the view that perceptual experience can be investigated independently of a particular position on the mind-body problem can be defended without subscribing to neutral monism (see Hatfield, 2004, and sec. 4 below).

11. One can of course also study afterimages and other subjective phenomena, but let us stay focused on the primary case.

12. Some objects of introspective observation may be spatially "inner" in the sense of inside the skin, as a pain in the stomach is. Others, such as anger or joy, may be ascribed as feelings of the person, generally felt as localized in the region of the body. One wouldn't try to turn one's eyeballs around to see them; one would simply reflect on the character of one's emotions and feelings.

13. Early on, Wundt (1862) adopted a "punctiform" analysis of perception (see Hatfield, 1990, ch. 5), and he retained sympathy for a "fusional" account of the origin of spatial structure from elemental or atomic sensations (1901/1902: 116–56), and of the development of tones from constituent sensations (100–113). Titchener (1910: 304–05) did not follow Wundt on the original non-spatiality of visual sensations.

14. On "analytical introspection" versus "phenomenological" or "naive" introspection, see Rock (1975: 11–12). Koffka (1935: 73) distinguished phenomenological introspection from the "American" version of introspection (i.e., analytical introspection). Palmer (1999: 48) attributes an "introspective" approach to the Gestaltists, owing to their appeal to "phenomenological observations of one's own conscious experience." He distinguishes this sort of introspection from that involved in the search for sensory atoms, which he (somewhat unhappily) calls "trained introspection" (1999: 50). Many psychologists still associate the term "introspection" with analytical introspection. I term this the "narrow" conception, and distinguish it from a broader notion (citing, if needed, the precedents just given from past and present literature).

15. Here I adopt the usual description of shape constancy as yielding a Euclidean circle (for a round dinner plate). In fact, the space of visual constancy may be compressed with distance, so that the plate would be represented with a slight flattening of the front and rear edges—which would nonetheless be taken for the look that a true circle should have. On the compression of visual space, see Hatfield (2003c).

16. The Gestaltists thought it might, through an isomorphism relation, but in the form they held it this notion has been discredited (see Epstein and Hatfield, 1994).

17. In Epstein, Hatfield, and Muise (1977), subjects were instructed as to the purpose of the experiment, and about the kind of reports they were to make (how they should conceive the task). They were first told: "In this experiment we are trying to learn how the apparent shape, or the appearance of the shape, of an object is affected by variations in the time one is allowed to see the object." After a description of the experimental setup, and prior to explaining how responses were to be indicated, they were told: "I would like to make clear what it is that I am asking you to report. I want you to report the shape of the object directly as it appears to you, without any analysis or guessing on your part. The experiment will be spoiled if you base your response on a conscious attempt to figure out what the shape *ought* to be, instead of what it appears to be. Don't convert the situation into

a guessing game or into an intellectual task. We are not trying to trick you in this experiment; we are really interested in the way things look to you." Similar instructions were given for trials on which slant (rather than shape) judgments were elicited.

18. In the terminology of this chapter, an experiment in which subjects are primed to look for color but then queried on shape is an example of both introspection (the stimulus attribute they are directed to attend to) and inner perception (a dimension they are subsequently asked to report on). The first fits the notion that psychological introspection is a form of observation. The second presumably relies on memory of the undirected or "incidental" awareness of shape.

19. This does not deny, of course, that differences in attitude *can* (in some cases) cause the experience itself to differ, as when one takes what was described in the previous section as a "projectivist" attitude, or when one causes a figure/ground shift by redirecting attention. The point is that an introspective attitude need not change the spatial or chromatic character of experience. Nor need it be directed at a different experience of spatial and chromatic properties than that which occurs when one is observing an object without an introspective attitude. Moreover, introspecting may change the overall experience (by injecting a different conceptualization, one based on phenomenal concepts), without necessarily affecting spatial and chromatic characteristics.

20. I discuss these epistemological worries more fully in Hatfield (2004).

21. I am grateful to Yumiko Inukai, Jeffrey Scarborough, and Morgan Wallhagen for comments on an earlier version of this chapter.

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