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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, 1946, chs. 1–3), in the first part of the twentieth century introspection was discredited by behaviorists in psychology and by the likes of Wundt 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, 1907). 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 analyst 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, 1991, ch. 4; Tye, 1995, ch. 3).

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 excursion 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, differentially emphasized) 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, in 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; Moro, 2001; Myres, 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 introspectively 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 Meditation contains 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. One might assume that they believed Descartes and others had claimed to "see" a punctiform entity, a speck of immaterial substance.

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 (1662/1984, 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 "state of mind" via reflection. 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, or undergoing various passions or emotions—or at least seeming to do, feel, or undergo these acts and experiences (1647/1984: 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 (1647/1984: 204, 208–10).

We thus have another objective for introspection.

(2) To discern the nature of mind.

This objective might be intended to rest upon the set of intellectual perception (or intuiting) of the essence of mind that Descartes claimed to achieve: not "seeing" a thing, but understanding an essence. Alternatively, this objective might arise from the aim of finding what a mind is by describing what it is, 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 experiences might observe that they can know more particular qualities and temporal features of their mental states, or at least 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: 92). In the latter part of the nineteenth century, experimental psychology took as two of its principal aims (1) characterizing introspective evidence in psychology

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 (1), 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 conceiving;
(5.2) That they are always imaginative;
(5.3) That such processes manifest genuine activity, as in attending or willing;
(5.4) That some processes are unconscious.

Findings (5.1) and (5.3) 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 Harfield, 1990, chs. 2–5, 2000b). These various areas of disagreement fueled the fires of behaviorism 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 an inferential system about the external world and other minds. Bernard Russell (1912) developed this talk of "construction," which led him to a position of "neutral monism" that he shared with Ernst Mach and William James (Hatfield, 1993). On this view, only sense data (or rather "momentary particulars") are afforded as existing external objects and minds (including one's self) are regarded as constructions from such data. Adherents of a "representational" theory of perception treat private sense data as the epistemic basis for knowledge of really existent external objects and other minds (Brod, 1932, pp. 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 mental psychologists such as Moran (2001) and epistemologists such as Shoemaker (1990). They observe that, in many such cases, we attain self-knowledge by deliberately 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, 11-12) distinguishes this sort of first-person access from introspective knowledge of the phenomenal aspects of perceptual experience, which he thinks has been discounted. 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 perceivable 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 introspectively 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 seek to vindicate aspects of uses (6) and (7).

**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 focused 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 misunderstandings, which I hope can be put aside.

Aginst 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 perceptual 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 phenomenological 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 (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 the 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 late (e.g., the mind is constituted of symbol-crunching processes), few would believe that this nature can be discovered directly through introspection.

Use (4) 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 his appearance—take place outside consciousness. Although the results may be available to consciousness (as 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 pre- sent 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 proposes to rule out introspection as a source of evidence. The charge of unreliability was prominent in J. B. Watson's arguments against introspective psychology. He pointed to several examples, including the imaginal thought controversy, disagreements over the number of "degrees" of attention, and disagreements over the number of elemental sensations (Watson, 1914b: 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 quantitative 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 Haysfield, 1999, ch. 4–5). If the theory is wrong, then the sought-for least elements will not be discovered. As for the notion 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 imagery thought controversy attempted to use introspection to discern facts about the content and structure of higher cognitive processes. The techniques were in many ways similar to 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, 1913b). Presumably, the adjective "systematic" was supposed to promote the legitimacy of the techniques in question, as in 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 (1913b) 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 object 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 said to be conceptually impossible. The object 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 experimental 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 (1914b: 10) and B. F. Skinner (1953) 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
bold that notions such as "information" and "representation" can be naturalized by employing an engineering conception of "information" that rests on natural relations (such as statistical probabilities) among properties or states of affairs. Hence, the notion of representation may be retained, but, they argue, qualitative experimental science would be pretty limited in ways that don't fit into a naturalistic outlook (see, e.g., Royce 1907, 255, 302).

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 introspective 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. Wrighten's "private language argument" is supposed to rest against such descriptions. As the story goes, 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, "in 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 inexplicable with the purportedly private status of their objects. Hence, the old idea that we start from awareness of inner states, as described, and work out to awareness, belief, or knowledge of an external world is considered to be conceptually undermined. On this argument, use (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. If, for example, 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 experimentalist 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 experimentalist 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, 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. Warning 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). 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 saying that the descriptions of the way these were epistemically primary and provided the conceptual basis for constructing my knowledge of the external world, I might be in trouble. But if the task is simply to describe exactly how the paper looks—where I’ve distinguished the task to describe the paper as a surface 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, phenomenologically our experience seems to be "out there," not "in here." But introspection is supposed to be "looking within," and is supposed to take as its object something besides the external object.

This objection has been made by many authors (e.g., Dretske, 1995, 54-64; 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 see much report on the features of the 'inner movie' as upon what that movie represents (e.g., that bars seem red, the sky a dome)" (Rey, 1997: 156-57). That is, we don't seem phenomenally to be attending to a special inner object. Rather, when asked to report, say, the color of a piece of paper, it seems to us that all we see is a piece of paper. Rey (1997: 158) 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 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 (Hartfield, 2013). 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 introspection 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 underwrite a notion of introspection as describing "inner" experience. 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 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 (1) 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 (2) 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 here 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 as the course of the nineteenth century partly in response to various charges that introspective observation is impossible. Comte (1830-42/1855: 39) 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...
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. 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 paradigm by the observer. But in color matching, observation of properly arranged color stimuli for a few seconds introduces minimal change, and all precautions see taken. Later observations will not be systematically altered by physiological or psychological after-effects from previous observations.

"Incon" is the main offending term, according to those who emphasize the "transparency" of perception (Dyreson, 1955; Harman, 1950). 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—or, 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 object. 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.

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 "incon" 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." Wherever: 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'" (1903/1902: 3). Various perceptions, as of "a tree, a plant, a nose, a ray of light," can be viewed neither as natural phenomena, nor 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
In introspective evidence in psychology, the psychologist must employ concepts of phenomenal appearance rather than binary color classification. He never once needs 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. 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, introspective introspection 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 puriform sensations, "autonomic sensations," they evolved the introspective practice that are clasped under the name of "analytical introspection." In a broad sense, "analytical" introspection simply means introspection undertaken in order to discriminate and classify experiences (Titchener, 1912b: 455-66). Here, "analytical" means classificatory, and the notion is unobjectionable. But in the narrow sense, it means introspection undertaken to uncover atomic sensations (1914: 475). Here, "analytical" means resolution into basic elements, in vision, these elements were (by hypothesis) puriform sensations. In this latter guise, analytical introspection came in for heavy criticism from James (1890, ch. 6) and the Gestalt psychologists. Wolfgang Köhler devoted a chapter of his Gestalt Psychology (1913) 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). By contrast, an analytical introspectivist might hold that the "real" sensation conforms to the two-dimensional projection, while the fact (e—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 sacrifice the perception of it as an ellipse to circumstances in which the observer has adopted a specific attitude, sometimes called the "painter's attitude," such as as "red" or "blue," even though each sample doesn't look exactly the same under all those conditions.

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 binary 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 marked 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.
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 own perceptual experiences. In a recent psychological experiment 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°, perpendicularly 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 projective 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, 30°, 50°, and 60°). Experimenters may then elicit reports of perceived shape; 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, Ronngard, and Park, 1965). If observers believe that their job is to report the prepotent projection of a shape, their reports will deviate from shape constancy (except at 90°). But such deviations 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

Intrusive 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
it should be.9 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 view-
ing is interrupted by a visual "mask" (small, irregular white shapes on black)
at very brief periods (from 0 to 10 milliseconds) after offset of the illumi-
nation on the object, they tend to report projective shape (Epstein,
Hatfield, and Musse, 1977). They also tend to report projective shape when
viewing the shapes monocularly, that is, with one eye and no head move-
ment (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 important shape
at the same slit changed under differing conditions of observation. The
changes are in the direction expected by theory. In fact, the consist-
ency 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 (1995: 665) defines psychophysics as "the behavioral study
of quantitative relations between people's perceptual experiences and cor-
responding physical properties." The studies are behavioral because they
depend on subjects' responses, whether verbal (saying "yes" or "no") or manual
(pressing a button, adjusting a dial). They depend on perceptual experi-
ence because they concern color appearances. In studies of color matching
(Kaiser and Boynton, 1996: 144-45), 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 bor-
der 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 the-
ory. The results are highly consistent (with very tight error bars) for nor-
mal 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

INTROSPETION AS EVIDENCE

When introspection is defined as deliberate and immediate attention to cer-
tain aspects of phenomenal experience, we see that it continues to be used as a source of evidence in perceptual and cognitive psychology. The psycholo-
gists 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 not only to the phenomenal shape than they usually 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 per-
son'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. 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 subtle 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, 79-33) 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. 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, 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 constrain inferences or to test hypotheses. It is not in need 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.

NOTES
5. Husse (1739-40, 353) "when one more intently 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 cannot catch myself at any time without a perception, and can observe any thing but the perception." Kant (1781/1787) A 365: "it is however obvious that through the attached to the subject of inference is designated only transcendental, without noting any quality it is in whatever, or in general being acquainted with or knowing anything from or of it", also Kant (1781/1787) A 535/B 540, A 536/B 430 431. As is usual, "A" and "B" refer to the original publication of the first and second editions of Kant (1781/1787)
6. Another philosopher who saw this not directly as an opponent, but they do make clear that it would be inappropriate to take thought of the soul as mathematical points or as directly perceivable objects. Husse (1739-40, 353) "whether a colour, the individual, to be considered as a mathematical point? Kant (1795/1804, 92) "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 similarly be pointing out that "they who are themselves" have no spatial properties, all honor cannot even be described as points.
7. In his correspondence, Desce (1907, 106, 154-55, 156-57) 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 "judgment," 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 Desce's no conscious in Reading in the 1940s (Harvard 1961: 42-45, 121:12)
8. I have asked the question of whether Weigert (1954) across various named his "private language argument" to tell against introspective assessment, the matter is under dispute (Scha, 1954).
9. 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 relatability of current perception. Mischel (1971, 147-150) admirably defends a phenomenalistic account of "looks." (I must confess, however, that I disagree with some of Mischel's phenomenologists, as when he takes "perceptual shape" to indicate where "real" looks of things (1971, 17-46).
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 darkness or lighter white (Black, 1975, 519-612). In this technical context, it is incorrect to say the paper looks "gray" in a certain region, when this is not intended to ascribe an object color (pigmentary) to that region. But in naturalistic language, shadow may be described as "graying" a region of the paper.

7. Our authors offer various views on introspection, but Eary (1977: 166-7) presents the "transparency" point as a problem for the phenomenology of introspection. Hamon (1990a) is direct about the possibility of introspection. Derrida (1999, ch. 3) allows introspection to be the form of beliefs about the content of perception, but thinks it can have no experiential or phenomenological predicate to it. In (1995: 2002) is the most literal in his unwillingness to counteract introspective experience, but he goes to heroic lengths to preserve the theory that their content is exhausted by external-world content; thus, the case of things that look black (due to shade) segues, let us say, he maintains that the content is in a claque or solid object in the world, thereby avoiding ascribing any specifically subjective content (Thye, 2002). As stand 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 subjective-dependent phenomenal qualities exist (Harfitt, 2009/2014).

8. Factors such as sensor 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 accounted for as extraneous, or they can be studied in their own right (Palmer, 1999: 676).

9. Derrida puts the point unambiguously: "If there is an inner sense, some quasi-perceptual faculty that enables one to know what experiences are like by 'wasting' them, the 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 experience presents external objects. If one is aware of experiences in the way one is aware of external objects, the experiences look like, for all the world, like external objects. This is very suspicious. It suggests that there is not really another sense in operation at all" (1999: 64). However, the notion of an "inner sense," or of a "perceptual model" of introspection is ambiguous. Derrida and others have interpreted the analogy between introspection and sensing or perceiving to mean that there must be a discrete object of sense, and that "perceiving" such objects introspectively means one perceives a perceived-perceived relation distant from that already present in the perception of external objects. That one may interpret the sensus of "perception" more broadly if we include cognitive aspects of perception (Palmer, 1999: 13), such as classifying objects (seeing something as a sheep, rather than simply seeing its shape and color), as part of the perceptual act (and its phenomenology), then that "perceptual model" of introspection can be interpreted as the application of introspective concepts within everyday perceptual experience. To introspection would be to apply concepts in classifying one's immediate experience, for example, to conclude that the paper looks gray here and reddish there, where this classifying is understood to be distinct from noticing a surface-color-property (a pigmentation) in the paper itself.

10. In saying that a sensation is a "different object" from external objects, Wundt may appear to be taking a metaphysical stance and adopting a form of materialism. In fact, he preferred not to adopt a metaphysical "hypothetical" 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 refine materialism or idealism (pragmatism); rather, he characterized them as empirically similar (1990/1904: 135-6). In this regard, he shared the positions of Hume and others in the late eighteenth century that the idea of science is the material of observation, and that there can be known independently of "metaphysical" notions such as material or mental substance. One might suspect that this position leads to the "mentalism" common to Martin, Jones, and Russell, which itself may be thought to lead toward phenomenological or idealist, 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 materialism (1990/1904: 262; below).

11. Some of course study afterimages and other objective 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 in the stomach. Others, such as anger or joy, may be ascribed as feelings of the person, generally felt as localized in the region of the body. Our would-be experimenter's eyes may give away to us: she would simply reflect on the character of one's emotive states and feelings.

13. Early on, Wundt (1868) developed a "pre-scientific" analysis of perception (see Harfitt, 1999: ch. 3), and he created a laboratory for a "functional account of the origin of spatial sensation from elementary or atomic sensations (1901/1912: 116-65), and of the development of sense from constraint sensations (1903/1911). Thielens (1999: 204-17) did not follow Wundt on the original non-spatiality of visual sensations.

14. On "analytical introspection" versus "phenomenological" or "true" introspection, see Rick (1977: 13-44). Kauff (1937: 71) 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 the "true conscious experience." He distinguishes this sort of introspection from that involved in the search for sensory data, which he knows (as unhappily) calls "trained introspection" (1999: 97). Many psychologists still associate the term "introspection" with analytical introspection. I term the latter "the conscious" and distinguish it from a broader sense (citing, if needed, the paradigm see gloss from past and present literature).

15. I here adopt the visual description of shape constancy as yielding a Euclidean circle (for a round dinner plate). In fact, the space of visual memory can 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 of a true circle should have. On the non-compression of visual space, see Harfitt (1999: 217-33).

16. The Gestaltists thought it made sense, through an ichanovian relation, but at the form they held in this section has been discarded (see Epstein and Harfitt, 1994).

17. In Epstein, Harfitt, and Mesul (1997), subjects were instructed as to the purpose of the experiment, and about the kind of reports they were to make (how they should consider 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 size of the object as allowed to the observer." 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 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 categorizing on your part. The experiment will be spoiled if you base your response on a conscious attempt to figure out what the shape might be, instead of what it appears to be. Don't convert the situation into
a gaining game or into an intellectual task. We are not trying to trick you in this experi-
ment; we are really interested in the way things look to you. Similar instructions were
given for trials on which shape (rather than shape) judgments were elicited.

18. In the terminology of this chapter, an experiment in which subjects are print-
ed to look for rules that are not supposed to be on display is an example of both introspection (the stim-
ulii attribute they are directed to attend to) and inner perception (a distortion they
are subsequently asked to report on). The first fits the notion that psychological introspec-
tion is a form of observation. The second presumably relies on memory of the unstim-
ulated or “incidental” awareness of shape.

19. This does not deny of course that differences in attitude can (in some cases) cause
the experiment itself to differ, as when one rates what was described in the previous sec-
tion as a “proactive” attitude, or when one reasons a figure-ground shift by observing
attention. The point is that an introspective attitude need not change the spatial or
dramatic 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 need not change the overall
experience (by injecting a different conceptualization, one based on phenomenal concepts),
without necessarily differing spatial and chromatic characteristics.

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

21. I am grateful to Yonah Imbri, Jeffrey Scarborough, and Morgan Wallis for
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