Phenomenal Experiences, First-Person Methods, and the Artificiality of Experimental Data

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While philosophical discussions of first-person methods often turn on the veridicality of first-person reports, I argue that more attention should be paid to the circumstances and aims of their experimental production in the science of perception. After pointing to the 'constructedness' of first-person reports, I raise questions about the criteria by which to judge whether they illuminate something about the nature of perception. I illustrate this point with a historical debate between Gestalt psychologists and atomists, both of whom used first-person methods to investigate perception, but who disagreed deeply over the epistemic value of their respective first-person data.

1. Introduction: Introspection and First-Person Methods. In the course of recent interest in the methods of consciousness studies and cognitive neuroscience, quite a few arguments have been made to the effect that introspective reports are a valuable—perhaps even necessary—source of data. While this may seem obvious to anybody working in consciousness studies or the more traditional field of psychophysics, it is not uncontroversial. One reason for this is that the terminology of introspection is often used fairly loosely. Hence, it is not always clear that scholars arguing about the value of introspection all have in mind the same thing. Terminological differences can have their roots in both philosophical and scientific differences (or some combination of the two). For example, there are several competing philo-

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sophical accounts of introspection (Robbins 2006). In turn, scientific accounts of introspection tend to make fairly substantial assumptions about the ways in which introspection fits in with various other cognitive functions and capacities, such as attention, control, metacognition, and the like (e.g., Schooler 2002).

Given what was just said, it may seem that in order to engage in fruitful discussions about the epistemic value of introspective data, one will first need to be clear on what one means by "introspection," and that this will require a substantive engagement with (and evaluation of) the philosophical and theoretical presuppositions that enter into such debates (for an argument along those lines see Feest 2012). This paper takes a different approach. Rather than venturing into a debate over the nature of introspection, I avoid this terminology altogether (though, of course, much of what I say touches on topics that are debated in the introspection literature). Instead, I refer only to "first-person methods." I assume that first-person methods allow for the production of first-person data, that is, the kinds of data one gets as a result of asking subjects to report some aspects of their own experience. This approach allows me to remain agnostic with respect to the nature of introspection since it does not commit me to the idea that first-person data are always mediated by introspective processes (whatever those may be). Nor does it commit me to the idea that they are always mediated by the same kinds of processes (introspective or not).

In this article I analyze the use of first-person methods in the study of perception, looking specifically at the use of first-person reports about phenomenal experience. Existing philosophical debates often focus on the question of whether the data generated by first-person methods qualify as properly scientific data, in particular turning on questions about the veridicality of first-person reports. Basing my account on some experiments and methodological reflections by historical proponents of Gestalt psychology, I argue that the veridicality of first-person reports of phenomenal experience is often not the most central concern scientists have about the status of such reports in psychophysics. Instead, I draw attention to the artificiality or 'constructedness' of the experiences reported in this research. The thesis of this paper is that while this constructedness does not render first-person reports of phenomenal experiences problematic per se, it does raise intriguing epistemological questions about their role as evidence in the psychology of perception.

2. First-Person Methods and Phenomenal Experience: Some Background. There are different kinds of things a person can report about herself: She can report her own phenomenal subjective experience in a given situation; she can report a non-phenomenal mental state (e.g., an intention or a preference); or, even more broadly, she can report what she takes to be her own personal-

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ity traits (see Robbins [2006], who refers to these as "primary," "secondary," and "tertiary" introspection, respectively). Accordingly, scientists might draw different inferences from the reports at hand, and the inferences will raise different kinds of epistemological questions. In this paper I exclusively focus on the kinds of reports Robbins (2006) refers to as "primary introspection," that is, first-person reports of phenomenal mental states. One field of research where such reports are obviously pertinent is psychophysics, an area of experimental psychology that aims at correlating physical stimuli and various features of subjective experience in order to learn something about human perception. Obviously, if a science of perception requires data about subjective phenomenal experience, first-person reports are going to play an important, perhaps even ineliminable, role.[1]

Much of the philosophical literature about introspection has focused on the question of whether first-person data can be scientific, and how it can be determined that such reports are veridical, given the subjectivity both of their object (phenomenal experience) and of their source (the experiencing subject). In response to these questions, Piccinini (2009) gives a twofold answer: First, he points out that the scientific data in question are not the introspectively accessible experiences as such, but the public reports of such experiences. Secondly, he argues, the veridicality of these reports can be validated by intersubjective means. More specifically, he suggests that we treat human beings as measurement instruments, arguing that it is in principle possible to test whether such instruments are capable of generating veridical reports. While I am in full agreement with Piccinini's first point, I am less confident about the second point—at least when it comes to reports of subjective phenomenal experience. After all, it is a distinctive feature of such reports that their object (individual phenomenal experience) cannot be accessed independently of the experiencing person (see also Feest 2012).

That said, we can still ask (a) whether the veridicality of reports of phenomenal experience is in fact a concern for researchers in the field of psychophysics, and (b) whether it is the *only* concern they have with regard to the use of first-person reports of phenomenal experiences. My focus here is on (b).[2] While I do not wish to deny that there are research contexts in which scientists are concerned with the veridicality of the reports elicited by their methods, my main focus here is on scientific debates about the ques-

1. Notice, though, that the assumption of ineliminability relies on the premise that sensations are accessible to, and reportable by, the subject who has them (thanks to Trey Boone for prompting me to clarify this).

2. With respect to question (a), Chirimuuta (2014) provides an illuminating analysis of different kinds of first-person methods used in psychophysics, arguing that many psychophysicists consider some methods as more subjective, and hence more problematic, than others.

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tion of what such reports can tell us about the nature of perception. In this vein, I show that there are genuine worries about whether a given experiential report elicited in an experiment licenses the inferences the experimenter hopes to make, and I argue that this highlights epistemological questions about first-person reports that have not yet received very much attention within the philosophy of psychology.

To get a better grip on these questions, we need to look more closely at the specific purposes to which scientists put first-person reports. Specifically, if we are interested in the status of first-person reports about phenomenal experience in a given investigative context, we should be clear about (1) what the experimental methods scientists use to determine phenomenal experience are, (2) what scientists hope to find out about perception by doing so, and (3) how it can be determined that the purpose has been met successfully in a given experiment. With these questions, I hope to get away from general philosophical puzzles about introspection and first-person methods, asking instead, what are criteria for determining the scientific utility of such reports in specific contexts?

In the following section we begin with a brief discussion of the first two questions. This discussion takes as a point of departure a historical debate between two early twentieth-century schools in the experimental study of perception (Gestalt psychologists and atomists), both of whom used first-person reports of phenomenal experience as their empirical data. I show that they disagreed about basic methodological questions in a way that directly corresponded with their respective conceptions of the aims of a psychology of perception.

3. Phenomenological and Non-phenomenological Methods. In the literature it is sometimes suggested that "phenomenological" methods have an important place in contemporary perception research (e.g., Hatfield 2005). This invites the question of whether there are also *non*-phenomenological methods and how the difference between these two methods is to be characterized. Some insights can be gained by considering the approach championed by the Gestalt psychologists in early twentieth-century research on perception, contrasting it with the methods of their atomistic rivals in the Wundtian tradition. In this section I argue that both methods aimed at eliciting reports about phenomenal experience and both can be considered psychophysical. Where they differed was in their conceptions of the aims of perceptual research, and this had a direct impact on the kinds of experiments they conducted. As I show below, through analyzing these different aims, we can appreciate why it is appropriate to refer to Gestalt-psychological (by contrast to Wundtian) psychophysical methods as "phenomenological."

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3.1. Gestalt Psychology and the Phenomenological Method. To get a sense of what constitutes a "phenomenological" method, it is instructive to turn to one of the classical experiments conducted by Wertheimer in 1910 (see Wertheimer 1912). His research was informed by the recognition that when we see two separate stimuli in short succession, we perceive the first stimulus as moving toward the location of the second, and he aimed at determining the precise conditions under which this phenomenon occurred. Wertheimer's methodology consisted in (a) carefully varying the experimental setup (the time interval, the spatial separation, the form of the stimulus, etc.) and (b) paying close attention to the resulting phenomenal experience. In a nutshell, Wertheimer found that when the time interval is long (200 milliseconds), the two lights are perceived as alternating, whereas when it is very short (30 milliseconds), they are perceived as flashing simultaneously. However, in between (60 milliseconds or slightly less), the observer perceives either a moving light flash or simply a movement. This perception of *pure movement* is what Wertheimer referred to as the "phi-phenomenon."

By virtue of what might this approach be called "phenomenological"? I suggest three answers. First, subjects' descriptions like "I see pure movement" were given a fundamental authority. In other words, there was no conceptual space for the possibility that subjects might be deceived about what they were 'really' experiencing. Second, and relatedly, the research aimed to find out which constellations of stimuli give rise to which kinds of experiences in subjects. Third, the experiments were exploratory, in the sense that they varied stimuli in order to determine the physical conditions that gave rise to the appearance in question. In other words, the research was descriptive. Hatfield (2005) has singled out the second feature of Gestalt-psychological experiments as "introspective," thereby highlighting that this research aims at determining how a given stimulus is experienced by the experimental subject (rather than, for example, asking whether a given physical stimulus is perceived accurately). In a similar vein, Chirimuuta (2014) argues that some psychophysical methods do not aim at determining how a subject performs in response to stimulus configurations, but rather how those configurations appear to the subject. In cases where this is the aim of psychophysical experiments, surely one will have to grant subjects epistemic authority over describing how things appear to them. She argues that the methods employed in such contexts may be described as "introspection-reliant" (Chirimuuta 2014).

While I think that the terminology of introspection may well end up having a legitimate place, I prefer the terminology of first-person reports at this point, in part because it seems counterintuitive to describe subjects' reports as introspective when they are describing something that they perceive

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as being located in the outside world.[3] Leaving aside such terminological issues, I argue that the very rigorous setup of the types of experiments championed by Wertheimer and his colleagues provides us with an argument against worries about the potentially arbitrary nature of first-person reports. Eric Schwitzgebel (2011) in particular has motivated such worries as arising from the fact that we do not have very stable intuitions about what we are 'really' experiencing. In this vein, he argues that it is not clear whether my phenomenal experience of a coin is determined by what I know about it (that it is round) or whether it is determined by what I see when taking a painterly attitude (that it is elliptical). In response, Hatfield (2005) points to empirical research that suggests that such ambiguities can be reduced if subjects are properly instructed. It has to be made clear to them that they are expected to report neither the objective shape (what they know the shape of the object to be) nor the projective shape (what they know the projection on their retina to be). Once this has been done, Hatfield argues, one can get fairly robust results about phenomenal shape constancy (see also Hatfield 2014). This is precisely what the example of the phi-phenomenon illustrates, since Wertheimer's experimental setup aimed at (and succeeded in) eliciting robust responses to particular stimulus configurations.

Hatfield's response to Schwitzgebel is right on the mark as an account of how experiments are designed and conducted in the practical research contexts of psychophysics. However, while this response appears to handle Schwitzgebel's concerns quite well, a different concern arises: whereas the ambiguities of our self-knowledge can be reduced by providing unambiguous instructions, one might worry that this solution comes at a cost, namely, that the experimental instructions are specifically designed to produce data that fit with the experimenter's expectations. To put this differently, the fact that first-person data are highly manufactured to fit particular research agendas might make us wonder about their ability to play a decisive role in deciding between competing hypotheses. We return to this issue below. First, however, let me conclude my comparison between phenomenological and non-phenomenological methods in the psychophysics of perception.

3.2. A Non-phenomenological Approach to Phenomenal Experience. I claim that the Gestalt-psychological approach outlined above qualifies as 'psychophysical' because it aims to investigate the relationship between physical stimuli and the phenomenal experiences they bring about. This is also backed by Wertheimer's own assessment (see Feest, forthcoming). In addition, I have just explained the sense in which it is legitimate to describe

3. On the other hand, of course, it might be argued that what is intriguing about the phi-phenomenon is precisely that subjects are describing a phenomenal experience of something (movement) that quite literally does not exist in the outside world.

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them as 'phenomenological'. Having described the aims and methods of such a phenomenologically oriented approach to psychophysics, what might a rival non-phenomenological approach look like? And what rationale is there for saying that such a non-phenomenal approach is also one that prompts phenomenal experience and elicits self-reports of such experiences?

Historically, prominent advocates of a non-phenomenological approach to phenomenal experience were members of the Wundtian school of sensory psychology. They saw their task as that of identifying the basic atoms of experience, and they sought to identify those by presenting subjects with isolated stimuli, designed to create 'isolated' basic sensations. Wundtians were aware of the fact that we do not consciously experience such basic sensations, but they believed that the more complex sensations we do have can be decomposed into basic ones, even if we are not consciously aware of having them under normal perceptual circumstances. The point of their experiments, then, was to make these basic sensations accessible to conscious awareness by designing experiments in which only very simple stimuli were presented to experimental subjects, thereby specifically eliciting what they took to be basic sensations. But what was the point of isolating such basic sensations? The answer is that Wundtian atomists were convinced that the project of explaining complex experiential states would ultimately have to make recourse to such elements (see, e.g., Wundt 1907). By contrast, Gestalt psychologists emphasized the primacy of holistic perception (e.g., the perception of movement as a function of a constellation of stimuli) and held that even in cases where it seems possible to analyze a complex experience into parts, these are after-the-fact abstractions and do not represent the constituents of holistic experiences, and hence that no psychological explanations of the kind envisioned by Wundtians were to be had.

I argue that if a subject is asked to report their experience of a given atomistic external stimulus (or the relationship between two stimuli), and they answer, for example, "bright" or "red," or "equally bright," there is a perfectly legitimate sense in which they are reporting a phenomenal experience. In this sense, then, I suggest that the atomistic approach, like the holistic approach of the Gestalt psychologists, elicits reports about phenomenal experience. The difference between the two, I suggest, was that they differed in what they conceived to be the purpose of gathering such reports: Wundtian atomists aimed at explaining phenomenal mental states (by identifying more basic ones), whereas Gestaltists like Wertheimer aimed at describing them. Consequently, they differed in the kinds of experimental stimuli and instructions they present to their subjects: whereas the phenomenologically oriented Gestalt psychologists wanted to determine the empirical conditions under which first-person reports of particular experiences could be elicited, the non-phenomenologically oriented atomistic psychologist sought to identify the basic constituents of human perception, which they thought to correspond

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to basic stimuli. This accounts for the different kinds of experiments they each designed. However, while the rationales for their experiments differed, I would argue that there was nothing as such wrong with the first-person reports generated by either of them. The epistemologically more problematic feature of their respective empirical data, rather, had to do with the fact that they were the outcomes of very carefully designed experiments.

4. The Artificial and the Artifactual. In the previous section I drew attention to the fact that different schools in the history of the psychology of perception designed very different kinds of experiments to elicit first-person reports about phenomenal experience. Both the stimulus material and the instructions were intended to (and did) produce robust empirical results. Robustness of first-person reports is no guarantee for veridicality. Still, I believe that the discussion shifts our attention away from issues of veridicality, highlighting instead the question of how to adjudicate competing robust experimental results that are both based on first-person reports.

The case studies direct our attention to the role of the experimenter and the extent to which first-person data (like other experimental data) are constructed and artificial. They result from specific arrangements of stimuli and experimental instructions. The art of experimenting is exhibited to a significant extent in the ability to create robust results. This is achieved by presenting 'the right kinds' of stimuli and making the experimental instructions as unambiguous as possible, such that all subjects do roughly the same thing in response to the stimuli presented to them. Now we can return to the question already raised above, namely, whether the artificiality of the experimental setup and the constructedness of the experimental data further or undermine their purpose of contributing to our understanding of perception. In addressing this question, we need to distinguish between (a) the fact that all experimental setups are artificial and (b) the question of how to determine whether specific experimental results are 'mere' artifacts of experimental setups.

The worry that scientific experiments in perception research create phenomena not ordinarily found outside the laboratory was explicitly addressed by another member of the school of Gestalt psychology, Kurt Koffka (1923), who argued that all experiments about perception create perceptual experiences that differ from the ones subjects might have (even of the same stimuli) if they were not participating in an experiment. For Koffka, this was a simple consequence of the fact that the subjects of an experiment are instructed to do certain things, which creates a mental "set" [Einstellung]: "Every psychological description . . . presupposes a set, which is different from that of normal life, where we are directed toward entirely different goals than that of description. Hence, every description will find phenomena that are

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novel vis-à-vis ordinary phenomena; phenomena that are changed in some way or other" (Koffka 1934, 383; my translation).[4] Koffka did not view this as an objection to the experimental study of perception, arguing that experiments aim at substituting ordinary experiences with experiences that are illuminating with respect to perception. The job of the experimenter, according to him, was to ensure that subjects are in the right kind of "set." In other words, Koffka fully acknowledged the active role of the experimenter in designing the experimental conditions that would elicit specific types of first-person reports. In this respect, Gestalt psychologists and atomists were obviously on a par; they played equally active roles in creating experimental conditions that would give rise to phenomenal experiences that they each deemed to be illuminating with respect to perception. Yet they disagreed with each other both over the value of their respective experimental setups and about the results they purported to find.

One way to construe the disagreement is to say that while both sides acknowledged that they were actively constructing specific first-person reports, they each accused each other of drawing faulty conclusions, resulting in 'findings' that were essentially artifacts of faulty background assumptions about the aims of psychology and the nature of the mind, and they held that the other party's faulty background assumptions were already built into the very experiments they conducted. More specifically, atomists charged that the fact that we do not perceive elements of sensation under normal conditions does not mean that there are no such elements. In turn, Gestalt psychologists charged that the fact that such elements can (seemingly) be isolated under specific experimental conditions does not mean that they play any role in normal perception.

5. The Problem with First-Person Reports as Arbiters, and a Proposed Solution. As we saw, the disagreement just outlined was neither about the robustness nor about the veridicality of the first-person reports generated by either party. Rather, it was about whether those results were relevant to the task of saying something "illuminating about perception." In other words, the question was whether the reports established what each party claimed, that is, that perception can be decomposed into elementary sensations, which are explanatory of perception (in the case of atomists), and that the most basic and immediate experiences are structured in ways that correspond to

4. "Jede psychologische Deskription—wie jede Deskription überhaupt—setzt bereits eine Einstellung voraus, die verschieden ist von der Einstellung des gewöhnlichen Lebens, in dem wir auf ganz andere Ziele gerichtet sind als auf Beschreibung. Jede Deskription wird also notwendig Phänomene vorfinden, die neu sind gegenüber gewöhnlichen Phänomenen, die, in welcher Weise immer . . . verändert sind."

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certain stimulus configurations (in the case of Gestaltists). In this final section I argue that the disagreement was not resolvable by appeal to the empirical data (the first-person reports). In response to the question of how the disagreement could possibly be resolved, I suggest that we turn to broader methodological considerations. Again, the historical case provides us with some leads.

5.1. Problems with First-Person Reports as Arbiters. Rhetorically, Gestalt psychologists often appealed to what we might today call the ecological validity and the face validity of their findings, emphasizing (a) that their experimental data clearly resembled ordinary experience much more closely than those of Wundtian atomists and (b) that their empirical findings simply showed them to be right, because, for example, the subjects in Wertheimer's phi-experiment did not report experiencing simple elements of sensation. However, as we just saw in the quote by Koffka (1923), Gestalt psychologists were aware that things were not that simple. There are two reasons for this. The first reason is one discussed above: they recognized that the mere artificiality of the Wundtian data did not discredit them from being genuine scientific data, and that in fact their own data were artificial, too. The second reason was that they realized that the first-person reports themselves could not decide the case for or against atomism. The fact that atoms of experience are not normally experienced, except under the special conditions of a Wundtian experiment, could not be appealed to as evidence against Wundt, because he did not claim that these elemental experiences were accessible under normal conditions. This is precisely why he sought to isolate them in special experiments. In this vein Wundt argued that we also do not perceive physical atoms, and yet they are useful and valid explanatory constructs in physics (Wundt 1907).

The fact that this conflict did not seem to have a straightforward empirical resolution had been recognized by another Gestalt psychologist, Wolfgang Köhler, already some 10 years earlier, when he stated that "the refutation [of the view that there are unnoticed sensations and judgments] by observation and experimentation . . . must be considered hopeless, since it is precisely one of the basic assumptions of this view that there is unnoticed, even unnoticeable, psychological content, and thus, it can be seen, the relevance of observation is excluded once and for all" (Köhler 1913/1971, 18). He thereby wished to make it clear that the Wundtian approach should be treated with some respect as a rival scientific hypothesis rather than simply an article of faith. Having established that they were both reasonable scientific hypotheses and that they could not be adjudicated by appeal to first-person reports, he proceeded to ask what other kinds of criteria one might possibly appeal to when trying to decide between them. I now briefly outline his response to this question.

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5.2. Köhler and the Appeal to Epistemic Virtues. In his article "On Unnoticed Sensations and Errors of Judgment," Köhler criticized atomistic reasoning strategies not because their assumptions did not conform with 'normal' experience, but because they were too easy to come by (Köhler 1913/1971). Specifically, he argued that (a) in cases where first-person reports of experiences did not reveal elements of sensation, it was too easy to say that those sensations were there but were "unnoticed," whereas (b) in cases where first-person reports did not match what one would have predicted on the basis of the presumed elements of sensation (e.g., in the case of optical illusions), it was too easy to say that the sensations had been distorted by an unnoticed error of judgment. He concluded, "Enough of this. These two auxiliary assumptions . . . are shown to be . . . general and incapable of being disproved in most individual cases. This is the first reason why these assumptions do not recommend themselves from a scientific and technical point of view. . . . It has been shown, in the second case, that no independent criteria exist in specific cases to decide . . . when we must have recourse to these assumptions and when we must, rather, accept an observation as an exception to the basic assumption. Thus the door is opened to arbitrariness" (Köhler 1913/1971, 27, 18). Essentially, then, Köhler appealed not to first-person reports to settle the disagreement, but rather to a specific understanding of scientific method. According to this understanding, auxiliary assumptions are permissible in scientific research only insofar as there are criteria that restrict the ways in which they can be applied. On his analysis, the problem with the atomistic hypothesis was neither that its experiments used first-person reports nor that those reports contradicted those gathered by Gestalt psychologists. Rather, it was that it was too easy to formulate ad hoc hypotheses that would make it possible to reconcile the atomistic hypothesis with unexpected experimental findings. It would go beyond the scope of this paper to evaluate this line of argumentation in detail; however, it is worth noting that it corresponds to something like the Kuhnian notion of epistemic values as guiding the choice of hypotheses (Kuhn 1977), as well as to the more recent literature about epistemic virtues of theories (see Tulodziecki 2013 for an overview). The basic intuition behind this literature is that in cases in which theories are underdetermined by the data, there may be criteria other than empirical data that make it rational to choose one theory over another. Clearly, when Köhler highlights it as a disadvantage of the rival theory (atomism) that it requires ad hoc hypotheses, he is appealing to an intuitive notion of epistemic virtues of theories.

Notice that in the case at hand, the two approaches (Gestalt psychology and psychological atomism) are not actually underdetermined by the data, since the two competing approaches give rise to completely different data (though both are first-person reports). Yet, Gestalt psychologists did not recognize the first-person reports generated by psychological atomists as rele-

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vant to their own hypotheses, and vice versa. This raised the question of whether there were other criteria to turn to when evaluating the hypotheses in question. It is not my aim in this paper to endorse Köhler's specific answer to the question. However, it does seem to me that he puts his finger on an important point, namely, that there are important epistemological questions surrounding the scientific use of first-person data and that these questions do not concern the veridicality of the data.

6. Conclusion. In this paper I have argued that while much of the debate about the value of first-person reports in psychology turns on the question of whether they are "scientific" and/or veridical, philosophers of science until now have not paid much attention to the extent to which first-person reports (like other kinds of data) are highly artificial and carefully constructed by experimental means, often with an eye to specific research programs. This has prompted me to raise an epistemological question, stemming from the fact that even psychologists of perception who agree on the value of first-person data can disagree deeply about what such data reveal about human perception (indeed, whether they reveal anything at all). The reason for this, I suggested, is that even where scientists have no reason to doubt each other's data (that is, the veridicality of the experiential reports each of them has gathered), they may still have fundamental differences over the value of the very experimental setups that went into their production and over the inferences one can legitimately draw from the data. I illustrated this point by recounting a discussion that took place in the early twentieth century between atomistic and holistic approaches to the psychology of perception. Both, I argued, constructed their experiments with specific background assumptions in mind. I showed that ultimately their disagreement was not about the veridicality of the first-person reports as such but about the question of whether these reports offered any insights about perception. Given that the first-person reports were incapable of settling theoretical differences, I pointed to other criteria that might help to do so.

An obvious response to the argument of this paper is to ask about the status of the historical case study, thus raising the question of whether this case has any relevance to more recent research. I argue that the historical case brings out the issues in a particularly clear way, in part because the historical actors explicitly reflected on them in their methodological writings. However, the relevance of these reflections goes beyond the narrow confines of this particular case, since they arise from the recognition of the high degree of craftsmanship of experimental research, and of the constructedness and artificiality of experimental data (including first-person reports) in the science of perception. The constructedness of first-person reports in the experimental investigation of perception does not invalidate them per se,

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but it raises questions about the inferences they license about the nature of perception. More specifically, it raises questions about the criteria that should determine our judgment of whether or not a given experimental result is illuminating with respect to perception.

REFERENCES

Chirimuuta, Mazviita. 2014. "Psychophysical Methods and the Evasion of Introspection." *Philosophy of Science*, in this issue.

Feest, Uljana. 2012. "Introspection as a Method and Introspection as a Feature of Consciousness." *Inquiry* 55 (1): 1–16.

———. Forthcoming. "Quantifying Gestalt Qualities: Modernism and the Measurement of Experience." In *Science as Cultural Practice*, vol. 2, *Modernism in the Sciences, ca. 1900–1940*, ed. Moriz Epple and Falk Müller. Berlin: Akademie.

Hatfield, Gary. 2005. "Introspective Evidence in Psychology." In *Scientific Evidence: Philosophical Theories and Applications*, ed. Peter Achinstein, 259–86. Baltimore: Johns Hopkins University Press.

———. 2014. "Psychological Experiments and Phenomenal Experience in Size and Shape Constancy." *Philosophy of Science*, in this issue.

Koffka, Kurt. 1923. "Zu Theorie der Erlebniswahrnehmungen." *Annalen der Philosophie* 3:375–99.

Köhler, Wolfgang. 1913/1971. "On Unnoticed Sensations and Errors of Judgment." In *The Selected Papers of Wolfgang Köhler*, ed. Mary Henle. Repr. New York: Liveright.

Kuhn, Thomas. 1977. "Objectivity, Value Judgment, and Theory Choice." In *The Essential Tension*, 320–39. Chicago: University of Chicago Press.

Piccinini, Gualtiero. 2009. "First-Person Data, Publicity and Self-Measurement." *Philosophers Imprint* 9 (9): 1–16.

Robbins, Philip. 2006. "The Ins and Outs of Introspection." *Philosophy Compass* 1:617–30.

Schooler, Jonathan. 2002. "Re-presenting Consciousness: Dissociations between Experience and Metaconsciousness." *Trends in Cognitive Science* 6 (8): 339–44.

Schwitzgebel, Eric. 2011. *Perplexities of Consciousness*. Cambridge, MA: MIT Press.

Tulodziecki, Dana. 2013. "Underdetermination, Methodological Practices, and Realism." *Synthese* 190 (17): 3731–50.

Wertheimer, Max. 1912. "Über das Sehen von Bewegungen." *Zeitschrift für Psychologie und Physiologie der Sinnesorgane* 61:161–265.

Wundt, Wilhelm. 1907. "Über Ausfrageexperiments und über die Methoden der Psychologie des Denkens." *Psychologische Studien* 3:301–60.

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