Investigating Pristine Inner Experience:
Implications for Experience Sampling and Questionnaires

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Abstract
We argue that inquiring about directly apprehended ("pristine") inner experience requires four overlapping methodological characteristics: effectively limiting investigation to specific, clearly identified moments; effectively limiting investigation to pristine experience; bracketing presuppositions; and iteratively acquiring skills. We compare and contrast Descriptive Experience Sampling (DES), other (non-DES) experience sampling methods, and questionnaires and conclude that whereas non-DES sampling methods and questionnaires appear to inquire about pristine inner experience, they fall short on all four methodological counts and therefore might be better understood as investigating an ill-defined mixture of presuppositions, judgments about experience, and pristine experience itself. Typical experience sampling studies and questionnaires can be valid and useful, but their validity and utility does not (or at least does not necessarily) arise from their phenomenological fidelity.

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1. Introduction

Pristine inner experiences (Hurlburt, 2011a) are salient phenomena (including seeings, hearings, inner speakings, tickles, sensations, feelings, etc.) that are directly apprehended by people in their everyday environments. Hurlburt, Heavey, and Kelsey (2013; hereinafter called the "inner speaking paper") described inner speaking in this journal; other aspects of inner experience have been described elsewhere (Heavey, Hurlburt, & Lefforge, 2012; Hurlburt & Akhter, 2008; Hurlburt, Heavey, & Bensaheb, 2009).

One method that seeks to investigate pristine inner experiences is Descriptive Experience Sampling (DES). DES was described in the inner speaking paper and much more completely in Hurlburt (2011a) and Hurlburt and Heavey (2006). The inner speaking paper presented some results of DES studies. However, responses to the inner speaking paper in this journal (Alderson-Day & Fernyhough, 2014; Krueger, Bernini, & Wilkinson, 2014) suggest that the phenomena of pristine inner experience have also been effectively investigated using techniques other than DES, including typical (non-DES) sampling methods such as the experience sampling method (ESM, Larson & Csikszentmihalyi, 1983) and questionnaires. We think such views reflect a widespread lack of appreciation of the requirements (Hurlburt, 2011a, called them "constraints") that a study of the phenomena of pristine experience requires.

The present paper shows that although typical sampling methods and questionnaires may *appear* to investigate the phenomena of pristine inner experience, that appearance is largely illusory. Such studies should be thought of not as investigations of pristine experience, but rather as investigations of some ill-defined mixture of presuppositions or judgments about experience and pristine experience itself. We suggest that that mixture is probably more heavily influenced, perhaps much more heavily influenced, by presuppositions and judgments than by pristine experience itself.

1.1. Pristine Inner Experience

Although we have described pristine inner experience in the inner speaking paper and elsewhere (particularly Hurlburt 2011a), comments are often made (e.g., Krueger, Bernini, & Wilkinson, 2014) that betray serious misunderstandings of pristine inner experience (and of DES, a method aimed at investigating it). Thus it seems necessary to amplify our description of the concept of pristine experience.

As is well known, the term "experience" is used in disparate ways (Hurlburt & Schwitzgebel, 2007), sometimes very broad and imprecise (as in "my college experience," which characterizes years of a polyglot of educational, social, financial, partisan, sexual, competitive, enlightening, and maturational interactions, all retrospectively glossed), sometimes narrow and specific (as in "I experienced a wave of panic when the thief suddenly appeared," which characterizes a few seconds of a specific occurrence), sometimes non-human (as in "The offspring of marmoset mothers who had previous experience rearing younger siblings were healthier than those without previous experience"). All such uses are legitimate and useful in their own ranges of convenience, but their disparity illustrates the risks of presuming what is meant by "experience."

Hurlburt and his colleagues have sought to investigate one particular class of phenomena that they refer to as *pristine* inner experience (Hurlburt, 2011a; Hurlburt & Akhter, 2006; Hurlburt & Heavey, 2006; Hurlburt, Heavey, & Kelsey, 2013). Here is Hurlburt's description:

> By *inner experience* I mean directly apprehended ongoing experience, that which directly presents itself "before the footlights of consciousness" (as William James would say) at some particular moment. A thought, a feeling, a tickle, a seeing, a hearing, and so on count as experience by this definition. Seeing a baseball player in your imagination is an experience; seeing the orange and gold of a real sunset is an experience. Elsewhere (Hurlburt, 2009; Hurlburt & Schwitzgebel, 2007) I have explained why I refer to this as *inner* experience when it includes things like seeings, hearings, smellings of the outside world…. Here suffice it to say that inner experience means directly experienced, apprehended directly before the footlights of consciousness. Sometimes, when there is little room for ambiguity, I will refer to inner experience as simply 'experience'. By *pristine* I mean naturally occurring in natural, everyday environments, *not* altered or colored or shaped by the specific intention to apprehend it. (2011a, p. 2)

Hurlburt and his colleagues have provided additional discussion of the phenomena of pristine experience. As an example, consider this from the inner speaking paper:

> Ellen was watching the TV show *Cops*. The cops had wrestled a guy to the ground and the sirens were continuously going off. At the moment of the beep Ellen was hearing the profoundly annoying/unpleasant sirens and innerly yelling, "Turn those sirens OFF!!" yelled in her own voice with an extremely annoyed/frustrated tone. Ellen was simultaneously paying attention to the TV show, especially the blue and red flashes at the left. (Hurlburt, Heavey, & Kelsey, 2013, p. 1477)

Ellen's annoyed/frustrated, own-voice inner yelling, "Turn those sirens OFF!!" is intended as a description of pristine inner experience. She directly apprehended herself to be innerly yelling, not merely speaking loudly; she was saying the exact words "Turn those sirens OFF!!", not some similar locution such as "Turn those sirens DOWN!!" or "That is too LOUD!!" Ellen expressed great confidence that this yelling was directly present in her (inner) experience at the moment of the beep; the interviewers, whose job is to be skeptical of such claims, found her description to be unshakeable, coherent, and otherwise consistent with the claim that she was innerly yelling those words. At the same time, Ellen was particularly attending especially to the blue and red flashes at the left of the TV screen. That phenomenon (which DES calls sensory awareness; Hurlburt, 2011a; Hurlburt, Heavey, & Bensaheb, 2009) is also part of her pristine inner experience at that moment. She was "drawn to" or "immersed in" the redness and blueness of the flashes.

In short, pristine inner experience refers to directly apprehended phenomena as they immediately present themselves at particular times.

Ellen's experience can be said to include or be shaped by or otherwise influenced by a nearly infinite number of other aspects—some close, some distant—that Hurlburt (2011a; Hurlburt & Akhter, 2006; Hurlburt & Heavey, 2006; Hurlburt & Schwitzgebel, 2007) has called the "welter" of potential or actual experience. For example, Ellen's welter at the time of yelling "Turn those sirens OFF!!" included: the police car was at the left side of the screen; the wrestling was vigorous and the police outnumbered the man three to one; Ellen likes the TV show *Cops* and watches it frequently; Ellen is sitting on the couch with her feet on an ottoman; Ellen's

boyfriend is sitting next to her on the couch; there is more pressure on the calf of her left leg than there is on her right leg; Ellen and her boyfriend had had a fight about money last night, and Ellen in some way knows that he is watching *Cops* with her not because he likes the show but as a way of making up; the *Cops* theme is "Bad Boys" performed by Inner Circle and Ellen knows that as a fact; Ellen really should be doing her physics homework and watching *Cops* is a way of procrastinating homework; it had been an hour and 17 minutes since she had finished dinner; she was in a Denny's restaurant on September 11, 2001 when she first heard the news of the Twin Towers tragedy; and so on.

All those things, and a nearly infinite welter more, do indeed shape or somehow influence Ellen as an existing being in the world, and therefore are part of her experience broadly defined. However, they are not part of her experience *in the same way* as her inner yelling and the redness and blueness are part of her experience. Ellen is drawn to, focused on, centrally involved with the inner yelling and the redness and the blueness; those aspects are directly apprehended at the moment—they are part of Ellen's pristine experience. By contrast, Ellen is *not* drawn to, focused on the police-car-ness or the wrestling-to-the-ground-ness, even though those aspects are indeed present on the screen and do indeed fall on Ellen's retina; Ellen is *not* drawn to, focused on the next-to-my-boyfriend-ness; or the Twin-Towers-ness, or any of the rest of the nearly infinite welter. Those are experiences broadly defined, but they are not at that moment pristine inner experiences as DES uses the term.

Pristine inner experience does *not* refer to processes or characteristics that are inferred rather than apprehended. For example, pristine experience does *not* refer to cognitive processes such as attention, memory, judgment, comprehension, and so on. Those processes may be inferred to underlie Ellen's innerly yelling "Turn those sirens OFF!!" but the attention, memory, judgment, comprehension, and so on are not themselves the pristine experience. Some aspect of Ellen's personality (perhaps she is characteristically hypersensitive) may be inferred to underlie Ellen's inner yelling, but that personality characteristic is not the pristine experience itself. Some aspect of Ellen's self or ego may be inferred to underlie Ellen's inner yelling, but self or ego is not the pristine experience itself. DES investigates pristine inner experience, investigates phenomena that are directly apprehended at particular moments. DES does not investigate (presumed) underlying or inferred processes.

We do *not* maintain that there is an unambiguous divide between what is and is not pristine inner experience at any given moment. For example, it could be argued that the wrestling-to-the-ground occupies a little of (or is present to a small extent in) Ellen's pristine inner experience at the moment of this beep; we have discussed this issue in Hurlburt and Schwitzgebel (2011a). We *do* maintain that there is a huge, entirely unambiguous experiential distinction between Ellen's inner yelling and almost anything else that might be called experience. At the moment of this beep, for example, Ellen was decidedly not recalling being at Denny's when hearing about the Twin Towers. That is, in a practical sense, pristine inner experience is a distinct phenomenon, distinctly different from (almost) anything else that might be called "experience."

We do *not* maintain that pristine inner experience is the only important or the most important kind of experience; we make no claims about importance whatsoever. We *do* claim that pristine inner experience *might* be important in some situations, maybe even crucially important in some situations, and therefore a mature science of inner experience would keep pristine inner experience distinct from anything else that might be called experience.

We do *not* claim that pristine inner experience is the only kind of experience operating at any moment. We accept that Ellen's way of being in the world is impacted by her boyfriend next to her, by the proximity of dinner, by the fall of the Twin Towers. We accept that Ellen's way of being in the world doubtless shapes her pristine inner experience; we accept that it might be useful to know how that shaping takes place. However, that is not the aim of DES, which is simply to describe pristine inner experience as it actually occurs.

Thus we *do* claim that "pristine inner experience" is one specific way, out of many, in which the word "experience" can be sensibly applied to Ellen and to others. "Pristine inner experience" refers to that aspect or those aspects of Ellen's welter of potential experiences that are salient to her, that draw her or that she creates, that occupy her at a particular moment.

We *do* maintain that any investigation of pristine inner experience must keep a relentless focus on pristine inner experience, because even when asked to limit themselves to describing a particular pristine experience, nearly everyone (knowingly or unknowingly) wanders away from that pristine experience and reports all manner of things other than pristine experience—events that took place before or after the pristine experience, presumed general characteristics, assumed theoretical perspectives, and so on.

2. DES Methodological Results

We have, since the mid-1970s, been attempting to apprehend pristine inner experiences with fidelity. We have used a variety of methods and scrutinized each result with all the careful skepticism we can muster. Over the years we have created (Hurlburt, 1990) and refined a method of exploring pristine inner experience that has come to be known as DES. On the basis of our studies, we offer the following generalizations about the exploration of pristine inner experience (described more completely in Hurlburt, 2011a, and Hurlburt & Heavey, 2006).

2.1. People do not know their own inner experience. As we observed in the inner speaking paper, "many, perhaps most, people do not know some important features (perhaps the most important features) of their own inner experience, despite the fact that they are immersed in their own experience constantly while awake" (Hurlburt, Heavey, & Kelsey, 2013, p. 1491). The inner speaking paper noted that many people, including many consciousness scientists, believe that they themselves engage in inner speech frequently or all the time, only to become convinced on the basis of DES sampling that they actually engage in inner speech rarely or never. The inner speaking paper's Table 1 (p. 1481) provided an interview excerpt that illustrated how this transformation develops.

2.2. People do not use words with shared meanings to describe their own inner experience: The case of "thinking." The inner speaking paper noted Skinner's (1953) view that talk about internal experiences is not adequately shaped by the verbal community. Hurlburt and Heavey (2001) noted on the basis of their DES studies that this lack of shaping applies notably to the word "thinking":

> With striking regularity, subjects early in their DES participation refer to their own inner experience as 'thinking', saying things like, '*At the moment of the beep I was thinking that I don't want to take that exam.*' The DES procedure carefully examines the details of such experiences. In fact, there is substantial variability from person to person in what is intended by the phrase '*I was thinking…*'. For example, when Alice says '*I was thinking…*' she means that she was saying something to herself, in her own naturally inflected inner voice. When Betty says '*I was thinking…*' she means that she was seeing a visual image of something. When Carol says '*I was thinking…*' she means that she was

feeling some sensation in her heart or stomach, and that she had no awareness of cognition whatsoever. Over the course of the DES training, subjects learn to differentiate the talk about such experiences, but until that time, the verbal community simply has not differentiated the term 'thinking' much beyond the fact that it pertains to a private event. (pp. 402-403)

Our DES research continues to show robustly that the word "thinking" is ubiquitously applied to disparate private events, routinely including non-cognitive events such as bodily sensations and feelings. We take it as an axiom that when a DES participant says "I was thinking …," *we know nothing whatever about the phenomena of her inner experience*. That claim may be highly counterintuitive, because most people, when asked, do in fact define "thinking" as a cognitive event and correctly discriminate between, for example, "thinking" and "feeling" when observing one person solving a math problem and another crying. Our claim is that when people speak of the experience *of others*, the referent of *thinking* is some cognitive process or event, but when they speak of themselves, the referent of *thinking* is frequently not cognitive and is unspecified and/or unspecifiable.

The word *thinking* is arguably the most problematic word in the exploration of pristine experience because it is used so frequently and so disparately, but many other words have very disparate usages.

2.3. People believe they know and convey to others their inner experience: Presuppositions. The misapprehensions and ambiguities described in the previous two sections are generally not known to the people themselves. Considering the word *thinking* for example, the overwhelming majority of people have no inkling of their own discrepancies in usage. It is not unusual for DES participants to use the word "thinking" twice in the same sentence with (as subsequent interviewing shows) divergent or contradictory meanings each time, but with no awareness of or outward sign of a shift in meaning.

These misapprehensions and ambiguities are stubborn in the sense that, for example, instructing (however strongly) participants to limit their use of the word *thinking* to cognitive experiences does not typically alter their behavior in that regard.

These blindnesses about the nature of one's own experience reflect or embody presuppositions about the nature of experience (Hurlburt, 2011a; Hurlburt & Heavey, 2006; Hurlburt & Schwitzgebel, 2011b). Hurlburt and his colleagues hold that presuppositions are mini or maxi delusions that, like other delusions, do not disappear by the force of logic.

2.4. Methodological ramifications. Because of the foregoing observations, Hurlburt (2011a), Hurlburt and Heavey (2006), and Hurlburt and Schwitzgebel (2007) have argued that exploring the phenomena of pristine inner experience with fidelity requires investigations with four main (but overlapping) characteristics: (1) identifying with specificity the moments under consideration and then relentlessly limiting discussion to ("cleaving to") those moments (Hurlburt, 2011a); (2) relentlessly focusing only on pristine experience to the exclusion of all else (Hurlburt, 2011a); (3) relentlessly bracketing presuppositions about experience (Hurlburt, 2011a; Hurlburt & Heavey, 2006; Hurlburt & Schwitzgebel, 2011b); and (4) iteratively training participants (Hurlburt, 2009, 2011a) in the apprehension and description of inner experience.

Table 1
Comparing procedures in DES, ESM, and questionnaire studies

	Action	DES	ESM	Questionnaire
(a)	Introduction/instruction session	✔	✔	✔
(b)	Sampling day 1 (participant wears beeper in natural environments)	✔	✔	✖
(c)	Sampling-day-1 interview	✔	✖	✖
(d)	Sampling day 2	✔	✔	✖
(e)	Sampling-day-2 interview	✔	✖	✖
(f)	Sampling day 3	✔	✔	✖
(g)	Sampling-day-3 interview	✔	✖	✖
…	Repetitions of (f) and (g)	✔	✖	✖
(z)	Final result	✔	✔	✔

3. Comparing DES, ESM, and Questionnaires

Our observations about pristine experience and its exploration are primarily the result of DES studies. As noted above, some (e.g., Alderson-Day & Fernyhough, 2014; Krueger, Bernini, & Wilkinson, 2014), have suggested that pristine inner experience can be effectively investigated by other techniques including typical (non-DES) sampling methods and questionnaires. We now explore that suggestion by comparing and contrasting DES with a typical experience sampling study (Bryant et al., 2013, which uses ESM to explore Theory of Mind) and with a typical questionnaire (the Varieties of Inner Speech Questionnaire, VISQ, McCarthy-Jones & Fernyhough, 2011). We use these studies as convenient "laboratory specimens" that we can dissect in the service of gaining an understanding of general principles. It bears emphasizing that this article is *not* in particular about Theory of Mind, ESM, inner speaking, or the VISQ. When we refer below to ESM or the Bryant et al. study, we intend to be understood as referring to any sampling method similar to ESM; when we refer to "inner speaking," we intend to be understood as referring to any pristine inner experience; when we refer to the VISQ, we intend to be understood as referring to any questionnaire that seeks to explore pristine experience.

3.1 Descriptive Experience Sampling (DES). Table 1 (in the DES column) illustrates the phases in the DES procedure. A participant's first appearance (excepting screening, consent, etc.) in a DES study is an introduction and instruction session that explains the study, the operation of the beeper, and the procedure. The investigator carefully defines what DES means by "the moment of the beep" and by "ongoing inner experience," illustrating both with a variety of examples and cartoons (e.g., Hurlburt, 2011a, p. 68), etc., and exhorts the participant to cleave to reporting ongoing experience at the moment of the beep. The skilled DES interviewer gives those definitions and exhortations with the full knowledge that almost no participant will follow them—the participant comes into the study with idiosyncratically presuppositional misapprehensions, ambiguities, and blindnesses about experience, and those presuppositions will not likely be altered by definitions and exhortations (see section 2.3 above). The instructions do *not* specify the kinds of experience that are expected (that is, the DES process is *not* specifically targeted at inner speaking, or at imagery, or any other phenomenon).

Then in sampling day 1(row b in Table 1) the participant wears the DES beeper in her everyday environment, attempts to apprehend experience that was "before the footlights of consciousness" at the moment of the beep, and jots notes about that experience. If she is like

nearly all DES subjects, she will use her presuppositional definitions, *not* those supplied by the investigator's exhortations, in that apprehension and jotting.

Then (row c) she will return that same or the next day for the first-sampling-day interview (which DES calls the "expositional" interview). She will enter that first expositional interview with her presuppositions intact. It is in this interview that the iterative procedure begins to operate to bracket whatever presuppositions appear. For example, in "Kelly's" first-sampling-day interview recently, she reported that her experience right before the beep was the looking up what iBook she should get next for her Nook. She described experience at the moment of the beep as reading a series of book summaries and making judgments about whether each book might be interesting. The investigator pointed out, *in conversation with Kelly about Kelly's own just-given account*, that Kelly seemed to have a much broader understanding of "the moment" than is necessary for an investigation of pristine experience. The interviewer might say to Kelly, "Your 'moment' seems to be a minute or several minutes in length, during which time you read several book summaries. During that interval, your experience may have changed in dramatically variable ways: you read about this iBook and that one, you reacted positively to this iBook and negatively to that one; you may have innerly spoken about this and innerly seen an image of that, and so on. Is that right, Kelly?" "Yes, of course." "Then next time, please try to focus on the particular moment that the beep happens to catch in flight."

This is the heart of the iterative procedure: Because Kelly comes into the study confidently (but mistakenly) believing that she knows what a moment is, it is difficult or impossible for the introductory/instructional interview to influence Kelly to limit herself to the moment as *we* define it. However, once we can expose and examine a few concrete instances of the discrepancy between her and our understanding of "moment," it is usually relatively easy for a skilled interviewer to train Kelly to narrow her understanding of "moment" to correspond to what we require.

Kelly in this regard is very similar to nearly all DES participants: it is the extremely rare DES participant who limits herself on the first sampling day to describing inner experience that was ongoing at a single moment.

Here are a few typical comments that participants make during sampling interviews that may betray that they are discussing something *other* than the moment of the beep:

- "The beep startled me, which felt…" (that describes an experience *after* the moment of the beep)
- "First I …, then I …, and then I …" (that describes a series of time frames rather than one moment)
- "I was watching the basketball game where a shot at the buzzer put the game into overtime, which the Lakers won" (that describes several minutes)

When a participant makes such a comment in the first-sampling-day (expositional) interview, the interviewer is in a position to say something like: "Being startled sounds like something that happened *after* the moment of the beep, not *caught in flight* by the beep. Is that correct?" and then to lead a discussion of the desirability—actually necessity—of cleaving to the moment specified by the onset of the beep. That kind of iterative on-the-job training is usually effective within the first few sampling days.

Thus participants routinely stray, in the first-sampling-day expositional interview, from describing the moment of the beep. Participants also routinely stray, in the first expositional

interview, from describing directly apprehended experience. Here are a few comments that participants make that may betray discussing something *other* than pristine experience:

- "I was talking to myself like I always do" (*like I always do* describes a generality about oneself, not an experience)
- "I felt hurt like anyone else would in that situation" (*like anyone else would* describes a generality about others, not one's own experience)
- I was making dinner because I was hungry (*making dinner because* describes an action and a putative causation, not an experience)

As was the case with moments, when a participant makes such a comment in the first expositional interview, the interviewer is in a position to say something like: "That may describe a generality, rather than a moment of experience. Is that correct?" and then to lead a discussion of the desirability—actually necessity—of cleaving to pristine experience. The result of that kind of iterative training is that participants can be effectively trained to cleave to experience.

Then (d) the participant again wears the beeper into her natural environments. As a result of the conversation in (c), however, she is now somewhat more skilled at limiting herself to noticing what was ongoing at the precise moment of the beep, somewhat more skilled in noticing experience and nothing else, somewhat less ambiguous in her language of reporting.

Then (e) the participant returns for the second-sampling-day expositional interview. Because of the refinements of (c), and the improved skill of (d), the fidelity of the participant's descriptions of pristine experience is probably greater in (e) than it was in (c), allowing the investigator and participant to refine with more precision the skills of cleaving to moments, cleaving to experience, and disambiguating communication.

We have emphasized steps (c) and (e) because these steps are at the core of the DES method. These interviews are where investigator and participant remove the ambiguities of their communication (learn, for example, what the participant meant by "I was thinking…"). These interviews are where the bracketing of presuppositions is primarily implemented. That is, these interviews provide the iterative training that is essential to any exploration of phenomena. These interviews also are where data are collected—where the participant/investigator dyad describes the moments of the participant's inner experience—but that is initially an aim secondary to the iterative improvement of skill. A substantially more detailed discussion of the iterative method is found in Hurlburt (2009, 2011a), but because of its importance we allow ourselves one more summary of iteration: Our experience with DES shows that it is usually impossible to affect presuppositions in an introductory/instructional interview, but that it is usually possible to abrade away and/or bracket presuppositions in a series of interviews that examine a series of newly apprehended experiences, each a successive approximation to the goal of high fidelity.

Steps (d) and (e) are then repeated as often as is necessary to iteratively ratchet up skill, and as often as is desirable to collect as many samples of pristine experience as are required.

Step (z) indicates the final stage of the investigation. We sketch it here; it is described in detail in Hurlburt and Heavey (2006) and Hurlburt (2011a). The investigator has now collected, in presumably increasing fidelity, a number of samples of the participant's inner experiences. The investigator reawakens those experiences using a variety of tools (recollection of the interviews, notes taken during the interviews, descriptions of each sample written immediately after the interview, videotapes of the interviews, discussions among co-interviewers, etc.) and then prepares a description of the salient characteristics that emerge from that collection.

3.2 Typical (non-DES) experience sampling. We now examine the procedure of a typical non-DES experience sampling study, using as an example the Bryant et al. (2013) study of Theory of Mind. Bryant and colleagues use the Experience Sampling Method (ESM), which we schematize in the "ESM" column of Table 1.

In their introduction/instruction session, they ask participants to carry Palm Pilot beepers into their natural environments and provide these instructions:

> In this study we are asking you to report on your own thoughts throughout the day. <u>Please refer to the thought occurring right before the alarm sounds.</u>
> We ask about mental states and actions, which are explained as follows:
> - A mental state exists in your own or someone else's head.
> - An action is what you or another is doing, has done or will do.
>   (Bryant et al., 2013, p. 705, underlining in original)

They then provide examples of "mental states," "actions," and "neither." With respect to the definition of the moment of the beep, the Bryant et al. ESM introduction is similar to the DES introduction, although DES introductory instructions are typically more thorough. With respect to the definition of experience, the ESM introduction is quite different from DES: the ESM introduction asks for reports *of thoughts*, whereas the DES introduction asks for descriptions of experience, whatever that experience might happen to be.

Whereas the ESM instructions emphasize moments by underlining the sentence "<u>Please refer to the thought occurring right before the alarm sounds</u>" (other ESM studies use italics, bold face, or stress the importance of the moment in oral instructions), DES, as we have seen above (section 3.1), finds that such instructions, no matter how thoroughly they are explained or how strongly they are emphasized, are not effective in constraining the participant to focus on a specific moment. We base this conclusion on hundreds of first-sampling-day DES interviews. DES prior-to-sampling training instructions are similar to ESM instructions in that they stress the importance of referring to the experience that was occurring right before the alarm sounds. We have delivered such instructions in a variety of ways, including oral description, written description, cartoon illustrations, video instructions, and all manner of combinations thereof, and we can say with substantial confidence that *those instructions do not work*, as evidenced by our careful interviews of participants after their first day of sampling. The ability to focus on the moment of the beep requires something like the iterative training that DES provides in the (c), (e), (g) interviews, so we conclude that it is likely that ESM respondents do *not* constrain themselves to the moment right before the alarm sounds.

Then the participant carries the Palm Pilot and responds to beeps in her everyday environment. The ESM participant, like the DES participant, is to interrupt ongoing activity and respond to the beep. The ESM participant's task is:

> Participants were instructed on how to categorize their thoughts according to strict definitions and examples…. Action thought content was defined as "what you or another is doing, has done or will do", a mental state was defined as a thought that "exists in your own or someone else's head", and the content of miscellaneous thought was neither mentalistic nor an action. If categorized as an action or mental state, participants also noted the direction of that thought (own versus other). Participants were also asked about the degree to which they were socializing (alone or interacting with others). (Bryant et al., 2013, p. 699)

That is, the ESM participant's primary task is to classify their beeped thought into one of three categories (Action thought content / Mental state / Neither). That seems like a simple task, but we have seen above (section 2.2) that people have hugely disparate notions about what is meant by "thought" when applying that term to themselves. We have also concluded above that it is unlikely that ESM participants on their first sampling day limit themselves to the beeped moment. We conclude that the ESM participant's first-day classifications (like the DES participant's first-day descriptions) are not tied to pristine experience.

Whereas one of the main ESM participant's tasks is to classify, the DES participant does not perform any classification.

Bryant and colleagues also collected written descriptions of their thoughts:

Lastly, participants responded in free text form to two questions, "What are you doing?" and "What are you thinking about?" in order to give context for their self-categorized thoughts. We verbally instructed subjects that all queries applied to thought they reported having immediately prior to the beep in order to minimize confusion. (Bryant et al., 2013, p. 699)

For these free text responses, participants were to "bring up an onscreen keyboard with which you can respond. **Please be thorough in your responses; one to two sentences should be sufficient**" (Bryant et al., 2013, p. 704, bolding in the original). Those free text responses are later transcribed and coded by external raters.

Even though both ESM and DES might be said to ask for free text responses, the ESM and DES procedures are actually very different: ESM presumes that a thorough response can be conveyed in one or two sentences, whereas DES (typically) spends about ten minutes of discussion for each sampled experience; the written text is the end result of the ESM participant's contribution, whereas it is the beginning step of the DES participant's interview; the ESM text is a communication from the participant to the rater, whereas the DES text is a communication from the participant to herself (the DES interviewer typically never sees the written text).

Thus the tasks performed by ESM participants are substantially different from those performed by DES participants. Whereas ESM specifies (or tries to specify) the experiential target of investigation ("your thoughts") for the participant, DES aims at whatever experience happens to be ongoing in the participant at the moment of the beep, whether that be thought, sensation, feeling, and so on. Whereas ESM asks the participant to make categorical ratings on predefined classifications, DES asks for descriptions of experience with no predefinition. When ESM does ask for free text descriptions of thoughts, it presumes that two sentences are sufficient to be thorough. From the point of view of bracketing of presuppositions, those distinctions are important: the Bryant et al. instructions *reify* presuppositions rather than *bracket* them. They presume that *thoughts* will be ongoing throughout the day. They presume that the distinction between mental state and action is an important aspect of thought. They presume that thoughts are easily describable. The instructions pass those presumptions along to the participants with an air of authority.

Note that there is *not* a check mark for ESM in the Table 1 row "(c) Sampling-day-1 interview" because ESM does not conduct the (c), (e), (g) interviews after each sampling day. This is in stark contrast to DES, which, as we discussed above, maintains that the (c), (e), (g) interviews are the heart of DES. Those expositional interviews are where the iterative process

takes place. The iterative process is where the bracketing of presuppositions takes place. The bracketing of presuppositions is necessary to the process of providing high fidelity descriptions of pristine experience.

ESM, like DES, conducts sampling on multiple days; Table 1 reflects that with check marks in rows (b), (d), and (f). However, ESM days (d) and (f) differ from DES days (d) and (f) because, as we have seen, there is no iterative skill building between ESM sampling days. ESM participants do gain more practice in responding to the beeps, but we see no reason to believe that such repetition, without the iterative confrontation provided by expositional interviews, affects the presuppositions that participants had on entering the investigation. As a result, we think it likely that ESM participants respond to beeps on days (d) and (f) in approximately the same way as they did on day (b), whereas because of the iterative training, DES participants' descriptions typically substantially evolve (and we think become of higher fidelity) from (b) to (d) to (f) and beyond.

Step (z) indicates the final stage of the ESM investigation, which is very different between ESM and DES. Whereas the final stage of ESM involves a counting of participant's categorizations, DES researchers examine the collected moments of experience in search of salient characteristics, whatever they might be. Furthermore, whereas ESM raters code the participant's written free text responses, DES investigators attempt to describe the participant experience in high fidelity, a process very different from coding. Here are the ESM instructions for raters:

> Use the subject's response to the prompts "What are you doing" and "What are you thinking" to categorize the object of the subject's thought.
> In the columns provided, code each response based on whether the object of the subject's thought is a mental state, action, or something else (other):
> > Mental State → Code as 1.
> > Action → Code as 2.
> > Miscellaneous → Code as 3.
> > Indeterminate → Code as 4.
> > No thought → Code as 5.
> "Mental state" should be coded if the subject reported thinking about their own or someone else's beliefs, thoughts, desires, memories, emotions, or states of knowledge. For example, the subject may report thinking of wants, fears, hopes, or beliefs….
> > "Action" should be coded when the subject reports thinking about what someone or something is doing, has done or will do. For example, "I will drive to work at 9" and "That driver just cut me off" are action thoughts. (Bryant et al., 2013, p. 705)

Thus, whereas ESM external rater has access to and therefore codes only the text, the DES interviewer is immersed in what is said and not said, hesitations, blushings, and other vocal and behavioral characteristics; whereas the ESM rater has access to only one or two sentences, the DES interviewer has been influenced by all the (perhaps six hours of) interviews; whereas the ESM rater interprets the ambiguities of the text as best she can, the DES interviewer and participant have together painstakingly sought to disambiguate every utterance across many hours of interviewing, iteratively improving that ability across interviews; whereas the ESM rater must do the best she can to glean what the participant intended by particular sentences written about experiences, the DES interviewer and participant together have relentlessly sought to

ensure an explicit and shared understanding of each element in the description of each experience; whereas the ESM rater considers one text at a time, the DES interviewer and participant can double back and clarify earlier understandings based on subsequent disambiguation; whereas the ESM interviewer makes no systematic attempt to bracket presuppositions either in the participant or the rater, DES devotes substantial effort to such bracketing in both. In sum, ESM raters make no attempt to establish fidelity of communication, whereas establishing fidelity of communication is the DES investigator's main effort across many hours.

As a result of the foregoing, we maintain that ESM probably does *not* investigate moments, despite its appearance and instructions, or at best investigates a mixture of moments and other times both real and imaginary. We emphasize that the excursion from moments is not small. When a participant says, as is entirely typical on first DES sampling days, "I was thinking in words like I always do," *like I always do* is an excursion from the moment measured in decades. Without iterative training, we believe that a beep does *not* limit the reference to the thought occurring right before the alarm sounds. Furthermore, we maintain that ESM probably does *not* investigate actual ongoing (pristine) experience, despite its appearance and instructions, or at best investigates a mixture of experience and generalities. We emphasize that without iterative training participants are much more likely to give self-theoretical (quite probably mis)characterizations than they are to describe ongoing-at-the-moment-of-the-beep experience. We do not wish to explain why that happens, but rather to state it as a robustly recurrent empirical fact: on the first day of sampling, participants use their presuppositional definitions, *not* those supplied by the investigator's exhortations.

3.3 Questionnaires. The typical administration of the VISQ (like most other questionnaires) is schematized in the right-hand column of Table 1. It involves some initial instruction and then some data collection: there are check marks in rows (a) and (z) and none in between.

As the inner speaking paper discussed, the VISQ (like most other questionnaires) does not investigate moments, providing only general items such as: "1. I think to myself in words using brief phrases and single words rather than full sentences." However, for the same reasons described with respect to ESM, even if questionnaire items refer to a particular moment, there is little reason to believe that respondents limit themselves to that moment.

VISQ items (such as "I think to myself in words…") appear to inquire about pristine inner experience. However, because pristine inner experience inheres only in moments (Hurlburt, 2011a), and for the same reasons described with respect to ESM, we maintain that the VISQ appearance of investigation of pristine experience is illusory.

When a respondent endorses a VISQ item (such as marking *Certainly applies to me* to the statement "I think to myself in words…"), it is tempting to think of that endorsement as a generality about experience, as if the person had consulted the entire stream of naturally occurring inner-speaking experiences, examined all or representative instances, and concluded that the characterization *certainly applies to me*. However, a total consultation is logistically impossible (if an experience lasts, say, about 2 seconds, there are about 30,000 experiences per day or 11,000,000 per year), and there is no mechanism that we know of for a representative consultation. If there is no full or representative consultation, there can be no real generalization. Instead, the VISQ statement is what Hurlburt and Heavey (2006; Hurlburt, 2011a) called a "faux generalization"—a statement that falsely appears to be an inductive characterization of a stream of instances but results instead from an unspecified mixture of heuristic (recency, availability, etc.), presupposition, confirmation bias, and so on.

The typical VISQ study makes no effort whatsoever to bracket presuppositions or control other biases. The participant comes into the study with whatever misapprehensions, ambiguities, and presuppositions about experience that she happens to possess. Alderson-Day and Fernyhough (2014), in response to the inner speaking paper, wrote:

> A problem for all such self-report measures [e.g., the VISQ] is that it is rarely possible in advance to establish common ground on such conceptual issues. However, the same point applies to DES, which, despite its careful bracketing of presuppositions, inevitably operates against a background of shared assumptions about the nature of inner speech (Alderson-Day & Fernyhough, 2014, p. 113)

It is true that DES, like the VISQ, operates against a background of shared assumptions. However, it is not true that DES and the VISQ operate *in the same way* against that background. The VISQ, like all questionnaires, explicitly and implicitly *reifies* the presuppositions that might affect it, whereas DES explicitly and implicitly *brackets* the presuppositions that might affect it. The VISQ reifies presuppositions about inner speech by asking 18 questions, all of which inquire about inner speech and most of which assume the existence and importance of inner speech. For example, the first VISQ item is "I think to myself in words using brief phrases and single words rather than full sentences." That item invites the participant to assume without question that she thinks to herself in words: the question's structure suggests that the only issue is whether those words are in phrases or full sentences.

By diametric contrast, DES explicitly and implicitly uses techniques that attempt to bracket—set aside, put out of play—idiosyncratic or shared assumptions about the nature of inner speaking and all other phenomena of inner experience. Hurlburt (2011a) described 100 "constraints" that the endeavor to apprehend experience in high fidelity imposes; most of those are motivated by the intention to bracket presuppositions. DES submits (or at least explicitly, repeatedly, thoughtfully, skillfully attempts to submit) to all 100 constraints; the VISQ submits to none or very few. For example, DES neither encourages participants to describe nor discourages participants from describing inner speaking.

There is no opportunity for iterative training in a typical questionnaire administration, so (as we have seen in section 3.1) there is no efficacious opportunity for the bracketing of presuppositions. It would be possible to administer questionnaires repeatedly and between administrations to provide iterative training, but such administrations are unusual and, if performed, would violate the validity principles on which the questionnaire was based. As a result, we maintain that questionnaires probably do *not* investigate moments, regardless of their instructions, or at best investigates a mixture of moments and other times both real and imaginary. Furthermore, we maintain that questionnaires probably do *not* investigate actual ongoing (pristine) experience, regardless of their instructions, or at best investigates a mixture of experience and generalities.

Questionnaires can be used as state as well as a trait measures and could be revalidated in repeated-administration conditions, allowing the potential hybridization of DES and questionnaires. For example, individuals could be trained, using multiple-day DES iterative methods, in what is and is not their own inner speaking. Then a suitably validated multiple occasion inner speaking questionnaire (perhaps based on the VISQ) could be deployed in a variety of situations. Such a hybridization might have efficiency or other advantages over DES alone. A mature science of experience would explore such options.

4. Discussion
Following from the views that pristine inner experience inheres in moments and that most people have substantial presuppositions that may interfere with the apprehension of inner experience, we have concluded that typical (non DES) experience sampling studies and questionnaires should not be considered to be explorations of pristine experience. However, ESM studies often draw conclusions that imply that they have investigated pristine inner experience. For example, Brant et al.'s summary of their findings is "Analyses of multiple choice answers suggest that typical adults…spend more time thinking about actions than mental states and miscellaneous things" (2013, p. 697). Using a locution such as *spend more time thinking about* suggests that these investigators have examined a series of moments of pristine inner experience and drawn conclusions about the frequencies of content in those moments. We think that kind of conclusion is not justified.

Instead, we think the Bryant et al. study investigates some impure and messy mixture of at-the-moment pristine inner experience and unexamined-but-substantial presuppositions about participants' own and others' inner experience. Our own studies suggest that without effective bracketing of presuppositions, participants' reports are far more strongly related to presuppositions than to momentary experience.

As a result, we believe that until they have substantial evidence to the contrary, investigators using typical experience sampling methods or questionnaires should consider those to be investigations of presuppositions about experience rather than apprehensions of at-the-moment pristine experience.

We happily accept that we may be mistaken about this: that our own studies and therefore our conclusions are possibly infected by our own presuppositions, and that replication by others unrelated to us is required. However, we have systematically taken many steps (Hurlburt, 2011a) to aid in the bracketing of presuppositions. We have repeatedly invited skeptics to participate as DES co-interviewers (most notably Hurlburt & Schwitzgebel, 2007; but see also Hurlburt & Kane, 2011; Hurlburt, 2011a, Ch. 12). Furthermore, we have sampled with many consciousness scientists whose presuppositions far outweigh their apprehensions of pristine experience. We therefore hold that consciousness science would be well served if investigators were very conservative about beliefs or claims that they are apprehending pristine inner experience.

Our repeated and robust findings suggest that people, including consciousness scientists, are likely to be mistaken and often substantially mistaken about their own at-the-moment inner experience, and that because of the nature of presuppositions to be blind to that mistakenness, including being unwarrantedly confident about the accuracy of their apprehensions.

We emphasize that we are not claiming that DES is the epistemic tribunal against which other methods should be judged (Hurlburt & Schwitzgebel, 2011c). In fact, we have been at pains to say (e.g., Hurlburt, 2011a) that DES is only as good as its investigators, that even competent investigators have (or at least may have) substantial blindnesses, that comparisons across DES investigators can be (perhaps highly) problematic, and that DES has other limitations. A mature science of experience would be thoughtful about the limitations of all its methods. We do claim that DES is the result of a relentless effort to keep center stage the pitfalls, potentials for distortion, and competing motivations and to create and practice multiple principled methods and techniques to limit the impact of those distractors. We continually seek to revise and improve DES techniques, and would abandon them altogether were we to become aware of a method that offered higher fidelity or equal fidelity with fewer limitations.

One may make a principled rejection of DES, saying that for all of the DES interviewers' good intentions, they are simply not adequate in bracketing presuppositions. However, unless one can advance a good principled reason for preferring some other method of bracketing presuppositions, then we think that such a principled rejection of DES entails the principled blanket rejection of *all* first-person reports. We accept that such a blanket rejection is logically consistent, although we think a half century of behaviorism suggests that such an approach is quite limiting.

In sum, we think DES and other methods have fundamentally different relationships to presuppositions: DES, unlike other methods, works assiduously to bracket them. That difference, we think, is hugely important, and is largely responsible for huge discrepancies, such as in the understanding of the frequency of inner speaking and its characteristics.

Our DES investigations suggest that prior to sampling or prior to questionnaires, the instructions about moments and about experience are generally not effective regardless of degree of clarity, thoroughness, exemplification, or emphasis: participants nearly always respond to DES queries according to their own presuppositions of the duration of a moment, rather than being influenced by the investigator's exhortations. We see no reason to believe that ESM participants would be better than DES participants in this regard; in fact, DES investigators are probably substantially *more* thorough than are ESM investigators in stressing the importance of the moment yet they still have minimal efficacy.

Our DES investigations suggest that iterative training is required to overcome presuppositions. We are not suggesting that DES avoids the pitfalls identified by generations of science, but we do think that scientific results are often invoked too broadly. For example, Alderson-Day and Fernyhough hold:

> DES sets the bar for reporting inner speech quite high, in that the participant is not only required to report that there were words but also to say what they were. Granted, DES …aims to ensure that participants become better at reporting on the exact words in their experience. But such reports are still mediated by memory, known to be rather insensitive to verbatim information (Sachs, 1967). Some genuine cases of inner speech might not be classified as such simply because the verbatim details are forgotten. (2013, p. 114)

The "forgetting" that Alderson-Day and Fernyhough mention might be understood as occurring in the interval between the beep and the jotting of notes thereon (typically measured in seconds), or as occurring in the interval between the note-jotting and the expositional interview (typically measured in hours). We accept that DES, as nearly all human endeavors, depends on memory in both intervals. Considering first the interval between the beep and the jotting notes, Sachs's own results support the DES method rather than undermine it. Sachs (1967) had participants listen to a passage (perhaps 160 words read by an actor) and then rang a bell and tested the participants' verbatim recollection about a sentence embedded somewhere in the passage. The bell occurred either immediately after the target sentence, 40 syllables after the target sentence, or 80 syllables after the target sentence. Sachs's results show that participants were insensitive to the verbatim details *only when the bell sounded after a delay*. When the bell sounded *immediately* after the target sentence, Sachs's participants were *correct* in their verbatim responding between 80% and 90% of the time. DES was created with results like Sachs's in mind: Sachs should be interpreted as demonstrating *not* that "memory… is rather insensitive to

verbatim information" but that the interval between an event and its apprehension/jotting notes must be minimized, and that if it is minimized, responses can be expected to be verbatim or very nearly so.

Considering the interval between the note-jotting and the expositional interview, our experience, which has been careful but not systematic, leads us to believe that so long as the note jotting is done skillfully, the less-that-24-hour delay before the expositional interview is not too damaging. We base that opinion on three kinds of observations. First, we have varied the kinds of immediately-after-the-beep responding, using not only notebook jottings but also audiotaped comments, videotaped comments, encouraging drawing rather than or supplemental to words, etc. Second, we have occasionally conducted interviews after the 24 hours has expired (usually the result of the participant's failure to follow instructions or extenuating circumstances); on those occasions, we have frequently observed that these interviews are much more difficult than usual. Third, we have when it seemed appropriate substantially shortened the 24-hour rule. We have, for example, asked participants to phone in immediately after the beep and conducted the interview over the phone. Hurlburt and Akhter (Akhter, 2008; see Hurlburt, 2011, Ch. 9) in their DES investigations of adolescents frequently waited outside the adolescent's house and conducted expositional interviews directly after the beeps. Hurlburt and Seibert (Seibert, 2009; see Hurlburt, 2011, Ch. 9), in their DES investigations of the elderly, waited in the next room and conducted interviews directly after the beeps. Hurlburt and Heavey, in unpublished studies as of obsessive-compulsive students, have followed students at a respectful distance as the students moved naturally through the campus and then conducted expositional interviews on the spot, whenever the beep occurred. It is our opinion that the immediately-after-the-beep interviews are not recognizably different from the next-day interviews. Certainly the limitations of such claims should be recognized; we would welcome a mature science of inner experience that does a more systematic and adequate investigation of these important issues.

We are not suggesting that sampling methods and questionnaires have no value. We accept that questionnaires and non-DES sampling methods tell us *something* meaningful about people's experience and that people's judgments about their experience matter to them (and often matter to others, too). We accept that many important ESM inquiries are about characteristics (e.g., Where are you? Who are you with?) that are not evanescent or rapidly fluctuating and therefore may not require the iterative training. We are suggesting that the value of questionnaires and non-DES sampling method comes from something other than the high fidelity investigation of pristine experience. We are not suggesting that people's ESM or questionnaire reports about pristine inner experience are always mistaken—some people may naturally apprehend their experience in high fidelity; other people may have presuppositions that happen to align with pristine experience at some particular moment. Furthermore, aggregated (averaged) ESM or questionnaire responses may reflect population averages—low fidelity observations might, under some circumstances, be averaged to estimate population characteristics with high precision. However, for that precision to obtain, the distractions that contribute to the low fidelity must be random, and that is far from an assumable fact. For example, the inner speaking paper made the case that the presuppositions about inner speaking systematically (*not* randomly) inflate the frequency estimates of inner speaking.

We re-emphasize that we are *not* particularly criticizing ESM or the VISQ; ESM is a state of the art sampling method and the VISQ is a state of the art questionnaire. We wish instead to call attention to the importance of maintaining a clear understanding of and appreciation for pristine experiential phenomena and maintaining a clear recognition of the risks

of interpreting sampling responses and questionnaires as if they measured phenomena. We hope to contribute to the advancement of experiential science, and that advance requires explicating the characteristics and limitations of the current state of the art. We think the advancement of psychological and consciousness science requires attending to the characteristics of inner experience, because the alternative is to avoid a central feature of the human condition, and sooner or later (perhaps already) that will sterilize science.

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