



Toward a phenomenology of inner speaking



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ABSTRACT

Inner speaking is a common and widely discussed phenomenon of inner experience. Based on our studies of inner experience using Descriptive Experience Sampling (a qualitative method designed to produce high fidelity descriptions of randomly selected pristine inner experience), we advance an initial phenomenology of inner speaking. Inner speaking does occur in many, though certainly not all, moments of pristine inner experience. Most commonly it is experienced by the person as speaking in his or her own naturally inflected voice but with no sound being produced. In addition to prototypical instances of inner speaking, there are wide-ranging variations that fit the broad category of inner speaking and large individual differences in the frequency with which individuals experience inner speaking. Our observations are discrepant from what many have said about inner speaking, which we attribute to the characteristics of the methods different researchers have used to examine inner speaking.

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1. Inner speaking

We believe that anyone who attends with adequate care to everyday experience as it is actually lived moment-by-moment will frequently come across experiences such as these¹:

1. Angela was driving near campus and had just noticed for the first time a Thai restaurant. At the moment of the beep she was enthusiastically saying to herself, “Thai food!” This speaking was silent, in her inner voice that sounds just like her external voice, in an enthusiastic tone and inflection consistent with her welcomed restaurant discovery.
2. Brian was innerly speaking, “I don’t want to go,” saying this sentence a second time as he tried to figure out or rehearse what he might say to his friend who was going to call to ask him to hang out. “I don’t want to go” was said in his own natural but silent voice. The TV was on, and his eyeballs were aimed at it, but he was not paying any attention to it.
3. Christine was looking down at her pinky toe and innerly saying, “My pinky toe is ugly.” This was said in her normal voice with a mildly discouraged tone and inflection.
4. Daphne was talking on the phone to a United Blood Services representative, who was telling her she would get two free tickets to the Fabulous 4 concert if she donated blood. At the moment, Daphne was innerly saying “That is so awesome!” in her own voice with an excited tone that conveyed the excitement she felt about taking her daughter to the concert.
5. 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.

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¹ These examples are from a large set of samples collected at the Descriptive Experience Sampling lab at the University of Nevada, Las Vegas. We selected them to be representative.

6. Fayth was in the bathroom straightening her hair. At the moment, she was innerly saying to herself, “This year *can* still be better.” She innerly said this in her own voice as if she were giving herself a pep-talk with emphasis on the word *can*. She was also attending to what she was doing.

These six examples have in common that the person is innerly speaking in a silent voice that could not be heard by an external observer, nor would muscular activity coordinated with the speaking be visible. This paper seeks to describe in high fidelity some aspects of the phenomenon of inner speaking. We shall see that the six we just described are simple, straightforward examples of this rather disparate phenomenon.

This phenomenon, which has gone by a variety of names including inner speech, inner talk, self-talk, subvocal speech, mental verbalization, internal monologue, internal dialogue, and self-statements (Morin, 2005), has been observed by philosophers, psychologists, and consciousness scientists at least since the time of Plato (Chiesa, 1991). Furthermore, throughout history inner speech has been understood to have substantial functional importance. Plato’s Socrates, for example, is often understood as believing that thinking is simply inner speech (e.g., Byrne, 2011; de Guerrero, 2005; McCarthy-Jones & Fernyhough, 2011; Wiley, 2006; Woodfield, 2007), an understanding that follows from the *Theaetetus*, where Plato has Socrates define “thought. . . as the talk which the soul has with itself about any subjects which it considers . . . , not with someone else, nor yet aloud, but in silence with oneself (Plato, *Theaetetus*, 189e–190a).² Voicing a common theme, Morin (2003) suggested “that our internal dialogue is . . . what makes us aware of our own existence: ‘I’m alive and well; I’m a unique person with an identity; I have goals, aspirations, and values’” (Morin, 2003, n.p.). Modern cognitive psychotherapy argues that inner speaking plays a causal role in behavior and emotion. For example, clinical psychologists often try to change the content of inner speaking to help their clients alter emotional responding and function more effectively (Butler, 1981; Ellis, 1976; Meichenbaum, 1977).

But despite its ubiquity and importance (or perhaps *because of* its ubiquity and importance: *of course* everyone knows or thinks they know all about inner speech on the basis of their own casual observations) there have been very few attempts to investigate the phenomena of inner speaking. Recent exceptions include Ihde (2007), a phenomenologist with a chapter titled “Inner Speech,” and McCarthy-Jones and Fernyhough (2011), who state that their “Varieties of Inner Speech Questionnaire (VISQ) [is] designed to assess the phenomenological properties of inner speech” (McCarthy-Jones & Fernyhough, 2011, p. 1586). However, for reasons that we will discuss below, casual observations, Ihde’s phenomenology, and the use of tools such as the VISQ have, as phenomenological investigations, substantial methodological flaws which we think lead to substantial misapprehensions of phenomena relevant to inner speaking.

If inner speaking is important, then it would seem that science would be well served by a careful understanding of its phenomena. This paper has two aims. First, we describe in high fidelity some characteristics of everyday inner speaking. Second, we discuss the ramifications of these descriptions for the investigation of inner experience.

2. Preliminaries

Our main task is simple: We wish to apprehend and describe characteristics of everyday inner speaking in high fidelity. There are three aspects of that task that deserve comment before we begin: “inner speaking,” “everyday,” and “apprehend and describe in high fidelity.”

2.1. Inner speaking

As we have seen, most writers with our interests (including us ourselves in our earlier work) refer to the phenomenon of interest with a noun phrase such as “inner speech,” “mental verbalization,” or other noun phrases listed above (Morin, 2005). However, there is good reason to prefer the verb phrase “inner speaking” to any of the noun phrases: inner speaking is an activity (a verb) that one performs, not an entity (a noun) that awaits performance.

Using a noun phrase such as “inner speech” requires stating something like “Jose engages in inner speech,” as if inner speech were one of several discrete activities among which Jose could select. A parallel usage is “Joe engages in baseball,” that is, Joe selects baseball from among the available sports. However, inner speaking is not, or at least may not be (and we should not prejudge that issue) one discrete phenomenon among several. We shall see that the term “inner speaking” applies with more or less ease to a variety of phenomena.

This preference for verb phrases over noun phrases is frequent in the languaging of parallel concepts. For example, “dancing” is a useful term that has (like inner speaking) disparate meanings. We do not typically use the noun phrase (e.g., we do not typically say that “Nureyev engaged in dancing”); we prefer the verb phrase “Nureyev danced.”

A noun phrase connotes uniformity of action. The noun phrases “Nureyev engaged in dancing,” “Fred Astaire engaged in dancing,” and “Michael Jackson engaged in dancing” connotes that they were all engaged in the same activity; that undesirable connotation of uniformity is far weaker in the verb phrases “Nureyev danced,” “Fred Astaire danced,” and “Michael Jackson danced.”

² We think it likely (although controversial) that Plato’s Socrates meant this definition of “thought” as a straw man that he intended to destroy later in the *Theaetetus*; that is, that Socrates’s overarching understanding is that thought is *not* inner speech. Either way, our point here is that Socrates found the existence of self-talk important.

Similarly, the noun phrases “Jose engaged in inner speech” and “Jennifer engaged in inner speech” connotes that Jennifer is engaged in the same activity as is Jose. That is a widely held belief, but at best it assumes what is at issue, and, as we shall see below, it is substantially incorrect. Therefore we prefer the verb phrases “Jose innerly spoke” and “Jennifer innerly spoke.”

A disadvantage is that the modifier “inner” must become an adverb, requiring us to use neologisms such as “Jose *innerly* spoke.” However, while *innerly* is an undesirably unusual locution, it has fewer logical or connotatively misleading implications. As a result, we will refer to our phenomenon of interest as *inner speaking*.

2.2. Everyday

By “everyday” inner speaking, we mean inner speaking as it naturally occurs in natural situations. That is, our interest is in unscripted inner speaking, in inner speaking not expressly manipulated by some experimental procedure, in inner speaking undisturbed by the intention to apprehend it. Hurlburt (2011; Hurlburt & Akhter, 2006) has called such naturally occurring experience “pristine” by analogy to a pristine forest—the forest as it existed before the loggers’ clear cuts, before the Park Service’s asphalt and signage, before the visitors’ plastic bags and bottles. Pristine in this sense does *not* mean “clean” or “pure”; much of a pristine forest is mucky, bloody, and brutal. Pristine means “as it naturally occurs before a specific attempt to alter it.”

Suppose you set yourself the task of specifically monitoring your experience (that is, when you “armchair introspect” or, as Hurlburt might say, when you make “judgments about experience where the target, the occasion, the duration, the introspection, the interpretation, and the generalization are all self-defined, self-initiated, and performed by one person, generally on the basis of an implicit or explicit theory”; Hurlburt & Schwitzgebel, 2011a, p. 259). The experience that you might observe in such situations is *not* your pristine experience—it is the experience that might occur when you specifically try to observe your experience.

Experimentally manipulated inner speaking is also not pristine. For example, Simons et al. (2010) put subjects into an fMRI magnet; they then presented a series of pre-recorded sentences; subjects were to innerly repeat each sentence and to press a button on completion. Even if we could be assured that subjects did in fact innerly speak the sentences (which we think is highly speculative; see below), innerly repeating sentences on demand is not pristine inner speaking. Jones and Fernyhough (2007) similarly criticized the ecological validity of elicited inner speaking.

2.3. High fidelity

Our aim is to apprehend and describe in high fidelity the pristine phenomena of inner speaking. We will fall short of perfection: it is impossible to apprehend that which by definition exists only prior to apprehension. But one can construct methods that can be argued apprehend pristine experience with *minimal* disturbance (metaphorically like a forester parachuting into the middle of a pristine forest), and then describe that which is apprehended with fidelity rather than perfection.

Inner speaking is *inner*, that is, private, and some would suggest that its apprehension is not possible, often citing William James’s famous passage:

As a snow-flake crystal caught in the warm hand is no longer a crystal but a drop, so, instead of catching the feeling of relation moving to its term, we find we have caught some substantive thing, usually the last word we were producing, statically taken, and with its function, tendency, and particular meaning in the sentence quite evaporated. The attempt at introspective analysis in these cases is in fact like . . . trying to turn up the gas quickly enough to see how the darkness looks. (James, 1890/1981, p. 158)

However, modern flash photography makes it possible to see important things that occur in the darkness—pupil dilation, nocturnal animals, and the like. Further, John S. Mill suggested that it might be possible to capture ongoing experience through the medium of memory just after the experience has passed:

A fact may be studied through the medium of memory, not at the very moment of our perceiving it, but the moment after: and this is really the mode in which our best knowledge of our intellectual acts is generally acquired. We reflect on what we have been doing when the act is past, but when its impression in the memory is still fresh. (Mill, 1882/1961, p. 64)

We believe James and Mill were both correct, and have implemented both viewpoints in the Descriptive Experience Sampling method, which is designed to apprehend and describe in high fidelity characteristics of everyday inner experience.

3. Descriptive Experience Sampling

Descriptive Experience Sampling (DES; Hurlburt, 1993, 2011; Hurlburt & Akhter, 2006; Hurlburt & Heavey, 2006) subjects are asked to carry a random beeper as they go about their normal daily activities. They are instructed that when the beep sounds, they are to attend to whatever was directly present, ongoing in their inner experience the microsecond before the beep began, and to jot down notes about that experience. Thus DES is a modern implementation of Mill’s 1882 method. The DES target is the last undisturbed moment of pristine inner experience before the beep (which DES calls “the moment of the beep”). Of course, that moment’s experience is not completely undisturbed, but Hurlburt and Schwitzgebel (2007) have

argued that there is no known introspective method that has less disturbance. On any sampling day, subjects are typically asked to obtain about six randomly selected (by the beep) samples of their inner experience. Within 24 h of collecting these samples of inner experience, subjects participate in an “expositional interview” with the investigators, wherein the subjects and investigators work collaboratively toward developing a high-fidelity apprehension of each sampled moment of inner experience. This carry the beeper/collect six samples/participate in expositional interview process is then repeated on (typically three to eight) subsequent days. The sampling process is thus a series of on-the-job trainings that Hurlburt (2009, 2011) has called “iterative”: a repetitive working to increase the skills of both the subject and the investigators of apprehending the unique inner experience of the subject with increasingly greater fidelity.

Although the basic framework of the DES method is simple, its implementation requires substantial skill (Hurlburt, 2011; Hurlburt & Heavey, 2006). Because both subjects and investigators inevitably come to any encounter with presuppositions that have the potential to bias the investigation, iterative effort, skill, and repetition must be used to bracket these presuppositions (Hurlburt, 2011; Hurlburt & Heavey, 2006; Hurlburt & Schwitzgebel, 2007, 2011b). Moreover, most subjects initially have little practice in apprehending their own inner experience. Thus they must learn to focus only on experience occurring at the moment of the beep. Furthermore a common lexicon for communicating about the subject’s inner experience must be developed that is specialized to convey aspects of the idiosyncratic aspects of each individual subject’s experience. As Skinner noted (1953) and we have discussed elsewhere (Hurlburt & Heavey, 2001), talk about internal experiences is not adequately shaped by the verbal community. Therefore great care must be taken to develop shared understandings of the words being used to describe inner experience. Each of these challenges inherent in trying to apprehend inner experience requires a truly iterative method: repeated confrontation of the challenges while working overtime toward improvement in skill and fidelity.

Full descriptions of the method and considerations of DES are available elsewhere (Hurlburt, 2011; Hurlburt & Akhter, 2006; Hurlburt & Heavey, 2006; Hurlburt & Schwitzgebel, 2007). We highlight a few characteristics of DES here. First, DES considers only experience that was ongoing at particular (beeped) moments. Subjects do not get to select which experiences to describe; they are to describe only those experiences that were selected by the external beep. That is one effective means of helping subjects to bracket their presuppositions.

Second, the beeped moments are selected at random rather than by some manipulation of the investigator. That is one effective means of helping investigators bracket their own presuppositions.

Third, DES investigates whatever pristine inner experience happens to be at the moment of the beep, nothing else. That is, DES is “open beginning” (Hurlburt, 2011; Hurlburt & Heavey, 2006; Hurlburt & Schwitzgebel, 2007): it does *not* set out to examine any particular predetermined phenomenon. In particular, there has never been (including now) a DES investigation directed specifically at inner speaking. If inner speaking happens to be occurring at the moment of a randomly occurring beep, then inner speaking will be described and discussed in the expositional interview about that beeped experience. If not, not. To proceed otherwise—by targeting inner speech at the outset—is in our view a failure of the important intention to bracket presuppositions: inner speaking would no longer be a phenomenon that could be investigated without bias, but instead would be (or at least could be) colored by the investigative intention. A pre-planned specific focus on inner speaking would likely influence participants to over-report the frequency of inner speaking.

Fourth, DES accepts that neither the subject nor the investigator is, at the outset, skilled at apprehending experiential phenomena. Subjects have not heretofore carefully observed their pristine inner experience and must be helped to develop the apprehending skills, and investigators must learn how to help this particular subject attend to her particular phenomena. The beep pinpoints random (i.e., non-self-selected) moments of experience and the investigators iteratively help subjects to acquire and develop the skills of bracketing their presuppositions and apprehending their experience in high fidelity. A corollary: Simply asking a subject to report the features of their inner experience is not adequate.

Fifth, DES investigators understand that high skill is required to develop high-fidelity apprehensions of inner experience. A corollary: Well implemented DES increases the likelihood, but does not guarantee, high-fidelity descriptions of experience. Consumers will have to evaluate the likely adequacy of any DES report. For example, readers of this article will have to weigh the skill and experience of the authors (our prior results, our writings about how to conduct inner experience investigations effectively, etc.) in determining whether to conclude that we have established ourselves as trustworthy reporters of the inner speaking phenomenon.

Sixth, we do not maintain that DES is the ultimate method of apprehending pristine experience (Hurlburt & Schwitzgebel, 2011a); we claim only that DES was designed expressly with the aim of apprehending pristine experience in high fidelity.

4. Descriptive Experience Sampling and inner speech

As we have seen, DES is designed to produce high-fidelity descriptions of the inner experience that was ongoing at a particular moment, whatever that experience might be. Table 1 shows a typical reconstructed beginning of a DES expositional interview, with commentary, to give the reader a glimpse of how some of the features of DES described above unfold. That kind of conversation takes place on the first sampling day for nearly every participant, not necessarily about “saying” but about whatever words the participant initially uses. At the end of this conversation the interviewer (and the participant!) knows nothing about the features of the participant’s inner experience. The good news is that participants are usually more confident in their descriptions on the second or subsequent sampling days.

Table 1
Typical Descriptive Experience Sampling interview excerpt.

Interview	Commentary
P1: I was saying to myself that I should start making dinner	DES interviewers know that “saying to myself” might refer to a variety of types of experiences
I2: What do you mean by “saying to myself”?	The interviewer takes an agnostic stance, simply asking for clarification
P3: It was 5:00 and I was hungry	This does not respond to the question, which is about experience
I4: I understand that, but our question is about your experience at the moment of the beep. What was in your experience right then?	The interviewer tries to bring the participant back to the experience without suggesting the nature of that experience
P5: I was thinking that I should make dinner	Note the switch from “saying” at P1 to “thinking” at P5
I6: Originally you said that you were “saying to myself.” Now you use “thinking that.” Are those the same thing? Either way is OK—our task is to describe the characteristics of the experience, whatever they were	The interviewer supports the participant’s efforts while remaining neutral about the characteristics
P7: Ummm, I guess I was saying it to myself	The vocalized pause “Ummm” and the undermining statement “I guess,” both of which DES calls subjunctifications (Hurlburt, 2011), are (mild) evidence that the participant is not confident about her experience
I8: What exactly do you mean by “saying it to myself”? Did you use words, inflection, and so on?	This neither affirms nor denies the participant’s report. It asks for concrete clarification of experience
P9: I don’t remember the words	The participant’s inability to recall might stem from either of two sources: there were no words at the moment of the beep, or the participant does not recall the words
I10: Not being able to remember is what we expect on the first sampling day. DES is a skill, and you need some practice	There is not enough evidence for the DES investigator to conclude that this sample did or did not involve inner speaking. That’s why DES customarily discards the results of the first sampling day (or days), and why the DES procedure must be iterative (Hurlburt, 2009, 2011)
We are interested in the details of experience. If there are words, we’d like to know what those words are. If there is “saying” that does not involve words, we’d like to know what are the features of that saying. If there is thinking, we’d like to know about that as well, and what its features are, whether or not it uses words	Note that the investigator has neither encouraged nor discouraged the description of inner speaking or any other phenomenon; the investigator has encouraged only the effort at high fidelity reporting (and has been supportive of the participant’s efforts in the face of the difficulty of the task)
Very few people are good at DES on the first day, which is why we sample across multiple days. So when you wear the beeper tomorrow, if a sample like this occurs, please jot down its characteristics. If there are words, please jot down the words	

Based on our experience, the participant’s switch from “saying to myself that” at P1, to declining to describe experience at P3, to “thinking that” at P5, to subjunctification at P7, to ignorance at P9 makes it somewhat more likely that the participant was *not* innerly speaking at the moment of the beep, and somewhat less likely that the participant was innerly speaking but subsequently forgot the details. But the investigator does *not* take those likelihoods into account—that is, the investigator is *not* attempting to gather evidence and thence to arrive at a judgment about the existence of inner speech. Instead, the investigator is trying to help the participant build skills so that subsequently *it will not be necessary for the investigator to gather evidence*—so that the participant may learn to apprehend unambiguously and describe with fidelity. That is the heart of the DES investigation of phenomena: description is *not* about the investigator’s inference, it is about helping participant and investigator get into a position to apprehend with *minimal* inference.

[In passing, discussed more thoroughly below, we note that had this participant been involved in a study that did not involve iterative training, it is likely that she would have reported (in an interview or questionnaire) that this experience involved inner speech. This is, we think, one of the sources of the over-reporting of inner speech frequency.]

5. Method

Many (but by no means all) of the randomly selected moments of experience we have examined with our subjects have included inner speaking. As mentioned above, we never specifically set out to observe inner speaking, but because it is a directly experienced and frequently occurring phenomenon of inner experience, our subjects have apprehended it on many occasions and we have interviewed them in detail about those experiences. What follows are some distillations of what we have observed about naturally occurring inner speaking.

Except for Heavey and Hurlburt (2008), our studies have never been designed to study subjects who were a representative sample of some larger population. For example, we have studied convenience samples of bulimic women (Hurlburt & Jones-Forrester, 2011), of depressed individuals (Hurlburt, 1993), of schizophrenia patients (Hurlburt, 1990), of adolescents (Akhter, 2008), of veterans with PTSD (Raymond, 2011), and so on; that is, we have studied individuals who have been selected because their inner experience might be expected to be in some ways different from that of the population in general. At the same time, we have explored a variety of undergraduates from the subject pool of a large urban university, who were

examined as part of the DES training of graduate students, and whose inner experience might be expected to be in many ways similar to that of the (American) population in general. Thus we have carefully examined randomly selected inner experiences from a mixed and diverse set of individuals. There are advantages and limitations of such a procedure. Our main goal has been to explore the phenomena of inner experience, whatever those phenomena might be, and the mixed set of individuals is likely to give us a desirably broad perspective on the phenomena of inner experience. However, because the individuals cannot be considered representative of any specifiable large population, and because we do not have much cross-cultural data, we cannot provide relative frequency estimates beyond those given by [Heavey and Hurlburt \(2008\)](#). Thus we can make statements (we think defensibly) such as “we think this occurs frequently” or “this is rare,” but we cannot provide percentages and we must be open to the possibility (or probability) that future studies in other cultures or with other populations within the same culture may provide somewhat (or dramatically) different perspectives on the phenomena of interest.

6. Inner speaking: the phenomenon

As we have implied above, there is a range of phenomena that may deserve to be called “inner speaking,” some closer to the “center of the target,” some farther away.

The six examples above are typical of what we take to be the most frequent and “center of the target” examples of inner speaking. They and the others have these features:

- The person apprehends him or herself to be speaking meaningfully without producing any accompanying sound or appreciable bodily (throat, diaphragm, etc.) movement.
- The speakings are generally apprehended to be in the person’s own naturally inflected voice, in the same rhythm, pacing, expressivity, tone, hesitations, and style as external speaking (sometimes with a greater range of expression than external speaking).
- The experience is typically apprehended to be just like speaking aloud in the sense that people who report innerly speaking are typically at a loss to identify any aspect in which the experience differs from externally speaking other than their immediate and unshakeable recognition that the speaking is inner rather than external (confusion about whether something is innerly spoken or spoken aloud is very rare).
- Inner speaking, just as speaking aloud, conveys emotion, curiosity, outrage, interest, boredom, and a potentially unlimited list of nuanced feelings. People can innerly shout or whisper, speak with inflection or monotone, and so on.
- Inner speakings are generally but by no means always in complete sentences. Five of our six original examples are in sentences (e.g., “I don’t want to go”). Sometimes the speakings are just one or a few words (e.g., “Thai food!”). The significance of the words, whether in complete sentences or condensed, is generally understood. For example, Brian understood exactly the *where* that was implied but not stated in his “I don’t want to go”; Angela understood the welcome-discovery nature of her telegraphic “Thai food!” In this regard, inner speech seems very similar to external speech.
- Inner speaking is generally in the same kinds of words that the person would use in external speech, including the same kinds of quasi-worded expressions (e.g., “Ugh!” or “Oof!”) as external speaking.
- Sometimes inner speaking is aimed at some particular other, as when Brian said “I don’t want to go” directed (in his imagination) to his friend. Sometimes the intended recipient is the person herself or himself (as when Fayth said, “This year *can* still be better” as if giving herself a pep talk). Sometimes the recipient is not experientially specified, as when Ellen said “Turn those sirens OFF!!” to no one in particular. Sometimes the recipient is difficult to ascertain, even by the person herself, as when Christine said, “My pinky toe is ugly”; it is tempting to infer that Christine is speaking to herself, but it may also be merely an accompanying statement made to no one in particular. This is similar to external speaking. Although external speaking may be frequently aimed at a particular correspondent, external speech can be aimed at the self or at no one in particular (as when a basketball fan shouts from the balcony, “That’s a foul!”)
- Inner speakings are generally apprehended primarily as being produced rather than heard. That is, inner speaking is more a phenomenon of created action than of received audition. There is no separate sense of creation—no experienced entity that is somehow behind the word—and yet there is some understanding of being the “driver of” the words. Here the metaphor of being the driver of a car seems apt: most often when driving, there is no explicit experiential sense of being the driver, and yet the experience is somehow different from being a passenger. Inner speech is like that—there is an understanding that the words are somehow under the control of the speaker, even though that control is not explicitly experienced. (But see the *Doing vs. Happening* section below.)

Sometimes (less frequently, we think), the experience of inner speaking is of both producing and hearing the utterance. If the phenomenon is primarily of hearing, we call it inner hearing (see below).

7. Variations

Inner speaking, like external speaking, is not a monolithic experience, is not the same for every person and on every occasion. An exploration of any phenomenon must include discussion of its range and variability.

7.1. Individual differences in frequency

Some people innerly speak nearly always when awake. For example, Fayth (see the example above “This year can still be better”) was innerly speaking 94% of the times (17 of 18) her beeper sounded. However, other people have few or no instances of inner speaking when randomly sampled. Heavey and Hurlburt (2008) gave the Symptom Checklist 90 Revised (SCL-90-R; Derogatis, 1994) to a large (407) relatively heterogeneous group of undergraduates at a large urban university. The SCL-90-R is a questionnaire designed to assess the extent to which an individual is bothered by a broad list of 90 psychological symptoms; Heavey and Hurlburt used it to stratify this large sample into deciles, from each of which they randomly selected three participants. That resulted in a sample of 30 individuals which was representative of a heterogeneous student population. Heavey and Hurlburt conducted three DES sampling days with each of the 30 individuals, using about ten samples from each. Heavey and Hurlburt found that the overall frequency of inner speaking was 26%. Within participants, the frequency ranged from 0% to 75%. Five of the 30 participants had no inner speaking at all in their ten samples. Mihelic (2010) used DES with a convenience sample of 21 subjects and found that six had zero frequency of inner speaking. Most participants had inner speech frequencies somewhere between zero and 100%. The overall frequency, averaged across all participants in the Heavey and Hurlburt (2008) and Mihelic (2010) studies was 23%, but that should not be taken to imply that most subjects experience inner speaking 23% of the time. The median inner speech frequency of the participants in the Heavey and Hurlburt (2008) and Mihelic (2010) studies was 20%.

7.2. Individual differences in experience

There is a wide variety of experiential concomitants of inner speaking. Some people experience speaking as a bodily action primarily in their midsection or chest. Some people experience inner speaking as taking place in the head. Some people experience the speaking as taking place in a particular area of the head (e.g., in the front of the head; in the back of the head; or to one side of the head). Some people have no physical concomitants of innerly speaking whatsoever—that is, they unambiguously apprehend themselves as speaking, and can report the exact words and their inflection, but cannot say where or how they experience that.

7.3. Partially unworded speaking

Sometimes (not frequently, we think) inner speaking has missing words—“holes” in the stream of speech. For example, a person might describe innerly saying “I’d like a _____ with cream cheese,” where the blank is understood to be a rhythmic space for the word “bagel” but the word “bagel” is not itself present at the time of inner utterance. Thus the rhythm of the inner speaking can exist intact even though a word or words may be absent. This seems to be different from external speech, which generally breaks off when a missing word is encountered.

7.4. Unworded inner speech

Sometimes (not frequently, we think) inner speaking is missing *all of its* words. That is, the person has the sense of innerly speaking (its production, its rhythm, etc.), and generally knows the sense of what is being said, but does not experience any words.

Unworded inner speech is experientially distinctly different from unsymbolized thinking (Hurlburt, 2011; Hurlburt & Akhter, 2008); see below.

7.5. Doing vs. happening

As we have seen, inner speech is generally experienced as something one drives, does, or utters. However, sometimes (not frequently, we think) inner speech is apprehended as “just happening,” as “coming out of its own accord,” as “taking place” rather than “being uttered.” That is, the person understands himself to be innerly speaking, understands himself to be the creator of the words, but does not have any sense of being the controlling agent. In these cases, the person discovers what is said as they greet the words they are speaking, whereas usually inner speakers sense that they understand the speaking as it is spoken.

This distinction between doing and happening applies to external speech as well. Usually, external speakers understand themselves to be the drivers of their speaking, understand themselves to be the agent in charge of the speaking. Sometimes, however, external words “just come out,” “appear unbidden,” with no sense of agency whatever. In those cases, the speaker experiences himself as understanding what he has said in the same way and at the same time as a listener would understand what he said. That is, in these (relatively infrequent) cases, the words “come toward” you, and understanding arrives with the words.

7.6. Anomalous voice characteristics

Sometimes (not frequently, we think) inner speaking is experienced with vocal characteristics different from one’s external speaking voice. For example, Walter was in conversation with his friend Frank, who was speaking, saying “let’s go to the

gym before dinner.” Walter heard Frank’s voice and at the same time was re-speaking Frank’s words in Frank’s voice with approximately (but not exactly) the same vocal characteristics as Frank had used initially. That is, Walter experienced two overlapping (one about a half second after the other) versions of Frank’s voice saying “let’s go to the gym before dinner.” One was clearly heard, whereas the other was clearly spoken by Walter, even though he was speaking Frank’s voice.

Sometimes the anomalous voice is recognized as being one’s own, but with atypical characteristics. For example, it is “my” voice but spoken with robot-like mechanical diction; it is “my” voice but about an octave higher; it is “my” voice but in low fidelity; and so on.

7.7. Non-meaningful speaking

Sometimes innerly spoken words are not experienced for their semantically meaningful characteristics. For example, at sample 5.3, DH (Mizrachi, 2013) had been looking at a section of his Astronomy notes regarding helium flares. Now he was innerly saying, “H e Flare, H e Flare, H e Flare” and at the moment of the beep, he was saying one unit of the “H e Flare” repetitions. His experience was of the sounds that he was innerly uttering; what the words referred to was not in his experience at the moment. From the standpoint of DH’s experience, he was not speaking astronomy terms or indeed words at all; his utterance could have been in Greek or some nonsense like “blizbod, blizbod, blizbod.” It was the *sound* that he experienced, not the sound of a semantically meaningful word.

In that example, it was possible for the person to “trace back” the meaning of the words (to his Astronomy notes), but that is not always possible. For example, Ephraim was innerly saying “37.” There was no doubt that he was saying precisely “37” in his own natural voice, but he had no knowledge whatsoever about what, if anything, 37 might refer to or whether it had ever referred to anything.

7.8. Rate of speaking

Sometimes inner speaking is apprehended as occurring much faster (or, less often, slower) than real external speech. Typically in this situation, the speaking is apprehended as fast but not rushed; that is, it seems natural to innerly speak at a fast pace.

Sometimes inner speaking *must be* fast even though it is apprehended as being spoken at a normal rate of speaking. Willis was innerly saying “What a jerk! I hope I never see that idiot again!” while simultaneously slamming his book shut. The speaking was apprehended as taking place entirely during the same time interval as the real book was slamming shut, and yet the speaking was apprehended as occurring at a normal pace. That is physically impossible but experientially natural.

7.9. Inner speaking while externally speaking

Sometimes people innerly speak before they externally speak, seemingly a sort of “mental rehearsal.” That is by far the exception, rather than the rule; most external speaking is not accompanied or preceded by inner speaking.

When “mental rehearsal” does occur, it is often somewhat or dramatically different from what is subsequently actually externally spoken. For example, Belinda was in a conversation with some friends, innerly saying “Let’s go to Burger King” while waiting her turn in the ongoing conversation. But when she spoke, the words that came out were “Let’s go to KFC.” She had no impression of having changed her mind, and no at-the-moment-of-the-beep feeling of surprise at her discrepant utterance. Only on retrospection a few seconds later was she surprised (shocked, actually) that her aloud utterance did not match her inner speaking.

Sometimes the outer utterance is opposite to the inner speaking. For example, “Yes! Let’s do it!” comes out as “No!” without any apprehension of change of heart.

Thus the term “mental rehearsal” is often substantially misleading. Inner speaking is not always a rehearsal; it is innerly speaking in a similar situation, which the subsequent speaking may or may not resemble.

Sometimes inner speech takes place simultaneous with but different from external speech. For example, at sample 3.5, nursing student Andrea (Mihelic, 2013) was speaking with a fellow student, Shatoya, about drawing blood. At the moment of the beep, Andrea was innerly saying to herself, “the finger has to turn reddish or purplish for blood to gather up.” She was innerly saying that to herself in her own voice, as if the words were somehow supplied to her. That is, the saying had some of the characteristics of repeating what she had read, or had been told, even though the reading or the telling was not part of her experience. Simultaneously, Andrea was telling Shatoya aloud: “Squeeze the finger to where it turns red, kind of purplish, so you have a lot of blood when you poke it.” Andrea was focused more on what she was innerly saying than what she was saying aloud.

Sometimes there are multiple simultaneous inner speakings. For example, Hurlburt and Schwitzgebel (2007, pp. 206–217) discussed at length a sample in which, before the beep, Melanie had been thinking about a flower arrangement, and had said to herself in inner speech, “They lasted a nice long time.” Now, at the moment of the beep, Melanie innerly heard three instances of her own voice, each saying “nice long time” but starting at slightly different times, so the experience was *not* of three voices in unison but instead of three separate voices, with ragged starting times, each saying the same thing but not in sync with each other. We have seen other examples where a person speaks entirely different phrases or sentences

simultaneously or overlapping; sometimes the speakings are experienced in different parts of the head, sometimes in different voices or tones of voice, but most often they are simply experienced as simultaneous speakings, all in the person's own voice, all distinct from each other, and woven in and around each other—some starting a slight bit earlier, some a slight bit later.

8. What inner speaking is not

An exploration of any phenomenon must include discussion of what is *not* that phenomenon. That is especially true with inner speaking because many people (layperson and scientist alike) use the term “inner speech” to refer to things that are *not* speech. As a result, everyday conversation and the professional literature are quite inconsistent about inner speaking.

8.1. Not inner hearing

Commentators about inner speaking frequently imply or explicitly say that inner speaking is a phenomenon of hearing. For example, inner speaking is frequently called “auditory imagery” such as by Carruthers (2009, p. 124): “auditory imagery (including sentences rehearsed in ‘inner speech’).” DES investigations show that the phenomenon of inner speaking is distinctly different from the phenomenon of inner hearing; to make the distinction clear, we begin by discussing inner hearing in general, and then narrow that to inner hearing of speech.

Inner hearing is the experience of hearing something that does not exist in the external environment. For example, Samantha (Jones-Forrester, 2009) at her sample 6.5 was innerly hearing the chorus of *Welcome to the Black Parade* (by the group My Chemical Romance). She heard the singing and the guitar/drum accompaniment just as if she were hearing an externally played CD. (When a subject reports “just as if,” that is a statement about experience, not about facts of the physical universe. In fact, inner hearing may be very different from hearing of an externally played CD; the question is whether it is *experienced* as being the same as external hearing.)

The previous example was of hearing a voice singing. Inner hearing can also be of a voice speaking. For example, at her sample 4.1, Mickey (Mizrachi, 2013) was in bed but not asleep. She had been recalling that Katie, her roommate, had been telling her that Katie's mom gets upset when Katie spends time at her aunt's house because Katie's mom thinks they are starting a new family. During that conversation, Katie had mimicked her mom's saying “I don't like Vegas!” Now, at the moment of the beep, Mickey was innerly hearing Katie say, “I don't like Vegas” with the same inflection that Katie had used earlier.

The innerly heard voice speaking can be one's own. For example, at her sample 7.3 Joline (Kang, 2013) was in the bathroom starting to put on eyeliner. At the moment of the beep she was paying careful attention to putting the eyeliner on. While doing so she innerly heard her own voice say, with a “black-girl-attitude” inflection, “You better not poke yourself in the eye.”

It is this last kind of experience (when the voice heard is one's own) that requires the most careful discrimination between inner hearing and inner speaking. The distinction between external hearing and external speaking is, for most people, entirely unambiguous. For example, if you speak into a tape recorder and subsequently play your voice back, there is typically absolutely no question that in the one instance you are speaking whereas in the other you are hearing, even though the voice, the words, and the inflection are the same. In speaking, the words arise from you, are driven by you, emanate from you, proceed away from you; in hearing, the words arise from elsewhere, are outside your control, emanate somewhere else, come toward you. Clearly a clever experimenter might arrange a carefully contrived situation where we might be confused about whether we are speaking or hearing, but that is the exception that proves the rule: in general, in everyday situations, external speaking and hearing are experientially very different.

Most subjects, when aided by an iterative (Hurlburt, 2009, 2011) procedure that brackets presuppositions (Hurlburt, 2011; Hurlburt & Heavey, 2006; Hurlburt & Schwitzgebel, 2011b) about whether a particular experience is hearing or speaking, come to find that the distinction between inner speaking and inner hearing is approximately as unambiguously clear as that between speaking into a tape recorder and hearing your voice being played back. However, primarily because of common strong presuppositions, it requires skilled interviewing to determine whether a particular experience involves innerly hearing or innerly speaking.

It is our impression inner speaking is substantially more common than inner hearing. However, as we said above, our subjects, while diverse, are not representative.

Sometimes the distinction between spoken and heard is present in the same experience. For example, at his sample 5.3 Benjamin (Kang, 2013) was eating dinner in a restaurant and had noticed a woman. Now he was having an inner conversation with himself about her; this conversation involved two inner voices; both voices were his and had apparently identical features except that one was experienced as being spoken (being produced by Benjamin) and the other experienced as being heard (Benjamin did not experience the producing the this voice). The innerly speaking voice had asked, “Why are you bringing this woman to my attention?” The innerly heard voice had replied, “She's pretty” in a matter-of-fact tone. At the moment of the beep Benjamin was innerly speaking the reply, “Uh huh” in a that's-bullshit tone of voice.

Despite the phenomenologically unambiguous clarity of the distinction between inner speaking and inner hearing, most subjects at the beginning of DES sampling (on the first sampling day or two) do not make the distinction, referring to both

inner speaking and inner hearing in the same way (usually as some variant of “talking to myself”). However, once the distinction is described to them (usually including some variant of the distinction between talking into a tape recorder and playing it back), most subjects find the distinction straightforward.

[In passing, discussed more thoroughly below, we note that if most participants do not initially distinguish between inner speaking and inner hearing, non-iterative procedures such as interview or questionnaires would likely include inner hearing in the category of inner speech, resulting in the over-reporting of inner speech frequency.]

8.2. Not unsymbolized thinking

Unsymbolized thinking (Hurlburt, 2011; Hurlburt & Akhter, 2008) is the experience of an explicit, differentiated thinking that does not include words, images, or any other symbols. For example,

Abigail is wondering whether Julio (her friend who will be giving her a ride that afternoon) will be driving his car or his pickup truck. This wondering is an explicit, unambiguous, “thoughty” phenomenon: it is a thought, not a feeling or an intimation; it is about Julio, and not any other person; and it intends the distinction between Julio’s car and truck, not his van or motorcycle, and not any other distinction. But there are no words that carry any of these features—no word “Julio”, no “car”, no “truck”, no “driving.” Further, there are no images (visual or otherwise) experienced along with this thought—no image of Julio, or of his car, or of his truck. In fact, there are no experienced symbols whatsoever—Abigail simply apprehends herself to be wondering this and can provide no further description of how this wondering takes place. (Hurlburt & Akhter, 2008, p. 1364)

Unsymbolized thinking is a phenomenon—a thought directly, unambiguously present “in the footlights of consciousness” as James would say. That is, unsymbolized thinking is *not* a process ongoing behind the scenes. Thus both unsymbolized thinking and inner speaking are directly apprehended phenomena, often (usually) taking place in the center of experience. But unsymbolized thinking and inner speaking are very different phenomena: inner speaking involves the direct apprehension of words and sentences; unsymbolized thinking has no experienced words or sentences.

Because unsymbolized thinking is very different from inner speaking—one includes words, the other does not—it might seem that merely mentioning the distinction is adequate. However, that is not the case, apparently because many people (perhaps most, including perhaps most consciousness scientists) hold strong presuppositions *against the possibility of the existence* of unsymbolized thinking. As a result, many instances of unsymbolized thinking are misreported as being instances of inner speaking. That is, we believe that unless people have been trained in an iterative (Hurlburt, 2009, 2011) way, they routinely misapprehend their own unsymbolized thinking and misreport it as being inner speaking, despite the fact that there are no words and no (inner or outer) speaking (this is one of the factors that lead interviews and questionnaires to over-report the frequency of inner speech). Once they become skilled at understanding the distinction between unsymbolized thinking and inner speech (usually the result of iterative training), most subjects find the distinction straightforward and confidently discriminate between unsymbolized thinking and inner speaking.

Heavey and Hurlburt (2008) reported that once subjects have learned to apprehend the phenomena of unsymbolized thinking, it occurred in approximately 22% of all samples.

8.3. Not sensory awareness

Sensory awareness is the direct focus on some specific sensory aspect of the body or outer or inner environment. For example:

Andrew is dialing his cell phone. At the moment, he is just ‘zeroed in’ on the shiny blueness of the brushed aluminum phone case. He is not, at that moment, paying attention to the number he is dialing; his experience has momentarily left that task (which continues as if on autopilot) to be absorbed in the shiny blueness. (Hurlburt, Heavey, & Bensaheb, 2009, pp. 231–232)

Sensory awareness by definition involves a direct focus on a sensory aspect. For example, if Andrew had been dialing his phone while paying attention to the number he was dialing, the same brushed aluminum blueness would have been falling on his retina and contributing to the skilled performance of the dialing task, but this perceptual awareness of the phone would *not* be called sensory awareness by DES.

Sensory awareness thus has little or nothing in common with inner speaking. We mention it because, like unsymbolized thinking, naïve subjects often report themselves to be innerly speaking when their actual experienced phenomenon was of sensory awareness. Thus, had Andrew’s shiny blueness occurred on his first sampling day, he likely would have said (incorrectly) that he was “saying to himself” the telephone number that he was about to dial. (This is one of the factors that lead interviews and questionnaires to over-report the frequency of inner speech.)

Heavey and Hurlburt (2008) reported that once subjects have learned to apprehend the phenomena of sensory awareness, it occurred in approximately 22% of all samples.

8.4. Not thinking (when “thinking” is used to denote a cognitive process)

The word “think” is used in a variety of ways in psychology and philosophy, including reasoning, problem solving, decision making, beliefs, and opinions. In most of those ways, thinking refers to some sort of “cognitive” or “mental” process that has no necessary experiential aspect. It is true to say that I think (or “I believe”) that that Berlin Wall was built in 1961 regardless of my current experience: if I’m in a basketball arena with the score tied and five seconds left in overtime, and I’m totally preoccupied with the game, the Berlin Wall has no experiential presence whatsoever but I still think it was built in 1961. Thus thinking as that term is frequently used may or may not have an experiential aspect.

Inner speech, by contrast, is a phenomenon, a directly (albeit privately) apprehended experience. Inner speaking must be experienced to exist.

9. Discussion

Our description of the phenomenon of inner speaking has been very different from the descriptions given by others. Our discussion will highlight those differences and, more importantly, discuss the ramifications those differences have on the methods of exploring inner experience.

9.1. Frequency

Many commentators hold that inner speech occurs all the time. Here are a few examples: “Human beings talk to themselves every moment of the waking day” (Baars, 2003, p. 106); “inner dialog is . . . universal and continuous to human beings, and also one of which they are acutely if not infallibly aware” (Archer, 2000, p. 193); “Inner speech is an *almost continuous* aspect of self-presence” (Ihde, 2007, p. 134, emphasis in original). Our investigations lead us to conclude that those positions, widely held though they may be, are wrong, not just slightly wrong but dramatically wrong. As discussed above, we have found large individual differences in the frequency of inner speaking, ranging from about zero to close to 100%, with a mean of about 23% of sampled moments (Heavey & Hurlburt, 2008; Mihelic, 2010). We have routinely sampled with participants who had no moments of inner speaking. We are very confident that inner speaking does *not* occur all the time.

Some investigators accept estimates of the frequency of inner speech that are much higher than those we have reported. For example, Martínez-Manrique and Vicente (2010) sought to explain the discrepancies between the DES results and other reports in the literature:

Heavey and Hurlburt point out that experiences that are different in kind may occur at the same time, e.g. inner speech and images. The possibility that participants may be reporting only the predominant state could partly explain the gross discrepancies with base rates observed in other studies, such as Klinger and Cox (1987–88), who report 75% of inner talk. (Martínez-Manrique & Vicente, 2010, p. 142)

We believe that Martínez-Manrique and Vicente’s explanation is not correct; we believe that the gross discrepancies come from the very different methods used by Klinger and Cox and by DES. In particular, we think that Klinger and Cox’s method is not adequate to explore phenomena. Klinger and Cox used a pager and instructed subjects to “give a detailed, accurate report of what has been going through your head, from the most recent thought back to the earliest that you can remember well” (Klinger and Cox, 1987–88, p. 110). We think that method is problematic for at least four reasons. First, “from the most recent thought back to the earliest that you can remember well” does not adequately identify the experiences to be considered. Subjects could easily have no inner speaking ongoing when the beep occurred but be able to remember an instance of inner speaking sometime (perhaps a long time) before the beep. Second, by asking for “what has been going through your head,” the instructions discourage reports of feelings, sensory awarenesses, and so on that may have dominated experience at the moment of the beep but “don’t count” according to these instructions. Third, as we have seen above, unsymbolized thinking, sensory awareness, and inner hearing are often incorrectly reported by naïve subjects to be instances of inner speaking. All Klinger and Cox’s subjects were naïve on this view: unsymbolized thinking (Hurlburt & Akhter, 2008) and sensory awareness (Hurlburt et al., 2009) require several days of iterative training before they can be apprehended reliably. Unsymbolized thinking and sensory awareness each occur in about 25% of samples (Heavey & Hurlburt, 2008); their mislabeling as inner speech would substantially inflate the frequency of reported inner speech. Fourth, Klinger and Cox made no adequate attempt to help their subjects bracket presuppositions. As a result, their questionnaire responses may reflect as much (or more) their presuppositions as their actual experiences. For all these reason, we believe that the Klinger and Cox percentages are far too high.

9.2. Phenomena

Vygotsky (1934/1986) is the source or inspiration of much modern study of inner speaking. However, we think many of his observations of the phenomena of inner speaking are not correct. For example, he defined “predication” as “an altogether specific form of abbreviation, namely: omitting the subject of a sentence and all words connected with it, while preserving

the predicate” (Vygotsky, 1934/1986, p. 236). Predication is a central tenet of Vygotsky’s understanding of inner speech, which holds that predication in inner speech is ubiquitous:

Predication is the natural form of inner speech; psychologically, it consists of predicates only. It is as much a law of inner speech to omit subjects as it is a law of written speech to contain both subjects and predicates. (Vygotsky, 1934/1986, p. 243)

Our investigations show that predication occasionally occurs in inner speaking, but it has by no means the ubiquity that Vygotsky claimed in that passage. Furthermore, the condensation that does occur in inner speaking, as DES discovers it (which is relatively uncommonly, as we have seen), just as frequently (or more frequently) innerly speaks the subject and leaves the predicate unspoken but understood. For example, Angela innerly says “Thai food!” stating the subject but leaving the predicate (that she is happy to find such a restaurant in her neighborhood) unstated. Vygotsky recognized that condensations other than predication do occur, so he would not have been surprised by our “Thai food!” example. Our point is that condensation, especially predication, is relatively uncommon, rather than ubiquitous, in inner speaking as we have found it.

Another central aspect of Vygotsky’s theorizing is that inner speech is developmentally the internalization of external dialogs between children and their parents or other caregivers. McCarthy-Jones and Fernyhough, modern investigators in the Vygotskian tradition, state a strong form of this view:

If the Vygotskian view is correct, internal dialogs should feature different voices in interaction. . . . This view of the development of verbal thinking entails that our inner speech will be shot through with other voices. (McCarthy-Jones & Fernyhough, 2011, p. 1587)

Our DES investigations suggest that it is rare that inner speaking occurs in the voice of another. We have seen, over the course of 30 years of investigations, only a handful of such instances. Inner dialogs do occur occasionally, but it is much more typical either that the person will innerly speak in her own voice both parts of the dialog, or will innerly hear (not speak) either the entire dialog including her own voice (as in “replaying” a conversation that had taken place earlier), or will innerly speak one’s own voice and innerly hear the response (as in Benjamin’s “she’s pretty” example above). Thus DES results agree with Fernyhough (2004), who noted that inner speech can be dialogical without involving more than one voice.

Inner speaking is sometimes claimed to be a concomitant or precursor of external speech. For example:

When I am speaking to another, my thinking in inner speech may be racing, running ahead of my verbal speech such that I always seem to have far more in mind than I am able to voice in such occasions, and this is in part due to the relative speed of inner speech. (Ihde, 2007, p. 141).

That does not comport with our DES observations of inner or outer speaking. Most frequently (but by no means always), someone engaged in external speaking has no other experience: they are speaking, they understand themselves to be speaking, they apprehend themselves to be the creator or the driver of that speaking (although that is almost never an explicit experience), but beyond that most subjects have nothing else to report. It is as if the speaking “uses up” the entire capacity for inner experience.

However, there are exceptions to this. A person may have a clear inner seeing simultaneous with an external speaking. A person may have a clear inner speaking simultaneous to the external speaking, and this inner speaking may be understood to be a “running ahead” as Ihde describes, but it may be different from or even unrelated to the external speaking, such as in the example of Andrea presented earlier.

Commentators (for example Martínez-Manrique & Vicente, 2010) frequently refer to the existence of a “language processor” that is on some occasions enlisted to create external speaking but on other occasions enlisted to create inner speaking. That is hard to square with the simultaneous disparate inner and external speakings described above, and hard to square with DES observations of simultaneous but disparate inner speech. For example, Melanie’s multiple inner speaking of “nice long time” (Hurlburt & Schwitzgebel, 2007) discussed above would be hard or impossible to do with a single language processor.

Commentators such as Ihde (2007) suggest that the inner speaking phenomenon is “hard to grasp directly,” is at “the fringe,” is “elusive,” is in the “background” (Ihde, 2007, p. 139). We believe that that view is a byproduct of Ihde’s method (a descendant of Husserl’s free imaginative variation), which tries to create the experience it then examines. DES, which explores inner experience as it finds it in pristine experience, discovers that inner speaking, when it occurs, is usually clear, focused, central, and easy to grasp.

It is often claimed (e.g., Martínez-Manrique & Vicente, 2010) that inner speech focuses thinking. Our DES investigations suggest that that might be true on some occasions (as when you innerly speak repeatedly a telephone number that you wish to dial when you locate your phone). But this kind of focusing is by no means an essential feature of inner speaking. For example, Angela’s “Thai food!”, Daphne’s “That is so awesome!” and Ellen’s “Turn those sirens OFF!!” seem more parallel accompaniments of thinking that is already focused rather than a specific contributor to that focus.

Inner speaking is often held to be either identical to or a window into thinking. For example, Byrne (2011, p. 117) wrote, “If the inner voice speaks about *x*, believe that you are thinking about *x*.” As far as we can tell, it is not possible to have independent access to the thinking process, but that said, Byrne’s stance seems to us unlikely. Byrne seems to imply that there is one thinking process ongoing at any time, whereas we have seen (a) examples of multiple disparate simultaneous inner speakings; and (b) we have seen many examples of thinking that do not involve experienced words.

Many people refer to the “inner voice,” but we take most of those referents to be conceptual rather than phenomenal. For example, Mahatma Gandhi is understood to have said “Everyone who wills can hear the inner voice. It is within everyone.” However, it is not clear whether that use of “inner voice” to refer to a sense of direction/purpose or to inner speaking (or hearing).

10. Methodological ramifications

We have seen that there are immense differences in descriptions of the phenomena of inner speaking, for example, claiming that inner speech is always present (Baars, 2003) to claiming that in many people inner speech is never present (DES). We must consider the methods that lead to such extraordinarily different claims.

10.1. Armchair introspection

How, then, do commentators come to such conclusions as that inner speech happens all the time, when DES suggests that that is far off the mark? We speculate that one culprit is armchair introspection. Hurlburt has been consistently critical of armchair introspection (Hurlburt, 2011; Hurlburt & Heavey, 2004; Hurlburt & Schwitzgebel, 2007, 2011a). When a consciousness scientist seeks to explore experience by asking himself something like *I wonder what is in my experience right now?* it is possible (or likely) that because the question itself is fundamentally verbal, the questioning procedure itself suggests that the answer will be of verbal content. For that reason, Hurlburt (2011; Hurlburt & Schwitzgebel, 2011a) holds that introspection that is self-cued is likely to produce a view of pristine experience that is biased, probably heavily biased toward verbal experience.

Furthermore, many commentators who employ armchair introspection generalize from their own experience, apparently on the view that inner experience is universally uniform (“everyone is just like me”). It is possible that the pristine inner experience of Baars, or of Archer, or of Ihde is continuously populated by inner speaking, but that in itself does not imply that inner speaking is a universally ubiquitous characteristic. DES shows consistently that there are large individual differences in inner experience: some people experience inner speaking nearly constantly, some never; some experience the seeing of visual imagery nearly constantly, some never; some experience sensory awareness nearly constantly, some never; and so on (Heavey & Hurlburt, 2008; Hurlburt, 2011).

We are of course not in a position to know the extent to which Baars, Archer, Ihde, and so on as individuals relied on armchair introspection, so we are not specifically critical of their individual methods. However, in our view, the drastic discrepancies between our DES results and those of others demonstrates that armchair introspection is not a reliable way to explore the pristine phenomena of inner experience (including inner speaking). For example, as we saw above, Ihde believes that inner speaking is fringy, elusive, in the background. We speculate that that is an artifact of his method. For example, if his own pristine experience was actually of unsymbolized thinking, but his presuppositional stance (as is frequent) is that unsymbolized thinking is not possible, then it is possible that he would (incorrectly) label his experience inner speech and find it difficult to identify the precise words (because they don’t exist). If Ihde believes that the words must exist in thinking (as many consciousness scientists do), then he might mistake the non-existence of inner speaking for its fringiness. We emphasize that we make such a speculation not because we think it necessarily applies to Ihde (about that we don’t know). Ihde refers to his method as “experimental phenomenology,” but we think that his method does not overcome the risks of a method where the same person defines the target, the occasion, the duration, and the interpretation of the introspections (Hurlburt, in Hurlburt & Schwitzgebel, 2011a, p. 259).

10.2. Questionnaires

There are five questionnaires that seek to measure self-talk. The Scale for Inner Speech (Siegrist, 1995) uses this introduction: “Inner speech and self-talk are conversations or monologues which we do not engage in with another person but rather have with our own selves. Inner conversations and self-talk can either be spoken out loud or be only formulated in our thoughts” (Siegrist, 1995, p. 261). There are 18 items, including “When I think about myself and my characteristics, I talk to myself about them in my thoughts” and “If I am not feeling well, I often talk to myself about my state” (Siegrist, 1995, p. 262). Respondents use six-point Likert scales “for frequency of the behavior in question” (Siegrist, 1995, p. 261), but Siegrist does not specify the points on the scale.

The Self-Talk Inventory (STI, Burnett, 1996) is a 60-item questionnaire that asks about the content of self-talk. Designed primarily for children, the STI presents ten scenarios, each with three positive statements (such as “Just stay calm” and “Everything will be OK”) and three negative statements (such as “Everyone will think I’m hopeless” and “This is going to be awful”) (Burnett, 1996, p. 62). For each scenario, respondents are to select *Yes*, *Sometimes*, or *No* for each statement. The STI does not discriminate between aloud self talk and inner self talk.

The Self-Verbalization Questionnaire (SVQ; Duncan & Cheyne, 1999) is a 27-item questionnaire that asks about private speech with questions such as: “I sometimes verbalize my thoughts when I’m working on a difficult problem” and “I sometimes verbalize my thoughts when I’m memorizing something for an exam” (Duncan & Cheyne, 1999, p. 135). Respondents use 7-point Likert scales, but Duncan and Cheyne (1999) do not specify the labels on the scales. Some of the items are

expressly about external private speech (e.g., “I sometimes think out loud to myself when I’m trying to write with a lot of distraction”; Duncan & Cheyne, 1999, p. 135). The SVQ is based on Vygotsky’s model, and it does not adequately discriminate between private (aloud) speech and inner speech.

The Self-Talk Use Questionnaire (STUQ; Hardy, Hall, & Hardy, 2005) is a 59-item questionnaire that inquires about inner and outer self-talk; here is the beginning of the instructions: “Self-talk, as the name suggests, is best thought of as what you say to yourself. You may talk to yourself out loud or you may talk to yourself in your mind, so that only you can hear what you are saying” (Hardy et al., 2005, p. 916). The first 50 STUQ items are about the Where, Why, and When of self-talk, answered with 9-point Likert scales (1 = *never*, 9 = *all the time*). Here’s an example of a Why question: “In practice, how often do you say things to yourself... to refine a strategy/plays/plan/routine?” (Hardy et al., 2005, p. 917). At the end of the scale are nine “what questions” that ask the respondent to assign percentages to items such as “In your opinion... what percentage of what you say to yourself is said as single words? _____%” (Hardy et al., 2005, p. 917). One of these, the last question on the test, asks about inner speaking: “In your opinion... in general, what percentage of your self-talk is said in your head so that only you can hear what you are saying to yourself? _____%” (Hardy et al., 2005, p. 917).

The Self-Talk Scale (STS; Brinthaup, Hein, & Kramer, 2009) is a 16-item questionnaire with items such as “I talk to myself when... I want to reinforce myself for doing well” and “I talk to myself when... I feel ashamed of something I’ve done” (Brinthaup et al., 2009, p. 92). The instructions are:

Researchers have determined that all people talk to themselves, at least in some situations or under certain circumstances. Each of the following items concerns those times when you might “talk to yourself” or carry on an internal conversation with yourself (either silently or out loud). (Brinthaup et al., 2009, p. 92)

Respondents use a 5-point scale labeled *Never*, *Seldom*, *Sometimes*, *Often*, and *Very Often*.

As we have seen, none of those questionnaires discriminate adequately between self-talk (aloud) and inner speech (silent). The STUQ, as we have seen, has one item that refers directly to inner speech (“In your opinion... in general, what percentage of your self-talk is said in your head...”). The Scale for Inner Speech (Siegrist, 1995) mixes together items about inner speech (e.g., “Thing I am not sure about myself I make conscious by talking to myself about them in my thoughts”), with items that are ambiguous as to whether talk is silent or aloud (e.g., “If I am not feeling well, I often talk to myself about my state”; Siegrist, 1995, p. 262). From a Vygotskian perspective, the failure to distinguish between aloud self-talk and inner speech makes perfect sense—Vygotsky held that the inner speech origin was aloud self-talk. Duncan and Cheyne (1999), Hardy et al. (2005), Brinthaup et al. (2009), Siegrist (1995), and others apparently believe that considerable amounts of aloud self talk continue into adulthood, but we think those reports are substantially inflated because their method are retrospective and do not adequately discriminate between inner and aloud self talk. DES shows that self-talk (aloud) is very rare whereas inner speaking is very common, so there is reason to suspect that the phenomena may be different.

There is one questionnaire that does aim directly at inner speaking, the Varieties of Inner Speech Questionnaire (VISQ; McCarthy-Jones & Fernyhough, 2011). The VISQ is an 18-item questionnaire with items such as “I think to myself in words using brief phrases and single words rather than full sentences”; “I hear the voice of another person in my head. For example, when I have done something foolish I hear my mother’s voice criticising me in my mind”; “My thinking in words is more like a dialog with myself, rather than my own thoughts in a monolog”; and “I experience the voices of other people asking me questions in my head” (McCarthy-Jones & Fernyhough, 2011, p. 1589). Respondents use 6-point Likert scales with labels 1 = *Certainly does not apply to me*, 2 = *Possibly does not apply to me*, 3 = *If anything, slightly does not apply to me*, 4 = *If anything, applies to me slightly*, 5 = *Possibly applies to me*, and 6 = *Certainly applies to me*.

McCarthy-Jones and Fernyhough state that the VISQ is “designed to assess the phenomenological properties of inner speech” (McCarthy-Jones & Fernyhough, 2011, p. 1586), but we think that there are five reasons that the VISQ may not reveal phenomenological properties with fidelity:

- (1) The scale anchors are phenomenologically ambiguous. Different respondents may have disparate legitimate interpretations of *Certainly applies to me*. For example, one respondent may legitimately check *Certainly applies to me* for the item “I think in inner speech about what I have done” if she believes herself to engage in inner speech nearly all the time, occasionally speaking about what she has done. Another respondent may check the *Certainly applies to me* if she engages in inner speech only rarely but is confident that when she does so, she thinks about what she has done.
- (2) The VISQ does not distinguish between inner speech and inner hearing. “I think in inner speech about what I have done” is explicitly a query about inner speech, as are six additional VISQ items. “I hear the voice of another person in my head” is explicitly a query about inner hearing, as are four additional VISQ items. The remaining six items, such as “I think to myself in words using brief phrases,” do not explicitly differentiate between speaking or hearing. We believe inner speaking and inner hearing are phenomenologically distinct, but VISQ scoring does not discriminate between these phenomena.
- (3) Even if the VISQ did provide unambiguous scale anchors and did clearly differentiate between inner speech and inner hearing, there is reason to be skeptical that respondents would be consistent in their understandings and usages of the other terms in the questionnaire. Lack of consistent usages across respondents is somewhat problematic for all questionnaires, but it is especially problematic for questionnaires that seek to investigate the phenomenology of inner experience. Hurlburt and Heavey (2001) recounted Skinner’s (1953) argument that it is very difficult if not impossible for the verbal community to shape discriminations about inner experience. By contrast, the verbal community finds it

easy to shape the discrimination of external phenomena. For example, external observers can effectively shape discriminations about the external-referent term “blue” by presenting a series of stimuli and relatively unambiguous instructions such as: now you see robin’s egg blue, now you see royal blue, now turquoise blue, and so on. By contrast, external observers cannot effectively shape discriminations about the internal-referent term “blue”; external observers cannot present emotional stimuli and unambiguous instructions such as: now you feel blue, now you feel sad, and so on. Therefore, we hold with Skinner (a) that the verbal community has no reason to be confident that inner-referent terms are used in the same way from one person to the next; and (b) that the verbal community often overlooks this fact, unwarrantedly assuming that my use of inner experiential terms such as “sad” have the same experiential referents as do yours. In particular, the verbal community typically presumes without warrant that terms such as “inner speech” and other VISQ locutions such as “brief phrases,” “asking me questions in my head,” and “conversation with myself” are used in largely the same way across people. These are not minor, at-the-margin differences. The DES iterative procedure often discovers that subjects’ first-sampling-day use of “talking to myself” refers to a wide range of phenomena including speaking, hearing, unsymbolized thinking, sensory awareness, visual imagery, and feeling. The iterative nature of DES can help subjects discriminate their meanings, but there is no such opportunity in typical questionnaire usage.

- (4) Equally importantly (and relatedly), Hurlburt (2011; see also Hurlburt & Heavey, 2004, 2006) has observed that 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 (2011) discussed many reasons for this: people typically attend to what they are interested in, not to the manner in which they are attending (that is, people systematically turn away from the features of their own experience); children are often given confusing messages about their experience (“You are not mad at your sister”; “Tell Grandma how happy you are to see her”); people are systematically punished for talking plainly about their experience (imagine, for one example, what would happen if you articulated aloud every sexually tinged experience—attraction, tickle, moistness, etc.—immediately as it happened, without regard for situation or person). As a result, people in general are far more skilled in hiding their experience than in speaking straightforwardly about it. Furthermore, as a general rule, introspectively catching aspects of awareness that may be fleeting and of brief duration is difficult.

We have seen several examples of this ignorance above: people who have frequent unsymbolized thinking experiences don’t know that they do so, and in fact they often believe that such experience is impossible (Hurlburt & Akhter, 2008); people who have frequent sensory awareness experiences don’t know that they do so (Hurlburt et al., 2009). Hurlburt (2011) gives other examples (including consciousness scientists) who are similarly ignorant of the features of their own experience. As a result, even if we could clarify what the VISQ label *applies to me* means, there is no reason to believe that, without some sort of iterative training, people know the extent to which aspects of experience are characteristic of them. A similar observation was made by McCarthy-Jones and Fernyhough themselves, who acknowledged that more ecologically valid techniques such as the Experience Sampling Method (Csikszentmihalyi & Larson, 1987) and DES might be valuable in the exploration of inner speech (McCarthy-Jones & Fernyhough, 2011, p. 1592).

- (5) The VISQ is limited in the phenomena it can measure. The investigators created questions that sought to explore three of the views of Vygotsky (that inner speech is inherently a dialog, that it is condensed, that it involves other people) and one additional view from Hardy et al. (2005) (that inner speech is evaluative/motivational). As we have seen, we are skeptical about the aptness of those views, but even if they are correct, the VISQ cannot discover any other characteristics of the phenomena of inner speaking.

These five reasons suggest that the VISQ (like all other questionnaires aimed at inner experience), may not reveal in high fidelity phenomenological properties of experience such as inner speaking. Our experience with DES investigations suggests that no questionnaire that seeks to explore phenomena can overcome criticisms 3 and 4: if people don’t know important aspects of their inner experience, no level of sophistication of questionnaire construction can compensate. Our DES investigations suggest that a truly iterative procedure is necessary for the high fidelity investigation of experience (Hurlburt, 2009, 2011), a procedure not usually considered by questionnaire users.

We think it possible that questionnaires might be developed that would be effective in the investigation of phenomena if they can overcome the five difficulties just described. For example, we think it possible that a hybrid use of questionnaires, where participants undergo some number of days of DES-like iterative training (or some other legitimately effective way of phenomenological training that effectively clarifies the nature of the participant’s own idiosyncratic experience and also clarifies the meaning of the items on the questionnaire), and thereafter respond to questionnaire items, such responses might have high fidelity. However, such hybrid use of questionnaires has not been performed; currently such an attempt would be held to violate the assumptions that underlie the validity of typical questionnaires.

We note that the above discussion does not speak to the validation utility of questionnaires: the VISQ and other questionnaires may well have utility that stems from their validity, if not from their phenomenological fidelity. For example, the VISQ does correlate positively with measures of anxiety, even when level of depression is controlled (McCarthy-Jones & Fernyhough, 2011). However, Uttl, Morin, and Hamper (2011) examined five self-report questionnaire measures related to inner speech, including the SVQ, STS, and STI but not including the VISQ, and showed that whereas all are highly reliable,

they are all of limited validity. They interpreted the low validity as being the result of the non-comprehensive nature of the scales they investigated. The present paper aims at phenomenological fidelity, a concept much different from validity. Phenomenological fidelity is fundamentally idiographic: its question is whether a particular individual (say Angela) was experiencing a particular phenomenon (enthusiastically innerly saying “Thai food!”) at a particular moment. Phenomenological fidelity has no concern whatsoever whether Angela’s inner speaking is frequent for Angela or for anyone else, has no concern whatsoever whether inner speaking is correlated with anxiety, depression, or anything else. Validity, by diametric contrast, is fundamentally comparative rather than idiographic. Validity has no particular interest in Angela’s (or anyone else’s) phenomenon at any particular time; validity asks only whether, on average, a group of persons who score high on measure *X* by comparison to the other members of the group also score high on measure *Y*.

11. Exploring inner experience

We have criticized the ambiguity in the responses to inner experience interviews and questionnaires. Some might respond by saying that there is ambiguity in all communication about experience, including in DES expositional interviews, and we wholeheartedly agree. However, we think the degree of ambiguity is importantly different between DES reports about experience and other methods (Hurlburt, 2009, 2011; Hurlburt & Schwitzgebel, 2007, 2011a). The DES method explicitly helps the investigator and subject clarify the intention of every communication: it discusses specific, brief moments (to minimize the ambiguity about what is being discussed); it randomly selects moments to examine (to avoid the selection of “favorite” moments that might unfairly suggest one understanding over another); it asks open-beginninged questions (to encourage the joint construction/invention of terminology); it uses an iterative method (to encourage the repeated joint examination of the concrete contexts of the communication); it uses co-interviewers of different persuasions (to increase the probability that idiosyncratic definitions, emphases, and meanings will be exposed and balanced); and so on (most of the 100 “constraints” discussed in Hurlburt, 2011, are aimed at disambiguating communication). In short, DES is designed to overcome the difficulties in discrimination that Skinner has discussed. The extent to which it is successful remains to be determined.

We think the current re-energizing of interest in inner speech (and other forms of experience) is desirable, but we have tried to show that there are indeed constraints on the exploration of inner speech that science should take seriously (Hurlburt, 2011). For example, we think it desirable for science to study the neural correlates of inner speech, as has Simons et al. (2010). However, science should recognize the potential limitations of studying the correlates of a phenomenon (as, for example, inner speech) without attending carefully to the phenomenon itself. For example, Simons et al. (2010) placed subjects in an fMRI magnet and then presented sentences spoken by an adult female native English speaker. In the “listening” trials, those sentences were followed by a repetition of the same sentences. In the “inner speech” trials, subjects were required to “covertly imagine repeating the sentence to themselves in their own voice and press a button with their right index finger once this was completed” (Simons et al., 2010, p. 233). We think (cf. Jones & Fernyhough, 2007) that there is reason to be skeptical about whether the subjects in the “inner speech” trials were actually engaging in inner speaking; and if they were, there is reason to be skeptical about whether this on-demand-rote-repetition has the same characteristics as pristine created-at-the-moment-to-match-your-personal-interest inner speaking. Furthermore, as we have seen, there are large individual differences in the frequency with which individuals pristinely engage in inner speaking. It seems reasonable to suppose that the neural correlates of inner speaking in those who engage in inner speaking nearly all their waking moments are substantially different from the correlates of inner speaking in those who never (or only rarely) naturally engage in inner speaking. As far as we know, there are no correlative studies that take any of those issues into account. Science currently has no data about whether or to what extent those are important issues; it seems to us that DES or something like it is necessary to attack those issues.

We think there are many important puzzles to be solved in the science of inner speaking: Are there neurological/psychological/personality differences between subjects who in their everyday lives innerly speak nearly 100% of the time and those who never or rarely do so? Do those who stutter also stutter in their pristine inner experience (or perhaps do they never engage in pristine inner speaking at all)? Our DES investigations reveal that when reading, some people do not experience words at all (they may be entirely wrapped up in visual imagery of their own creation). How did they acquire the skill of seeing and understanding words but not experiencing them? Presumably as children learning to read, they pronounced the words outwardly. Did they then pronounce word innerly and then dispense with words altogether? What is the developmental course of inner speaking itself? Why is it that some people innerly speak frequently but others do not? Are there cross-cultural differences in inner speaking—cultures where no one innerly speaks, for example (or where everyone innerly speaks)? We think those, and thousands of others, are important questions that have no current answers; they can be addressed only by high fidelity investigations of inner experience.

The phenomenological investigations that we think are important are substantially different from those made by orthodox psychological science. For example, orthodox science holds that it is desirable, perhaps necessary, to require all participants in an experiment to undergo as close to identical procedures as possible. By contrast, we think that is phenomenologically impossible; and if it is possible, it is not necessarily desirable. For example, the Simons et al. (2010) study had participants repeat innerly sentences that they heard. That was externally an identical procedure, but may be a psychologically very different procedure for those who innerly speak nearly always as for those who innerly speak nearly never.

Orthodox science holds that it is desirable, perhaps necessary, to train participants prior to engaging in the target task. By contrast, we think (e.g., Hurlburt, 2011) that it is undesirable to train subjects prior to sampling their experience, because such training may reify whatever presuppositions the subject (or investigator) may have. For example, suppose that prior to sampling an investigator trained subject Maria on the distinction between inner speaking and inner hearing; that may substantially bias Maria's participation. First, there are some (many, actually) people, perhaps including Maria, whose pristine experience includes neither inner speaking nor inner hearing. A general discussion of inner speech/hearing that implies that the distinction between speaking and hearing is important is likely to induce Maria to “go looking” for inner speaking or hearing and the distinction between them, rather than simply trying to apprehend what is ongoing in her experience (which is likely neither speaking nor hearing). Second, training before sampling would be abstract and general, diametrically different from the DES iterative training (Hurlburt, 2009, 2011) which aims to be concrete and specific. For example, once Maria reports that at 6:14 pm she was saying to herself that she would like an ice cream cone, then the investigator is fully justified in inquiring about what Maria actually meant by “saying to myself.” That is not an abstraction; that is a request for clarification about the subject's own report about phenomena. Subjects come to recognize that such questions are not only acceptable but desirable—they come to recognize, on their own turf, that their descriptions are ambiguous or imperfect, and that the DES aim is to disambiguate and improve.

Orthodox science rightfully worries about the potential for iterative training to influence participants, coercing them subtly or not so subtly into some preset pattern of responding (Ross & Nisbett, 1991; for a discussion see Schwitzgebel in Hurlburt & Schwitzgebel, 2007, pp. 241–244). Hurlburt (in Hurlburt & Schwitzgebel, 2007, pp. 285–289) has argued for a rethinking of Ross and Nisbett's concerns and discussed how DES might successfully sidestep them.

It seems to us that a mature science of experience will have to deal constructively with the risks that exploring phenomena entail. DES is one set of strategies that attempt to contain the risk; perhaps other strategies can be developed that are more effective. We emphasize that we do not think of DES as the ultimate strategy or the epistemic tribunal (Hurlburt & Schwitzgebel, 2011a), or that what we have said in this paper is the final words on the phenomena of inner speaking. Indeed, we hope just the opposite, that our work inspires others to develop better methods, or to use something like DES with more skill than have we, or to apply DES or some other adequate method with larger, more representative, more diverse, populations.

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