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Unsymbolized thinking

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ABSTRACT

Unsymbolized thinking—the experience of an explicit, differentiated thought that does not include the experience of words, images, or any other symbols—is a frequently occurring yet little known phenomenon. Unsymbolized thinking is a distinct phenomenon, not merely, for example, an incompletely formed inner speech or a vague image, and is one of the five most common features of inner experience (the other four: inner speech, inner seeing, feelings, and sensory awareness). Despite its high frequency, many people, including many professional students of consciousness, believe that such an experience is impossible. However, because the existence of unsymbolized thinking indicates that much experienced thinking takes place without any experience of words or other symbols, acknowledging the existence of unsymbolized thinking may have substantial theoretical import.

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1. Unsymbolized thinking

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 these:

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.

Benito is watching two men carry a load of bricks in a construction site. He is wondering whether the men will drop the bricks. This wondering does not involve any symbols, but it is understood to be an explicit cognitive process (Heavey & Hurlburt, 2008).

Charlene is planning her introductory statistics lecture, deciding whether to use the U.S. Census Bureau data or the made-up data that she had used in class last semester. She is deciding between precisely those two data sets and is actively trading off the real-worldness of the Census Bureau data (a desirable feature) against the fact that it might take too long to describe in class. Despite the specificity and detail of this experience, there are no words, images, or other symbols involved in this experience.

Dorothy is tiredly walking down the hall dragging her feet noisily on the carpet. She is thinking, if put into words, something quite like, "Pick up your feet—it sounds like an old lady". However, there are no words, images, or other symbols experienced in that thinking. Despite the lack of words, the sense of the thought is very explicit: "pick up your feet" is a more

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accurate rendition of the experienced thought than would be "I should pick up my feet"; and "it sounds like an old lady" is more accurate than "I sound like an old lady".

Those four examples have some features in common, with each other and with thousands of other examples of inner experience from hundreds of people that we and our colleagues have examined over the past 30 years: each is the experience of an explicit, differentiated thought that does not include the experience of words, images, or any other symbols. We have called such phenomena unsymbolized thinking (Hurlburt, 1990, 1993, 1997; Hurlburt & Heavey, 2001, 2002, 2006); this paper seeks to describe those phenomena: how they present themselves, their manner of appearing, and so on.

Heavey & Hurlburt (2008) and Hurlburt & Heavey (2002) showed that unsymbolized thinking is a feature of roughly one quarter of all moments of waking experience, and is thus one of the five most common features of everyday inner experience (the other four: inner speech, inner seeing, feelings, and sensory awareness). Despite its high frequency of occurrence across many individuals, and despite (or perhaps because of) its potentially substantial theoretical importance, many people, including many professional students of consciousness, believe that a thinking experience that does not involve symbols is impossible; in fact, such phenomena are rarely discussed.

2. The appearance of unsymbolized thinking

The Abigail, Benito, Charlene, and Dorothy examples are typical products of investigations using the Descriptive Experience Sampling (DES). DES is described in the Appendix below, and more thoroughly by Hurlburt (1990, 1993), Hurlburt and Akhter (2006), and Hurlburt and Schwitzgebel (2007). Briefly, DES gives a subject a beeper that is carried into the subject's natural environments. At the beeper's random beep, the subject is to pay attention to the experience that was ongoing at the moment the beep began and then, immediately, to jot down notes about that experience. Within 24 h, the DES investigator interviews the subject about the (typically six) sampled moments from that day. Then the sample/interview procedure is repeated for several (typically five) more sampling days. The adequacy of the DES procedure has been discussed by Hurlburt (1993, 1997), Hurlburt and Heavey (2002, 2006), and Hurlburt and Schwitzgebel (2007).

Here is a typical example of the manner in which unsymbolized thinking appears in a DES interview. This verbatim transcript is from a second-sampling-day interview conducted with "Evelyn" by Sharon Jones-Forrester:

> Evelyn: I was sitting on the couch watching TV. On the TV there was a commercial for NetZero. And I was listening to the commercial for NetZero, and thinking about, I wonder how much cheaper that is than Cox Cable? [1]. And the pager went off. So it... So as far as I can determine, in my awareness I was holding my coffee mug and y'know kinda wondering to myself, I wonder if Cox...how much cheaper this NetZero *could be* than Cox Cable [2]. And the pager went off.
> Sharon: And is that, "I wonder how much cheaper this NetZero is than cable", is that in your awareness just right at that moment?
> E: Um hmm.
> S: And is that in words? Or not in words? Or are you saying that? Or thinking that?
> E: I was just thinking to myself, I wonder, y'know, if this is actually cheaper [3].
> S: And does that "I wonder if that is actually cheaper",... So it's possible to be thinking that in words or not in words, or in pictures, or in.... How is that thinking coming to you right at that moment?
> E: [Looking powerless: palms turning slightly up, eyebrows raised, voice uncertain] I think just...just *thinking* about it. Not thinking in pictures or.... Just thinking to myself, I wonder if it's really that much cheaper? [4]. Because I keep getting bombarded with commercials for it.
> S: And, uh, you're holding the mug.
> E: Um hmm.
> S: Is that in your awareness or is that just kind of a fact of the universe: you're holding it but you're not paying any attention to holding it?
> E: I always pay attention to that mug, because it's crystal, and I usually use it only on the weekends, and I like the way it feels—it's real heavy.[1]
> S: And so right at this split second, are you noticing the heaviness or the feel or the...?
> E: [Returns to the powerless tone of expression] It seems like just the thinking of the Cox Cable versus NetZero [5?] is what's... what I was actually aware of.

This is a typical early encounter with unsymbolized thinking by a DES subject. First, note that she gives four (five if one counts the final summary) different accounts of her experience, indicated by bracketed numbers in the transcript and restated here for comparison:

1. I wonder how much cheaper that is than Cox Cable?
2. I wonder if Cox...how much cheaper this NetZero *could be* than Cox Cable.
3. I wonder, y'know, if this is actually cheaper.

[1] This comment by Evelyn ("I always pay attention...") is what DES calls a "faux generalization" (Hurlburt & Akhter, 2006; Hurlburt & Heavey, 2006; Hurlburt & Schwitzgebel, 2007). Evelyn's statement is not likely to be true, and is largely ignored by the DES process.

4. I wonder if it's really that much cheaper?
5?. Thinking of ... Cox Cable versus NetZero.

The meaning stays the same across all those statements, but the words used to describe that meaning change somewhat in each expression. By contrast, DES subjects who are describing experiences that are in words (inner speech, for example) quickly learn to be quite confident about the exact words, and their reports of those exact words typically stay much more consistent.

Second, note that Evelyn appears helpless, powerless in the face of her own observation of her experience. Her expression conveys something like the following: I know this sounds weird, and I don't think it's really possible, but you asked me to tell you exactly what is in my experience and this is it. Sorry it doesn't conform to your expectations, but this is what I was thinking.

Third, note that although Sharon gives Evelyn ample opportunity to provide less controversial descriptions of her experience—that it was in words, or in pictures, or that she was experiencing the weight of the mug rather than this weird thought—Evelyn sticks to her description.

Fourth, note that Evelyn uses the phrase "I wonder" to introduce her unsymbolized thought. That is a frequently used term to describe unsymbolized thinking (compare Abigail and Benito above). However, many experiences called "wonderings" are not unsymbolized, instead being experienced as involving inner speech or images. Furthermore, many experiences called by terms other than "wondering" (such as "thinking", "knowing") are unsymbolized experiences (compare the Charlene and Dorothy examples above). Thus, Evelyn's use of the term "wonder" is an important clue in discovering that her experience is unsymbolized thinking, but it is only a clue, not a rule.

Sometimes, as here, unsymbolized thinking is the only or main feature of inner experience. At other times, however, unsymbolized thinking is a part of a more complex inner experience that may include other simultaneous instances of unsymbolized thinking, inner speech, inner seeing, feelings, or other kinds of experience. For instance, recall the example above in which Dorothy was unsymbolizedly thinking that her foot dragging sounds like an old lady. At the same moment, she was also unsymbolizedly thinking that she should throw her dirty clothes in the pile. Those two quite disparate thoughts were experienced to be ongoing simultaneously (One might argue, of course, that if we had access to the neurological processes that underlie these experiences, we would discover that these processes were not really simultaneous but sequential, so close together as to appear simultaneous. We take no position on whether that is or is not true; but it is irrelevant to the present discussion, which is about phenomena, not underlying processes or theories of thinking. Dorothy *experienced* the thoughts as being simultaneous, as best could be ascertained by the quite-careful DES questioning).

3. Unsymbolized thinking: The phenomenon

As we saw in the examples, unsymbolized thinking is the experience of an explicit, differentiated thought that does not include the experience of words, images, or any other symbols. We turn now to discuss each of the parts of that description.

First, unsymbolized thinking is its own distinct phenomenon—it is not a precursor to some other phenomenon; it is not a part of some other phenomenon; it is not incomplete, unfinished, vague, deficient, implied, or in any other phenomenal way subsidiary to any other phenomenon. Unsymbolized thinking exists in and of itself as a phenomenon, just as inner speaking exists in and of itself as a phenomenon.

Second, unsymbolized thinking is way of *experiencing*, an aspect of a person's phenomenology. It is directly observable, appears directly before the footlights of consciousness, is directly apprehended. It does not need to be inferred or deduced. Evelyn is directly experiencing wondering about Cox Cable versus NetZero, and she clearly distinguishes between that inawareness experience and processes that are ongoing outside of awareness (holding the mug; the mug's characteristics or significance). Abigail's unsymbolized wondering whether Julio would drive the truck was just as phenomenally present to Abigail as a visual image of Julio's truck would have been had Abigail been seeing such an image (which she wasn't). Benito's unsymbolized wondering whether the workers will drop the bricks was just as phenomenally present to Benito as the words "I wonder whether those guys will drop the bricks?" would have been had Benito been saying those words to himself in inner speech (which he wasn't). Thus, unsymbolized thinking is simply a way of experiencing. There may or may not be some cognitive or organizational process that lies behind the experience, or that causes the experience, or that is caused by the experience; we take no position on that. The term "unsymbolized thinking" refers to the way of experiencing itself and not to any entity or process that may be part of some theoretical explanation.

Third, unsymbolized thinking is experienced to be a *thinking*, not a feeling, not an intention, not an intimation, not a kinesthetic event, not a bodily event. Dorothy is *thinking* about not dragging her feet, and differentiates that thinking confidently from the emotional feeling of tired and old and from the hearing of her feet scruff-scruff-scruffing against the carpet. Most people, like Dorothy, confidently discriminate between experiences that are thoughts (using terms such as "mental" or "cognitive") and experiences that are feelings (using terms such as "emotional" or "affective") or sensory awarenesses. The distinction between thoughts and feelings or sensory awarenesses is typically unshakeable in people who are paying careful attention to moments of their experience, and unsymbolized thinking is unwaveringly apprehended as a thought.

Fourth, the content of unsymbolized thinking is *explicit*: the "about what" of the thought is plainly apprehended. Charlene is thinking about a particular Census data set and no other; Evelyn is comparing NetZero and Cox Cable and is not thinking about DSL, Earthlink, or any other internet service provider. That it is about NetZero is doubtless driven by the ongoing TV commercial, but the commercial is *not* about Cox Cable—that is Evelyn's invention. Furthermore, Evelyn is wondering which

is *cheaper*, not which is faster, better, easier to install, more reliable, or any other alternative. That is, this experience is an explicit and differentiated thought.

Fifth, unsymbolized thinking is *differentiated*: the "what about it" is not general or vague. Abigail's thought is concretely and specifically about whether Julio will be driving his car or his truck this afternoon. It is not about whether she likes Julio or about Julio's driving habits; it is about this particular car and that particular truck from the standpoint of whether Julio will be driving them today, not about cars in general or trucks in general, not even about that particular car from some other perspective (not about whether she likes Chevrolets, not about the dent in the door of Julio's Chevrolet), not about yesterday or tomorrow. Taken together, the explicit and differentiated characteristics imply that the thought's sense is quite clearly articulated—there is nothing "hunchy", "hinty", "implied", or "merely suggested" about it.

Sixth, the content of an unsymbolized thought is directly in experience. It is *not* the case that merely the "title" of the thought is experienced and the rest of the thought is subconscious; the unsymbolized thought presents itself directly. The unsymbolized thought is *not* merely a precursor of some symbolic (worded or imaged) thinking that is not yet sufficiently conscious for the subject. The unsymbolized thought is itself directly experienced.

Seventh, an unsymbolized thought typically presents itself all at once; there is no rhythm or cadence; no unfolding or sequentiality. The unsymbolized thought presents itself as a unit. Further, there is no temporal, spatial, grammatical, or otherwise formal separation between what we called above the *explicit* and the *differentiated* characteristics of unsymbolized thinking. The distinction between *explicit* and the *differentiated* is roughly the same as the distinction between the subject and the predicate of a sentence. Just as a complete sentence contains a subject (the about what) and a predicate (the what about it), the typical unsymbolized thought can be said to have those characteristics. However, those characteristics are not separated from each other as they are in a sentence, not separated temporally (as they would be in a spoken sentence) or spatially (as they would be in a printed sentence). For example, had Benito said to himself in inner speech, "I wonder whether those guys will drop the bricks?" he would have understood himself to be mentioning the guys (the subject) *before* he mentioned the dropping (the predicate). By contrast, Benito's unsymbolized thought is not first about the guys and then about their dropping; it is inseparably a wondering about the guys/bricks/dropping.

Eighth, unsymbolized thinking *does not include the experience of words, images, or any other symbols*. Charlene does not experience the word "Census Bureau", "data", or "too long". That is, she does not experience herself to be (innerly or outerly) *saying* any of those words, (innerly or outerly) *hearing* any of those words, (innerly or outerly) *seeing* any of those words, or (innerly or outerly) experiencing those words in any other modality. Inner speaking, inner hearing, and inner seeing of words are more or less common ways of experiencing words, and Charlene herself might have such worded experiences at other moments; but at this particular moment, none of those experiences are present to her. Similarly, at that moment Charlene is not experiencing any (inner or outer) seeing of the Census Bureau's data or her own. Instead, Charlene knows, as facts of the universe, that the Census Bureau data set has four columns and her own has two, but no representation of that knowledge is directly apprehended by Charlene at that particular moment.

4. Discovering the phenomena of lived experience

Most phenomenological studies start with a targeted concept and seek exemplary lived experiences that can then be examined to discover the phenomenological details of the target. Giorgi (1975), for example, started with the concept of learning as his target; he then asked a series of subjects to describe lived experiences that involved learning with the aim of filling in the phenomenological details of learning. Petitmengin (1999) started with the concept of intuition; she then asked a series of subjects to describe lived experiences that involved intuition. Waddell (2007) started with the concept of the inner voice experience; she then asked a series of subjects to describe lived experiences that involved the hearing of inner voices.

By contrast, the phenomenon of unsymbolized thinking is one of the main features that *emerge* when one starts with *no targeted concept* and carefully asks subjects to describe randomly selected everyday lived experiences, whatever those experiences happen to be. Unsymbolized thinking is thus the end result of a phenomenological investigation of "free-range" lived experience, not the starting point. "Unsymbolized thinking" is the name we apply to a set of frequently occurring phenomena. Our interest in unsymbolized thinking is the result of the frequent-occurringness of the phenomena, not the result of any a priori (theoretical or otherwise) interest.

Thus our interest in and description of unsymbolized thinking can be said to be phenomenological through and through: we did not start with some concept (selected on the basis of an a priori interest) and then perform a phenomenological analysis of that concept. Instead, we started with the as-pure-as-possible intention of going to the phenomena themselves, whatever those phenomena might be. If interest in a concept would occur, it would be because phenomena created and drove an emergent interest. Then, interest in the phenomenon awakened, we seek nothing more than to give a description of that phenomenon.

5. What unsymbolized thinking is not

When we describe unsymbolized thinking to colleagues unfamiliar with the topic, they frequently jump to incorrect conclusions about the nature of the phenomenon. To forestall that in the reader, here are a few remarks about what unsymbolized thinking is not.

To say that unsymbolized thinking exists as a form of experience is not to make a claim about the nature of thinking. The existence of unsymbolized thinking implies no position whatever about whether words such as "Julio", "car", or "truck" or images thereof do or do not somehow exist outside Abigail's experience ("too faintly to be apprehended", "unconsciously", "structurally", or the like). That Abigail is experiencing unsymbolized thinking implies no position whatever about Abigail's basic, underlying cognition or about the structure of her consciousness. Unsymbolized thinking is a feature of a phenomenology, something that can be directly observable in consciousness. Interpreting that phenomenon, speculating about its causes or effects, or integrating it into some theory of consciousness are entirely different matters from our aim of simply describing the phenomenon and its manner of appearing.

Unsymbolized thinking is not merely a fleeting thought (Robinson, 2005). Unsymbolized thinkings *can be* fleeting, but typically they are experienced as lasting about as long as other kinds of thinking experiences. Sometimes, in distinct contradistinction to fleetingness, unsymbolized thinkings are experienced as lasting for minutes or hours nonstop (in some very depressed individuals; Hurlburt, 1993).

An unsymbolized thought is not a hunch, a presentiment, or any other merely-un-well-formed thought; it is typically a complete, explicit thought. It is not merely an emotion; it is understood as a thought, not a feeling. It is not a bodily inclination—a "leaning toward", a "physical readiness", or the like; it is a thinking, typically experienced as being in the head, not in the body.

Unsymbolized thinking is not merely a tip of the tongue phenomenon or other accompaniment to occurrent beliefs and desires (Robinson, 2005). Unsymbolized thinking is its own phenomenon, not dependent on any other phenomenon.

Unsymbolized thinking is not merely a feeling of familiarity or rightness—that is, it is more than the non-sensory experiences described by Mangan (2001).

An unsymbolized thought is not merely an aspect of a more complete phenomenon, in, for example, the same way redness is an aspect of an apple whose other aspects include weight, motion, and so on (Horgan & Tienson, 2002). An unsymbolized thought is the entire phenomenon.

Unsymbolized thinking is not merely the "understanding experience" (Pitt, 2004; Strawson, 1994) that lies behind some verbalization; it is the experienced thinking itself. For example, Strawson correctly observed that the understanding experience of the English sentence "Empedocles leaped" is quite different from the understanding experience of the German sentence "Empedocles liebt" ("Empedocles loves"), even though the two sentences are phonologically identical. Some might be led to think that what makes those two phonologically identical utterances distinctly different from each other is the presence of two different unsymbolized thinkings. That is not correct. We have no position on what distinguishes one understanding experience from another, but it is not unsymbolized thinking: An unsymbolized thought is its own complete experience; it is not a process adjunctive to or interpretive of a verbalization.

Unsymbolized thinking is not the pure thought, pure intention, pure intuitive insight, or a state cultivated by serious practitioners of some contemplative traditions. We have no reason to believe that our subjects who experience unsymbolized thinking frequently are any more or less enlightened than our other subjects.

6. Individual differences in the frequency of unsymbolized thinking

We have observed that unsymbolized thinking is frequent, occurring in roughly a quarter of all everyday lived experiences. However, there are large individual differences in the frequency of unsymbolized thinking. Heavey and Hurlburt (2008) stratified large introductory psychology classes on a measure of psychological distress (the SCL-90-R; Derogatis, 1994) and randomly selected 30 individuals. This sample therefore was quite representative of the entering students in a large U.S. state university. They then applied the DES technique to each. Unsymbolized thinking occurred in 22% of all sampled experiences. However, within subjects the frequency of unsymbolized thinking ranged from 0% to 80%; 8 of the 30 subjects had no unsymbolized thinking in any of their samples. The median frequency of unsymbolized thinking across subjects was 25%, but more than 25% of subjects (8 of 30) had no unsymbolized thinking at all. So while unsymbolized thinking is very common, it is not omnipresent.

7. Impediments to the recognition of unsymbolized thinking

We claim that unsymbolized thinking is a robust phenomenon, identifiable by anyone who might look carefully at experience moment by moment. However, most observers do not discover the phenomenon, primarily, perhaps, because there are presuppositions that all thinking is in words, as we will discuss in detail below.

But before we turn to that discussion, we describe a second characteristic of unsymbolized thinking that makes its recognition somewhat delicate. Despite the fact that unsymbolized thinking is apprehended to be a thought, not a feeling, subjects early in sampling typically waver between using the terms "thought" and "feeling" to describe this phenomenon. That can lead to the mistaken impression that unsymbolized thinking is "on the border" between cognition and affect, but that is simply not the case. Instead, the difficulty comes from the fact that the word "feeling" is often used in two completely different ways, and that can confuse both the subject and the investigator.

"Feeling" sometimes (usually, in fact) refers to an affective or emotional experience, which unsymbolized thinking clearly is *not*. But the word "feeling" also is used in a non-emotional way, to refer to a consciousness of an inward impression or

state of mind, which unsymbolized thinking clearly *is*. DES subjects in their first few sampling days often struggle in the reporting of wordless experiences that they themselves believe to be impossible; those subjects are reluctant to use the word "thinking" and use instead the word "feeling" in the second sense. The practiced DES investigator can easily spot the distress that those subjects face as they struggle to find words to express this phenomenon. Subjects have to be helped to understand the words that they themselves use. Once they learn to make the distinctions necessary, reporting generally becomes easier.

Such an interchange may provide fertile breeding ground for leading the witness, for influencing the subject in the direction of unsymbolized thinking. The skilled DES practitioner must be aware of that possibility and bracket it away. There is no guarantee that our colleagues and we have adequately done that, despite our best intentions; clearly we need other DES studies performed by investigators unrelated to us. It should also be noted that some DES subjects are quite comfortable in reporting unsymbolized phenomena—they apparently don't share the thought-must-be-in-words presupposition. For those subjects, there is therefore no particular opportunity for leading the witness.

8. Historical comment: The phenomenon behind imageless thought

The unsymbolized thinking phenomenon appears to be the same phenomenon that led to the imageless thought controversy in classical introspection a century ago. Because that imageless thought controversy was a major contributor to the demise of introspection, we need to understand what is the same and what is different about unsymbolized thinking and imageless thought.

First, our use of the term unsymbolized thinking refers to a phenomenon, something that can be directly apprehended by the person, something that can appear directly before the footlights of consciousness. By contrast, imageless thought was purported by the classical introspectionists (primarily at Würzburg) to be an element of the thinking process. However, the introspectionists at Cornell, led by Titchener, disagreed and believed that the imageless thought element did not exist—that well trained introspectionist subjects could always find at least a faint imaginal element if they looked hard enough. The classical introspectionists spent several decades trying unsuccessfully to resolve that disagreement; their failure to agree about imageless thought is often cited as one of the major factors in the demise of introspection (there were other factors as well, see Danziger, 1980).

It is important to note that the disagreement about imageless thought was about the existence of an *element* of thought, not about the existence of a *phenomenon* of thought. That distinction is important. Monson and Hurlburt (1993) reviewed the introspections that had been performed at Würzburg and at Cornell and concluded that "*for the most part, introspecting subjects did in fact agree with each other's reports of the phenomenon which was called imageless thought*. It was only the *interpretation* of these observations, rather than the observations themselves, which differed from one laboratory to the next" (Monson & Hurlburt, 1993, p. 20).

Thus Monson and Hurlburt believe that both the Cornell and the Würzburg investigators observed the same phenomenon that we call unsymbolized thinking (but the Cornell and Würzburg investigators disagreed strenuously about the interpretation of that phenomenon). Thus the classical introspections should be seen as *support* for the existence of unsymbolized thinking *as a phenomenon*. Titchener, to be sure, would deny the existence of genuine unsymbolized thinking, would probably say that had we pressed Abigail, Benito, Charlene, Dorothy, and Evelyn harder, they would have found exquisitely faint but nonetheless existing images. But as the history of classical introspection shows, distinguishing the exquisitely faint from the nonexistent is difficult if not impossible to do (Hurlburt & Schwitzgebel, 2007, chap. 11), so DES declines to try to do it.

9. Modern theorists' descriptions of unsymbolized thinking

A few, but not many, modern theorists have described phenomena quite similar to unsymbolized thinking. Siewert (1998), for example, describes "noniconic thinking: ... instances in which a thought occurs to you, when not only do you not image what you think or are thinking of, but you also do not verbalize your thought, either silently or aloud, nor are you then understanding someone else's words" (p. 276). Most of Siewert's examples of noniconic thinking are fairly simple, sudden events. However, he does allow that they can be complex:

> Walking from my table in a restaurant to pay the bill, I was struck briefly by a thought, gone by the time I reached the cashier, about my preoccupations with this book's topic, the effects of this, and its similarity to other preoccupations and their effects. Asked to state more precisely what this was, I would have to say something like: "My preoccupation with the topic of my book has made the world seem especially alive with examples of it, references to it, so that it can't help but seem to me that the world is more populated with things relevant to it than previously. And it struck me that this is similar to the way in which new parenthood made the world seem to me burgeoning with babies, parents, the paraphernalia of infancy, and talk and pictures of these". Somehow this thought of my philosophical preoccupations and parenthood, and an analogy between their effects, rather complex to articulate, occurred in a couple of moments while I approached the cashier, in the absence of any utterance (Siewert, 1998, p. 277).

This description of Siewert's noniconic thought is a good description of what we have been calling unsymbolized thinking. Such examples are rare in the consciousness science literature, and they are often dismissed. Here, for example, is Robinson (2005) view of Siewert's restaurant-bill example:

> My own introspection leads me to believe that I have had experiences of the kind that Siewert means to be *indicating*; I am denying only that the proffered phenomenological account matches anything in my experience. What then is my positive account of what happens on such occasions? What I believe occurs is a few words in subvocal speech (we might call them 'key words'), perhaps a rather vague sense of a diagrammatic sketch, and perhaps some pictorial or kinesthetic imagery. There is also usually a feeling of satisfaction, something I might express by saying I'd thought of something particularly interesting (Robinson, 2005, pp. 553–554).

Robinson's dismissal of the unsymbolized significance of Siewert's noniconic thinking follows a pattern similar to that used by Titchener against the Würzburgers: the implication is that had Siewert looked harder, he would have found "a few words in subvocal speech...and perhaps some pictorial...imagery". Robinson might be right; however, we think it more likely that Robinson is captured by the all-thinking-is-in-words presupposition, which we have discussed briefly above, and to which we will return below.

Horgan and Tienson (2002) and Pitt (2004) are often lumped with Siewert (1998) as supporting the existence of nonsymbolic thinking. That is correct, but it is worth emphasizing that whereas Siewert's noniconic thinking does, as we have seen, include the phenomenon that we have called unsymbolized thinking, the topics addressed by Horgan and Tienson and by Pitt do not. For example, Pitt (2004) addresses the distinct change in phenomenology between "buffalo buffalo buffalo buffalo buffalo buffalo buffalo" before it is understood and after its meaning has been comprehended: "the change consists in the presence of cognitive phenomenology: it is the difference made by *thinking*" (Pitt, 2004, p. 28). Pitt's point is that that cognitive phenomenology is not symbolic, and we agree with that. However, that cognitive phenomenology is not unsymbolized thinking, either. Pitt's cognitive phenomenology is a companion to, a feature of, or a conditioning of a verbal process, whereas unsymbolized thinking is its own separate phenomenon, not linked to or subjugated to or ancillary to some other phenomenon. Thus Siewert is perhaps the only modern theorist not associated with DES to describe the phenomenon of unsymbolized thinking.

10. On the presupposition that all thinking is in words

We have seen that DES studies show unsymbolized thinking to be a robust, frequently occurring phenomenon; and we have observed that despite its ubiquity, unsymbolized thinking is largely overlooked by consciousness studies. It is beyond the scope of this paper to discuss thoroughly the historical and social-psychological reasons for this overlooking, but we have discussed two of those reasons in previous sections: the impediments to the observation of unsymbolized thinking, and the classical introspection imageless thought debacle. We turn now to a third important reason that unsymbolized thinking is overlooked: the widely held presupposition that all thinking is in words. For example:

> When we introspect our own conscious propositional thoughts, we have access to thoughts expressed in natural language sentences; in other words, we find ourselves engaged in inner speech. This introspective fact is treated as evidence that we do think consciously in a natural language (Machery, 2005, p. 470).
>
> Human beings talk to themselves every moment of the waking day (Baars 2003, p. 106).
>
> The behaviorist makes no mystery of thinking. He holds that thinking is behavior, is motor organization, just like tennis playing or golf or any other form of muscular activity. But what kind of muscular activity? The muscular activity that he uses in talking. Thinking is merely talking, but talking with concealed musculature[2] (Watson, in Watson & MacDougall, 1929, p. 33).
>
> I have accepted Fodor's view that propositional attitudes (beliefs, desires, and so on) are best understood as relations to sentences. The question then is: which sentences? ... I shall present an intuitive, introspection-based, argument for the view that human conscious thinking involves sentences of natural language (Carruthers, 1996, p. 40).

There are many others that could be cited just as well; the presupposition is extremely widespread.

11. On carruthers' dismissal of unsymbolized thinking

In supporting his view that all thinking is in words, Carruthers (1996) considers Hurlburt's reports (1990, 1993) of unsymbolized thinking and specifically denies the existence of the unsymbolized thinking phenomenon. His argument proceeds as follows. He grants that people often have thoughts that do not involve images or words, but he denies that those thoughts are conscious. When DES subjects report the existence of a conscious non-image, non-worded (that is, unsymbolized)

[2] This quotation is something of an oversimplification of Watson's position; We include it because it is commonly held to be Watson's view. However, a few pages after this widely influential "thinking is merely talking" conclusion, Watson softened this conclusion substantially: "Now a further question comes up for serious consideration: Do we think only in terms of words? I take the position to-day that whenever the individual is thinking, the whole of his bodily organization is at work (implicitly) – even though the final solution shall he a spoken, written or subvocally expressed verbal formulation. In other words, from the moment the thinking problem is set for the individual (by the situation he is in) activity is aroused that may lead finally to adjustment. Sometimes the activity goes on (1) in terms of implicit manual organization; (2) more frequently in terms of implicit verbal organization; (3) sometimes in terms of implicit (or even overt) visceral organization. If (1) or (3) dominates, thinking takes place without words". (Watson, in Watson & McDougall, 1929, p. 34–35.)

thought, Carruthers believes those subjects are making (probably unknowingly) a swift self-interpretation about their thinking and then are confusing that self-interpretation for a direct observation of phenomena.

To support that notion, Carruthers observes that the subjects in the experiments reviewed by Nisbett and Wilson (1977) make similar mistaken swift inferences. For example,

> When asked to select from a range of identical items, people show a marked preference for items on the right-hand side of the array; but the explanations of their own choices never advert to position, but rather mention superior quality, appearance, and so on.... The best explanation... (and the explanation offered by Nisbett and Wilson) is that subjects in such cases lack any form of conscious access to their true thought-processes. Rather, lacking immediate access to their reasons, they engage in a swift bit of retrospective self-interpretation, attributing to themselves the thoughts and feelings which they think they *should* have in the circumstances, or in such a way as to make sense of their own behaviour (Carruthers, 1996, p. 240).

Carruthers maintains that DES subjects who report unsymbolized thinking make the same kind of mistaken self-interpretation. He examines an example of unsymbolized thinking from Hurlburt (1993), where at the moment of the beep "Diane" was in the supermarket looking at a box of breakfast cereal.

> She reported that she was wondering—wordlessly—whether to buy the box; and that she was thinking—again wordlessly—that she did not normally eat breakfast, and that the cereal might therefore be wasted; and that she was also considering the expense involved (Carruthers, 1996, p. 242).

Carruthers' interpretation is that Diane was *not* observing her thought (unsymbolized or otherwise); instead, she apparently did not have access to any conscious content and therefore was (in a Nisbett-and-Wilson sort of way) attributing to herself thoughts that might naturally be assumed to be ongoing:

> For these are just the thoughts which an observer might naturally attribute to her, who knew what she knew: namely, that she was attending to the price-label on a cereal packet; that she did not normally eat breakfast; and that she was generally careful in matters of expense (Carruthers, 1996, p. 242).

To the fact that subjects *feel as if* they are reporting an observed thought, Carruthers explains that "when people engage in self-interpretation, this will often take place extremely swiftly, and without self-awareness of what they are doing" (Carruthers, 1996, p. 242).

We acknowledge that it is possible that Carruthers is correct. However, if so, his same arguments might be leveled against *all* introspective reports: of inner speech, of images; and so on. People do not really experience speaking to themselves, he might say; they merely think that it would be *natural* to be speaking to themselves and swiftly mistake that self-interpretation for an introspective observation.

Indeed, that argument seems much *more* compelling as a skeptical view of inner speech and images than of unsymbolized thinking because of the distress some subjects initially experience when reporting unsymbolized thinking (discussed above in the section called Impediments to the Recognition of Unsymbolized Thinking; compare the Evelyn example above). Carruthers' argument is that subjects give plausible self-interpretations instead of accurate self-observations. Why would subjects, when searching swiftly for a plausible self-interpretation, hit upon unsymbolized thinking, a phenomenon that they themselves (presuppositionally) may believe to be not merely implausible but unquestionably impossible?

DES investigators observe time and time again that DES subjects early in their training give "introspective reports" of inner speech. Subsequent iterations of the method lead to the conclusion that those early reports were erroneous for just the kinds of plausible self-interpretation reason Carruthers suggests (Hurlburt & Schwitzgebel, 2007): the experience those subjects were trying to describe was not inner speech, but in a self-interpretative way those subjects invoked inner speech as a plausible explanation of the phenomenon (which is likely unsymbolized thinking, sensory awareness, or some other somewhat complex experience). That is quite natural. Inner speech is a well-accepted (in fact, we think overly emphasized), uncontroversial form of inner experience, and it is not surprising that inner speech is mistakenly invoked by unskilled subjects as an explanation of a difficult or controversial phenomenon.

It is thus easy to imagine a person giving an inner-speech explanation for an unsymbolized experience, but it is not at all easy to imagine a person giving an unsymbolized thinking explanation for a verbal (or absent) experience. If there were in fact no unsymbolized phenomenon, it would have been easy for Diane, for example, to provide some not-held-to-be-impossible self-interpretation; she could, for example, have emphasized her feelings of unease about spending that much money for cereal. That appeal to feelings would have been an equally plausible self-interpretation and would not have caused the all-thinking-is-in-words presupposition distress. Why would Diane advance an obviously (to her) impossible explanation if easier explanations are available? The same applies to Evelyn. If there were no direct but unsymbolized phenomenal presentation of NetZero and Cox Cable, why would she consistently aver that there was, even in face of some distress? We think she sticks to her story because easier explanations are *not* available: she is forced to give an obviously impossible unsymbolized-thinking explanation because the phenomenon drives her to it.

Unsymbolized thinking is *not*, as Carruthers seems to believe, the absence of a phenomenon. Subjects (as for example Evelyn, Diane, Abigail, Benito, Charlene, Dorothy) directly experience themselves to be thinking. They do not merely infer themselves to be thinking. There is an absence of words, and there is an absence of images, but there is *not* an absence of thinking phenomena. There is a phenomenal presence of thinking, difficult as that might be for many subjects themselves (as well as

many consciousness scientists) to believe. When there is a phenomenal *absence* of thinking, subjects do not call that unsymbolized thinking; they merely say they weren't thinking anything.

Hurlburt argued against armchair introspection in general in Hurlburt and Schwitzgebel (2007). Now we wish to critique the particular armchair introspection used by Carruthers. Here is his description of the armchair introspection task that leads him to the conclusion that thinking involves sentences:

> So what one needs to do, firstly, is to introspect while (or shortly after) *using* some sentence of the natural language in the course of one's daily life; and secondly, while (or shortly after) one has been entertaining privately some complete thought, or sequence of such thoughts. In the first sort of case what one discovers ... is that there is often *no* separable mental process accompanying the utterance of the sentence itself; or, at least, not one that is available to consciousness. In the second sort of case what one discovers, I believe, is that our private thoughts consist chiefly of deployments of natural language sentences in imagination—inner thinking is mostly done in inner speech (p. 50, italics in original).

Carruthers' first introspection task (introspecting while using some sentence of the natural language) will of course reveal a sentence of the natural language (that introspection while speaking typically yields nothing else is partially but not entirely corroborated by DES, but that is not our point here). We suspect that Carruthers's second task (introspect while entertaining a complete thought) also tilts the introspection decidedly toward the verbal. Here's why: Carruthers's second task involves a (largely unexamined) preintrospection task: to determine whether a thought is "complete". That doubtless requires observing the stream of thoughts and making a series of decisions: No—that's not complete... No—that's not complete... No—that's not complete... Aha! That's a complete thought—Introspect now! That task may well have substantial impact on the subsequent introspections. We are not in a position to know for certain, but it seems likely that the preinstrospection decision-making task is performed largely in words, and because the subjects thereby prime themselves with words, they are likely then to observe words when they introspect.

DES avoids, as much as possible, any preintrospection task. The Introspect now! command is given by the external beeper, not the introspector him or herself. It may be argued that even in the beep-triggered case, the introspector still has to initiate the introspection task, has to interpret that the beep means Introspect now! That is true, but such beep interpretation, by a subject who has worn the beeper for some number of sampling days and is thus quite experienced at responding to the beep, seems an order of magnitude less word-based and less intrusive/disruptive than the typical (and Carruthers' in particular) self-generated decision about when and when not to introspect.

As a result, we believe that randomly cued introspection is a substantially different procedure from Carruthers's armchair introspection, and as a result, DES finds unsymbolized thinking when that phenomenon is not observed by Carruthers. Additional comments on Carruthers's critique of unsymbolized thinking can be found in Hurlburt & Schwitzgebel (2007, chap. 11).

12. Concluding discussion

The phenomenon of unsymbolized thinking seems to be robust: it has been found in every DES study since Hurlburt (1990); similar phenomena were found by the classical introspectionists a century ago (Monson & Hurlburt, 1993) and by Siewert (1998). The most consistent modern reports come from DES, but it must be acknowledged that most DES studies have been performed by Hurlburt and his colleagues, so as yet there may be some limitations on the generalizability of their conclusions. In this article, we have tried to describe the phenomenon of unsymbolized thinking and to maintain that unsymbolized thinking is as directly observable as is inner speech or visual imagery if an adequate method is used.

At the same time, we have tried *not* to say anything one way or the other about the existence of or characteristics of any underlying or fundamental thinking process. We freely accept the possibility that at some substrate level, all thinking (including that for which unsymbolized thinking may be an accompanying phenomenon) is in words; but we just as freely accept the contrary possibility. Part of the phenomenological task is to bracket presuppositions about the nature of underlying processes, real or supposed, so that phenomena can present themselves as they are; as a result, we have not theorized about the nature of consciousness or the characteristics of underlying mental processes.

In fact, we believe that it may well be in the best interests of consciousness science for there to be a distinct division of labor: those who describe phenomena firewalled away from those who theorize about the significance of those phenomena. Hurlburt has argued (Hurlburt, Heavey, & Seibert, 2006; Monson & Hurlburt, 1993) that part of the reason for the demise of introspection a century ago may have been the failure of the classical introspectors to maintain sufficient distance between the description of phenomena and the attempts at explaining phenomena. We have therefore limited ourselves to describing the phenomenon, and we are specifically not taking a position on whether there is or is not some kind of symbolic (worded, imaged) thinking that lies behind the unsymbolized phenomenon. While we have not made such attempts ourselves, we believe that any theory of consciousness that relies at all on introspection must take the phenomenon of unsymbolized thinking seriously, must allow that thinking can be experienced without the experience of words or images.

We observed that unsymbolized thinking is not discovered by most other investigators. In our opinion, any investigation of free-range lived experience that discovers any characteristic of the form of inner experience (inner speech, inner seeing, etc.) but does not discover unsymbolized thinking must be using a method that is seriously flawed. We happily accept that we may be hugely mistaken; that our opinion is based on the work of a small number of people, mostly our close colleagues. If consciousness science is to advance, it must determine whether we're right or mistaken. It must bring itself to examine its methods, to recognize that methods are not all equal, to sort out which methods are better than others, for what, and in what

situations. The case of unsymbolized thinking should make that clear: it's an elephant in the living room. The question is whether the elephant is merely in our misguided imagination or in the center of conscious phenomena.

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Appendix Descriptive. Experience Sampling (DES)

DES (Hurlburt, 1990, 1993; Hurlburt & Akhter, 2006; Hurlburt & Heavey, 2006; Hurlburt and Schwitzgebel, 2007) is a method aimed at providing faithful descriptions of moments of inner experience as they naturally appear in people's everyday lives. Thus DES aims to discover and describe the naturally occurring phenomena of lived experience (Hurlburt and Akhter, 2006). A DES subject is given a beeper and instructed to carry it into her natural, everyday environments (complete instructions are given in Hurlburt and Heavey, 2006). The beeper beeps at random intervals through an earphone. The subject is instructed to pay attention to the "last undisturbed moment before the beep" and to jot down notes about that experience in a small notebook. Thus the experience at which DES aims is the experience that was ongoing a split second *before* the beep sounds; this experience has been called "pristine" by Hurlburt and Akhter (2006) to indicate that the object of DES is to "catch experience in flight", to describe lived experience as it actually naturally occurs, undisturbed by the means of its apprehension or by presuppositions about its appearance. Of course, DES falls short of that ideal; the object of DES is to fall short in a way that remains as faithful to the pristine experience as possible.

The subject collects a number (typically 6) of beeped experiences and shortly thereafter (typically within 24 h) meets with the investigator for an "expositional interview". The aim of the expositional interview is to enable the subject and investigator, working together as co-researchers, to discover and describe as faithfully as possible the 6 sampled experiences. Then the sample/expositional interview procedure is iterated (repeatedly improved; Hurlburt and Akhter, 2006) over several (typically 5–8) sampling days. Following that data collection procedure, the investigator extracts the salient characteristics from all of the experiences.

Hurlburt, Heavey, and Seibert (2006), Hurlburt and Akhter (2006), and Hurlburt and Schwitzgebel (2007) have discussed the features of the method that they find essential to the enterprise. Here we summarize nine of the main features. First, it observes naturally occurring lived experiences, characteristics of people the way they typically are (that is, not doing an artificial task and not in an artificial laboratory setting). Second, it observes concretely specific moments of experience (not generalizations such as "usually" or "always", and not at indeterminately specified times such as "whenever" or "in the past"). Third, it minimizes retrospection—subjects jot down features of the experience immediately following the beep, and the expositional interview occurs within 24 h of the experience. If desirable, those intervals can be shortened, for example by following the subject into her natural environment and conducting the interview immediately after the beep. Fourth, the moments of experience are selected randomly (not according to some predefined theory or plan). Fifth, substantial attention is paid to the bracketing of presuppositions, both by the subject and the investigator. The aim of the bracketing of presuppositions is to apprehend what's there to apprehend—to allow features of experience to emerge as unselected by desire or antipathy as possible and as untainted by pre-occurring ideas, beliefs, associations, and so on, as possible. While certainly imperfect in this regard, we believe that it is possible to diminish the distortions due to presuppositions. Sixth, the method is iterative in the sense that its skill gradually improves over several sampling days. The subject profits from the discussions during the first interview, and therefore becomes better equipped to perform the required observations on the second sampling day. Those better observations improve the quality of the discussions in the second expositional interview, which improves the quality of the observation on the third day, and so on (Hurlburt and Akhter, 2006). Seventh, the method enlists the subject as an equal co-researcher: the subject has access to something of value (her experience); the investigator has access to another thing of value (a method for exploring experience); together, they may be able to do something that neither could do alone. Eighth, the method is descriptive, *not* theoretical. Its aim is to describe manifest phenomena, not (at least not primarily or directly) to decide theoretical issues. Ninth, the method aims at the obvious and eschews the subtle (Hurlburt and Schwitzgebel, 2007, chap. 11). It seeks to describe phenomena that are readily apparent to the person, not things that are hidden or difficult to discern. We believe that, at least at this stage of consciousness studies, careful descriptions of directly manifest phenomena are of substantial importance—the present paper is an example.

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