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States of Consciousness and Symbolic Cognition

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Consciousness$_6$ carries the connotation of a state of consciousness (Natsoulas, 1997). It is an emergent property of a gestalt phenomenon, namely the psychophysiological state of the organism (Glicksohn, 1993a). In this article, I extend my previous discussion of states of consciousness (consciousness$_6$), embedding this within the wider perspective of both Gestalt psychology and psychoanalytic ego psychology. Gestalt notions, such as *Prägnanz* and *microgenesis*, are shown to be highly relevant to this theme. Natsoulas' (1997) recent appraisal of my viewpoint has goaded me into reiterating the argument for looking at a qualitative change in thought, characterizing the shift in consciousness$_6$, as being a promising area for further development. This hypothesized change in mode of thinking is of a metaphoric–symbolic nature, what such authors as Hunt (1989a) and Haskell (1989) would term *symbolic cognition*. I discuss the relationships among perceptual experience, symbolic cognition and state of consciousness, concluding with some comments on Natsoulas' reservations.

Discussions of consciousness and of notions of consciousness have been around in mainstream journals for the past thirty-odd years. Readers of *The Journal of Mind and Behavior* need only glance at the index to see the number of relevant papers published here as an indication. Thus, the consciousness revolution in psychology, heralded quite some time ago by Hilgard (1980), has finally hit us full sway. One commentator, whose analyses of the various distinctions among these different notions of consciousness have been immensely important over this span of years, is Natsoulas (e.g., 1978, 1981, 1997). In a recent article, Natsoulas (1997) has included in his discussion a reference to my own thinking (Glicksohn, 1993a) about the notion of a state of consciousness (what Natsoulas has consistently referred to as consciousness$_6$). His comments have served as the impetus for this paper.

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Let me first briefly summarize some major points to be developed and extended in this paper. Consciousness$_6$ carries the connotation of a state of consciousness (Natsoulas, 1997), and in a previous article Natsoulas (1981) presented one of the major problems facing researchers working in the field of cognition and consciousness. This was (and is) to answer the perplexing question: "What is the cognitive mode of function . . . that distinguishes the normal waking state from other general states of consciousness and unconsciousness?" (p. 164). Glicksohn (1993a) noted that little progress could be made into the study of what would evidently be an altered-state cognition, without first defining just what an altered state of consciousness (ASC) was. This would require distinguishing among: (1) the phenomenon of consciousness$_6$, (2) the method of induction of an ASC, (3) the criteria for evaluating such a shift in consciousness$_6$, and (4) the cognitive mode (or, in Natsoulas' [1997] terms, the "operating mode of the mind") which is differentially sensitive to such a shift in subjective experience. My primary goal here is to extend the discussion of points 1 and 4, aided by Natsoulas' recent discussion. Having a Gestalt orientation myself, I shall suggest two natural avenues wherein to find the critical operating mode of the mind. Not surprisingly, these will be in the realms of thought and perception. I will be extending my case for looking at a qualitative change in thought, of a metaphoric–symbolic nature, as being a promising area for further development, tying this in with the work of others such as Haskell (1986, 1987, 1989) and Hunt (1989a, 1989b), both of whom have published in this journal, both of whom are also interested in developing the notion of *symbolic cognition*. I shall then describe a recent attempt to put this notion to empirical test (perhaps necessarily, at this stage, in an exploratory sense). I shall conclude with some comments on Natsoulas' reservations.

The Notion of Consciousness$_6$ in Psychological Theory

While grand theories are frowned upon in some contemporary labs, it is hard to discuss consciousness (in any sense) without some reference to a wider picture. There are those who try to fit consciousness (qua awareness, or consciousness$_3$) within the information-processing sequence, as yet another stage of processing (see Glicksohn, 1993b, for a rebuttal). In discussing consciousness$_6$, I prefer to move up in scale, looking at system dynamics.

One can view the organism as being a system (e.g., von Bertalanffy, 1971) that may be in one of a number of psychophysiological states (Glicksohn, 1993a). Each state is characterized by a range of possible values along a number of parameters reflecting subsystem functioning (e.g., degree of attentional allocation, focus of attentional allocation; cf. Kahneman, 1973). While these subsystems are continuously in flux, the system as a whole tends

to adopt a pattern of activity which is relatively stable (Tart, 1975). It is this gestalt-like phenomenon which constitutes the psychophysiological *state* of the organism. The relative stability of this state implies that there are constraints on the degree of covariation of the various parameters. For example, the allocation of attentional resources is influenced by performance on specific tasks and by arousal level. Shifts in arousal level provide for corresponding shifts in resource allocation leading to different performance levels (Kahneman, 1973). The psychophysiological state of the organism has an emergent property of consciousness (cf. Natsoulas, 1981). Each distinct psychophysiological state therefore is characterized by, and is characteristic of, a distinct state of consciousness, in the sense of consciousness$_6$ (Natsoulas, 1978, 1981, 1997). Alert, waking consciousness corresponds to the ordinary-waking psychophysiological state, which in turn determines and is determined by a "normal" allocation of attentional resources, medium arousal level, and characteristic cognitive functioning. An altered state of consciousness corresponds to a shift in psychophysiological state (Glicksohn, 1993a). This will be reflected both in a qualitative change in attentional allocation (Fromm, 1977, 1979; Gill, 1963; Rapaport, 1957/1967) and in the characteristic mode of cognitive functioning (Glicksohn, 1993a).

The formulation presented above is clearly Gestalt-oriented: consciousness$_6$ is an emergent property of a gestalt phenomenon, namely the psychophysiological state of the organism. From a Gestalt-theoretical viewpoint, one would expect that subjective experience qua *field* of consciousness, or *state* of consciousness, would be influenced by the external field, or sensory environment (see Glicksohn, 1993a, for a review).[1] Koffka (1935), discussing the visual *Ganzfeld* (homogeneous visual field), wrote: "I expect the subject to feel in a different mood in homogeneous red and violet fields, even if they appear as grey fog" (p. 121). Thus, one can easily embed discussions of consciousness$_6$ within the agenda set by Gestalt psychology. Nevertheless, Koffka's prediction can also be attributed to Freud (see Solomon and Kleeman, 1980, p. 603), who wrote: "It is interesting to speculate what could happen to ego function if the excitations or stimuli from the external world were either drastically diminished or repetitive. Would there be an alteration in the unconscious mental processes and an effect on the conceptualization of time?" This suggests that one can also embed discussions of consciousness$_6$ within the program set up by psychoanalysis.

A discussion of consciousness$_6$ can be found within the psychoanalytic theory of consciousness (cf. Barr, Langs, Holt, Goldberger, and Klein, 1972, Appendix 1). There one can differentiate between the notion of a state of

[1]Indeed, this is basically what Werner and Wapner (1952) proposed in their sensory–tonic field theory of perception.

consciousness (consciousness$_6$), referring to the state of the organism, and the attention-dispensing function of the ego. As Barr et al. (p. 168) point out, however, these two different usages were not always separated in this literature. Rapaport (1960/1967) noted that "Freud (1900) distinguished between *consciousness as a subjective experience* and the concept of *the system Conscious–Preconscious (Cs–Pcs)*. The latter was the predecessor of the ego concept of his later, so called structural theory" (p. 897). But Freud's emphasis on repression as opposed to dissociation tended to rule out the notion of the possibility for qualitatively different forms of consciousness$_6$. As Barr et al. further stress, "altered states of consciousness were of only peripheral interest to him, and . . . the initial conceptualization of these altered states by Breuer was not dynamic, something Freud seems never to have reassessed" (p. 172). Thus, despite his interest in dreams, Freud in general rejected the notion of an ASC (consciousness$_6$), and preferred to discuss mechanisms for keeping mental contents in and out of awareness (consciousness$_3$). It was therefore left to the ego psychologists, most notably Rapaport (1951/1967), to provide the psychoanalytic framework for understanding ASCs and consciousness$_6$ in general.

Consciousness$_6$ and Symbolic Cognition

In an early paper, Rapaport (1950/1967) suggested that:

> the nature of "consciousness" of hallucinatory images is dynamically radically different from the usual consciousness of ideas. We have no reason to assume that these are the only two kinds of consciousness possible. Observation and experience, on the other hand, suggest that there is a group of such states of consciousness ranging from the hallucinatory consciousness characteristic of the dream and waking consciousness . . . . The difference in cathectic dynamics between these states of consciousness and the forms of the thought processes determined by them are so far unknown. A field of exploration lies wide open here, and a huge gap in our theory of thinking awaits bridging. (pp. 323–324)

This emphasis by Rapaport on states of consciousness paves the way for analyzing the concept of an ASC. Indeed, the troubling fact that "the forms of the thought processes determined by them are so far unknown," stressed by Rapaport, is the very same problematic issue raised more recently by Natsoulas (1981). But as previously suggested, different states of consciousness might be distinguished by their characteristic "form of the thought processes," or mode of meaning (Glicksohn, 1993a). In particular, it has been argued that an ASC is characterized by a metaphoric–symbolic mode of thought. Let me amplify this point by turning to literature not addressed by Glicksohn (1993a).

Immobility during perceptual deprivation has been found to facilitate the appearance of visual imagery (Freedman, Grunebaum, and Greenblatt, 1961; Zuckerman, 1969). Rossi, Furhman, and Solomon (1967) found that reality-oriented and daydreaming streams of thought were concurrent with approximately 35% of the bodily movements of their subjects undergoing perceptual deprivation. In contrast, approximately 9% of the movements occurred during the fantasies, and 0% during reports of hallucinatory thought. This appearance of spontaneous visual imagery (sometimes of a pseudo-hallucinatory status) with a reduction in bodily activity prompted Davidson and Schwartz (1976) to suggest that somatic activity and cognitive activity are mutually inhibitory: self-generation of activity in one mode will inhibit spontaneous activity in the other; in contrast, a reduction in self-generated activity in one mode will result in spontaneous activity in the other. This spontaneous cognitive activity has been termed in various contexts "autogenic discharge" (Luthe, 1963/1972), *maky*o (Owens, 1975) or unbidden imagery (Horowitz, 1978). The appearance of this spontaneous, autonomous, cognitive activity would seem to be discrepant with Jacobson's (1938) assertion that complete relaxation was incompatible with cognitive activity (see Humphrey, 1951). What may be the case is that relaxation is incompatible with verbal thought, or directed thought, but not with the appearance of autonomous, visual imagery.

Now, this autonomous, visual imagery can be metaphoric–symbolic (Foulkes and Vogel, 1965; Oliver, Breger, and Zanger, 1980; Rapaport, 1951/1967; Stoyva, 1973; Van Dusen, 1972). In particular, the imagery can be *autosymbolic*, whereby the state of consciousness is concretized by the visual image (Schacter, 1976; Silberer, 1909/1951, 1912/1951). For example, Rapaport (1957/1967), employing systematic self-observation during the hypnagogic state, noted the waxing and waning of his own consciousness$_6$, which appeared in autosymbolic form as, for example, an image of someone ". . . going toward a door only to discover that it is not a door but a shadow . . ." (p. 643).

Thus, altered-state cognition is one particular form of what Haskell (1987, 1989) terms *symbolic cognition*. As one progresses through various forms of consciousness$_6$, this is reflected in the type of thought that comes to mind. For example, as one progresses through the meditative states of consciousness, one's mode of thinking becomes more and more symbolic (see Goodblatt and Glicksohn, 1986, 1989–90, for a cognitive–poetic analysis). And as one succumbs to pathological manifestations of shifts in consciousness$_6$ associated with hysteria (Abse, 1982), the symptoms readily become reflected in both metaphoric–symbolic thought and in a conversion reaction. For example (see Abse, 1974, pp. 176–177), a patient's mother-in-law made her "see red," concretized by a "blackout," wherein as she passed out, she saw red.

Hunt (1989a, 1989b; Hunt and Popham, 1987) has recently presented a similar argument regarding the relationship between consciousness$_6$ and metaphoric–symbolic thought, which has led him to suggest that ASCs "exteriorize semantics." He suggests the complementary notion that it is through the study of ASCs that one may understand the process of metaphoric thinking. There therefore seems to be an intricate relationship between consciousness$_6$ and symbolic cognition. Furthermore, there is an intricate relationship between symbolic cognition and the unfolding of perception, as I discuss below.

Perceptual Experience, Symbolic Cognition and State of Consciousness

An important distinction can be drawn between perceptual experience and perceptual *processing*. The former has the unique status of being conscious$_3$, of being in immediate subjective experience, whereas the latter is not necessarily so. For example, the perceptual experience of a figure appearing on a background is a familiar one, and results from a prior, preattentive segregation of the perceptual field into figure and ground. As Treisman (1986) puts it, the figure (or its boundaries) "pops out" of the background. What do we know about the figure–ground phenomenon? Rubin (1958) emphasized the perceptual *qualities* distinguishing figure and ground, and especially that of shape. His other contributions were to note that the figure appears closer to the perceiver than does the ground, that the figure has a "thing-character" whereas the ground has a "substance-character," that the figure is more impressive and dominant than the ground, and that "feelings are attached to figures and not to grounds, and these feelings are an aspect of the relation implied in the statement that the figure dominates in consciousness" (p. 202).

The figure–ground phenomenon was a basic demonstration of the Gestalt psychologists, and was viewed by them as being *the* basic fact of perception. Now, what can cause the figure–ground distinction to break down? This was the subject of a classic study by Metzger (see Koffka, 1935) regarding experience in the visual *Ganzfeld*. As has been well documented (Avant, 1965), there has to be a minimal degree of heterogeneity in the visual field in order for perceptual segregation to occur. Forgus and Melamed (1976) note in this respect that "the *Ganzfeld* not only gives a perception of uniform light energy but also makes the *ground unstable* — that is, changes some of its characteristics, such as distance and hue. In order to perceive a stable ground, it is necessary to perceive a stable figure as well" (p. 171). So, when exposed to a visual *Ganzfeld*, the most basic perceptual experience of figure–ground is altered. Following the fundamental notion of *Prägnanz*, a radical change in external conditions (exposure to a visual *Ganzfeld*) will result in a qualita-

tively different form of perceptual experience. For as stated by Koffka (1935) following Wertheimer, *Prägnanz* refers to the notion that "psychological organization will always be as 'good' as the prevailing conditions allow" (p. 110). Thus, if either the external, environmental, stimulus-oriented conditions change, or the internal, state of consciousness changes (or both), the resulting perceptual organization will change, as will the experience.

The *Ganzfeld* technique is a method of perceptual deprivation, involving a reduced patterning of stimulation, as opposed to a reduction in absolute levels of sensory stimulation (such as remaining in a dark and silent room). This is the distinction between perceptual and sensory deprivation (Rossi, 1969), or as the latter is now referred to, "restricted environmental stimulation" (REST), as advocated by Suedfeld (1980). Irrespective of particular experimental method, all such techniques involve exposure to altered sensory environments which serve, at least for certain subjects, to induce a change in state of consciousness, an ASC (Glicksohn, 1991, 1993a). William James (1902/1958) brings the following example of an ASC (what he views to be a mystical experience), deriving from exposure to an environment similar in certain respects to a *Ganzfeld:*

> Once it was when from the summit of a high mountain I looked over a gashed and corrugated landscape extending to a long convex of ocean that ascended to the horizon, and again from the same point when I could see nothing beneath me but a boundless expanse of white cloud, on the blown surface of which a few high peaks, including the one I was on, seemed plunging about as if they were dragging their anchors. What I felt on these occasions was a temporary loss of my own identity, accompanied by an illumination which revealed to me a deeper significance than I had been wont to attach to life . . . . (p. 70)

Now, this is not a particularly good example of a mystical experience (as James himself noted), but it is fortunately neither experimentally induced nor stems from one of the mystic traditions. In fact, I have chosen this example because of the description of the preceding perceptual experience: a boundless expanse of white cloud, save for a few high mountain peaks. This whole situation is quite reminiscent of exposure to a white visual *Ganzfeld.*

Ornstein (1971) has compared exposure to a *Ganzfeld* with the practice of concentrative meditation: phenomenologically, both entail a restriction of awareness to a monotonous source of stimulation, which results in an altered perceptual experience. Indeed, just as the practice of concentrative meditation can lead to the experience of an ASC (Brown, 1977; Pekala, 1987) so too the *Ganzfeld* experience may also lead to an ASC. Avant (1965, p. 246) notes that observers, exposed to *Ganzfeld* stimulation, "found it difficult to apply to the empty field experience the language usually adequate to express visual experience or structured fields; 'sea of light' seemed most descriptive for most of these observers." Furthermore, after only twenty minutes of expo-

sure to a visual *Ganzfeld*, "the observers . . . experienced extreme fatigue and a feeling of great lightness of body. Motor coordination was reportedly poor, and observers had difficulty maintaining balance. Time perception was disturbed. Subjects often complained of dizziness and sometimes appeared to be intoxicated. One observer experienced states of depersonalization . . ." (p. 247). In other words, these observers experienced ASCs, following the usual criteria (Glicksohn, 1993a).

Deikman (1977, p. 74) has argued that concentrative (or contemplative) meditation involves a change in attention deployment (deautomatization), whereby "the percept receives intense attention while the use of attention for abstract categorization and thought is explicitly prohibited." Dixon (1981, pp. 247–250) has discussed such a change in attention deployment in ASCs, and argues for a bottom-up spreading activation at the expense of a top-down mode of processing. Essentially the same argument has been made by Frith (1981), with specific reference to schizophrenia, who argues that in such an ASC there is no inhibition of spreading activation by conscious attention, and thus the subject becomes aware of what is normally preattentively processed.

Such is the general line adopted by researchers working within the "microgenetic" framework to perception (Flavell and Draguns, 1957), microgenesis being Werner's (1948) term for the microdevelopmental unfolding of a cognitive process (e.g., perceiving, thinking) in time (see Glicksohn, 1995, for a recent discussion). Furthermore — and this is a major point of this paper, as well as of previous discussions by both Werner (1948, 1957/1978, 1959/1978) and others sympathetic to such a theoretical position (e.g., Hunt, 1989a, 1989b) — the various preattentive stages of perceptual processing are prone to produce percepts that are analogous to those encountered in ASCs. In other words, a normally preattentive phase of perceptual processing is made conscious_3, and "colours" perceptual experience. The more interesting thing is that such normally preattentive stages, which do not normally produce conscious_3 percepts, are now forced, due to a change in consciousness_6, to construct a percept as best as feasibly possible (again, the principle of *Prägnanz* is effective). These percepts have a dreamlike quality to them (Smith and Westerlundh, 1980).

As Hunt (1989b) has argued, altered-state cognition is readily there in the background, but is normally masked because consciousness_6 conditions favor a normal, characteristic mode of operation. However, by changing external conditions, or internal ones, sufficient to induce a shift in consciousness_6, the normal microgenetic sequence of the unfolding of perception becomes disrupted, and both perception and thought take on a more metaphoric–symbolic, dreamlike quality. I would argue that in these circumstances, perception and thought are dedifferentiated, or syncretic (Glicksohn, Salinger,

and Roychman, 1992; Werner, 1937/1978, 1948; Werner and Kaplan, 1963). Thus, the dreamlike quality of perception (Smith and Westerlundh, 1980), the cognitive–sensory schematization of figurative language (Haskell, 1989), and the visuo–spatial, presentational form of thought (Hunt, 1989b), are all variations on a common, syncretic theme (Werner, 1948), indicative of a change in consciousness$_6$.

Some Recent Empirical Work

If ASCs are characterized by metaphoric–symbolic cognition, then surely one should find evidence for this. The problem here is to induce an ASC in the subject, without him or her knowing that this is being investigated, and then to immediately tap the subject's thinking and perception. This is not an easy matter. A second strategy, however, suggests itself: to reverse the relationship, and see whether by attempting to induce or adopt a metaphoric–symbolic mode of cognition, one can elicit an ASC. Natsoulas (1997) had a poet-friend try this for ten or fifteen minutes, without, however, entering an ASC. In a recent exploratory study, Glicksohn and Avnon (1997–98) investigated whether virtual reality (VR) has the potential to be a research tool for studying consciousness and cognition. We considered the specific cognitive set with which the participant enters the VR: instructions emphasizing either introspective sensitization, following Hunt and Chefurka's (1976) landmark study, or metaphoric–symbolic cognition, as directly derived from previous research (Glicksohn, 1993a).

The VR game employed, *Dactyl Nightmare*, embeds the participant within a large stadium, which includes a platform that moves up and down, and barriers that protect him or her from being hit by a number of gladiators who appear at various intervals. The game enables the participant a maximal degree of movement (flight) within the virtual space. The object of the game is to shoot as many gladiators as possible, while trying not to be hit. In employing instructions emphasizing a metaphoric–symbolic set, we could test whether a shift to a metaphoric–symbolic mode of cognition would facilitate the induction of an ASC. The instructions emphasized the symbolic nature of the VR situation, and the participants were asked to become sensitive to the various symbolic qualities of their experience. They were requested to try to immerse themselves within a symbolic environment, and not to think in terms of conventional categories of experience. In this symbolic world, they were fighting against forces that were trying to determine the fate of the world. Each participant underwent two sessions, with a break between. This break entailed being taken to a side room, being positioned in a chair with eyes covered, and sitting with headphones listening to monotonous music. At the end of ten minutes, this condition of stimulus reduction was ended,

and the participant returned for a second session of exposure to the VR game.

Only one of 12 subjects gave evidence for a shift to a metaphoric–symbolic mode of cognition contingent on the induction of an ASC during the VR game. On subsequent exposure to sensory reduction, however, a total of five subjects (including this one), all of whom experienced an ASC, gave evidence for such a shift (i.e., 62.5%). Here is an example (translated from the original Hebrew), cited in Glicksohn and Avnon (1997–98):

> During the break, with the music, it was strange. At the beginning, I'm all the time checking my environment . . . . I began to analyze things, and thought that I was in perceptual deprivation. I went along with this, and then there was music of tension, and I saw this grand audience, as if this music of tension . . . . I saw this vast audience, reminds me of *2001 A Space Odyssey*. A crowd that is standing and waiting for the moment of revelation. I wasn't part of the audience. I was the god on a platform that was slowly being revealed. The sun's rays are descending on me. And then the music changed, I'm ascending, ascending and then suddenly they're all dead (the audience). I'm sitting in a corner, curled up and very frightened — "the fall of the gods" it seems. On the one hand, I was there; on the other, I saw this from a bird's-eye view, from a high point above. (p. 148)

This is the type of metaphoric–symbolic thinking which could be characteristic of an ASC. Perceptual qualities of the music ("music of tension") induce an unfolding series of emotional experiences in the participant (elation and then fear), who experiences these within the context of a metaphoric–symbolic image ("the rise and subsequent fall of the gods"), possibly autosymbolic of the waxing and waning of consciousness$_6$.

Comments and Conclusions

In concluding, I would like to address two points made by Natsoulas (1997) with respect to my previous formulation. First, I agree that a more advanced conception of consciousness$_6$ is required, one which evidently both Natsoulas and I are still rather fuzzy about. It is perhaps well time to recall Shor's (1959/1972) conception of the generalized reality-orientation (GRO) which fades into the background when a subject enters an ASC. Following Aaronson (1973), one may propose that the basic element in ASC is that of trance, which Shor suggested is induced by this shift in GRO. Such a shift in consciousness$_6$, which should be independent of particular method of ASC induction, may then become externalized in metaphoric–symbolic thought. Furthermore, such metaphoric–symbolic thought may be autosymbolic of the concurrent shift in consciousness$_6$. This is certainly an hypothesis worthy of exploration; one, if empirically supported, which would have immense theoretical impact.

Second, the fact that a poet does not spontaneously enter an ASC on pondering certain lines of poetry only serves to emphasize the distinction between a trance-inductive effect and an aesthetic appreciation of the poetic text (Glicksohn, Tsur, and Goodblatt, 1991). I should also mention the fact that individual differences in susceptibility to ASC induction procedures abound (e.g., Glicksohn, 1991), such that one case is no case. But, I will suggest that in contemplating poetry of certain types, such as the trance-inductive (see Glicksohn, Tsur, and Goodblatt, 1991, for a discussion and references) or the meditative-catalog (see Goodblatt and Glicksohn, 1986, 1989–90, for a discussion and references), one can at least glean insight into certain shifts in consciousness$_6$, which the poet, via various cognitive–poetic techniques, tries to realize in the reader. In this respect, working with metaphoric–symbolic imagery may have some transformative effect on consciousness$_6$. In fact, that is in a nutshell what the interaction theory of metaphor is all about (Glicksohn and Goodblatt, 1993; Verbrugge, 1980). But that's a story for a separate article.

Thus, on the one hand we can envisage different forms of consciousness$_6$ constituting different states of consciousness. On the other hand, we can identify different forms of thinking, constituting qualitatively different modes of expression and comprehension. Those of us who have been influenced by Werner's (e.g., 1948) writings, will stress the analogy between the different states of consciousness to these different modes of thinking. As a working hypothesis (at the very least), consider the match of symbolic cognition to consciousness$_6$. While there is much to be done here, at least we have a peephole for observation and introspection.

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