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Hermeneutic Neurophenomenology in the Science-Religion Dialogue: Analysis of States of Consciousness in the *Zohar*

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Abstract: Many mystical texts convey insights into the nature of mind that have the potential to assist in the framing of scientific models in psychology and neuroscience. In many cases, however, the insights are concealed within complex, codified symbolic systems, meaning that the reader must engage with the hermeneutic employed by the texts' authors in order to access the insights. Combining such a hermeneutic approach with that of neurophenomenology can enrich the input from mysticism to science. I exemplify this *hermeneutic neurophenomenology* through an analysis of states of mystical consciousness as portrayed in the classic of Jewish mysticism, the *Zohar*. Three distinct mystical states are identified, each of which is understood as being dominated by a specific dimension of consciousness. The normal state of consciousness is dominated by the narrative construction of self. The first mystical state arises as this narrative is attenuated, allowing the intentionality of perception and emotion to become the dominating dimension. The second mystical state comes to the fore as the mystic increasingly identifies with an associational propensity at the core of memory processing. The final mystical state conveys the essential feature of consciousness—phenomenality—with little, if any, intentional content. I explore how the *Zohar's* insights into these states can combine with neurocognitive data and thereby enrich our understanding of consciousness.

Keywords: neurophenomenology; consciousness; mysticism; Kabbalah; *Zohar*; self; recurrent processing; transpersonal psychology

1. Neurophenomenology and Hermeneutics

Francisco Varela's advocacy of a neurophenomenological approach in the dialogue between science and religion has served as a reference point for many researchers in this area [1]. This approach emphasizes that contemplative traditions have given us valuable techniques for training individuals to introspect on their own mental processes, and that the resulting insights have the potential to partner cognitive neuroscience in its quest to understand features of consciousness and the mind [2–4]. As Thompson notes, prior to the introduction of neurophenomenology by Varela the established approaches that had largely defined the dialogue between psychology and religion effectively disregarded teachings from contemplative traditions about the processes of the mind [4]. The explosion of recent research—especially that surrounding *mindfulness*—has, by comparison, largely been triggered by researchers engaging with practitioners who bring understanding of their tradition's insights into the nature of mind. This trend is well exemplified by the inauguration of the Mind and Life Institute through which the encounter between researchers and Buddhist practitioners has stimulated an expanding research literature.¹

The major paradigm for such recent research seeks to explore neural, cognitive, and emotional concomitants of the various forms of spiritual practice. By and large, evidence has supported the claims that may be drawn from the spiritual teachers and their traditions' texts. Thus, for example, research has demonstrated that meditation directed to focusing attention brings about changes in neural systems implicated in attentional dynamics and associated cognitive strategies; for reviews, see [2,6,7]. A second example concerns the calming effects of meditation on long-term emotional reactivity. Rubia reports that regular meditation practice is associated with “positive mood, emotional stability and resilience to stress and negative life events” ([8], p. 2).

I would identify two primary benefits from this kind of research. First, the studies have the potential to refine our understanding of the component processes in areas such as attention and emotion. This potential is exemplified by Malinowski's analysis of how sub-processes of attention may be activated in focused attention meditation [9]. Five systems have been identified, whose activation correlates with differing aspects of attention. Malinowski proposes that each is involved in meditation in the following ways: The *alerting network* would be involved when the meditator begins to focus on the required target (e.g., the breath) at the commencement of the practice; The *default mode network* (so named because its activation is associated with task-unrelated activity), may become more active when the meditator loses focus, with their mind beginning to wander; The *salience network*, named for its involvement when an individual recognizes relevant, or salient, events, would become active as the meditator notices that their mind has wandered; The *executive network*, is presumed to enable the meditator to let go of the distracting train of thought; And finally The *orienting network*, in consort with the executive network, may be expected to become engaged when the meditator shifts their awareness back to the intended focus. Research into these effects of meditation is helping to advance specification of such systems.

The second area of benefit comes in relation to health and well-being. There is now a voluminous literature affirming the benefits of mindfulness training in a seemingly never-ending list of physical

¹ Details of the Mind and Life Institute and of their programs of research can be found on their website [5].

and psychological ailments (for reviews see [10–12]). Meditation and mindfulness would seem to offer some kind of panacea, well suited to the stresses and aspirations of contemporary, especially western, society.

Whilst the importance of these two benefits is certainly not to be belittled, to my mind the paradigm underlying them hardly fulfills the potential of the science-religion dialogue. In the first place, research has generally been restricted to the more basic aspects of mental process—it seems hardly surprising that, for example, the act of repeatedly spending thirty minutes to an hour working on attention eventuates in changes in neurocognitive systems implicated in attentional processes. And, second, as Samuel points out in this special issue, the parties to the dialogue generally have divergent views of some of the more profound features of the religious traditions under examination [13]. This results in an unwillingness on the part of researchers to explore features of the religious tradition that do not accord with the scientific paradigm they adhere to—Samuel gives the example of consciousness existing separately from a material basis, which is a basic tenet of the Buddhist world view.

In order to advance the dialogue I propose to shift the focus from study of live practitioners to that of the textual tradition within specific religions. In doing so I introduce here what I can best label as *hermeneutic neurophenomenology*.

There are, of course, two sources of data of potential value in bridging religion and cognitive neuroscience. In addition to the focus of neurophenomenology, namely first-person insights into immediate experience from those appropriately trained, there is a wealth of data concerning the nature of mind available from the classic texts of the traditions. If, in the name of phenomenology, we restrict our approach to the former only, then we ignore a vast resource of enormous relevance to the psychological study of the mind. All the great traditions have accumulated teachings about consciousness and the nature of mind, many of which may be valuable to cognitive neuroscience in its quest to explore mental processes and conscious states. An instructive example derives from the Abhidhamma (“higher teaching”) within the canon of Theravāda Buddhism, which includes detailed analyses of the sequences of mental processes associated with thought and perception. A number of authors, myself included, have examined the Abhidhamma material, suggesting ways in which its insights may be combined with data from cognitive neuroscience to arrive at new hypotheses and theoretical models (e.g., [14–17]). Thus, drawing on textual, as well as phenomenological, sources is a critical dimension of the endeavor associated with neurophenomenology.

In any case, the distinction between these two sources of data—textual and experiential—cannot be sustained: not only do the classic texts that discuss the nature of the mind clearly depend on first-person investigation in the first place, but also contemplatives exploring their mental processes in the present are invariably doing so in a context that includes prior study of such texts. Given that sacred texts may have a valuable role to play in the science–religion dialogue, the question of how exactly we read the texts becomes of central concern. To take an example in relation to the texts of the Abhidhamma, their transformational orientation means that the analysis of mental processes is given through the lens of soteriology. The question for the Abhidhamma is not simply how does a given mental activity unfold—as it is for cognitive neuroscience—but rather what do I need to know about mental processes in order to advance on a journey to escape the suffering associated with habitual responses. Or, in more technical language, the Abhidhamma authors were primarily interested in the *karmic* implications of mental processes.

It is for these reasons that I propose incorporating a *hermeneutic* component to complement the integration of neuroscientific and phenomenological data that has enlivened the science-religion dialogue. Aside from the above point that it is fallacious to think that contemplative experience devoid of any textual input is possible, I would like additionally to emphasize the potent interrelationship between experience and exegesis as reasons for this proposed triadic approach incorporating hermeneutics, neuroscience and phenomenology. The seeming distinction between study and practice masks the role that study of sacred texts can play in enabling the exegete to attain the profound experience that is presumed to have underpinned the ability of the author to write the text in the first place. As Katz puts it:

[E]xegesis, as understood by the world's mystical communities, by the world's mystical personalities, is a way of learning theurgical practices that can influence God or the Ultimate; a primary form, a main channel, of mystical ascent; a basic source of spiritual energy; *a performative mystical act with salient experiential—transformational—consequences*; a way of defining one's mystical path; and a way to meet and interact with God or the Ultimate(s) ([18], p. 57. Italics added).

This experiential dynamic intrinsic to exegesis is especially potent in the tradition which forms the focus of my interest here—that of Judaism and, more especially, its mystical tradition. In Judaism, “Hermeneutics is a practice of the recovery of vision,” writes Boyarin ([19], p. 449). In a theistic religion such as Judaism, the ultimate author is believed to be the divine, meaning that the hermeneutic challenge becomes that of exploring the mind of God. Given this theistic focus, it may seem that kabbalistic texts would be less useful for the science–religion dialogue than those of a religion such as Buddhism for which detailed analysis of the *human* mind is at the fore. However, two further points should be borne in mind in assessing the value of kabbalistic texts in the context of neurophenomenology. First, the Kabbalah holds that human and divine realms are *isomorphic*, meaning that exploration of the divine mind implicitly conveys insights into the human psyche [20,21]. As Wolfson puts it, “In seeing God, one sees oneself, for in seeing oneself, one sees God” ([22], p. 39). The second reason for recognizing that kabbalistic exegesis can meaningfully contribute to understanding of states of consciousness and mental processes depends on the “inspired” or “pneumatic” quality that exegetes brings to their task [22,23]. Kabbalistic exegesis is critically dependent on the reader having prior experience of what the text intends to convey and/or being able to enter into the apposite state of consciousness through engaging deeply with the text. The text is an invitation to non-ordinary states, and it can only be fully entered into from such a state. For the kabbalist, “[t]he Pentateuch, a text thought to have been written under divine inspiration, can only be properly understood by re-creating an appropriate state of consciousness” ([24], p. 187). Kabbalistic sources can accordingly be rich in detail of mystical states of consciousness, although some degree of de-coding of their style is generally required in order to distil the relevance of this detail for psychology. In a nutshell, recognition of this nexus between hermeneutics and experience is essential if neurophenomenology is to be applied to those traditions in which introspection plays second fiddle to exegesis.

My interest in this article focuses on the mystical states of consciousness portrayed in the central text of Kabbalah, the *Zohar*, and the ways in which their analysis can advance the science–religion dialogue through this blend of hermeneutics and neurophenomenology. The *Zohar* first circulated in

thirteenth-century Spain and is one of the classics of spiritual literature. In brief, it largely takes the form of a mystical *Midrash* on the Hebrew Bible. Midrash is a genre of rabbinical literature that constructs a form of meta-narrative on Scripture using associative and other hermeneutic principles. What marks the Midrash of the *Zohar* as mystical is its emphasis on decoding Scripture in terms of the archetypal formulations of the divine pattern underlying all things (the ten divine emanations, or *sefirot*) and its motif of the journeyings of the central characters in its stories. These journeyings take place in both physical (geographical) and sacred (psychological and transcendent) space. The paths on which the heroes of the *Zohar* tread have a reciprocal twofold function: they facilitate entry into divine mysteries for those who walk them and they enable the divine to experience being in the world [25]. Accordingly, the depiction of mystical states, albeit concealed within its exegetical style, is a major thrust of the *Zohar*'s texts. In Wolfson's skillful words, "From the point of view of the *Zohar*, visionary experience is a vehicle for hermeneutics as hermeneutics is a vehicle for visionary experience" ([22], p. 333).²

When it comes to analyzing in psychological terms the mystical states of consciousness depicted in the *Zohar* there is in effect a double hermeneutic involved. The first requires us to engage with the text on its own terms, as it were. These terms include the traditions underpinning exegesis of the Hebrew Bible, especially as developed by the Rabbis, as well as the distinctive kabbalistic approach of the author(s) of the *Zohar*. We need to grasp the interpretive stance the *Zohar* adopts in casting its exegesis of Scripture in terms of the divine reality that it is committed to explore. Only by entering into the text in this way will we be able to begin reformulating the *Zohar*'s insights into the phenomenological language of our day, especially as it applies to the psychological study of altered states of consciousness.

The second hermeneutic projects us into the interpretation of phenomenology. How do we explain these phenomenological states? What kinds of structures and processes of the mind might account for them? This, of course, is where the relevance of this approach for the science-religion dialogue comes to the fore. In our day, explanations couched in terms of neurocognitive processes predominate. In the early twentieth century authors such as William James and Evelyn Underhill addressed psychological explanations of mysticism by emphasizing features of the *subconscious* mind [26,27]. It is not my intention here to reduce mystical experience to *merely* neural processes, but I do consider that the discourse between mysticism and science in our day demands recognition of neurocognitive correlates of mystical states. I shall comment further on issues of reductionism in Section 3.

In a short article, it is difficult to substantiate adequately this point about the relevance of the style of the *Zohar* for the study of non-ordinary states, which is why I have relied heavily on those scholars who have made in-depth studies. I shall bring one example of the *Zohar*'s style for illustrative purposes. The context for the following is the distinctive feature of Psalm 63, namely that it is the only Psalm which in its heading ("A psalm of David when he was in the desert of Judah") provides a specific location. The *Zohar* questions the mentioning of the location—why is it necessary? The text unfolds in a way predicated on the seemingly archetypal motif that the desert evokes spiritual and mystical experience.

² Wolfson is writing here about the mystical experience of light, and therefore his interest lies with visionary experience. The point stands that more generally for the Jewish mystic, hermeneutics is intertwined with all forms of mystical experience.

“O God, You are my God, I search for You [*ashahareka*]” (Psalm 63:2) ... I will enhance the light that shines at dawn [*be-shaharuta*], for the light that abides at dawn does not shine until enhanced below. And whoever enhances this dawn light, although it is black, attains a shining white light; and this is the light of the speculum that shines. Such a person attains the world that is coming.

This is the mystery of the verse “and those who seek Me [*u-meshaharai*] will find Me” (Proverbs 8:17); *U-meshaharai*—those who enhance the black light (*meshahara*) of dawn ([28], 2:140a; see [29], volume 5, pp. 289–90).

The typical hermeneutic style is strongly in evidence, firstly in the way that teachings emerge through associative play with the scriptural text (*i.e.*, diverse meanings stemming from the Hebrew root *Sh-h-r* emphasized in the quote above), and secondly in the more concealed way in which mystical experience is portrayed in relation to the intra-divine dynamic. Searching for God is portrayed as stages in the experience of light, akin to the changes one might witness in the progression of light from dawn to morning. First is the experience of “black light”, a light characterized by emptiness. Subsequently—assuming the mystic is capable of the requisite ability to “enhance the black light”—comes the experience of the shining white light. We find similar motifs in Sufism, where the black light “reveals the very secret of being, which can only ‘be’ as ‘made to be’” ([30], p. 398). The mystic is enjoined to enter the mystery of the black light, and to become engaged in the process whereby it is made to shine.

Fully decoding this pericope demands an understanding of the *Zohar*’s mystical symbolism. In brief, the black light symbolizes the *sefirah Malkhut*, otherwise known as the *Shekhinah*, the feminine intra-divine potency, also symbolized by the moon. The shining white light is the *sefirah Tiferet*, symbolically the sun, and in this context the male intra-divine potency. The passage concerns both the relationship between these two divine potencies, and the role of the mystic in promoting the divine union and sharing in the experience of the union:

This passage outlines the nature and process of the mystical path. The *maskil*, wise of heart, “arrays” [*cf.* “enhances”] the black light of dawn, and in so doing ascends to the state of consciousness known as the “speculum that does not shine”—the dimension of the *sefirah Malkhut*. Working within this dimension he attains and ascends to a higher level—the “speculum that shines”, the symbol of the *sefirah Tiferet* ([31], p. 84).

For the *Zohar*, mystical experience is to be viewed in terms of “higher worlds” and divine potencies which are hermeneutically read *out* from Scriptural texts; the psychologist, having reframed the language in more phenomenological terms, is effectively reading *into* the *Zohar*’s text. The key point for our purposes is the way in which mystical experiences lie at the heart of the text. I rather doubt that the above passage could have been written in the first place without the author having intimate understanding of the experiences alluded to. Moreover, within the broad sweep of the *Zohar*’s symbolic narrative the author is conveying details of the states, but these can be grasped only by one versed in the appropriate way of reading the text—hence the need for an integration of hermeneutics and phenomenology. The style of writing is very much an invitation to engage in the work of mysticism, and comprehension will be limited without the readers having their own experience of the states depicted in the symbolic language on which to draw.

2. Mystical States of Consciousness as Conveyed by the *Zohar*

In her study of the *Zohar*, Hellner-Eshed identifies three principal states of mystical consciousness, which she names “*Rose consciousness*”, “*Tree-of-Life consciousness*”, and “*White-Light consciousness*” [31]. The naming of the first state as *rose consciousness* derives from the *Zohar*’s opening discourse on the “Rose of the valley” depicted in the biblical *Song of Songs*. Just as the whole edifice of the *Zohar* opens with this metaphor, so *rose consciousness* is viewed by Hellner-Eshed as the initial mystical state through which the further states may be accessed. For the *Zohar*, the rose depicts the *Shekhinah*, the feminine potency of the divine and the divine presence in the world. In the passage I have cited above, this state of *rose consciousness* corresponds to the “black light of dawn”, with which the mystic is enjoined to engage. *Rose consciousness* is accordingly the state through which one becomes aware of the divine presence. The state is characterized by intensification of emotion and of the senses through which one discerns, as it were, an extra quality in the world. Phenomenologically, the field of vision and of the other senses enlarges; one is drawn into the present in which a peculiar, almost mesmerizing, fullness is found. The world of the senses is no longer merely a collection of images; it becomes rather a rich tapestry through which, for the author of the *Zohar*, a normally unseen presence is glimpsed or at least intuited.

The distinctive feature of the *Zohar*’s treatment lies in the way in which events of nature become saturated with intimations of the intra-divine drama: “[T]he natural phenomenon of sunrise is understood to reflect a supernal dynamic within the divine self, the process of the two inner-divine lovers uniting as one light” ([32], p. 62). *Rose consciousness* is strongly imbued with a sense of *yearning*. At one and the same time it is the yearning of the mystic for the divine and the yearning of the *Shekhinah* for her consort, the male divine potency.

The tree-of-life consciousness to which *rose consciousness* opens is named after the central glyph of the Kabbalah. The Tree of Life depicts the entirety of creation from its ultimate source—the first stirrings to action in the recondite mind of God—to the final manifestation of the divine presence in the physical universe. For Hellner-Eshed, this state of consciousness is characterized by centeredness and an inner knowing of all things (*i.e.*, spanning that entirety of creation); it conveys at one and the same time both the center of the Tree of Life and its totality. It also entails an experience of radiance:

This is the light of the sun, the light of Torah, the King seated on His throne, the truth, the light of day, the center, the heart, the center bar [of the Tabernacle] running from end to end, the firmament, and the radiant light like which the enlightened wish to shine. Generally speaking, this light is associated with stability and majesty ([31], p. 269).

In distinction to *rose consciousness*, awareness of time is transcended in the state of *tree-of-life consciousness*. The former “is a dualistic, changing state of consciousness,” whereas the latter “is stable, concentrated, and unchanging” ([31], p. 345). The tree of life is traditionally associated with the Torah (Hebrew Bible, *Proverbs* 3:18), which is the unchanging center of Judaism. Of particular relevance is the characteristic of Torah study that sees the primary imperative as a striving for unity. A classic formulation holds that study entails “stringing the words of Torah [to each other], and the Torah to the Prophets and the Prophets to the Writings” ([33], 1:10). Torah study involves pursuing diverse opinions, arguments and interpretations, always seeking to unify divergences, for “These and these are

the words of the living God” ([34], 13b). This key feature of Torah study becomes internalized in the mystic’s attainment of tree-of-life consciousness. I understand this state in relation to the ecstatic practices whereby kabbalists engage in complex ways of exploring the associative propensity of mind [35]. The mystic becomes flooded with associations whilst being somehow attuned to the all-embracing meaning that seems to lie just beyond the fountain of associative activity. The all-knowing quality arises because the mystic is in touch with that spirit of unification which characterizes the Tree of Life, and accordingly “[T]he quality of the ego is experienced as more expansive or united with something larger than itself.” ([31], p. 348).

White-light consciousness brings integration with the oneness and unity at the heart of all being. The light is the light of the Holy Ancient One, a term used by the *Zohar* to convey the unknowable essence of divinity; it is “a white like which there is no whiteness in the world” ([28], 3:165b, 3:129b). Hellner-Eshed identifies white-light consciousness with the undifferentiated roots of thought; it amounts to the alignment of the human mind with the “amorphous dimension that precedes order and language” ([31], p. 349). Whereas rose consciousness is depicted as having a feminine quality and tree-of-life consciousness as being masculine, white-light consciousness transcends any duality associated with gender.

The *Zohar* portrays the process of creation as the unfolding of divine thought from its origin in concealment through to outer manifestation: “From within the concealed of the concealed, from the initial descent of *Ein Sof* [the limitless divine essence], radiates a tenuous radiance, unknown, concealed in tracing like the point of a needle, mystery of concealment of thought” ([28], 1:21a; see [29], volume 1, p. 161). The radiance is termed “nothingness” ([28], 1:65a; see [29], volume 1, p. 380), and white-light consciousness may be understood as the closest humans can come to that nothingness.

Parallels to these three states of mystical consciousness can be drawn with those identified in Underhill’s classic 1911 study, which draws mainly on the testimony of Christian mystics [27]. It is not my intention to make an extensive comparative examination of the stages of mystical consciousness as found in the world’s religions—my task is more circumscribed, focusing as it does on the states we may discern in the *Zohar*’s narrative. Nevertheless, the case for proposing cognitive and neural correlates of mystical states will be strengthened to the extent that at least some of their parameters have cross-religious parallels.

Underhill identifies five phases in the mystical path, two of which are essentially transitional stages between the first and third and the third and fifth phases. It is the first, third and fifth which bear comparison with the three states identified from the *Zohar*. Although Underhill classes them as stages, it is evident from her descriptions that each is associated with a given state of mystical consciousness—a point that underpins my assertion of parallels with the states discussed here.

The first stage Underhill identifies as *awakening of self*, characterized by intensification of emotion and perception. Her remark that “The flowery garment of the world is for some mystics a medium of ineffable perception, a source of exalted joy, the veritable clothing of God” ([27], p. 231) would certainly apply to the rose consciousness that Hellner-Eshed claims as the first state of mystical consciousness portrayed in the *Zohar*. Following the purgatory second stage, Underhill identifies the third stage as *illumination of self*, in which the self has “pushed through to another order of reality” ([27], p. 280). Parallels with features of the tree-of-life consciousness include the “deep, intuitional knowledge of the “secret plan”, the “Consciousness of the Absolute”, and the sense that the

soul is participating in the “great life of the All” ([27], pp. 281, 290, 536). Finally, following a further purification in stage four—the dark night of the soul—the mystic attains to the *unitive life* in which, “The deepest, richest levels of human personality have now attained to light and freedom. The self is remade, transformed, has at last unified itself” ([27], p. 498). Amongst many parallels, the “self-naughting” ([27], p. 508) that Underhill cites as central to attainment of the unitive life is equally characteristic of white-light consciousness.

3. Cognitive Neuroscience and States of Consciousness Depicted in the *Zohar*

3.1. Hermeneutic Neurophenomenology in the Modelling of Mind

In this section I shall move into the second of the two hermeneutics I mentioned earlier as being critical for my proposed extension of neurophenomenology to include the insights in mystical texts that employ a distinctive, codified (and convoluted) exegetical style, such as that of the *Zohar*. The author(s) of the *Zohar* were primarily directing their insights to those firmly entrenched in rabbinic discourse and its extension into mystical Midrash. The first hermeneutic entails decoding the text into terms that can be understood in a different area of discourse—in this case that of contemporary psychology and neuroscience. This first hermeneutic underpinned the previous section. The second—to be explored in this section—concerns the modelling function that lies at the core of scientific advance. I shall investigate the ways in which the *Zohar*’s conceptualization of the three mystical states (as understood through the first hermeneutic process) might contribute to the challenge of modelling neurocognitive processes correlating with consciousness.

Building models of the mind is seminal for both mysticism and psychology, and offers a critical area of intersection for the science–religion dialogue that I have explored elsewhere [36]. Theorizing in psychology invariably entails the construction of models that reflect the metaphors by which the mind is to be understood [37,38]. The model attempts to systematize the various component processes within an overall framework given by the metaphors current within the particular school of thought. Whilst the level of explanatory structures that comprise the metaphorical framework varies—neural, cognitive or psychodynamic, for example—the goal is always to advance understanding of the aspect of the mind being modelled. The question of interest here is whether the *Zohar*’s modelling of mystical states of consciousness (as elucidated through the first hermeneutic) may potentially contribute to the quest to model altered states in psychology and neuroscience.

It is worth emphasizing that this goal is not to be reduced to that of explaining (or *explaining away*...) the *Zohar*’s conception of states of consciousness in merely cognitive and neural terms. I am acutely aware of the dangers of reductionism. As one for whom the study of mystical states is by no means a detached, dry academic exercise, and for whom the complex tapestry woven by the *Zohar* has become a source of wonder, the last thing I would want is to drain the life-giving sap from the tree that grows within its pages. It may be, however, that a core feature of the kabbalistic worldview itself rescues me from the dilemma! The Kabbalah understands reality as comprising “higher” and “lower” realms interrelated by a principle of correspondence. In this kabbalistic scheme, activities of the brain become reflections of more cosmic principles of operation, as I have explored more fully elsewhere [17,39,40]. The term “correlate” (as in the infamous “neural *correlates* of consciousness”)

takes on a mystical slant inasmuch as “[T]he consubstantiality of self and God in kabbalistic literature ... is coupled with the correspondence of the macrocosm and microcosm, the depiction of the world as a ‘large human’ (*adam gadol*) and the human as a ‘small world’ (*olam qatan*). God, world, and human are intertwined in a reciprocal mirroring” ([41], p. 32).³

My task here is to explore the proposition that elucidation of the *Zohar*’s understating of mystical states provides data that may guide, or help substantiate, neuroscientific and psychological models of altered states in general. It is for the reader to decide whether or not these correlates are the be-all and end-all of the states, or whether they reflect “higher”, even divine, principles. By “altered states” in this context I refer specifically to the mystical states of consciousness depicted in the *Zohar*, as analyzed earlier. More generally, I adhere to the proposals of Vaitl *et al.*, that altered states of consciousness are best understood in terms of four key dimensions—activation, awareness span, self-awareness, and sensory dynamics [43]. The foregoing characterization of mystical states as portrayed in the *Zohar* incorporated changes in each of these dimensions.

Another preliminary point concerns a need to simplify the mystical phenomena in order to emphasize core aspects that can be viewed in relation to processes that have been sufficiently studied in cognitive neuroscience. I have little doubt, for example, that the mystical states comprise important psychodynamic and archetypal features, and that their analysis through the categories of depth psychology would accordingly be instructive (see, for example, [44]). I have emphasized elsewhere the importance of recognizing the different levels of explanation that are appropriate to psychological analysis of mystical phenomena, and of resisting the reductive tendency to privilege the most physical level [17].

To give some signposts to the following, let me specify the steps in the argument:

1. The first step is to clarify some of the key characteristics of the normal state of consciousness and the neurocognitive processes that are thought to correlate with them.
2. Following this I shall consider the ways in which the features of mystical states as portrayed in the *Zohar* suggest how these key characteristics, and their neural correlates, may become altered.
3. Finally, I shall develop a model of the states of consciousness which incorporates material from the above two steps. This final step in the argument is intended to demonstrate the value for cognitive neuroscience of incorporating insights from mysticism more generally. These insights can enrich our scientific models, and perhaps suggest new avenues of enquiry.

3.2. The Normal State of Consciousness

A key feature of our normal state of consciousness is the sense of self, which arises as a narrative construction binding our past into our present [45]. The seeming continuity of self is nothing other than this narrative—a view that bears strong affinity with the Buddhist doctrine of *anatta* [46]. I have argued that the normal state of consciousness arises when concurrent inputs (perceptions, emotions,

³ It is worth noting in this context that the kabbalistic understanding of correspondence and isomorphism between different levels in the created hierarchy is in line with recent developments in dynamic neuroscience. Fingelkurts, Fingelkurts, and Neves have argued that phenomenal architecture of a mind and operational architectonics of the brain are intimately connected within a single integrated metastable continuum through functional isomorphism [42].

memories, thoughts) are incorporated into what I characterize as an “*I-narrative*” [17]. It has been suggested that the narrative derives from a specific brain module, termed by Gazzaniga (e.g., [47,48]) the *interpreter*: “[T]he interpreter module ... notes the cacophony of reactions of all of the [other brain] modules and constructs theories and beliefs as to why we act and feel the way we do. It is this system that gives each of us our own personal narrative—our story” ([48], p. 18). My term “I-narrative” is intended to convey the fact that on-going perception—and immediate, everyday consciousness in general—is effectively a narrative construction in which the central feature is the ego, or “I”. It should be noted that “I” is speculatively viewed not as a substantive pre-existing entity but rather as a kind of hypothesis constructed by the interpretative systems to give retrospective coherence to the on-going mental activity (see [17] for detail).

The role of the interpretative system may be thought of as a final common path in the construction of “I”. A range of brain regions are likely to be involved in the complex of operations that contribute in specific ways to self-related processing more generally. For example, the regions thought to comprise “hubs” of the *default mode network*—the anterior medial prefrontal cortex and the posterior cingulate cortex—have been shown to become active when self-related memory processing is required [49]. These aspects of the default mode network’s activation may be a factor in the network’s role in relation to consciousness.

I turn now to the processes by means of which concurrent inputs become incorporated into the I-narrative, focusing specifically on the input from the senses by way of example. Evidence from cognitive neuroscience suggests that initial processing of the sensory input generates a distinctive array of activation in systems that are set to respond to specific features in the sensory world. We may call this activated array the “*neuronal input model*”). The neuronal input model activates structures in memory having features in common with the current input. In psychological terms, the activated structures convey associations to the input model. It should be noted that this memory function is preconscious,⁴ occurring rapidly following the input arriving at the senses.

The above processes would seem to be dependent on so-called *feedforward* neural systems, *i.e.*, those neural pathways that extend from “lower” regions to “higher” regions of the brain—“lower” in this context meaning less complex processing involving lower levels of inter-sensory integration. Thus, for example, in the visual system, the feedforward pathway extends from the retina, through the thalamus and a range of areas in the visual cortices, to “higher” areas in the temporal and parietal lobes. These feedforward pathways are complemented by “*recurrent*” (or “*re-entrant*”) pathways, which originate in “higher” areas and re-enter the pathway at “lower” regions [50–52]. Evidently, these recurrent pathways would have the role of modulating activity in feedforward systems.

Following activation of brain regions that correlate with memories associated with the neuronal input model, the recurrent neural system seems to become involved in an iterative quest to match one

⁴ The term “preconscious” is problematic inasmuch as these early processes are deemed to be imbued with certain *dimensions* of consciousness (see Section 3.3 below). To be more precise, they are pre- the *normal* state of consciousness to the extent that the normal state is dominated by the end stage of perceptual activity through which the I-narrative is generated. Issues of terminology in the study of consciousness are fraught with inconsistency, and my approach to identifying the different dimensions of consciousness in terms of operationalized processes in perception is intended to overcome at least some of the inconsistencies.

or more of the activated memory structures with the input model. If it matches then the object or event represented is selected for inclusion in the I-narrative.

These processes are schematically illustrated in Figure 1. The figure conveys a hypothetical systems approach to perception. The stages presented may best be conceptualized as depicting the logical sequence thought to be required for a conscious percept to be generated. The neural systems included are suggestive only, since we do not yet have a full understanding of neurophysiological processes that correlate with perception. The figure portrays three stages eventuating in a final, fourth stage identified as the normal state of consciousness. That is, a stage of *sensory processing* is followed by activation of brain systems related to *preconscious memory*, following which the iterative interaction between feedforward and recurrent systems brings about a *matching process*, eventuating in the entity identified becoming incorporated in the I-narrative giving the *egocentric* orientation of normal consciousness.

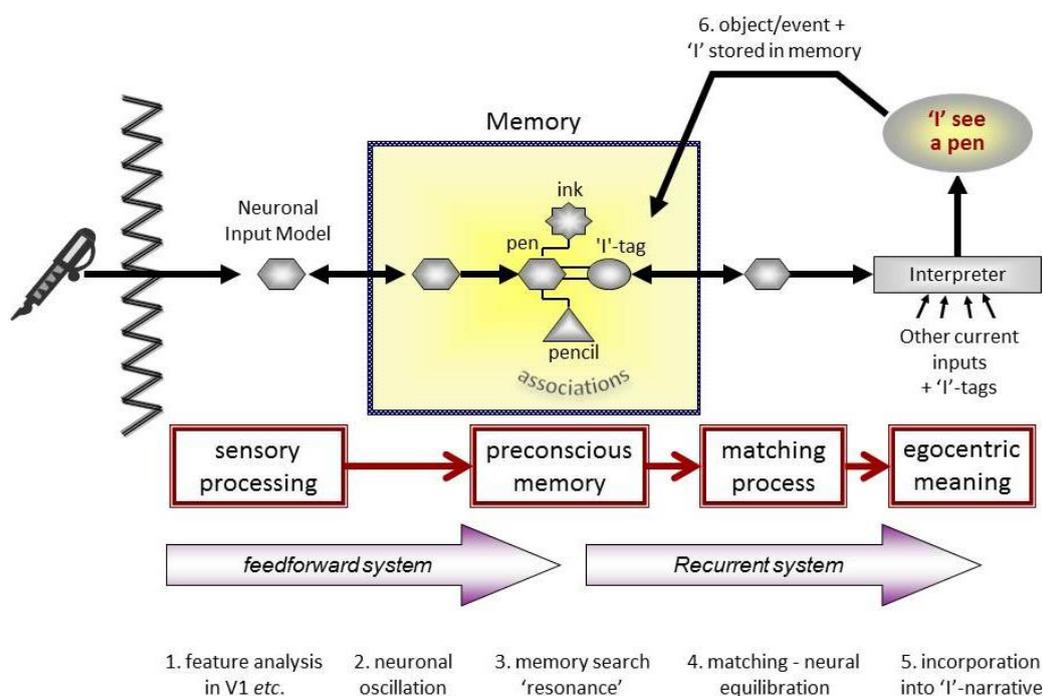


Figure 1. Schematization of the stages postulated to give rise to perception [17].

In order to account for extensive observations in cognitive neuroscience regarding *implicit memory* (for review, see [53]), it has been argued that the representation of “I” must be integrated within the preconscious memory. In short, the evidence suggests that some apparent disorders of memory may arise from inconsistencies in the normal role played by the representation of “I” rather than failures of information storage per se [54,55]. Details of this need not concern us here; I simply wish to explain the additional feature of Figure 1, namely what I have termed an “I-tagging” system. Information present in any given moment of consciousness is understood to become stored in conjunction with the representation of “I” that had been constructed in that moment. In effect, the constructed I-representation becomes a tag attached to the memory—hence my term “*I-tag*” [56].

Finally, it should be noted that the sequential portrayal of these stages may be somewhat misleading, given that iterative processing is involved. In the case of an unobscured common object—such as the pen used as an example in the figure—preconscious activation of the specific matching entity would be

practically instantaneous. We become subjectively aware of these processes only in suboptimal conditions (as far as vision is concerned, in dark conditions, or when viewing a distorted image, *etc.*). The broad range of evidence supporting this schematic overview is presented in detail in [17].

3.3. States of Consciousness in the Zohar and Neurocognitive Processes

The stability of the so-called “normal” state of consciousness may be questioned [55], and accordingly the above schematization is undoubtedly a simplification. We experience fluctuations in our sense of self, emotional swings, and energetic shifts that invariably impact on the I-narrative that is viewed here as a defining feature of the normal state. Nevertheless, the mystical states as recorded in the *Zohar* and other classics in the world’s spiritual literature appear to represent more than mere fluctuations, entailing qualitative changes in the processing of information *en route* to consciousness. My objective in this section is to emphasize the psychological characteristics of the mystical states conveyed in the *Zohar* in order to examine how they may relate to the processes and stages schematized in the foregoing section.

All the mystical states depicted in the *Zohar* depend fundamentally on a shift in the mystic’s core narrative. The sense of egocentrism is displaced by a solid conviction that the divine orchestrates all events; the maxim that there is “nothing other than Him” (Hebrew Bible, *Deuteronomy* 4:35) is taken quite literally (unlike most translations which convey the sense that there is no divine being other than that depicted by the Tetragrammaton). The objects and events we perceive are nothing other than manifestations of God (and more especially of His emanations). On the pages of the *Zohar* invariably chance encounters unfold to reveal profound meaning. Without this shift towards the divine becoming the center of gravity for the whole narrative of the mystic’s consciousness there are no mystical states.

I would suggest that, in terms of the processes depicted in Figure 1, this shift changes the dynamic of the role played by the interpreter module of the brain. As I have suggested elsewhere [17], this shift may be operationalized by suggesting that I-tags progressively play a secondary role to what might be termed “*God-tags*.” The memory system becomes, as it were, re-formatted in line with an indexing system which places the mystic’s conceptualization of the divine as a central reference point. This is not merely an intellectual shift (as might be the case, for example, for a non-mystically inclined religious believer); I would conjecture that the shift takes place more through trance-inducing, ecstatic practices that transform pre- and/or un-conscious realms of mind [35,58], thereby impacting on the mystic’s personality.⁵

⁵ There has been some debate in the scholarly literature on Jewish mysticism as to whether the approach of the fraternity of the *Zohar* was more *theosophical-theurgic* compared with other approaches that emphasized use of *ecstatic* practices [57]. The exegetical orientation of the *Zohar* is indeed primarily theosophical—meaning that its interest lies in the structure of the divine world—and theurgic—implying that it encourages ritual practices to bring about harmony within that world and between the divine and human realms. However, it is unlikely that those responsible for its authorship had no experience of ecstatic practices. On the contrary, it is likely that a common core lies within the theosophical-theurgic Kabbalah of the *Zohar* and the so-called *ecstatic Kabbalah* that focuses on techniques for attaining higher, individual states. As Wolfson notes, the view that polarizes these two strands “fails to take seriously the many shared doctrines that may be traced to a common wellspring of esoteric tradition with much older roots” ([59], p. 85 n7). The intense intermingling of these strands in the *Zohar* is summed up by Hellner-Eshed: “In zoharic mysticism, theurgic ends serve as the vehicle for ecstatic experiences, while the ecstatic quest and the ecstatic experience serve theurgic ends” [31], p. 316).

In relation to the mystical state of consciousness specified by Hellner-Eshed as “rose consciousness”, this transformation is evident in the way in which all features of the world become perceived as manifestations of the *Shekhinah*, the feminine divine. The mystic becomes enmeshed with the *Shekhinah* in what is for the *Zohar* an explicitly erotic rapport. Rose-consciousness is “a state of connectedness with the feminine as a divine-cosmic quality, symbolized by the rose, by female eros, as well as by the night and its varied, mysterious lights...” ([31], pp. 341–42).

The question arises as to the role that these insights from the *Zohar* into core features of the various mystical states of consciousness can play in contributing to a refinement of how we may understand the neurocognitive processes described in the previous section. It is a general principle that psychology progresses through understanding of situations outside of the normal—through the study of perceptual illusions, or brain damage, for example. I shall argue that the insights gleaned from the *Zohar* illustrate deviations from the normal⁶ that can cast further light on the processes through which events enter consciousness. The hermeneutic approach yields first-person, phenomenological data—the subjective experiences attaching to these non-normal states—which is a necessary complement to the predominantly third-person data of neuroscience.

In addition to the depth of immersion in the realm of the divine feminine, Hellner-Eshed further specifies intensification of perception and emotion, and augmentation of associative processes as being amongst the key properties of rose consciousness. I would conjecture that these arise to the extent that there is a loosening of the dominance of the end stage depicted in Figure 1, the stage through which egocentric meaning normally arises. The mystic becomes progressively detached from the I-narrative, with a concomitant shift towards the earlier stages. Figure 1 is focused on memory and perception, but there is no reason to doubt that the release from the end stage would not similarly intensify emotion. The release from the dominance of the I-narrative might also bring about increased awareness of the normally preconscious associations to the neuronal input model (the stage labelled “*preconscious memory*”). The main claim however is that rose consciousness would bring about heightened focus on the perceptual objects because of this attenuation of the I-narrative that normally dominates consciousness. The matched neural representations can be more dominant because they are less susceptible to the ruminations of the narrative that otherwise continually reinforces their incorporation in the egocentrism of the normal state. Perhaps this should be viewed as a *mindful* state of consciousness. In terms of neural correlates, feedforward and recurrent systems would be active, meaning that perceptual activity (and related emotions and thoughts) would be pronounced, but the interpretive systems underlying the construction of self would be attenuated.

The key characteristics of the next level in Hellner-Eshed’s hierarchy of mystical states, that of “tree-of-life consciousness”, is a richer sense of knowing, a sense of somehow being in touch with the pattern that underlies all things, and of being an active participant in the dynamics of that pattern (which, in the *Zohar*’s distinctive narrative means promoting the union of female and male divine potencies). I believe that these characteristics may point to increased contact with the unconscious, akin, for example, to the state accessed through *active imagination* in Jung’s analytical psychology.

⁶ In using this phrase “deviations from the normal” I do not intend to convey any implication that the mystical states are not progressive or beneficial to the practitioner. It is simply that their potential value in the context I am examining here arises to the extent that they are deviations from the normal state of consciousness.

Again, due to the limitations of a static representation, Figure 1 cannot capture the extensive ramifications of the associative process that must be ever unfolding, like ripples continually spreading and interacting from disturbances on the surface of water. The associations depicted in the figures are simply trivial connections to a mundane stimulus at a single moment. It would be more realistic to envisage the associations as comprising a veritable panoply of ever-changing images, most of which remain normally inaccessible from the mundane state dominated as it is by the I-narrative. It is this process of accessing such normally unconscious imagery and, more especially, of effecting contact with the effervescent process that continually activates complex associations, which, I suggest, brings the sense of a wider sphere of knowledge to the individual experiencing tree-of-life consciousness. It is not the knowing per se that defines the state; rather it is the effect of the mystic becoming aware of the normally preconscious associative process that underlies the mystic's sense that he or she has access to total knowledge.

In the context of the specifically Jewish approach to hermeneutics, and how this ramifies into its mystical tradition, there is considerably more that might be said about the centrality of the associative process in the mystical state, especially in terms of its role in language. Study as a sacred act lies at the core of the Jewish tradition, and is characterized by a complex hermeneutic orientation. In the Kabbalah, this complex hermeneutic orientation finds more intense expression in practices that entail a disciplined kind of “playing” with associations through visualizations, chanting and other anomian techniques [35]. It seems highly likely that these practices would intensively augment the associative activity as depicted in Figure 1. The twelfth-century *Sefer ha-Bahir* encourages the mystic to probe into concealed meanings of words by exploring what it terms the “wheel” of each word, clearly an allusion to the associations that “revolve” around the word ([60], 33). In an earlier work, the *Sefer Yetsirah*, this wheel imagery is applied to the Hebrew letters. God is portrayed as realizing the work of creation through permuting the letters: “He placed them in a wheel.... The wheel revolves forwards and backwards.... How? He permuted them, weighed them, and transformed them. *Alef* [the first letter] with them all and all of them with *alef*; *bet* [second letter] with them all and all of them with *bet*...” ([61], 2:4–5). At the same time as depicting the linguistic technique by means of which God is thought to create the world, the *Sefer Yetsirah* encourages the mystic to emulate the divine, giving rise to esoteric practices involving intensive ways of permuting and combining letters. This kind of mysticism of the Hebrew letters is found in the *Zohar*, where, as Wolfson points out, it is combined with a more theosophical approach: “In the final analysis, according to the *Zohar*, language is a completely appropriate medium to attain gnosis of the divine and ultimately achieve communion therewith, for, from the kabbalistic perspective, the twenty-two foundational letters of the Hebrew alphabet constitute the very substance of God” ([62], pp. 235–36).

Again, the issue of over-simplification should be acknowledged, for there are compelling aspects to kabbalistic language mysticism beyond a bland increase in associational activity. Nevertheless, the very centrality of language as a medium for mystical speculation and practice goes some way to justifying my conjecture that it is this psychological feature that underpins tree-of-life consciousness as identified by Hellner-Eshed. Complex linguistic associations mark the pages of the *Zohar*, and the emphasis on atomizing language to its basic components—the letters—holds the normal narrative orientation of language in check. As Idel remarks, ecstatic practices of this kind entail “an attempt to

transcend [language] by deconstructing language as a communicative instrument ..., which ... would lead the mystic beyond the normal state of consciousness” ([63], p. xi).

The sense of self-expansiveness that Hellner-Eshed identifies with the state of tree-of-life consciousness is one of the most robust features of all transpersonal experiences [64]. I would suggest that the phenomenon can contribute here to understanding the effects of augmenting the associative function and increasing the scale, or comprehensiveness, of the memory indexing system. The I-tagging system effectively limits the indexing capacity to whatever has been connected to the I-narrative previously, *i.e.*, to our habitual ways of constructing our experience. With the replacement of the ego by representations of the divine as the core of the memory index, an expansion of scale would be predicted. As the thirteenth-century Abulafia wrote, “Man is [tied] in knots of world, year and soul in which he is tied in nature, and if he unties the knots from himself, he may cleave to Him who is above them...” ([35], p. 135). Of course, such transformation in scale is likely to come with associated dangers of ego-inflation—no wonder Abulafia had messianic delusions!

When it comes to the final mystical state in Hellner-Eshed’s scheme, “white-light consciousness”, it may be that there is little that can be usefully articulated from a neurocognitive perspective. The experience of light is probably the most universal feature of mysticism [65,66], and on account of the absence of any form in the experience, it approximates a *contentless* state of consciousness [67]. Given that a primary consideration in the *Zohar*’s treatment of creation and the processes of mind concerns the dynamic between concealment and revelation, it comes as no surprise that the white light shades into unknowable concealment: “[T]he white light becomes a throne for a concealed light—invisible, unknowable—settling upon the white light. Then the light is perfect” ([28], 1:83b; [29], volume 2, p. 32). Are such experiences of emptiness constructed from the canonical context within which the mystic is situated [68,69], or are they devoid of contextual conditioning [67,70]? Considerable words have been spilt over this question, and the argument is likely to rumble on. There is some evidence that a common core to mystical experience exists independent of any hermeneutic context [71], and it has been argued that the experience of contentless consciousness may ensue from background neural activity [72]. However, we arrive here at the core of the disjunction between mysticism and science, since the value placed on such experience seems irreconcilable between the two sides. The mystic places ultimate value on the experience of nothingness, since it is the subjective dimension of flowing into the Absolute; for the majority of neuroscientists, the state is regressive and carries no value.

This conundrum reduces to the intractable *hard problem* of consciousness [73], since it appears to convey *phenomenality* in the absence of any *intentional* connotation of consciousness. Phenomenality is the simple *beingness* of experience, the *sine quo non* of *qualia*, the fact that there is something it is like to have an experience, even if the experience is *without content*. And whether or not it is a product of the brain, or perhaps a property of the universe as a whole, or even of the divine, is currently largely a matter of belief [74,75].

3.4. Towards a Model of States of Consciousness

Given the conundrum over phenomenality it becomes critical to clarify the differentiation between various aspects, or *dimensions* [17], of consciousness [76–78]. As I have argued above, the normal, mundane state of consciousness (NSoC) is associated with the final stage of processing as depicted in

Figure 1. The dimensions viewed as contributing to this normal state are indicated in Figure 2. The NSoC is characterized as comprising phenomenality and intentionality in addition to its defining hallmark, that of the I-narrative. Intentionality, introduced initially by Brentano in his analysis of mind [79], conveys the notion that consciousness is invariably *about something*, that thought without content is no longer within our conscious sphere of mind.⁷

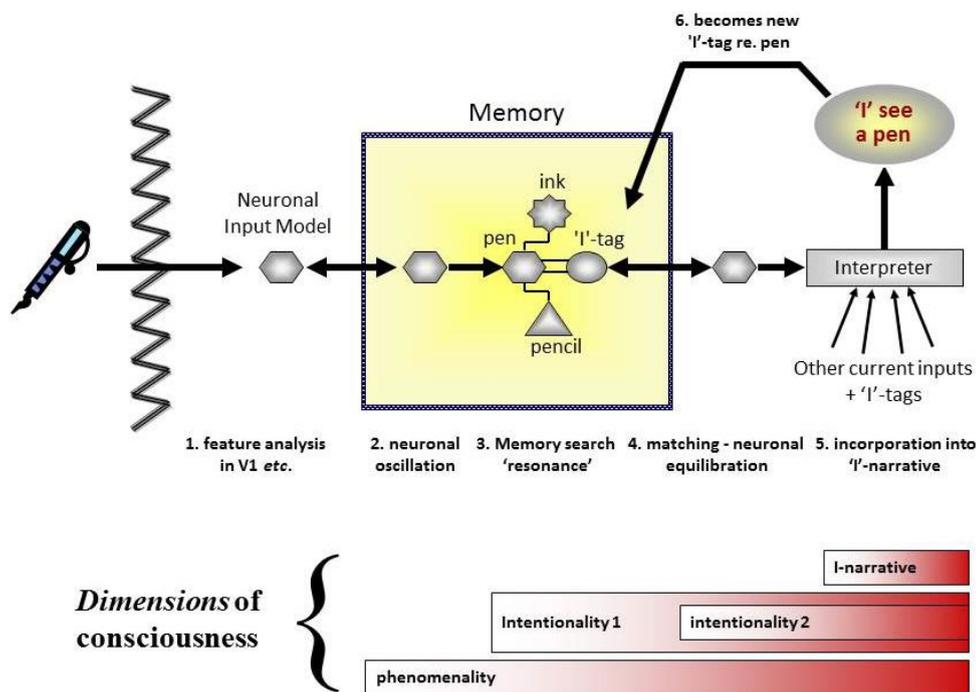


Figure 2. Dimensions of consciousness.

The crux of my argument is that the existence of the various mystical states of consciousness leads to an understanding of these dimensions that exceeds what would be possible from the neuroscientific data alone. The third-person observations of neuroscience lead to conclusions that the processing of information taking place prior to the end stage—when the reflective consciousness associated with the I-narrative arises—is simply *preconscious* [80]. As will be argued more fully below, the mystical states may be best understood as emerging when one or other of the dimensions *preceding* the end stage come to the fore. In other words, given that the mystic is certainly conscious in these states, the earlier processes would appear not to be preconscious (or even *unconscious*) in any absolute sense; rather they are infused with dimensions of consciousness that are merely obscured by the final dimension—that of the I-narrative—in the normal state.

Figure 2 distinguishes two forms of intentionality. The activation of associations entails a form of intentionality that I identify with Freud’s notion of the *primary process*. Accordingly I term it *intentionality 1*. *Intentionality 2*, by contrast, is the dimension of consciousness relating to the match between neuronal input model and activated associations. It arises as the mind locks onto the central percept. We may view intentionality 2 as corresponding to Freud’s secondary process; it is

⁷ This position, of course, begs the question concerning possible contentless consciousness. Whether or not such experience can be taken at face value, the NSoC is clearly identified not only by its focus on egocentricity (the I-narrative) but also by its intentionality. If there were to be a contentless state it would certainly not be a NSoC.

reality-oriented and consistent with the goals of the ego. The matching process entails a relative inhibition of competing representations that comprise intentionality 1. Nevertheless, these primary process representations evidently remain beneath the surface of intentionality 2, as evidenced by slips of the tongue and other parapraxes that caught Freud's interest [81].

These dimensions are cumulative in the sense that when I am conscious of some object (such as the pen in Figure 1), intentionality 2 is present within the I-narrative (with intentionality 1 present subliminally), and the whole experience is imbued with phenomenality. In other words, *I* (I-narrative) *see* (experience—*i.e.*, phenomenality) *the pen* (intentionality 2). Under normal circumstances, those representations deriving from intentionality 1 would not be experienced. They may however gain entry into the I-narrative under conditions, such as those associated with hypnagogic imagery, in which there is a relaxation of the inhibition on associations normally brought about by the matching process [82].

A crucial point to note is that recognizing these differing dimensions of consciousness overcomes the problematic distinction between “conscious” and “unconscious” realms of mind. The associations activated by the neuronal input model, for example, are not strictly “unconscious” but they are normally inaccessible from the “I”-narrative.

The critical proposal I make in examining mystical states in terms of cognitive and neural processes is that the *mystical states arise when processes involved in the end stage of generating the NSoC become attenuated and/or processes at work in earlier stages become augmented*.⁸ In other words, the mystical states are not so much adding onto the processes that sustain normal consciousness, but rather they arise due to alterations within the balance amongst components of normal processing. Mystical states should be understood in relation to the *sequence* of processes relating to the dimensions of consciousness identified above. My analysis of the *Zohar*'s treatment of mystical states suggests that mystics identify with progressively earlier stages in the sequence of processes that ordinarily eventuates in our NSoC [17]. Normally, we identify almost exclusively with the I-narrative. Mystical states involve relative detachment from the I-narrative and a concomitant increase in awareness of preceding stages. Instructive in this context is the formulation by Hunt who understands the mystical experience of light as the result of a “turning around” of the normal process of perception [65]. The mystic becomes aware of the more primitive aspects of cognitive processing, which would normally be obscured in a full perceptual or thought process.

My analysis in the previous subsection of the mystical states of consciousness portrayed in the *Zohar* has supported the broad categorization of processes that are presumed to emerge *en route* to the NSoC. It remains to clarify how these processes, and the stages they constitute—as given in Figure 1—relate to *states* of consciousness. My proposal is simply that different states of consciousness are dominated by particular dimension of consciousness, as depicted in Figure 3. The notion of *identifying* with particular stages of processing, as expressed in the preceding paragraph, becomes operationalized in terms of the relative dominance of a given dimension of consciousness. In the normal state, the I-narrative is dominant. It is implicit that in this normal state I access information according to my

⁸ In terms of classical classifications of spiritual and mystical practices, this formulation corresponds to the distinction between apophatic and kataphatic practices. Attenuation of processes involved in the I-narrative comes about through apophatic meditation directed towards stilling the mind, and augmentation of earlier processes entails kataphatic practices such as visualizations in which disciplined exploration of associations is encouraged.

needs and desires. The figures I have used necessarily focus on a single frozen moment with a single object in front of my eyes, and therefore cannot do justice to the complex array of contents in my consciousness at any given time. The point I would emphasize here is that the I-narrative will always be distracted by whatever may be playing through those needs and desires. Thus, for example, seeing the pen may be associated with frustration inasmuch as I am uncertain of the way to proceed in my current writing, or with desire if I am about to write to someone from whom I have reason to expect something, etc.

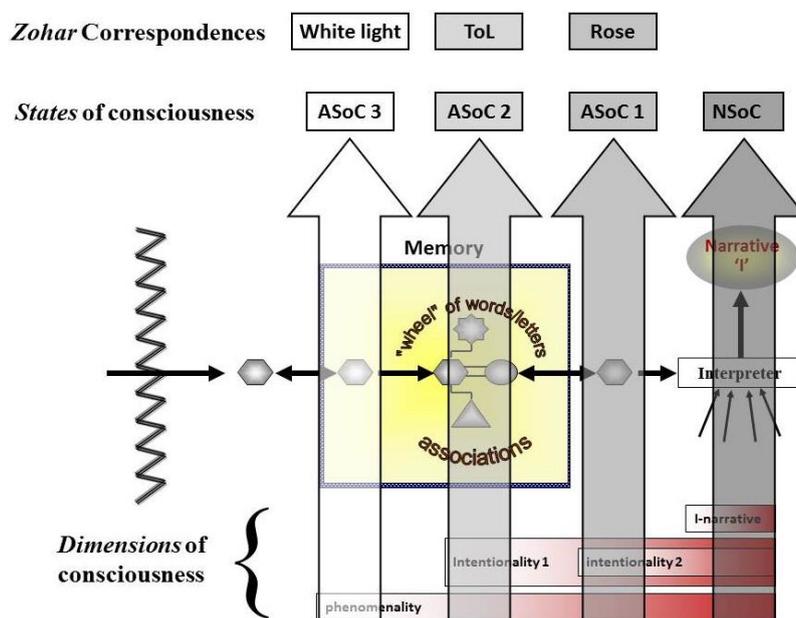


Figure 3. States of consciousness.

If construction of the self-representation and concomitant I-narrative were attenuated, the centre of gravity of consciousness would shift, moving from the normal state of consciousness (NSoC) to what I shall term *altered state of consciousness 1* (ASoC 1). As portrayed in Figure 3, in the terms of the model under discussion the content of ASoC 1 is determined by intentionality 2 in the absence of the normal I-narrative, meaning that accessing of egocentric information will be attenuated. In the previous section I emphasized the intensification of perception and emotion associated with rose consciousness. Focusing on perception, I suggested that this intensification supported the contention that the mystic is experiencing the matching stage without distraction by the ruminations introduced by egocentrism. His state of consciousness is dominated by intentionality 2 and the end stage is attenuated by the absence of egocentrism. As I suggested earlier, there probably is still a narrative, but its focus has shifted to the mystic’s representation of the *Shekhinah*, the dimension of God with which the mystic is potently engaged in rose consciousness. It is worth noting that the *Shekhinah* embodies features of the *anima* as conceived by Jung. Jung defined the *anima* as a personification of the unconscious (e.g., [83], p. 11 n2). In a man the *anima* represents a gateway into the unconscious, which in terms of the model developed here would equate to this attenuation of the I-narrative.⁹ The

⁹ Throughout its history until recent times, the Kabbalah was very much a male preserve. The erotic storyline of the male kabbalist’s encounter with the *Shekhinah* forms one of the *Zohar*’s primary themes. To the extent that women in our day

male mystic is facing towards his God on the threshold of his journey into the wheel of language and associations.

The wheel of language becomes the focus of the next state, that of tree-of-life consciousness, in which intentionality 1 becomes dominant. The state would be similar to ASoC 1 inasmuch as egocentric thinking attaching to the I-narrative is attenuated, but differs from the first altered state to the extent that associational activity dominates. The central role within the Jewish tradition played by the *midrashic imagination* would ensure that the wheel of associations is well lubricated in all who have been steeped in rabbinic literature—as was the case for the *Zohar* fraternity. Fishbane rightly situates the midrashic imagination as “one of the most compelling and characteristic features of Jewish creativity” ([84], p. 1). It lies behind the rabbinic hermeneutic whereby biblical verses are elaborated by means of wordplay far beyond their meaning at face value. In the *Zohar*, and the Kabbalah more generally, such wordplay is enriched through incorporation of extensive further features—from numerical allusions, the detailed shapes of letters, and the numerous ramifications of God’s names, for example. Add to this the ecstatic practices through which the mystic imaginatively works with the Hebrew letters through their permutations and combinations, and we arrive at the state of consciousness that seems to lie at the heart of a mysticism that is distinctively “Jewish”. At the same time, the shift from identification with the *Shekhinah* more towards the central divine emanation, known as *Tiferet*, “beauty”, may account for the centeredness that Hellner-Eshed regards as a further characteristic of this mystical state.

Returning again to my central argument, the input from the *Zohar*’s conceptualization of tree-of-life consciousness forms a valuable contribution to the science–religion dialogue not simply because it somehow “fits” into the kind of model depicted in the figures here, but more substantively because it fleshes out the model; it gives rise to considerations that may invite further hypothesis testing.¹⁰ Without the first-person vantage point we would not have reason to see the associative process as central to a distinct state of consciousness. Without the notion that this state of consciousness brings a compelling sense of being in touch with the whole cosmic design, of being all-knowing, we would not appreciate the central role of the associative process to our sense of knowing more generally.

The phenomenality that becomes the focus of ASoC 3, “white-light consciousness”, is present in all the states, since it is the basis for all experience. It is only in this ultimate state of consciousness, however, that it is experienced in the absence of intentionality; the light has no form. In Figure 3 I have suggested that this dimension arises when the sensory input becomes available to interact with memory systems. There would as yet be no meaning since the meaning can only arise by dint of memory connections. This is largely speculation however, since, as I already indicated, the relationship between phenomenality and the brain is not understood. For the purposes of the model under examination here, it is sufficient to say that phenomenality is a necessary part of the experience that is somehow

are increasingly entering into the world of the Kabbalah, this storyline is evolving. The psychological impact of this development is the subject for a future study. Here, my interest is focused on the states of consciousness in the male psyche, since this is the extent of the *Zohar*’s worldview.

¹⁰ In my own case I might take this a stage further: My engagement with rabbinic hermeneutics and kabbalistic practices was instrumental in enabling me to incorporate research data from cognitive neuroscience into my formulation of the model presented over these pages and in my other works on this topic.

correlated with neural events at this stage of processing. It is of no consequence for the model whether phenomenality arises only by virtue of the processing taking place, whether it is a property not limited to brain activity, or whether it may in some sense be of a transcendent nature. The only claim we can articulate is that the mystic is conscious, and therefore phenomenality is present at this stage of the system, *i.e.*, at the origination of memory processing.

The value of the input from hermeneutic neurophenomenology—in this case the decoding of the *Zohar's* complex imagery through which psychological features in the *Zohar's* portrayal of states of mystical consciousness have been identified—lies in its confirmation that there are three qualitatively different mystical states, and its specification of their subjective features. This threefold division has contributed to my formulation of the role played by the dimensions of consciousness.¹¹ This formulation inevitably begs ontological considerations, as in the question about the origination of phenomenality. More generally, the question can reasonably be asked as to whether the brain state generates the mystical state of consciousness or is a necessary receiving condition for some “higher” level of mind [85]. From the kabbalistic perspective all is built on correspondence: the lower reflects the higher and the higher may be known through understanding the lower [17,39]. Let me, therefore, again emphasize that assigning links between features in my neurocognitively-based model and various mystical states of consciousness does not imply reductionism. The neuro-cognitive processes conceptualised as underpinning ASoC 2 for example may be all there is to this state or they may furnish us with a valuable key for understanding and “tuning into” a more profound level of intellect than that normally active. It is doubtful that any contemporary term can do justice to that profound fount of knowing and being which the mediaeval mystics had in mind in this context by their term, “Active Intellect”, Perhaps what you cannot name, you cannot know. But that which may stand just beyond the reach of psychologically-grounded explanatory models should not be discounted when exploring the interface between science and mysticism.

4. Conclusions

The supposed dialogue between science and religion reminds me of a game I played as a child: With one eye closed and arms far apart in front of you, try to bring the index fingers of both hands together so the tips meet head on; without the benefit of stereopsis they invariably end up gliding past each other! Whilst there is undoubtedly value in the research into neurocognitive correlates of spiritual practices, when it comes to deeper considerations of the nature of mind the fingers seem to keep slipping! The traditional scientific paradigm continues to hold the trump cards.

The approach of hermeneutic neurophenomenology, as I have applied it here, offers a different paradigm. Its point of entry is not that of measuring the effects of spiritual practices along positivistic lines. Rather it intersects with science in the model-building stage of discovery. In the case of the *Zohar's* treatment of mystical states, I believe we have a sophisticated body of knowledge that can be brought into dialogue with the data from neuroscience for the purposes of understanding consciousness

¹¹ As indicated earlier in my examination of the fit between the *Zohar's* scheme and that of Underhill, this threefold division of mystical states would seem to be evident beyond the realm of Jewish mysticism. Such a conclusion would clearly lend further support to the neurocognitive model of states of consciousness presented here. However, a full analysis of mystical states across diverse religious systems is beyond the scope of my article.

and building explanatory models. Such endeavor potentially benefits both sides of the divide—science may gain new hypotheses to be investigated; religion may find ways of reformulating its teachings and practices, thereby renewing our sense of the sacred.

Abbreviations

NSoC: Normal state of consciousness;

ASoC: Altered state of consciousness.

Conflicts of Interest

The author declares no conflict of interest.

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