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Beliefs about Consciousness and Reality

Clarification of the Confusion Concerning Consciousness

Abstract: *There is considerable confusion surrounding the notion of consciousness. This confusion can be partially resolved by clarifying the referents of the word 'consciousness'. Doing so, however, reveals a more insidious problem, namely, the role played by personal beliefs in understanding consciousness. In particular, as revealed by a comprehensive survey, such beliefs range along a material-transcendent dimension, with the choice of notions of consciousness corresponding to materialist, conservatively transcendent, or extraordinarily transcendent positions. Further empirical research has revealed that those with more transcendent beliefs tend to have a more rational and curious approach to the world than those with more materialist beliefs. And, indeed, transcendent beliefs are also associated with greater intelligence. Although the possibility of a developmental sequence from materialist to transcendent beliefs is suggested, given the nature of fundamental beliefs, it does not appear that reconciliation between them is possible. Thus, although the confusion surrounding the study of consciousness can be clarified, the situation giving rise to the confusion cannot be eliminated.*

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I think that many researchers probably get confused when they first encounter the discussion of consciousness in the scientific and philosophical literature. There is such a variety of contradictory notions about consciousness that it is not clear at first sight what to make of them. Or at least, that was my experience 25 years ago when I began to formally study consciousness. It seemed to me at the time that the first order of business was to sort out the confusion. In retrospect, this turned out to be fairly straightforward to do. However, the causes of the confusion, because of their dependence on personal and social variables, could not be removed and so, although the confusion can be clarified, it cannot be eliminated.

Defining Consciousness

On a superficial level, confusion arises from failure to clearly specify the referents of the word 'consciousness', or to agree upon their use. At the time I began this research, the most comprehensive analysis of the use of the word 'consciousness' had been carried out by Thomas Natsoulas (1978) by examining the definitions of consciousness in the *Oxford English Dictionary*. Analysing his definitions along with those of others, a total of 29 definitions, led to the identification of four main categories of meanings that I designated as consciousness₁, behavioural consciousness₂, subjective consciousness₂, and consciousness₃ (Barušs, 1987).

One of the things that researchers want to talk about when they use the word 'consciousness' is to refer to the capacity of an organism or machine to discriminate environmental stimuli and to act on it in a minimally goal-directed manner. That would be consciousness₁. Different researchers set different thresholds for how much of this needs to be going on for the definition to apply. For example, Karl Pribram (1976) applied a 'cuddleness criterion' so that only furry animals that were up and about could be regarded as being conscious. However, it makes sense to simply regard consciousness₁ as a variable with flexible gradations applicable to a researcher's own interests.

It is important to notice that consciousness₁ is a definition of consciousness 'from the outside.' That is to say, the criteria for the presence of consciousness can be determined through objective observation of the organism or machine in question. But we also use the word 'consciousness' for phenomena that are inherently subjective, for which a definition can only be applied 'from the inside'. Thus, sometimes we use the word 'consciousness' to refer to the experiential events characterized

by intentionality that apparently go on subjectively for a person. (The word 'intentionality' here has the meaning of 'aboutness' as a characteristic of mental states rather than 'intention' as a disposition toward actions.) This would be the meaning of 'subjective consciousness₂'.

In order to make them accessible to objective scientific scrutiny, subjective phenomena often get defined operationally in objective terms. In this case, the trick is to find a good behavioural characterization of subjective consciousness₂. And this usually hinges on self-reference. Thus, 'behavioural consciousness₂' is the behavioural demonstration of an organism's (or machine's) explicit knowledge of its situation, such as, for example, the ability to give a verbal description of its own mental states. And this is essentially consciousness₁ applied to itself, (cf. MacKay, 1966) or simply the notion of metacognition more generally.

Logically, the behavioural version of consciousness₂ is a desiccated residue of its subjective counterpart. However, this has not stopped some researchers from invoking the Turing test to argue that the demonstration of behavioural consciousness₂ implies the existence of subjective consciousness₂, so that, for example, a machine whose behaviour is indistinguishable from that of a normally functioning person should be regarded as having real subjective states (e.g., Lycan, 1987). For such researchers, an equivalence is established between the subjective and behavioural definitions of consciousness₂.

The fourth common meaning of consciousness, namely consciousness₃, refers to the sense of being that a person can have subjectively for herself. As is the case for most of us, I think, I feel that existence goes on. Although some researchers have argued that this is none other than an application of subjective consciousness₂ to itself, (e.g., Natsoulas, 1986), others have resisted the identification of this notion of consciousness with intentional mental states (e.g., Helminiak, 1984). While it is true that, upon explicit identification of consciousness₃ within the flux of ongoing experiential events, it has the features of qualia and requires consciousness₂ to explain, there are also apparently altered states of consciousness in which there are no intentional contents but in which the sense of existence remains (cf. Forman, 1990) so that we should not be too quick to simply collapse consciousness₃ into subjective consciousness₂.

There is one other observation to be made about these definitions of consciousness, namely, that they often carry a volitional connotation in addition to a perceptual one. In other words, consciousness is not just equated with awareness, but usually includes the notion of agency. This is contained explicitly in the definition of

consciousness₁ but is entailed even in consciousness₃ in that consciousness₃ has sometimes been associated with the notion of a self endowed with will (cf. Assagioli, 1965; 1973/1974). For the purposes of this analysis it is not important whether there is any 'real' agency or not, but that notions of consciousness usually include a volitional aspect.

These were the categories for the referents of consciousness that I found, and I have not seen any definitions since that time that would not fit this scheme. Thus, it is not difficult to see what it is that we are talking about when we discuss consciousness.

I should point out, however, that sometimes all effort at definition is ignored and the concept of consciousness simply functions as a Rorschach blot upon which researchers project their favourite ideas about the nature of reality. That is the case, for example, in the book *The Concept of Consciousness* (Klein, 1984) in which the reader is never even given a definition of consciousness. But this leads us to the next layer of the confusion — untangling the personal from the professional.

Notions of Consciousness vs. Beliefs about Reality

Even when they were not blatantly projecting their own version of reality onto the concept of consciousness, the way researchers would talk about it appeared to vary with personal factors rather than rational evaluation of empirical data or logical philosophical argumentation. And the most salient personal factor appeared to be a researcher's personal beliefs about the fundamental nature of reality. More specifically, a researcher's beliefs appeared to range from materialist to transcendentalist versions of reality. And these beliefs appeared to carry with them her notions of consciousness.

This observation from the literature is easy enough to check empirically and Robert Moore and I did so by developing a questionnaire through preliminary, pilot, and survey stages, and administering it widely in 1986 to academics and professionals who could potentially write about consciousness in the academic literature (Barušs, 1990). In fact, 66 of the total 1491 copies circulated were actually mailed to those with a particular interest in consciousness, such as authors of scientific books or papers about consciousness. We received 334 completed questionnaires and used numerous multivariate statistical procedures in order to analyse the results. Among those procedures were cluster and factor analyses, which allowed psychological constructs to naturally emerge from the data.

What we found was that there is a strong material-transcendent dimension among academics and professionals who could potentially write about consciousness in the academic literature and that notions of consciousness are intimately tied to beliefs about reality. Furthermore, we identified three main positions along this dimension which we designated the materialist, conservatively transcendent, and extraordinarily transcendent positions. The main features of these positions are summarized in Table 1.

Table 1

Correlations of Beliefs About Reality With Various Variables

Variables	Beliefs About Reality		
	Materialism	Conservative Transcendence	Extraordinary Transcendence
Characteristics	Physicalism Determinism	Religiosity Meaning	Extraordinary Experiences Extraordinary Beliefs Inner Growth
Mind-Body Problem	Physical Monism	Dualism	Mental Monism
Epistemology	Science	Hermeneutics	Paranormal
Religious Affiliation	None	Traditional	Own Beliefs
Notions of Consciousness	Information	Subjective	Altered States
	Emergent Property	Evidence of Spirit	Ultimate Reality
	Intentionality	Gives Meaning	Key to Growth
Significance of Consciousness	Byproduct	Important	All There Is

Table 1 Note: Based on 334 completed questionnaires using various multivariate analyses. Adapted from Barušs, 1990, page 129.

The materialist position is characterized by a belief that the universe is ultimately a physical place governed by deterministic laws and that science is the proper way to learn about it. Those tending toward this position have no religious affiliation. Consciousness is seen to be an emergent byproduct of physical or computational processes, usually as just information, and is characterized by intentionality. Thus, the relevant definitions of consciousness would

be consciousness₁, behavioural consciousness₂, and the more objective aspects of subjective consciousness₂.

Those tending toward the conservatively transcendent position are inclined to have traditional religious beliefs and to think that meaning is important. Indeed, it is by paying attention to that which is meaningful that we learn things. These people are metaphysical dualists. This is reflected in the notions of consciousness that they chose. Thus, consciousness gives meaning to reality and consciousness is evidence of a spiritual dimension within each person. Similarly, the definitions of consciousness that were endorsed were subjective consciousness₂ and consciousness₃.

On the basis of what we had read in the literature, Moore and I had expected these two positions to emerge. What we had not anticipated was that an even more extreme transcendent position would cohere. We called it an 'extraordinarily transcendent' perspective. Those who held this view claimed to have had extraordinary experiences such as mystical experiences or out-of-body experiences. They had extraordinary beliefs such as the belief that the physical world is an extension of the mental, that reincarnation occurs, and that we can know things through extraordinary means such as extrasensory perception and understanding that is superior to rational thought. Exploration of one's inner experiential world is emphasized along with the need for self-transformation. When asked for their religious affiliation they checked off the 'Own Beliefs' box. For them, consciousness is the ultimate reality from which everything else, including the physical world, emerges, but also, paradoxically, it is the key to self-development. Definitions of consciousness that were endorsed tended to be those that emphasized subjective and transcendent aspects; or perhaps more accurately, the notion of what consciousness is was shifted from the ordinary waking state to altered states of consciousness (Barušs, 1990; Barušs & Moore, 1989).

There are a couple of things to note about this scheme. The first is that notions of consciousness, not surprisingly, are inherently intertwined with beliefs about reality. Because of this we dropped the distinction between beliefs about reality and notions of consciousness and simply referred to them henceforth as 'beliefs about consciousness and reality'. The second thing to note is that the significance of consciousness increases from materialist to transcendent positions so that, for materialists, consciousness is just a byproduct of physical processes. For those tending toward the conservatively transcendent position, consciousness is important. And for the extraordinarily transcendent, there is ultimately nothing else.

Personality Correlates of Beliefs about Consciousness and Reality

Whenever a psychological construct is uncovered, it makes sense to check to see if it has any correlations with standard personality traits. One of my undergraduate thesis students, Sonya Jewkes, decided to look at them using the Jackson Personality Research Form E (Jackson, 1999) as a measure of personality along with a revised version of the original survey questionnaire (Barušs & Moore, 1992) that had also been tested with undergraduate students (Barušs, 2000).

In designing a study, the question arose whether closed-mindedness is related to the material-transcendent dimension of beliefs about consciousness and reality. Moore and I had embedded a truncated measure of intolerance of ambiguity (cf. Kirton, 1981) in the original survey questionnaire. The only statistically significant result was that those scoring high on religiosity also scored high on rigidity (Barušs, 1990). However, this was a crude measure, and from reading the consciousness literature, it seemed that those who had had extraordinary experiences were more open-minded than others, so that it was possible that they could score higher on measures of 'openness', such as the Understanding and Sentience scales of the personality measure. In particular, Understanding refers to a person's interest in rationally understanding the world whereas Sentience is a measure of a person's appreciation of sensory impressions (Jackson, 1999). Given the previous results, however, we expected that the correlations with openness would be lowest for religiosity.

Seventy-five students from my undergraduate courses participated in the study anonymously on a volunteer basis after having been told that their participation would have no bearing on their performance in the courses. The average age of the participants was 23 years, with 65% being female. The main statistically significant results are summarized in Table 2. In the table, the materialist position has been realigned as antimaterialism for convenience in interpreting the data, and consists of a single scale, Antiphysicalism (APH). The conservatively transcendent position is represented by two scales: Religiosity (REL) and Meaning (MEA). Extraordinary transcendence is made up of three scales: Extraordinary Experiences (EXE), Extraordinary Beliefs (EXB), and Inner Growth (ING). A global scale, consisting of all items from the beliefs questionnaire, is designated as 'TOT'.

Table 2

Correlations Between Personality Scales and
Beliefs About Consciousness and Reality Scales

Personality Traits		Beliefs About Consciousness and Reality						
NAME	CHARACTER	APH	REL	MEA	EXE	EXB	ING	TOT
Achievement	industrious aspiring competitive	.28	.24	.23				
Defendence	defensive secretive rationalizing			-.24				
Dominance	controlling forceful assertive		-.23					
Endurance	persistent determined steadfast	.24	.25		.29	.24		.28
Harm-avoidance	fearful pain-avoidant avoids risks				-.37	-.27	-.29	-.25
Nurturance	sympathetic caring maternal			.23				
Order	neat organized disciplined				-.31	-.38	-.40	-.33
Sentience	aesthetic sensuous open to experience	.25	.27		.31		.29	.26
Social Recognition	approval seeking socially proper agreeable	-.24				-.24		-.25
Understanding	curious logical astute	.48	.32	.40	.61	.46	.55	.57

Table 2 Note: All correlations are significant at $p < .05$ using two-tailed tests. These data are based on 75 completed questionnaires. Adapted from Jewkes & Barušs, 2000, pages 101 and 102. 'CHARACTER' refers to characteristics of high scorers on personality traits as given by Jackson, 1999, pp. 5-7.

We saw in the results what we had anticipated regarding openness. Indeed, even the correlations with Religiosity were numerically the lowest. However, what we had not anticipated was the strength of the correlations for the Understanding personality trait. In fact, Understanding accounts for one third of the variance in total belief scores.

We wondered whether the results were somehow the result of the student participants trying to tell us what we wanted to hear. However, it is difficult to know how they could have anticipated what we might have wanted. There were no statistically significant correlations between the Desirability scale of the Jackson Personality Research Form (which is used to control for social desirability) and beliefs. Furthermore, those students scoring highest on transcendence were also those who cared least what others thought of them as indicated by the negative correlations with Social Recognition. Conversely, students who did care what others thought would have had to have tried to not only score in a materialist direction but also suppress displaying any actual intellectual curiosity that they might have had about the world. That seems like an unlikely explanation of the data.

Also of note are the negative correlations between extraordinary transcendence and both Order and Harmavoidance. Those scoring high on the extraordinary transcendence scales were less likely to be well-organized or to be risk avoidant, suggesting a more laissez-faire approach to life. The Nurturance and Defence correlations indicate that those for whom meaning is an important aspect of their fundamental beliefs were also likely to be more compassionate and less defensive than others. And, finally, Achievement, the effort to get ahead, and Endurance, the tendency to persist, were positively correlated with transcendence, while Dominance, the disposition to assert oneself, was negatively correlated with Religiosity (Jewkes & Barušs, 2000).

Intelligence Correlates of Beliefs about Consciousness and Reality

This study raised an obvious question. Given that we found a correlation between understanding and transcendent beliefs, and given that, in general, there are small correlations between openness and intelligence (McCrae, 1993–94), are there, in fact, correlations between intelligence and transcendent beliefs? Another undergraduate thesis student, Nicole Lukey, decided to have a look at this question.

There is a cognitive deficits hypothesis which states that those who think that unusual things can happen suffer from irrationality and a lack of critical judgment. Or, to put it bluntly, anyone who thinks that

there is more to reality than the physical universe is just plain stupid. There is some support for this hypothesis (e.g., Tobacyk & Milford, 1983) but the hypothesis appears to apply more to superstitious behaviour, such as the belief that the number 13 is unlucky, rather than to transcendent beliefs as defined by Moore and myself. Previous, more relevant studies (e.g., Roe, 1999), had found no differences in critical thinking between participants who believed that unusual phenomena were possible and those who did not. Lukey and I did not think that the cognitive deficits hypothesis would be supported, but rather, that we could find some correlations between intelligence and transcendent beliefs.

This time 39 students were recruited from the introductory psychology participant pool for the study. Their only interaction with the experimenter was for the purposes of the experiment and none of them had any interaction with me. The participants were administered the beliefs questionnaire, the Understanding scale from the Personality Research Form, and 6 of the 10 subscales from Jackson's Multidimensional Aptitude Battery-II (MAB-II; Jackson, 1998). Three of the subscales from the MAB-II can be added to get a Verbal IQ score, three to get a Performance IQ score, and both of those, in turn, can be combined to obtain the Full Scale IQ.

All of the correlations between beliefs scales and IQ scales that were statistically significant at the $p < .05$ level were in the expected direction. These correlations are given in Table 3. It is important to remember that these results are based on a small sample size of undergraduate students and may have limited generalizability.

Table 3
Correlations of IQ with Beliefs Scales

		Beliefs About Consciousness and Reality			
		Anti-physicalism	Meaning	Extraordinary Experiences	Inner Growth
IQ	Vocabulary				.41
	Object Assembly	.37	.35		
	Verbal		.33	.33	
	Full Scale		.33		

Table 3 Note: All correlations are significant at $p < .05$ using two-tailed tests. These data are based on 39 completed questionnaires. Adapted from Lukey & Barušs, 2005, page 265.

In addition to the correlations with beliefs scales indicated in Table 3, there was a striking correlation of $-.48$ ($p < .01$) between one of the key items from the beliefs questionnaire and Full Scale IQ. The item reads: 'There is no reality other than the physical universe'. In other words, there was a strong correlation between intelligence and the belief that there is more to reality than the physical universe. Thus, our somewhat weak hypotheses were supported.

We had assumed that the relationships between beliefs and intelligence would essentially be linear as given in the analyses cited thus far. Visual inspection of the scatterplots, however, revealed that a quadratic model could give a better fit to the data. And, indeed, upon analysis, we found that the goodness of fit improved with a quadratic solution. This was most noticeable for the relationship between Performance IQ and total belief scores; the R^2 value increased from .02 to .10. Similarly, trend analysis revealed a quadratic trend ($p < .05$) but no linear trend for Performance IQ relative to total beliefs. What was happening was that lower IQ scores were associated with moderately transcendent beliefs; somewhat midrange IQ scores were related to more materialist beliefs; while higher IQ scores corresponded to highly transcendent beliefs. What this suggests is that transcendent beliefs could be held for different reasons; in some cases, perhaps because one does not know better, and in other cases, perhaps because one does know better.

Some insight for the correspondence between Performance IQ and transcendent beliefs is given by the changes in scores on Object Assembly, one of the subscales of Performance IQ, as shown in Table 3. In the Object Assembly task, participants are required to identify common objects, such as a farm tractor, from scrambled slices of their silhouettes. Those who are better able to mentally synthesize visual fragments into a whole picture are more likely to believe that there is more to reality than that which meets the eye. Given that materialism can be construed as a simplistic schema for organizing one's experience, it could be that those who view the world as being more complex by including meaning as an ontologically primitive element are those who have a greater capacity to integrate disparate features of their experience. While it need not be that the cognitive skills necessary for such holistic thinking are necessarily the same as those used for the Object Assembly task, the results are nonetheless suggestive (Lukey & Barušs, 2005).

Resolution

It is fairly clear from the foregoing analysis that differences in beliefs about consciousness and reality are a source of confusion in consciousness studies. What, if anything, can be done about the situation? The tendency, as I have observed it, has simply been to ignore the positions that do not coincide with one's own. So, for example, for a materialist, conservatively and extraordinarily transcendent beliefs are simply silly, possibly pathological, but ontologically fictional, so there is really nothing that needs to be done beyond preventing anyone holding those positions from participating in the scientific study of consciousness. Is this the best that can be done?

Perhaps. Beliefs about the fundamental nature of reality are held with a great deal of conviction and are not about to be easily dislodged. Thus, the consciousness studies community might necessarily be destined to remain fragmented, with researchers gravitating toward those who share their fundamental beliefs. However, a few additional comments might be helpful.

The first is that some versions of materialism are incorrect on the basis of their own criteria (Barušs, 1993; 2007). Materialism that is based on the schema that the physical world is made up of analogues of billiard balls that collide with one another with predictable trajectories does not match what is known empirically about the nature of matter. For instance, elementary particles have no finite extension in space, the notion of distance loses its meaning inside the Planck length, and, by the Unruh effect, accelerating observers in a vacuum would see particles. Scale modelling fails when considering the nature and behaviour of subatomic events (cf. Bransden & Joachain, 1989/2000; Kempf, 2008; Mukhanov & Winitzki, 2007; Sudbery, 1986; Zee, 2003). Thus the nature of matter does not correspond to our naive intuitions about what it should be like.

We could adopt a physicalist position and maintain that the universe is nonetheless physical no matter how weird it might turn out to be. However, the weirdness starts to encroach on transcendent versions of reality as illustrated by the quotation: 'The universe can be best pictured, although still very imperfectly and inadequately, as consisting of pure thought, the thought of what, for want of a wider word, we must describe as a mathematical thinker' (Jeans, 1930/1937, p. 168). And there are physicists who think that an ontologically independent mind can have causal effects on the brain (Stapp, 1993/2004; 2007; Walker, 1970; 1977; 2000) as well as those who think that consciousness produces physical reality (Goswami, Reed, and Goswami, 1993;

Goswami, 2003). How far up the material-transcendent dimension the physical universe itself ends up drifting remains to be seen. What is clear at this point in time is that we need to radically revise our notions of what matter is like.

The second comment concerns the frequent appearance of a developmental sequence from materialist to transcendentalist beliefs. In the 1986 study by Moore and myself, the occurrence of extraordinary experiences was correlated with the statement that one's beliefs about reality had changed dramatically in the past (Barušs, 1990). This is consistent with accounts found in the altered states literature of individuals whose beliefs changed radically as a result of the occurrence of unusual experiences. This has been noted, in particular, for the case of near-death experiences, in which some of those who have come close to death have become convinced that they have been in the state where death occurs and that there is no death; that physical consciousness continues to exist after the physical body has died (Barušs, 2003; Greyson, 1994; 2000; Fenwick & Fenwick, 1995).

In less dramatic fashion, one can become convinced of the existence of transcendent aspects of reality upon studying the empirical data concerning anomalous events that are difficult to explain in physicalist terms, such as remote perception, anomalous human-machine interactions (Jahn & Dunne, 2005), or the occurrence of precognitive dreams (Barušs, 2007; Ullman, 1999; Ullman & Krippner, 1973). Of course, one would need to have overcome the confirmation bias of discounting information contrary to one's own beliefs in order to seriously study such anomalous phenomena. But it is the extraordinarily transcendent perspective which is associated with the need for self-development as a way of acquiring knowledge and not the materialistic one. In fact, in a survey of participants at the scientific meeting *Toward a Science of Consciousness 1996 'Tucson II'*, respondents who had indicated that they had carefully examined their fundamental beliefs about reality scored significantly higher on all of the belief scales except Extraordinary Beliefs (Barušs & Moore, 1998). Thus, those tending toward a materialist position are less likely to examine their own beliefs than those tending toward the more transcendent positions.

Movement from materialist to transcendent beliefs is also curtailed by the institutionalization of materialism in the academy, so that it can be difficult to pursue academic programs, obtain tenured academic positions, receive research funding, publish in mainstream journals, and supervise graduate theses unless one subscribes to a materialist agenda. Such politics of science occur in the scientific community

more generally (cf. Kellehear, 1996; Jahn, 2001). Moore and I were struck by the degree to which participants in the 1986 study scored in the transcendent direction relative to how little such beliefs were reflected in the published literature. We were left with the impression that there were closet transcendentalists who were pretending to be materialists so as not to jeopardize their careers.

The final comment is just that, given the nature of beliefs about consciousness and reality, global statements about which of the positions is correct would be unacceptable to most readers unless those statements coincided with their own views. So the only globally acceptable resolution is to recognize the need for authenticity on the part of researchers to act on the basis of their own understanding (cf. Barušs, 1996) and thereby, given the diversity of individual understandings, to acknowledge that the scientific study of consciousness will continue to go madly off in all directions. Thus we are left with clarity concerning some of the confusion regarding the study of consciousness but not the elimination of the source of the confusion. Consciousness studies will continue to be a fragmented enterprise.

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