

Chap-04:

Defense of the Unity of Phenomenal Consciousness

4.1 Source and Motivation of Unity Thesis:

Tim Bayne has proposed a phenomenal version of the unity thesis. In previous chapter we have discussed how he distinguishes his unity thesis from some other senses of the unity of consciousness. Bayne's concept of the unity thesis is also known as subsumptive unity thesis. This unity thesis claims that the conscious states, enjoyed by a subject at a point in time, occur as the components of a single overall or total phenomenal state which is also identified as a unitary 'phenomenal field'. For Bayne this conception of the unity of consciousness is substantive, interesting and plausible. In this chapter we shall discuss his reasons for accepting such a view of the unity of consciousness and also show how he provides further clarification of his thesis, as well as the framework he constructs for the evaluation of the said thesis.

Bayne accepts the first person approach to the study of consciousness and maintains that the plausibility of the unity thesis is based on introspection. He invites us to reflect on the structure of our overall conscious states. He believes that if I, following his invitation, look within, then I shall come to view all my current experiences as phenomenally unified with each other and also view them as components of a single overall state that subsumes them all. Bayne calls this claim the unity judgement. We think that there is an intuitive appeal in the unity judgement. Bayne admits that the unity judgement as such does not entail the unity thesis. He constructs an argument to show how we can derive the unity thesis from the unity judgment. This argument tries to establish the claim that the unity of consciousness, as gleaned via introspection, is not a feature which consciousness possess only because we attend to its structure, but is a feature which consciousness possess even in the absence of

introspection. Again, the fact that one's own experiences are unified also supplies the reason for holding that other subjects of experience also possess unified consciousness.

Bayne provides a thorough examination of this introspection based argument for the unity thesis. He evaluates the argument in two stages. In the first stage he concentrates on the unity judgement and in the second stage he examines the legitimacy of this passage from the unity judgements to the unity thesis.

A general objection to the unity judgement derives from the fact that this judgement relies on introspection. From the beginning of the science of consciousness the trustworthiness of introspection has been called into question. Bayne does not want to consider the general trustworthiness of introspection for he does not endorse radical introspective skepticism. However, he thinks that the reliability of any epistemic faculty must be examined in the context of certain questions and under certain conditions. Thus, he begins with the question whether introspection is reliable with respect to the unity judgement.

At the outset it is clear that any search for direct evidence for, or against, the unity judgement will surely assume that we already know whether or not consciousness is unified. If we already know the unity of consciousness then we would not go after the unity judgement. Bayne wants to consider the different ways in which the unity judgement is thought to be doubtful. Bayne considers the introspective dispute concerning the capacity of consciousness. Some thinkers hold that introspection is not reliable with regard to the capacity of consciousness. These thinkers maintain that this untrustworthiness leads us to consider introspection to be an unreliable guide to the structure of consciousness. Bayne presents the introspective dispute in the following way.

It is commonly held that introspection reveals the 'rich' and 'lavish' nature of any stretch of the stream of consciousness. Any single moment of consciousness reveals a rich

multimodal representation of the world. This introspective report is challenged by research findings on ‘the span of apprehension’. These findings show that the width of our apprehension on consciousness is more ‘sparse’ or ‘austere’ than the aforementioned common introspective report suggests. Bayne mentions the research findings on numerosity judgement as an evidence for the sparse view. In this paradigm the subjects are asked to determine rapidly the number of items put forth in a display. Subjects are found to be confident about four or fewer items in the display and not more. Any increase in the number of items lowers the concerned subject’s confidence and increases the reaction time and error rates. The same situation prevails in the case of other modalities. Subitization of small number of perceptual objects are easy which larger set of item requires counting, which involves integration of the contents of successive experiences.

The sparse model is also supported by research finding¹ on the ability of subjects to follow the movements of visual objects in the context of distractions. In this experiment subjects are able to track a limited number of items with certain reliability.

Change blindness gives us another reason for adopting the sparse view of consciousness. In an experiment a picture of two cowboys sitting on a bench was shown. More than half of the subjects failed to notice that in successive presentation the heads of cowboys were swapped during a saccade. Some thinkers diagnose such lapses by noting that the experiences involved have failed to encode the relevant information required for the awareness of such changes. Bayne finds in this approach the source of the ‘grand illusion’² conception of visual experience. According to this conception the common belief in the richness of perceptual consciousness is an illusion constructed on the basis of the fact that vast segment of the world is immediately and effortlessly available for experience. Bayne admits that their findings lend some support to the sparse view. However, he thinks that before coming the final conclusion some degree of caution is in order. First, all these

experimental paradigms call for the deployment of certain capacities which are not required for consciousness as such. Experiment of change blindness provides a clue to such caution. It must be noted that there is a distinction between one's awareness of the features in a scene that have changed and one's awareness of the fact that they have changed. In order to be aware of the change one is not only required to represent the features that have changed but also required to integrate the representation of those features. It is not unlikely that in some cases the relevant features are represented but not appropriately integrated. In such cases failure to detect the change occurs. The same situation can happen in numerosity and multi-object tracking experiments. In each experimental paradigm the subject is required, for reliable performance, to be aware of the presented items as well as to apply appropriately the number category (in numerosity judgement) or 'temporally stable object files' (in multi-object tracking).

Bayne presents the second caution by pointing out that much of the relevant experiments are concerned with identifying the capacity of accurate visual perception rather than the visual experience as such. His contention is that the results of these experiments do not show that visual experience is austere; those results only show that the contents of these visual experiences are expectation – driven. Our surprise at these results is due to our discovery of the fact that how ill equipped we are at tracking the world rather than due to the discovery of the fact that how poor the contents of consciousness are. Lastly, a variant of the debate between 'rich' and 'sparse' theorists concerns the question whether the stream of consciousness is confined to a single modality at a given time. It should be noted that above mentioned experiments are typically unimodal. Bayne is of the opinion that in spite of the justified claim about the four item limit on experience in the context of any single modality, the *overall* capacity of consciousness is, in a sense, larger. He finds it hard to believe that the stream of consciousness is structurally limited to a single perceptual modality at a point in

time. In support of this claim he mentions the findings of research on intermodal integration which reveals the fact that the various perceptual modalities do not function autonomously, but function in a highly interdependent way. Sparse conception of consciousness is, thus, not very convincing.

However, Bayne does not accept the ‘lavish’ conception of consciousness. He mentions the introspective disagreement concerning the capacity of consciousness and treads a middle path. He writes: ‘As best I can tell, my typical phenomenal field involves a small band of focal experience surrounded by an experiential penumbra. This focal experience is usually dominated by at most two or three modalities at a time, with only a few objects and features represented in any detail across these two or three modalities.’³In the said penumbra one might find a trace of affective tonality, a proprioceptive awareness and also some fragments of cognitive phenomenology. This conception of the capacity of consciousness enjoys equidistance from both the ‘sparse’ conception and the ‘lavish’ conception. Bayne concedes that the naïve theorizing about consciousness, based on naïve introspection, overestimates the capacity of consciousness. But this does not justify radical skepticism about introspection. In fact philosophers and scientists of consciousness generally rely on introspection concerning questions about one’s current (or immediately prior) conscious states. Without this assumption of the trustworthiness of introspection we cannot understand one theorist’s use of introspection to support her own thesis and criticize their opponent’s view. First-person knowledge of consciousness can hardly be denied. No doubt the first-person study of consciousness is plagued by introspective disputes. These disputes led some thinkers to argue for introspective skepticism. Despite such skeptical worries about introspective methodology Bayne argues that there are some introspective judgements whose reliability is not threatened by those skeptical worries.

Bayne considers the question of trustworthiness of introspection with respect to the unity judgements. Following ‘grand illusionist’, some critics have tried to show that the impression of experiential unity deriving from the so called introspective reports is an illusion. They argue that this illusion is based on the conflation between the features of the world and the features of consciousness. These critics maintain that the world is unified but our experience of it is fragmentary, and our so-called awareness of experiential unity is built up over successive experiences rather than contained within a single unified conscious state.

In response to this argument Bayne simply points out that the facts that the world is unified and that our successive experiences help us to build up the contents of our experience of the world do not undermine the unity judgement. Bayne affirms that the world is unified and our experience of this world is also unified. He admits that perceptual content may be fragmentary in many cases. However, he contends that despite the ‘partial take on the world’ our overarching experiential state invariably contains them. For this reason he thinks that the unity judgement remains unscathed despite the attacks on the trustworthiness of introspection.

The unity judgement faces another challenge from the possibility of introspectively inaccessible experiences. It is sometimes held that the phenomenally unified experiences of which we are introspectively aware constitute only subset of one’s overall set of experiences, and the remaining experience stays beyond the reach of introspection. This casts a shadow of doubt on the unity judgement. In order to examine this objection Bayne first distinguishes between two types of introspective inaccessibility. The first type of inaccessibility is said to be found in the experiences that take place within parts of cognitive architecture and which is not at all accessible to introspection. Such experiential states are identified as ‘deeply inaccessible’. As examples of such state Bayne refers to the internal experiences within Fodorian modules or sub-personal homunculi. Bayne sets aside the issue of ‘deeply

inaccessible' state as he finds this to be metaphysically and conceptually impossible and also because he finds no evidence for such claim. We think Bayne's position is reasonable.

The second type of inaccessible experience cannot be denied offhand. If introspection is bound within a 'bandwidth' that is smaller than the consciousness as such then one can legitimately think that complex experiences as such might remain beyond the reach of introspection. Such experiences may be called 'superficially inaccessible'. The possibility of such superficially inaccessible experience cannot be denied. The evidence for this is provided by Sperling's⁴ experiments concerning the reportability of the briefly presented displays. In this paradigm subjects are shown a grid of twelve or so alphanumeric figures for a brief period (250 milliseconds) and are asked to report the contents. The experiments are classified by conditions – a full report condition and a partial report condition. In full report condition, the subjects are asked to report the contents of the entire grid or matrix. In such conditions subjects are able to report only 4.3 of the twelve figures correctly. In the case of partial report condition different tones are sounded immediately after the display of the grid instructing which of the three rows the subject is to report. It is found that subjects can report more figures in the case of a row that has been cued than in the cases of uncued rows. This is dubbed as the *partial report superiority effect*.

Bayne mentions one account of this effect proposed by Ned Block.⁵ This account maintains that bottlenecks on reportability and, more importantly, on introspection, precludes us to have full access to their experiential contents. In the Sperling paradigms subjects enjoy a rich visual experience whose content 'overflows' the content that to which they can gain introspective access. This account claims that the visual phenomenology of subjects is not restricted to a generic representation of the matrix as comprising twelve alphanumeric figures, but embraces a detailed representation of the specific identity of most of the figures

in the said matrix. Though there are other accounts of the experiments Bayne considers this account as most plausible.

This account has an adverse effect on the unity judgement. If subjects have detailed experience of the whole matrix without gaining introspective access, then there remains no introspective basis for the claim that each of their present experiences is unified with each other. In such situations it might be possible for the subjects to say whether the experiences of each of the rows or columns of the matrix are unified with each other, but they will hardly be able to say whether those experiences are unified with their experience of the matrix as a whole. The critic of unity judgement finds no reason to deny the possibility of experience of the parts of the matrix being unified with each other and at the same time not being unified with the non-generic experience of the entire matrix. Bayne imagines such a scenario where a subject has the experiences of the parts of the matrix registered in the right hemisphere and the experience of the whole matrix in the other hemisphere. Bayne thinks that whether such a scenario, just presented, is possible remains an open question. However, Bayne invites us to consider the most important constraints between phenomenal unity and representational unity. These constraints involve the conditional that experiences of the parts of an object cannot be phenomenally unified with each other unless they are also unified with an experience of the whole of that object in cases where the subject has an experience of the whole of that object. Bayne maintains that if the scenario depicted by the critic obtains then that world be a 'highly unusual state of affairs'. He believes that in such cases the relations between the contents of experience are usually expected to constrain relations between the experiences that carry those contents. Bayne writes: 'A cognitive architecture in which experiences of a matrix as a whole were not phenomenally unified with experiences of its various parts would surely have little to recommend it.'⁶The aforementioned argument is based on the supposed constraints between phenomenal unity and representational unity.

However, there is another line of arguments that challenges the said constraint on a plausible ground. Bayne recounts the argument in the following way. Let us consider two experiences, say e_1 and e_2 , which are such that e_1 represents one column and e_2 represents another column of the Sperling matrix. We can imagine that the contents of e_1 and e_2 accessible to introspection individually but not conjointly. It can be argued that since the two experiences are not conjointly introspectable, they are not phenomenally unified with each other. The argument relies on the plausible assumption that phenomenally unified experiences are conjointly accessible to introspection.

Bayne does not deny the force of this argument but presents an important countervailing argument. Bayne first claims that 'experiences that are not phenomenally unified are unlikely to be available to the same consuming systems. On the basis of this claim Bayne argues that the fact e_1 and e_2 are individually introspectible entities leads to make the further claim that those experiences are phenomenally unified with each other. Thus, we have two arguments. The first argues that the fact that e_1 and e_2 are not conjointly introspectable lends support to the claim that they are not unified, and the second argues that since each is introspectable (involving the same consuming system), they must be unified.

For Bayne the case for unity trumps the case for disunity. As a ground for maintaining such a position Bayne gives an account of the reason why e_1 and e_2 are not conjointly introspectible. Any experience that subsumes both e_1 and e_2 is too large and the bottleneck of introspection will preclude their presentation in one piece.

Another important challenge to the unity judgement which Bayne considers derives from Susan Hurley's view on partial unity. This challenge is based on Hurley's argument against 'what it is likeness' conception of phenomenal unity. Hurley claims that through introspection we can gain access only to the contents of consciousness and not to its structure.

Hence, the contention that introspection provides support to the unity thesis involves, she claims, a sort of category mistake. We have already discussed Hurley’s view in connection with the projectability argument against partial unity. We shall freely restate the argument.

The projectability argument against partial unity view shows how one faces insurmountable difficulty in projecting oneself into a partially unified perspective. Faced with such challenge Hurley maintains that such difficulties do not prove that the concept of partially unified perspective is incoherent. She contends that introspection can gain access only to the contents of experiences. Moreover, the subjective perspective, she continues, does not provide us with any clue to the distinction between partially unified perspective and fully unified perspective. In other words, the contrast between unity and its absence is not introspectively discernible. In order to bring out the main thrust of Hurley’s argument Bayne presents Hurley’s argument in the following way.⁷



Figure-09: A partially unified perspective (P.U) and a fully unified perspective (F.U.)

We see the structure of partially unified consciousness and fully unified consciousness. Despite this structural difference we cannot discern any subjective (what it is like) difference between them. According to Hurley, the subject with partially unified consciousness and the subject with fully unified consciousness will both be aware of experiencing <p> and <q>together in the context of a single experiential state. Both subjects might present the

introspective report in the form of the unity judgement yet the judgement would be correct only in the case of fully unified consciousness. Hurley writes: ‘An account of unity restricted to the subjective perspective cannot rule out the possibility of partial unity but neither can it account for the difference between partial unity and duplication’.⁸ In order to explicate Hurley’s thesis Bayne points out that similar consideration can be applied more generally to the questions of disunity. Bayne asks us to consider the situation depicted in the following figure.

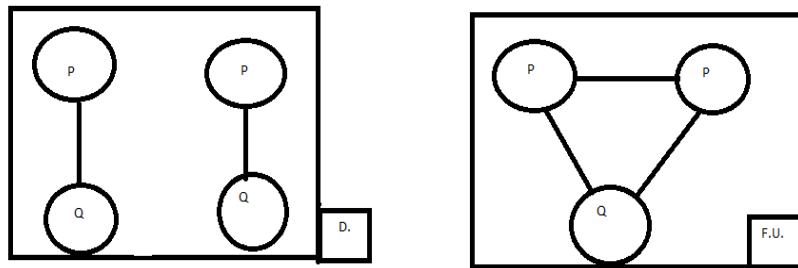


Figure – 10: A disunified perspective (D) and a fully unified perspective (F.U.)

Here we find that both unified field consciousness and disunified consciousness have experiences containing the same contents, but the disunified consciousness has two streams of consciousness while fully unified consciousness has a single stream of consciousness. Hurley maintains that in such scenario there would be no subjective difference between the two perspectives; or, in other words, there would be no introspectively accessible difference between the two scenarios. Thus, the unity judgement will be endorsed in both the cases. Bayne calls this Hurley’s objection.

Bayne responds to Hurley's objection by pointing out that her objection essentially rests on the claim that a subject can have more than one token of a single type of experience at a point in time. Thus, the argument is acceptable if the notion of phenomenal duplication is coherent. Bayne thinks that phenomenal duplication can be a possibility only if we allow the individuation of experience in sub-personal or vehicular terms. Bayne has already shown that experiences are individuated in tripartite terms, that is, by appeal to their subject, time and phenomenal character. The tripartite account of experience does not admit the possibility of phenomenal duplication for in this account numerically distinct experiences are identified as different experiences from one another in terms of their subject of experience, time or phenomenal character. However, phenomenal duplicates cannot be distinguished from each other in terms of their subject of experience, time or phenomenal character.

Bayne has rightly pointed out that Hurley's argument cannot be reformulated without appealing to the idea of phenomenal duplication, for if the subject enjoys experiences with different contents then there must be subjective differences between their perspectives.

Bayne assures us that we need not be worried by Hurley's objection even when we are to individuate experiences in vehicular terms. He thinks that the real threat will be posed if it can be shown that we are subject to phenomenal duplication on a large scale. He mentions the name of two thinkers such as R. Puccetti and J.E. Bogen, who have tried to show that split-brain procedure does not create two streams of consciousness but brings to light the 'fact' that there are two streams of consciousness in us with duplicate contents. Bayne's response to such a claim is that we should not interpret a normal person's structure of consciousness in terms of the phenomenal structure of the split brain syndrome. We think his reaction is justified.

Puceetti and Bogen also present this claim by appealing to the bilateral structure of human consciousness. Their claim is that since each hemisphere contains areas that process the same sort of stimuli, it is quite natural to think that consciousness manifests itself in the form of two streams, one situated in subjects' right hemisphere and the other in the left hemisphere. This thought certainly paves the way for the claim that we are all subject to phenomenal duplication on a widespread scale, which brightens the prospect of partial unity.

In response to this argument, Bayne only points out that the inference from bilaterality to phenomenal duplication could undermine the unity judgement only if the inter-hemispheric duplication of the neural processing were duplicated in high degree. He contends that though some neural processing is found to be bilaterally duplicated; we still do not have clear evidence for the degree to which such duplication occurs.

However, Bayne thinks that even where such duplication takes place it does not necessarily support phenomenal duplication. He asks us to consider how the homologous areas of two hemispheres are related to each other before inferring phenomenal duplication from bilaterality. We need to know whether the homologous areas function as autonomous causal nodes or as a single unit. If the first alternative were true then the homologous neural events would realize two tokens of the some experiential type. If the second alternative happens to be true then those areas can be viewed as functioning as an integrated unit realizing a single experiential token. Thus, the inference from bilaterality to phenomenal duplication is not straightforward, for it involves further questions about the architecture of consciousness the answers to which is still unknown. Hence, the bilaterality- based argument for two streams of consciousness is still not successful. The argument from introspection, therefore, survives the challenge that the unity and its absence are not discernible introspectively. The introspection-based argument for the unity thesis intends to establish two claims, first, it argues that the unity of consciousness which is revealed to introspection (unity

judgement), is not restricted to the time-span of one's attending to its structure but is a feature that it possesses all the time – even when one is not introspecting. Secondly, it argues that the fact that one's own experience is unified provides sufficient ground for thinking that other subjects also enjoy conscious unity. Thus, the argument from the unity judgement to the unity thesis is, firstly, a claim about the structure of one's own consciousness and, secondly, a claim about the structure of human consciousness as such.

However, someone may ask whether the unity thesis could be securely grounded upon the evidence about the structure of one's own consciousness that is restricted to contexts of introspective attention. In response to such question Bayne, following Hume, concedes that an amount of risk attends all inductive generalizations. The point is to assess whether this inductive generalization involves an excessive amount of risk. For Bayne, such an assessment involves the inquiry into the cases where the unity judgement could be true but the unity thesis is false. One such case can be imagined where the structure that consciousness possesses during introspection is not representation of the structure of the concerned subject's consciousness at other times.

Bayne first considers the objection that the unity judgement of one subject can hardly be representative of human beings in general. It is usually held that inductive generalization on the basis of a single case should not be trusted; Bayne calls such inferences as 'one-shot induction'. However, Bayne quickly points out that such type of induction is perfectly legitimate in cases where the property in question is homogeneously or uniformly distributed in the relevant population. This is why we can infer that 'all humans are mortal' on the basis of a single example. So, if we can show that human consciousness has a uniform structure then we shall be able to justify the one-shot inference from unity judgement to unity thesis.

Uniformity in the structure of human consciousness has been scientifically established through the evidences for a high degree of homogeneity in the ways the basic features of is realized in the members of the human species. On the basis of this assumption we usually ascribe consciousness to other people. On the basis of my own case I inductively infer that you are conscious. I know that I am conscious and also know I and other people are similar in various ways which are highly relevant to the possession of consciousness. Over and above the fact that we all possess many behavioral dispositions and physical properties in common, we also share a common evolutionary lineage. These facts provide sufficient grounds for engaging in one-shot inference for ascribing consciousness to other people. Bayne considers it irrational to entertain any doubt about the conclusion against the back-drop of such proven facts. Bayne also thinks that such one-shot inference is justified in the context of the ascription of fine-grained conscious states. The phenomenal states that I experience when I hear the sound of flute will be akin to the phenomenal states that other persons enjoy. No doubt there may be some individual difference which can frustrate such inferences – the difference in musical training and the cases of synaesthetes may cause difference in the phenomenal states. However, these sorts of inferences are quite legitimate in general. He also affirms that such inferences are highly reliable in matters relating to the structure of consciousness. Moreover, it is also argued that if my introspective reports can be relied upon then this person's introspective report (unity judgements) can similarly be relied upon for similar reasons. Hence, the evidence for the unity thesis is certainly broad based.

The introspective justification for the unity thesis hinges on another claim that the unity judgement reveals the normal structure of consciousness. The truth of unity judgement surely shows that one's consciousness is unified as and when one introspectively attends to its structure. Some critics might point out that we do not engage ourselves in introspection in our daily life. Nor do we introspect into the structure of our consciousness as a matter of

course. In other words, one may wonder whether one's consciousness is unified only when one deliberately attends to its structure via introspection. In response to this objection Bayne draws our attention to two forms of introspection and shows us why it should not be regarded as uncommon.

One form of introspection involves focal attention to a particular target object. Again, it is also undeniable that one's normal waking life is, most of the time, accompanied by 'a background sense of one's own experience'. Everyday experience is usually accompanied by an implicit awareness of distinct facts about various types of experiences one enjoys as well as of the fact that one is conscious. Most importantly, Bayne also claims that in our normal waking life we are implicitly aware of the fact that our conscious states are unified with each other at a point in time. We do not find any focal attention involved in such awareness. Nevertheless, Bayne considers it as a genuine form of introspection since it has as its object the facts concerning one's own conscious states.

Bayne tries to dispel another doubt concerning the justification for admitting that the structure of introspected experiences reflects the structure of un-introspected experiences. In other words, the proponents of the introspective argument are required to show that introspection itself is not responsible for the unity of consciousness in that the unity of consciousness is not dependent on introspection. Bayne thinks that there is no good reason to suppose that the unity of consciousness is a product of introspective accessibility. He conceives introspection as a faculty through which the phenomenal character of experience is made available to the mechanisms of judgement or mechanisms of self-ascription. Thus, for Bayne, our consciousness is unified independently of introspection. At this point he makes an important observation that, like conscious thoughts, the mechanisms involved in introspection were not operative in the architecture of consciousness from the beginning. He writes: 'They are grafted onto those mechanisms responsible for the creature's awareness of its perceptual

and bodily environment, and it is these primitive mechanisms that ensure that the creatures' experiences are unified.'⁹He even claims that the unity of consciousness, in one form or other, is present in the creature that has only primitive forms of sensory experience. However, Bayne does not provide any evidence for this last claim.

A variant of this serious skeptical challenge is to be found in the suggestion that such unity, though independent of introspection, depends on different types of integrative capacities whose presence are highly correlated with the presence of introspective capacities. For the sake of the argument Bayne urges us to suppose that the unity of consciousness relies on working memory. We know that in conditions like delirium, dreaming and the minimally conscious states the mechanisms of working memory gets disrupted. In such conditions the unity of consciousness will be compromised. Thus, one might argue that despite its independence from introspection the unity of consciousness is most likely to break down in conditions where introspective access to the structure of consciousness is, not reliable. Again, on the supposition that the unity of consciousness is dependent on the capacity for first-person thought, one might argue that since in the context of schizophrenia, dementia and the dissociative disorders the mechanisms of first-person thoughts are disrupted there will be a breakdown of unity. This paves the way for the claim that the unity of consciousness is likely to breakdown in those contexts where introspective access to the structure of consciousness is far from reliable.

In his reply to this objection Bayne points out that our ignorance about the mechanism underpinning consciousness and its unity prevents us from drawing a definite conclusion. So, the question remains open. Yet, Bayne does not hesitate to express his hunch. Here is Bayne: 'My hunch, however, is that phenomenal unity is a rather basal phenomenon, one that requires little in the way of either working memory resources or the capacity for first-person thought.'¹⁰He thinks that 'pre-theoretical' case for maintaining that a target individual has a

unified consciousness will be a function of its background state of consciousness.’¹¹ This examination of first-person motivation for the unity thesis yields the admission that the more we move away from the normal waking consciousness the more weaker becomes the support provided by the unity judgement for unified consciousness. Bayne thinks that the first-person motivation for the unity thesis may not definitively establish the thesis but it shows the importance of the thesis. He argues for the default status of the thesis in the sense that the thesis may be regarded as innocent until proven guilty. In order to find whether it is guilty or not he investigates into the third-person reasons for accepting the thesis.

In order to find out whether a creature enjoys a unified consciousness we must investigate empirically into the cognitive and behavioral capacities and pay close attention to their exercise. A creature’s behaviour does not provide us with direct access to the structure of that creature’s consciousness. We need some ‘bridging principles’ that can link phenomenal unity to those cognitive and behavioural capacities. Bayne examines some such principles and constructs a framework for the third-person assessment of the unity thesis.

Bayne, first, wants to identify these principles and then examines them. He begins by considering how one might show that the unity thesis is false. Arguments against the unity thesis may have various manifestations. The basic form of the argument against the unity thesis is argument by counter example. The argument by counter example has two moments – a positive moment and a negative moment. The positive moment concerns the establishments of the fact that the creature in question enjoys conscious states e_1 and e_2 while the negative moment tries to show that e_1 and e_2 are not phenomenally unified. The former is the argument for consciousness and the latter is argument against conscious unity.

4.2 The positive aspect:

The positive moment involves the consideration of the problem of criterion for the ascription of consciousness. Discussion about required evidence for such ascription should take into consideration of the type of creature one is dealing with, the background state of consciousness that the conscious creature enjoys and the fine-grained conscious state under investigation. Keeping the specific differences to one side, Bayne prefers to discuss the criteria for the ascription of conscious states in an abstract way. Researchers on consciousness commonly rely upon introspective reports and consider it to be the sole evidence of consciousness and also consider it to be the most useful tool for the study of consciousness. However, Bayne thinks that this introspective criterion is too restrictive and suggests that in some cases, it should be supplemented by an agentive approach to the ascription of consciousness. He presents four reasons for considering the introspective criterion as implausibly restrictive.

First, the formulation of the introspective criterion is not easy. It is true that we ascribe consciousness to creatures that are at present unable to submit such reports due to distraction, inattention and the focus on other aspects of their overall experiential state. It is plausible to hold that in such cases we are justified in the ascription of conscious state with the content <p> to S only if S has the capacity to produce the relevant introspective report. We cannot formulate the criterion as requiring only the creature's capacity to produce introspective reports in general. Such a formulation would be too weak and such reports would not enlighten us much about the creature's current states of consciousness. This shows why the formulation of this criterion is not easy.

Secondly, introspection may mislead us about the nature of the particular conscious state that we are enjoying at a time. Inattention blindness and change blindness are examples of such possibilities.

Thirdly, we must note the incapability of the introspective criterion to accommodate our pre-theoretical assumptions about young children and non-linguistic creatures. Questions of consciousness in these creatures will become a matter of theoretical guess if we embrace the unrestricted form of the introspective criterion. In order to accommodate our intuitions about non-linguistic creatures some thinkers want to restrict the scope of introspective approach to creatures having the capacity for introspective reports. This, certainly, amounts to an admission that there are non-introspective means for detecting consciousness. So, introspective reports are not the only basis for the ascription of consciousness.

Finally, Bayne makes an important methodological claim about the consciousness science. Researchers in this field officially accord the central place to the introspective criterion. Bayne points out that these researchers actually demand an environmental report from the subject. A subject is typically asked to report when the light is green instead of a report when she experiences a green light. There is a view that environmental reports can be substituted for introspective report because subjects who can report that the light before them is green can also report that they had an experience of green light. Bayne contends that this sort of substitutions between two reports holds good only in those experiments when subjects are self-conscious and can appreciate the relation between these two types of reports. In fact the science of consciousness engages in experiments with creatures who are unable to substitute reports. Bayne even expresses doubts about these creatures' ability to produce any type of reports.

Bayne maintains a set of experiments concerning the identification of neural correlates of visual consciousness of rhesus monkeys. They examined the neural responses of those monkeys to binocular rivalry. The monkeys were, first, trained to press bars appropriately and then presented with rivalrous stimuli. Logothetis and others interpreted monkeys' button presses as reports of their mental states. Bayne rejects such interpretation and finds no reasons for interpreting those button presses as reports of any kind. He argues that producing any report involves the conception about which behaviour will bring about a particular belief in the audience. The button presses in question cannot be interpreted in these terms.

However, Bayne thinks that the monkeys' button presses can be regarded as evidence of consciousness only because they are intentional actions, and not because they are 'reports'. Bayne writes: 'Intentional agency, I suggest, functions as a legitimate ground for the ascription of consciousness. Indeed, it is utterly commonplace to suppose that the non-verbal behaviour of an organism can give us evidence about its experiential lifeLet us call the claim that intentional agency can underwrite ascriptions of consciousness the *agentive criterion* of consciousness.'¹²

Bayne reminds us that the notion of agency is a broad notion and includes environmental and introspective reports. Adoption of agentive criterion does not imply the rejection of the introspective criterion. There are contexts in which introspective reports prove to be most useful tool for the identification of conscious states.

The agentive criterion also faces challenge which is based on the findings of cognitive science. This science has already shown us that a large part of cognitive and behavioral control is under the control of systems that function on the basis of unconscious representations. Such a system is often termed as 'Zombie systems'.

Thus, agency will not be a marker of consciousness in the contexts where the ‘Zombie systems’ propel actions. The evidences for the zombie systems come from the experiments on blindsight, two visual systems (dorsal and ventral) and masked stimuli.

In response to this challenge Bayne, first, observes that the ascription of consciousness requires only a reliable correlation between agency and the presence of consciousness. He claims that even in the contexts where visuo-motor activity is not based on visual experience it may still be correlated with the existence of such states. Even in cases where unconscious dorsal stream representations guide our actions that are still likely to be accompanied by appropriate ventral representation. Secondly, he points out that a very small amount of behaviour is within a full control of so-called zombie system. He also observes that operations of zombie systems are ‘under the control and guidance of the contents of perceptual and intentional consciousness.’¹³

Bayne considers another challenge to the agentic criterion. How would we explain if zombie systems did act, in some contexts, independently of the control and guidance of conscious states? One suggestion is that some blindsighters began to develop ‘super blindsight.’ (Blindsight occur in patients with fields of cortical blindness caused by lesions of the primary visual cortex.) They are able to detect, localize and discriminate between visual stimuli and yet admit that they do not see.) ‘Superblindsight’ is said to appropriate the contents of their blind field for their action plane. ‘Superblindsight’ are not found in humans. However, N.K. Humphrey’s monkey ‘Helen’ is said to have exhibited such ‘superblindsight.’ Some years after the removal of her visual cortex, Helen exhibited the normal capacity for surrounding spatial vision. She could move around just like other normal monkeys and did so completely unprompted. This was an instance of super blindsights.

There are two answers to the question whether Helen was visually conscious of her environment. One answer is that she was not visually conscious because her visual cortex had been removed. Another answer is that she was visually conscious because she could move spontaneously, under visual guidance resembling other monkeys. Bayne thinks that the last answer shows why the agentic criterion enjoys the intuitive support. However, Bayne partially agrees with the critics when he concedes that in some contexts where the ascription of consciousness is concerned the introspective reports enjoy some kind of privilege over other measures.

Bayne draws our attention to another problem involving dissociation between environmental reports and introspective reports. He mentions a masking experiment where the subjects were presented with a row of five letters in rapid successions. They were instructed to press one key when the letter 'J' appeared in the display and to press another key when no 'J' was present. Bayne presents the result in the following: 'when urged to respond as fast as possible, even at the cost of making a good many errors, subjects now tended to respond to the occurrence of a target letter in the 'blanked' positions with a fast (and correct) press of the 'target present' key, and then, a moment later, to apologize for having made an error.'¹⁴

Here the subject correctly reports that the display contains a 'J' and after words reports that he did not consciously perceive a 'J'. This certainly involves dissociation between environmental reports and introspective reports. Which reports are we to accept? A distinction between two kinds of errors, produced by a method of detecting consciousness, has been drawn by Bayne. One is false positive and the other is false negative. A method produces a false positive if it declares that the creature concerned is in conscious state P when that creature is not really in conscious state P. A method produces false negative if it declares that the creature concerned is not in conscious state P when that creature is really in the

conscious state P. Some thinkers consider false positives to be worse than the false negatives and, so, privileges introspection over other measures of consciousness. Bayne responds to such line of thinking by pointing out that it has not yet been proved that introspective criterion generates fewest false positives. Bayne thinks that the concern for the avoidance of false positives should be balanced against that of false negatives. In reply to the question about our course of action in the face of such dissociation between introspective reports and other forms of behaviours, Bayne says that there is no simple answer. Here is Bayne: 'Dissociations of this kindwill needs to be evaluated on a case-by-case basis. There are few rules to guide us here, and we will need to proceed largely by instinct.'¹⁵

Bayne also reminds us about the important point that the agentive criterion base on the ascription of consciousness in the exercise of personal – level agency. He, however, does not want to restrict the evidence for the existence of consciousness to intentional agency. What he wants to mean is that our evidence for the ascription of consciousness will be strongest if we are very much sure that we are responding to that which the agent has done. By contrast, the evidence will certainly be weaker if we are not sure whether we are dealing with anything that the agent has done or with something that some sub-personal component of the agent has done. By way of clarification he points out that he does not think of 'the agent' as some kind of homunculus directing from within the Cartesian theatre. Nor does he identify the personal-level agency with 'willed', 'deliberate', or 'endogenous agency and exclude 'stimulus-driven' and 'exogenous' action from its domain. Most of our actions are neither purely self-generated nor purely stimulus-driven. Bayne writes: 'As agents we are not 'prime movers' but creatures that behave in either reflexive or reflective modes depending on the dictates of the environment.'¹⁶

Again, here is Bayne on the right approach to the contrast between personal and sub-personal control: 'A better approach to the contrast between personal and sub-personal

control, I suspect, invokes the notion of cognitive integration. What it is for an action to be assigned to the agent herself rather than one of her components is for it to be suitably integrated into her cognitive economy. Where we have behaviour that is not suitably integrated into the agent's mental life, there is some temptation to think that it should not be assigned to the agent, at least not without reservation.'¹⁷

After examining the evidences of the presence of consciousness Bayne turns to the discussion about evidences of the presence of disunity within consciousness. He wants to find out what would count as evidence that a subject enjoys conscious states that are not phenomenally unified with each other. The establishment of the fact that a subject has conscious states that are not phenomenally unified constitutes the negative moment of the argument by counter example against the unity thesis.

4.3: The Negative Aspect: Representational Disunity:

One type of argument for phenomenal disunity is premised on the failures of representational integration. Bayne first distinguishes between different forms of representational integration. For him, the most basic forms of representational integration are manifest in the form of conjunction. In our previous chapter we have discussed how Bayne shows that phenomenal unity is accompanied by the closure of phenomenal content under co-instantiated conjunction. According to the principle of closure, if a subject S enjoys experiences with contents <p> and <q> that are phenomenally unified then that subject S will also enjoy an experience with the content <p & q>. Bayne does not accept the closure based analysis of phenomenal unity, but he admits that phenomenal unity goes together with the conjunction of phenomenal contents. This occurs particularly in cases where the states are of the same perceptual modality.

Bayne finds another form of representational integration other than conjunction – in Nagel’s work.¹⁸ According to Nagel, a single mind has a sort of immediate access to its conscious states occurring at a point in time or having close temporal proximity. In such a context the mind as the subject, can experience the simpler relations between the elements of experience if the said subject attends to it. This is so because the experiences of a single person occur in an ‘experientially connected’ domain; this also helps us to capture the relations among experiences in experiences of those simpler relations. Bayne gives some examples of such representational integration. Here is Bayne: ‘An experience of two colour patches is typically accompanied by an awareness of their relative intensities; an experience of two sounds is typically accompanied by an awareness of their spatial relations; an experience of two bodily sensations is typically accompanied by an awareness of whether or not they occur in the same limb. Even when one is not actually aware of the simpler relations between the contents of unified experiences, one usually has the capacity to become aware of those relations.’¹⁹ Arguments from representational disunity (failure of representational integration) involves a principle that links phenomenal unity to representational unity. Bayne states the principle in the following way:

‘Representational Integration Principle (RIP): For any pair of simultaneous experiences e_1 and e_2 , if e_1 and e_2 are phenomenally unified then, *ceteris paribus*, their contents will be available for representational integration.’²⁰

A successful argument from the failure of representational disunity to phenomenal disunity must fulfill three desiderata. First, it has to show that the subject has experiences e_1 and e_2 . Secondly, it has to show that experiences are not representationally integrated. Thirdly, it has to show why *ceteris paribus* clauses cannot be activated. We have already seen how Bayne shows that fulfilling first two desiderata is not a straight forward business. Sometimes failures of representational integration may be viewed as reason for thinking that the states concerned

are not phenomenally unified. Hougne, point is to assess the strength of this reason. Bayne is of the opinion that the strength depends on the details of the case. Moreover, he reminds us that representational integration is not entailed by phenomenal unity. Let us see how he explains it.

First, it is not hard to find cases where the failure of representational integration takes place due to the fact that the subject lacks the appropriate integrative ability. Person's suffering from prosopagnosia is unable to integrate the perceptual features of a face. Representational integration depends on categories and concepts the subject concerned has. Some thinkers claim that some forms of features bindings are essential for perceptual experience. Hence, anyone with perceptual experiences must have certain integrative capacities. Bayne points out that there are other forms of finding that are not essential for the possession of consciousness as such. This explanation of the failure of representational integration shows why things may not be equal. Since RIP contains 'other things being equal' clause we can fairly say that in this case failure of representational unity does not provide evidence of phenomenal disunity.

Secondly, there are situations where the subject has integrative abilities but lacks the capacity to exercise them. Some kinds of integration demand a certain temporal duration which is lacking in some situations. Moreover, there may be background states of consciousness which are different from the background states of normal wakefulness and the sorts of integration and coherence of those states may not be that of ordinary waking consciousness. So, we have to be cautions when we argue from representational disunity to phenomenal disunity outside of ordinary waking consciousness.

4.4: The Negative Aspect: Access Disunity

Another important argument for phenomenal disunity appeals to the breakdown of ‘access unity’. It is generally supposed that each of creatures’ conscious states contains contents that are available to the same range of cognitive and behavioural systems or consumption. Think of a subject who might have two conscious states (e_1 and e_2), at the same time, with contents that were not available to the same systems of cognitive and behavioural consumption. For this subject the contents of e_1 might be accessible for verbal report but not memory consolidation while the contents of e_2 might be available for memory consolidation only. This breakdown in access unity is viewed by some thinkers as evidence that e_1 and e_2 are not phenomenally unified. Bayne identifies the principle connecting phenomenal unity to access unity in the following way:

‘Conjoint Accessibility Principle (CAP): For any pair of simultaneous experiences e_1 and e_2 , if e_1 and e_2 are phenomenally unified then, *ceteris paribus*, their contents will be available to the same consuming systems.’²¹

On the basis of CAP we can consider the fact that the contents of e_1 and e_2 are not available to the same consuming system as evidence of phenomenal disunity between e_1 and e_2 . Like the argument from representational disunity, this argument is also not a demonstrative argument.

There are three tasks for this argument. First, it has to show that the subject has experiences e_1 and e_2 . Secondly, it has to show that these experiences are access disunified. The third task is to show why the *ceteris paribus* cannot be activated. The issues that arise from the first task have already been discussed. Bayne now focuses on other two tasks.

In order to explain access disunity between states Bayne invites us to imagine a creature with two experiential states, e_1 and e_2 . States e_1 and e_2 will be taken as fully unified if the contents of those states are ‘available to all and only the same consuming states.’ Again, these states will be fully access disunified if the contents of those states are unavailable to any of the same consuming systems. Now, let us suppose that the creature concerned has five consuming systems (CS_1 through CS_5) and also that the contents of e_1 and e_2 are available to some of the same consuming systems but not others. As for instance, e_1 might be available to CS_1 through CS_4 while e_2 to CS_2 through CS_5 . Such states might be viewed as partially access unified. On the one hand, the accessibility of the contents of both e_1 and e_2 to CS_2 , CS_3 and CS_4 may be taken as evidence of phenomenal unity. On the other hand, since some consuming systems have access to contents of either e_1 or e_2 , we can take this fact to be an evidence of phenomenal disunity. Neither of these claims is satisfactory. Some thinkers contend that partial co-accessibility does not occur. Bayne, however, claims that breakdown of access unity is usually partial and not complete. Here is Bayne on the compatibility between phenomenal unity and access disunity: ‘we should allow that phenomenal unity is compatible with some degree of access disunity – indeed, in some cases it might even be reasonable to suppose that phenomenal unity coexists with a high degree of access disunity – but the more radical the access disunity the better our evidence for phenomenal disunity.’²²

The third task concerns the *ceteris paribus* clauses. Bayne draws our attention to the conditions under which things might not be equal. First, argument from access disunity must take into account the possibility of processing bottlenecks. A complex phenomenal state can subsume a simpler phenomenal state and be phenomenally unified. Yet these two states may not be access unified because the former is more complex than the latter. Arguments from access disunity will be very much secure when the concerned states are of the same size.

Another important respect in which ‘things might not be equal’ concerns the differences between the representational formats of the states concerned. The representational formats of the states provide another important feature in which ‘things might not be equal’. The means, through which thought and behavior are influenced by a state, depends largely on the kind of this state. Consider two states, e_1 and e_2 . The e_1 ’s content is conceptual and e_2 ’s content is non-conceptual. The deep connection between conceptual content and reasoning is manifest in the fact that e_1 ’s content is capable of initiating the mechanisms of belief revision but e_2 -s content is not. By contrast, the connection between non-conceptual content and action is revealed by the fact that e_2 ’s content could operate online behavioural control that e_1 -s content could not. However it is said that the failure of access unity is the evidence of failure of phenomenal unity when these states share the common representational format. It is noted that if e_1 and e_2 states cannot be jointly reported for their differences between conceptual and non-conceptual content, then we think that they are not phenomenally unified.

The last point that claims our attention concerns the individuation of consuming systems. Here the problems are theoretical rather than neuropsychological. That means it is not the problem how one know through the neuropsychological means when a definite behavioural response is brought out. Rather it is the problem of what to do with such information theoretically. A question may arise - what kind of action we take as revealing a unique consuming system as opposed to different consuming systems?

It is clear that contrasts between motor systems sometimes leads us to the individuation of consuming systems but consuming systems hardly revealed one-to one relation to motor systems. More clearly, a unique consuming system may involve several behavioural responses. As an example, introspective reports can be found in what ones says which button one presses or where one sees. Again, a single type of motor response may involve the activity of different systems.

Moreover, access disunity helps us to provide an argument as an evidence of phenomenal disunity because contents of phenomenally unified states are thought to be co-accessible to the subject's different consuming systems. However, the force of such argument is hard to determine for not only phenomenal unity is found to co-exist with some degree of access disunity, but also it is difficult to determine the degree to which the states are access disunified.

Bayne considers another issue that complicates the assessments of the counterexamples to the unity thesis. The number of tiles on a roof and, the number of passengers in a bus are not dependent on any tools that one uses to measure them. Similarly, it is usually assumed that consciousness is also independent of the attempts to detect it. This assumption is false because it is found that the contents of subject's conscious states may be modulated by the method one uses to detect them. This shows that consciousness exhibits 'probe-dependence'.

Probe dependence is evidenced in the simple form of perceptual neglect due to the phenomenon of extinction. Perceptual neglect usually affects the left visual field of patients. Patients with 'extinction' are sometimes conscious of stimuli that occur in their left hemi-field if such stimuli are given singularly. They will not be aware of them if they are presented together with right hemi-field stimuli. Bayne mentions an experiment done by Halligan and Marshall (1989) on the capability of a patient to bisect a series of lines at the middle-point. The patient solved this problem through the right side of his visual field since he moved to the right side of his visual field. This happened because he was asked to perform the task by using his right hand. It appeared that he was not conscious of the left half of the line. However, when asked to use his left hand to bisect the identical lines this extinction did not seem to be present. Bayne mentions other studies of extinction and neglect in order to show that the acuteness of a patient's symptoms is a function of how they are 'probed'.

By way of an explanation, we can say that patients are aware about the ‘neglected stimulus’ but the awareness is more difficult to tap, though it is revealed only when patients are probed in a particular way. Bayne proposes another possible explanation. According to him, it is more important to note that when the patient is asked to respond to the stimulus in one way, rather than in another way, influences whether the patient will be conscious of the stimulus or not. Asking the patient to use the left hand may activate the right hemisphere leading to the facility for the awareness of object in the left visual field.

Bayne also points out that the probe dependence of consciousness is not limited to brain damaged patients. It is found in normal subjects of experience. He thinks this can be illustrated by the Colavita effect. In the preliminary Colavita paradigm, a series of audio-visual, auditory and visual stimuli are presented to the subject and is asked to make one respond to audio stimuli and a different response to visual stimuli. Astonishingly, auditory stimuli are obscured by visual stimuli on bimodal trials though there is no problem in the detection of auditory stimuli on unimodal trials. To explain Colavita effect properly we must explaining why only single stimulus is reported on bimodal trials. Again, why visual stimulus is invariably ‘obscured’ the auditory stimulus.

Spence (2009) tries to give a satisfactory answer. According to him, when subjects are asked to respond to visual stimuli they will be supported by the presence of accessory sound. It is found that subjects respond to visual stimuli move quickly on bimodal trials than on unimodal trials. He thinks that the representation of auditory event fails to generate an auditory experience on bimodal trials because the subjects have already responded to the visual stimuli. On the basis of such probe dependence Daniel Dennett develops an anti-realist view of consciousness. Dennett thinks that we mistakenly assume that there must be a single narrative, which is ‘final’ or ‘published’ draft and canonical.²³ However, Bayne has argued elsewhere that the said assumption does not provide sufficient ground for rejecting the

assumption. Bayne says: 'As far as probe-dependence is concerned, facts about consciousness could be as robust and determinate as you like.'²⁴

Bayne thinks that in our evaluation of the unity thesis we should keep in mind the phenomenon of probe-dependence and proceed very consciously when we use any single response for measuring consciousness. Some caution should be exercised when we employ the argument from access disunity.

4.5 Federal versus Imperial Structure:

Another problem to evaluation of unity thesis arises from the cognitive architecture of consciousness. There are two approaches to the structure of consciousness: one is in 'imperial' terms and another is in 'federal' terms. Imperial approach to consciousness highlights on a centre where all processing flows and control originate. Perhaps only contents of consciousness are contained in the central store of experience, which do not have any anatomical address. It spreads across different neural areas and is considered as a functional unit of sorts. Any content contained in this functional unit are given to the same range of systems of cognitive and behavioural consumption. Any forms of control may not be centralized but in imperial conception, this decentralized control resides outside of the consciousness. According to the imperial approach, conscious control lies only within an imperial Centre.

Federal approach presents an opposite view. According to this view, conscious states influence through a kind of multiple domain-specific circuits. The federalist view of conscious control is explained by using the model of a political system. Thus, Ned Block (1997:162) opines that conscious control is exercised by 'loose federations of centers of control and integration.'²⁵ This approach views the ability of a state to intimate the performances of various cognitive and behavioural programs may be a function of the type of

state it is. Certain kinds of conscious states are more easily available for certain forms of cognitive and behavioural control than other types of states. In imperial models the 'centre' is identified variously such as working memory, the global work-space or the supervisory attentional system.

However, Bayne points out that there is no reason to assume that contents of each of subject's conscious states are available for the same form of cognitive and behavioural control. Moreover, imperial approach is not a conceptual requirement. Bayne thinks that there is no sufficient empirical ground for the imperial model. Bayne says: 'The studies that are cited in its support invariably operationalize consciousness in terms of global availability, which is to *assume* the truth of the imperial model rather than to provide evidence for it.'²⁶ Again, he says: 'The imperial conception of consciousness might capture an *idealized* conception of the relationship between consciousness and control, but we mustn't lose sight of the fact that we are often far from ideal subjects.'²⁷

Moreover, Bayne thinks that a general consideration provide some reasons to hold that consciousness has a partly federal structure.

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