

This is an excerpt from a report on The Unity of Consciousness and Sensory Integration conference at Brown University in November of 2011, written by Kevin Connolly, Craig French, David M. Gray, and Adrienne Prettyman, and available at:
http://networksensoryresearch.utoronto.ca/Network_for_Sensory_Research.html

1. What Is the Relationship Between the Unity of Consciousness and Sensory Integration?

As you pick up your mug and drink from it, you perceive both visual and tactile features of the mug. You see the mug, and many of its visible features, such as its white color, its movement through space as you bring it towards your mouth, and so on. You also feel the smooth texture of the mug's surface as you grasp its handle, and as its rim makes contact with your lips. Your experience is multimodal in at least two respects. First, it has a multimodal phenomenological character—a proper description of what it is like for you to undergo the experience has to make reference to its visual and tactile aspects, that is, to the experienced visual and tactile features. Second, it is an experience which results from processing sensory information gathered from distinct sensory modalities, so it is also multimodal with respect to its causal origin.

In your experience of the mug, the information gathered from different sensory modalities are bound together (they are not merely co-present in an overall experience). You perceive the mug's distinct features as features of a single object (the mug). Your percept of the mug involves not just the co-presence of multimodal features, but their coherence: your experience involves *object unity*.

Such unity can be a feature of phenomenal consciousness. In the case in question, it is manifest in the phenomenological character of your experience: you perceive the mug—that single object—as bearing those various visual and tactile features. An exhaustive account of your perceptual phenomenology needs to mention the unity or coherence of the mug's features. It isn't sufficient to mention or list the features alone (just as it is not sufficient to represent the fact that

John loves Jane by listing the components: John, the relation of loving, and Jane; one also needs to mention how those components cohere, or are, so to speak, bound together).

Multimodal perceptions such as your experience of the mug make use of multisensory integration, where that is understood as “the brain’s ability to synthesize the information that it derives from two or more senses” (Stein et al., 2002, p. 227). How multisensory integration relates to the unity of consciousness depends upon the approach one takes to the unity of consciousness. One approach is the Hill-Bennett approach (which has its origins in Hill, 1991, Chapter 10). On this view there is no more to the unity of consciousness than whatever unity is derived from the obtaining of substantive unity relations. Substantive unity relations include object unity, which we have already encountered. Another such relation is joint access-consciousness, whereby two experiences are jointly available for use by higher-level cognitive functions such as reasoning or action. A third substantive unity relation is spatial unity, whereby two experiences represent objects or features as being part of the same space. There are other substantive unity relations as well. On the Hill-Bennett approach, the multisensory integration processes for object unity are relevant to the unity of consciousness just insofar as object unity is one of the substantive unity-making relations which (among others) can constitute the unity of consciousness.

Bayne and Chalmers (2003) and Bayne (2010) offer a different approach to the unity of consciousness. On their view, some unity of consciousness outruns whatever unity is provided by the obtaining of substantive unity relations. For example, suppose someone has a visuo-tactile experience of a mug, but also a feeling of elation at the same time. Her consciousness may exhibit, at that time, all sorts of unity (e.g., object, spatial, and so on). But in addition, on the Bayne-Chalmers view, it exhibits phenomenal unity (which is understood in subsumptive terms).

That is, there is something it is like for her to have the visual-tactile experience *together* with the feeling of elation. According to Bayne and Chalmers, for such phenomenal unity, those separate experiences must be subsumed parts of a total conscious state.

On the Bayne-Chalmers view, multisensory integration is, on the face of it, less directly relevant to our understanding of the more general category of the unity of consciousness (where that includes subsumptive phenomenal unity) than it is on the Hill-Bennett view. Still, if one wants to understand total conscious states in terms of units of consciousness which are constitutively independent of the wholes which they comprise, then it may be that the best understanding of the basic units of consciousness is a multisensory understanding. In that case, multisensory integration will be relevant to a full understanding of total conscious states, in terms of what gets subsumed, even if not to the relation of subsumption. But to see whether this is the case, we first need to determine the basic units of consciousness.

References

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