Some Consequences of the Spatial Organization of the Conceptual System

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I will present my theory showing that the conceptual system, beginning in early infancy, is founded on spatial information, particularly motion on paths through space, a few spatio-temporal contingencies, and a very few spatial relations. The theory posits a basic attentional mechanism that redescribes spatio-temporal information into spatial image-schemas. Somewhat surprisingly, only a minimal set of primitives is needed to get the conceptual system well started. These initial image-schemas are sufficient to provide the meanings of daily events, goal-directed actions, and spatial causality, as well as containment, occlusion, and a few other spatial relations that draw infants' attention. In addition they enable preverbal recall, simple problem-solving, and inferences about what has been seen, all of which have been documented in preverbal infants. These meanings are also sufficient to enable language learning to begin.

Enrichment of the spatial base with nonspatial information is surprisingly slow and in some cases requires language. Delay in conceptualizing nonspatial experience depends in large part on whether any spatial description can be applied to it. Understanding force is a relatively easy enrichment of the spatial base because there are spatial descriptions that help infants and toddlers conceptualize it once they begin to move themselves around and experience forceful action and resistance. Somewhat more difficult is understanding goal-directed behavior as intentional. But importantly in either case the conceptualization is done by attaching feeling (either feeling of force or feeling of trying) to a spatial base. In contrast, emotions, sensory experiences such as colors and smells, and mental concepts such as belief, have no spatial basis to help understanding in the same way. As a consequence even learning words for these experiences often takes years to accomplish. Accurate use of color terms takes 3 to 5 years, emotional terms even longer. Similarly, theory of mind, in which we come to envisage mental concepts such as belief, false belief is also very late.

All of this indicates that while both actions and embodiment can enrich the conceptual system, they are not primary to it. There is no evidence that the image-schemas used to understand events in the world are, even in adulthood, anything other than spatial representations of objects and actions. Nor is there any evidence that image-schemas include nonspatial information, such as force. One can imagine becoming angry as "blowing one's stack", but the image-schema itself is a spatial representation. This representation, of course, can arouse associated feelings of force and agitation, but these feelings are at best only partially conceptualized. We learn words for force and make do with them but that does not mean they have a detailed conceptual basis (even though we can repeat what we are taught in school). That is why we have metaphor; it is perhaps the only way for us to describe to ourselves or to others many internal experiences and abstract ideas that have no spatial basis.