

Emotions as Semantic Pointers: Constructive Neural Mechanisms

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Emotions have been construed as mental representations of physiological states, as results of cognitive appraisals, or as social constructions. Thagard and Schröder (forthcoming) propose that these diverse, and often contradictory, theoretical accounts can be unified through understanding emotions as *Semantic Pointers*. Semantic Pointers, as recently suggested by Eliasmith (forthcoming), are specific spiking patterns in neural networks that (1) provide *shallow semantics* through symbol-like relations to the world and other representations, (2) expand to provide *deeper semantics* with relations to perceptual and motor information, and (3) support complex syntactic operations through binding. We conjecture that such a hierarchical organization of the cognitive system allows for an integrative understanding of all the different facets of emotion, from the physiological components to socially constructed symbols. We sketch a possible neurocomputational model of emotions, based on Eliasmith and Anderson's (2003) Neural Engineering Framework, that we expect to be able to implement our semantic pointer theory of emotion. Our future aim is to use this model to simulate the results of major experiments from all the different paradigms in emotion research which we seek to unify.

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