

Emergent Properties

Emergence is a notorious philosophical term. A variety of theorists have appropriated it for their purposes ever since George Henry Lewes gave it a philosophical sense in his 1875 *Problems of Life and Mind*. We might roughly characterize the shared meaning thus: emergent entities (properties or substances) 'arise' out of more fundamental entities and yet are 'novel' or 'irreducible' with respect to them. (For example, it is sometimes said that consciousness is an emergent property of the brain.) Each of the quoted terms is slippery in its own right, and their specifications yield the varied notions of emergence. There has been renewed interest in emergence within discussions of the behavior of complex systems and debates over the reconcilability of mental causation, intentionality, or consciousness with physicalism.

(Excerpted from the Stanford Encyclopedia of philosophy:
<http://plato.stanford.edu/entries/properties-emergent/>)

For one of the numbered items below, discuss how the system can be reduced to its constituent parts and explain what properties of the systems could not be predicted by looking at the parts that make it up

1. Circulatory System
2. Eukaryotic Cell
3. Heard of Deer
4. Temperate grassland biome

What is the opposite philosophical view to looking for emergent properties? Which view do you feel will be most useful in helping you to understand biology this year?