Emergence

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System-level properties that arise from interactions among components and cannot be predicted by simply adding or averaging the parts. In forests, additive quantities like standing volume scale with individual trees, while emergent properties such as wind resistance, resilience, or community assembly depend on spatial arrangement, structural diversity, species composition, and gap dynamics. The rope analogy illustrates this: mass adds with more fibers, while stiffness and cohesion result from how fibers interact.