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Dennis G. Collins* (d_collins_pr@hotmail.com), 1519 S. State Rd, 119, Apt. 2, Winamac, IN 46996-8550. *Toward the thermodynamics and emergy of picture and other puzzle solving*. Preliminary report.

Toward the Thermodynamics and Emergy of Picture and Other Puzzle Solving.

This talk follows up on the Author's and Scienceman's paper "Clusters of High Transformity Individuals" Chapter 36 in *Emergy Synthesis 9* (CEP Gainesville, FL 2017). Here instead of substrate being converted into product by a generalization of Michaelis-Menton enzyme kinetics, the interest is in pieces of a puzzle being converted into a finished picture by features as enzymes. Other applications involve returning and re-connecting people to their homes after a storm or flood, or restoration of electrical grid after a hurricane, or assembling DNA in one dimension. At the start of putting together a, say 1000-piece puzzle, there are 1000 components, and clusters are gradually built up as pieces are fitted together, until if successful there is only one giant cluster or component with all 1000 pieces (or say the electrical grid is restored). Thermodynamically the problem involves completely distinguishable particles as perhaps a modification of Fermi-Dirac statistics, since each piece goes in exactly one place. Attempts to measure entropy can involve measuring the work required to add each piece, and topological properties, such as Betti numbers be studied, (Received February 13, 2018)