“Unplugged” Semantic Networks and Knowledge Representations

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Abstract

AI agents store and organize information in their memory using structures known as *knowledge representations*. One type of knowledge representation is a *semantic network*. Semantic networks are a way of representing relationships between objects and ideas. For example, a network might tell a computer the relationship between different animals (e.g. a cat IS-A mammal; a cat HAS whiskers). In this unplugged (i.e. no computer required) assignment, learners can create their own semantic networks by gluing down printable cards containing concepts and arrows containing relationships. Provided card decks contain concepts related to animals, family, and musical instruments. Blank cards are also provided for networks on custom topics. Learners will be encouraged to reflect on the networks they create and consider the strengths and limitations of the knowledge representation using a provided list of questions that can be used to foster discussion or as a written activity. This assignment is suitable for young learners (6 and up), but can also serve as a simple, accessible introduction to knowledge representations or knowledge-based AI for learners of all ages. This assignment could be adapted as either a take-home written activity or an in-class group project.