

Scientific knowledge organized through question network

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Abstract

Research in science is usually built upon complex background knowledge and assumptions, making it difficult to organize and overview. We propose using question network to dynamically maintain scientific knowledge, with each nodes being either a question or an answer, linked with relations such as specification, contrast and so on. Publications can then be fitted into nodes of the network. By constructing example networks around cognitive concepts, we observed a big question (e.g. What is curiosity?) being answered with theoretical speculation initially, then specified into the operationalized definition (How to measure curiosity as a personality?) and computational algorithms. Similar patterns are repeated in different branches of the network. We also compare research topics starting with similar questions yet develop differently.