

On the Family of Concept Forming Operators in Polyadic FCA

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Triadic Formal Concept Analysis (3FCA) was introduced by Lehman and Wille almost two decades ago. And many researchers work in Data Mining and Formal Concept Analysis using the notions of closed sets, Galois and closure operators, closure systems, but up-to-date even though that different researchers actively work on mining triadic and n-ary relations, a proper closure operator for enumeration of triconcepts, i.e. maximal triadic cliques of tripartite hypergraphs, was not introduced. In this talk we show that the previously introduced operators for obtaining triconcepts is not always consistent and provide the reader with a definition of valid closure operator and associated set system. Moreover, we study the difficulties of related problems from order-theoretic and combinatorial point view as well as provide the reader with justifications of the complexity classes of these problems.