A Historical Perspective on Conceptual Modelling: from Information Algebra to Enterprise Modelling and Ontologies

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Abstract. The evolution of research and practice in the area of conceptual information systems modelling during more than four decades is reviewed. This is done from the author's Scandinavian perspective, and focuses on activities and results related to research and practice in the early system development phases. It covers the CODASYL Development Committee's Language Structure Group's report "An Information Algebra" in 1962, continues with the introduction of the infological approach and elementary messages by Langefors in 1965, comments on a large number of modelling methods published in the 1970-ies and 80-ies as well as the report "Concepts and Terminology of the Conceptual Schema and the Information Base" reporting the work by the ISO working group ISO/TC97/SC5/WG5 in the early 80-ies. Approaches which are based on a temporal and deductive view of the application domain as well as object-oriented modelling languages are acknowledged. The talk continues with a discussion of principles and research problems related to a topic we call "Enterprise Modelling" and "Ontology Modelling". The *role* of conceptual modelling in information systems development during all these decades is seen as an approach for capturing fuzzy, ill-defined, informal "real-world" descriptions and user requirements, and then transforming them to formal, in some sense complete, and consistent conceptual specifications. During the last two decades an additional role of modelling has evolved - to support user and stakeholder participation in enterprise analysis and requirements formulation and in development of shared conceptualisations of specific domains. The talk concludes that the gap between what is current thinking in research of conceptual modelling and current thinking in practice still seems to be rather wide.