From data to meaning in representation of emotions

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Historically, now we have an unprecedentedly large amount of data available in various systems, and the growth of data volumes is rapid and continuous. The numbers of scientific papers published per year are higher than ever before. While it is desirable to have the context of the users of a social system known and represented in a machine-readable form, capturing this context is notoriously complex (as social context is more difficult to measure with simple sensors, unlike some physical characteristics). This complexity applies especially to the domain of emotions, but also to other context information relevant for social systems and social sciences (for example, in case of experimental study set up in sociology or marketing, detailed user profiles, exact background and experimental settings need to be recorded in a precise manner). Which data and scientific findings get shared, for which purposes, and how? How to address open and closed data, and reproducibility crisis? How to convert Big Data into Smart Data, which is interpretable by both machine and human? And how to make sure that the resulting Smart Data is trustworthy and appropriately handling biases? In my talk, I discuss these questions from the technical perspective, and give examples for relevant solutions implemented with Semantic Web technology, linked data, knowledge graphs and FAIR (Findable, Accessible, Interoperable, Reusable) data management. Specifically, I will be discussing experiences with combining machine learning and knowledge graphs for semantic representation of emotions. Further, I will talk about research data infrastructures and tools for social sciences that can facilitate semantic interoperability and bring more meaning with sharing semantic representation of context, such as one about emotions. Such semantic representations and infrastructures can serve as a basis for industrial applications, including recommender systems, personal assistants and chatbots, and also serve to improve research data management in social sciences.