In recent years, there has been a growing conviction, both in academia and at companies like Google, that so-called knowledge graphs can greatly facilitate information extraction, interoperability, and inference. Edges in these graphs reflect relationships between entities, e.g. people, places, or natural language words. In this talk, I discuss novel link prediction methods to infer new connections in such knowledge graphs. One major focus is reliably matching equivalent items across different Web sources, including Wikipedia and domain-specific databases, which we solved using scalable graph-based algorithms and linear optimization techniques. I also discuss machine learning approaches to infer taxonomic and other semantic links. Last but not least, I will point to important applications of these methods, including Lexvo.org and UWN/MENTA, a large multilingual knowledge graph covering over 100 languages.