Textbook Problem Dependency Web

Joseph Martinsen

December 1, 2017

This thesis looks to tackle a problem that arises after a textbook has been written, and published. To customize the book for a particular audience, it may be desirable to reorder some of the chapters. However, there may be dependencies among the chapters, examples and exercises which make it very tedious to rearrange the order of not only the chapters but also the associated problems.

Given a textbook with chapters A, B, C where the material in B and C depend on A but not each other. Suppose the original order is A, B, C, and some of C's problems utilize of information from chapter$B$ as well as A. If we wish to reorder the chapters as A, C, B then the new order is acceptable in terms of content dependencies but some of the problems from C need to be moved to B.

I believe this process of reorganizing chapters, sections, and problems can all be automatized utilizing a dependency tree built and managed within a graph database.