Homework 1
CSc 4710/6710 Database Systems
Spring 2003
Due: 23 January, 2003 (Thursday)

Problem 3.21 (Elmasri-Navathe text)

Design an ER schema for keeping track of information about votes taken in the U.S. House of Representatives during the current two-year congressional session. The database needs to keep track of each U.S. STATE's Name (e.g. Texas, New York, California) and includes the Region of the state (whose domain is {Northeast, Midwest, Southeast, Southwest, West}). Each CONGRESSPERSON in the House of Representatives is described by their Name, and includes the District represented, the StartDate when they were first elected, and the political Party they belong to (whose domain is {Republican, Democrat, Independent, Other}). The database keeps track of each BILL (i.e. proposed law), and includes the BillName, the DateOfVote on the bill, whether the bill PassedOrFailed (whose domain is {YES, NO}), and the Sponsor (the congressperson(s) who sponsored – i.e. proposed – the bill). The database keeps track of how each congressperson voted on each bill (domain of vote is {Yes, No, Abstain, Absent}). Draw an ER schema diagram for the above application. State clearly any assumptions you make.

Problem 3.26 (Elmasri-Navathe text)

Consider an entity type SECTION in a UNIVERSITY database, which describes the section offerings of courses. The attributes of SECTION are: SectionNumber, Semester, Year, CourseNumber, Instructor, RoomNo (where section is taught), Building (where section is taught), Weekdays (domain is the possible combinations of weekdays in which a section can be offered {MWF, MW, TT, etc.}), and Hours (domain is all possible time periods during which sections are offered {9-9.50 AM, 10-10.50 AM,…,3.30-4.50 PM, 5.30-6.20 PM, et.}). Assume that SectionNumber is unique for each course within a particular semester/year combination (that is, if a course is offered multiple times during a particular semester, its section offerings are numbered 1, 2, 3, etc.). There are several composite keys for SECTION, and some attributes are components of more than one key. Identify three composite keys, and show how they can be represented in an ER schema diagram.