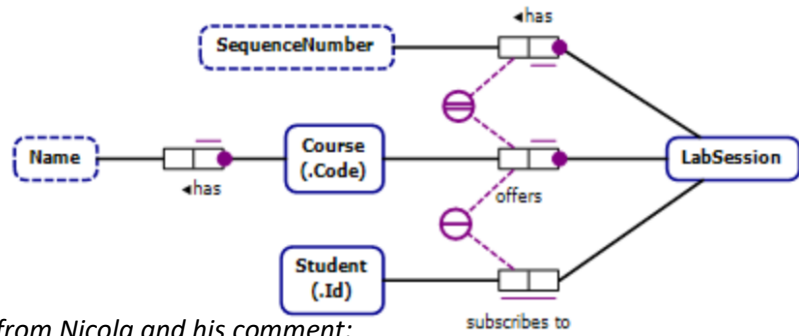


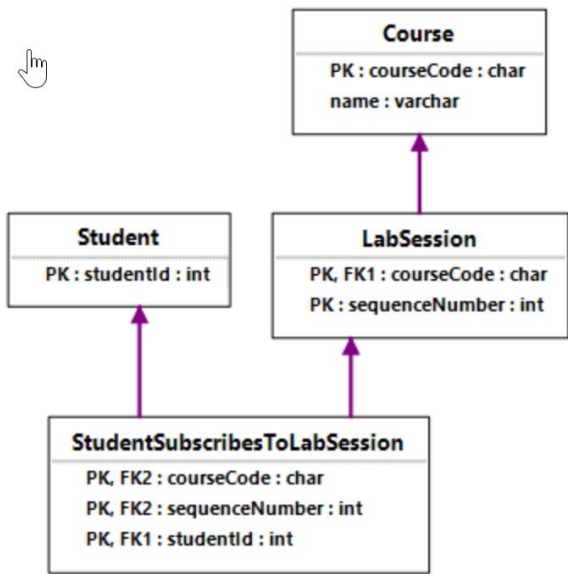
ORM schema from Nicola (Note: I would normally expect a UC on the role of CourseName):



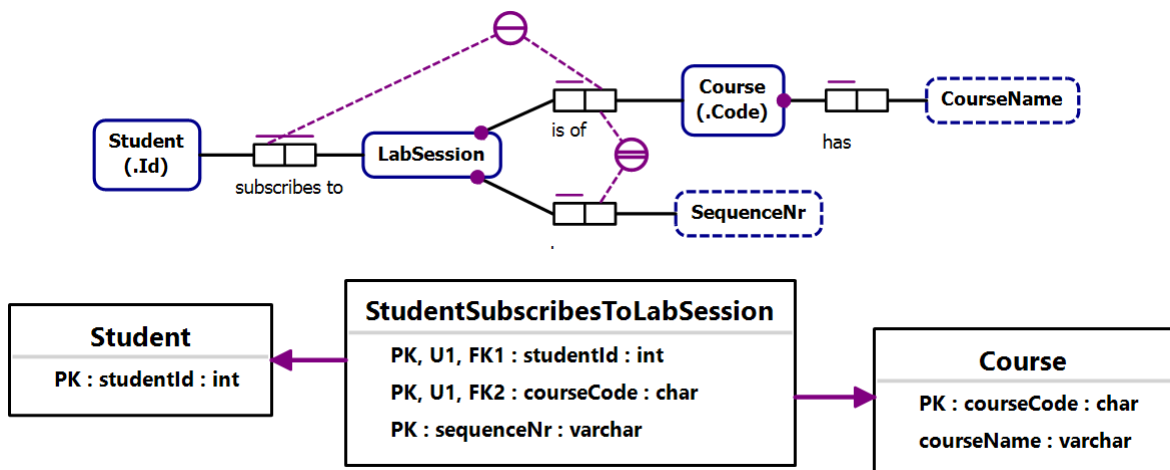
Generated Relational view from Nicola and his comment:

Generated Relational view attached. Do you see the problem? The external constraint on {Course, Student} is not enforced. This is simply a matter of setting the PK of StudentSubscribesToLabSession to {courseCode, studentId}.

So, in general NORMA seems to ignore most external constraints.



My version of his ORM schema and the relational view mapped from the source forge version of NORMA. The secondary external UC is captured see (U1, U1) though it would be neater to make it the PK (as the ternary PK is implied). There is no need to create a LabSession table. I'm a bit surprised to see the Student table, as Student is not declared independent in the ORM schema.



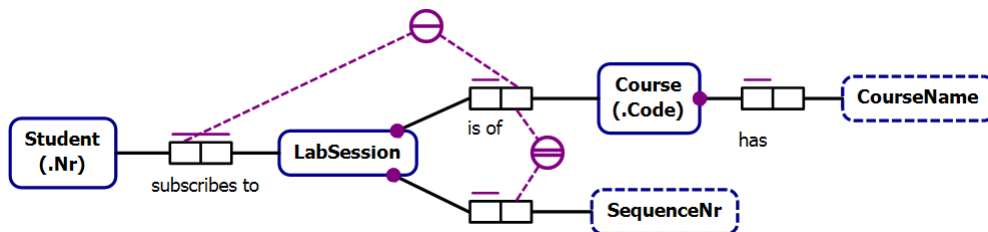
Comments added 2018 Oct 28:

Regarding the Student table, Ken reminded me that last year I entered the following issue NOR-95 to request a fix or a warning for how .Id refmodes are mapped.

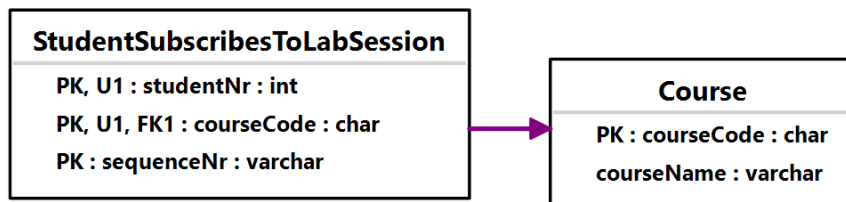
<<By default NORMA sets .Id refmodes to the data type Numeric: Auto Counter, and maps it to an integer column with the identity property, causing a separate table to be generated. As the attached two examples illustrate, this can lead to a redundant table. This is bound to confuse. Ideally we should fix the mapping to avoid the redundancy. If this is not done, a warning should be issued to change the .Id refmode to avoid generating a redundant table.>>

Changing .Id to.Nr fixes this problem, as shown below. Of course, in a realistic model, Student would host other roles and a Student table would then be needed.

ORM schema:



Relational view:



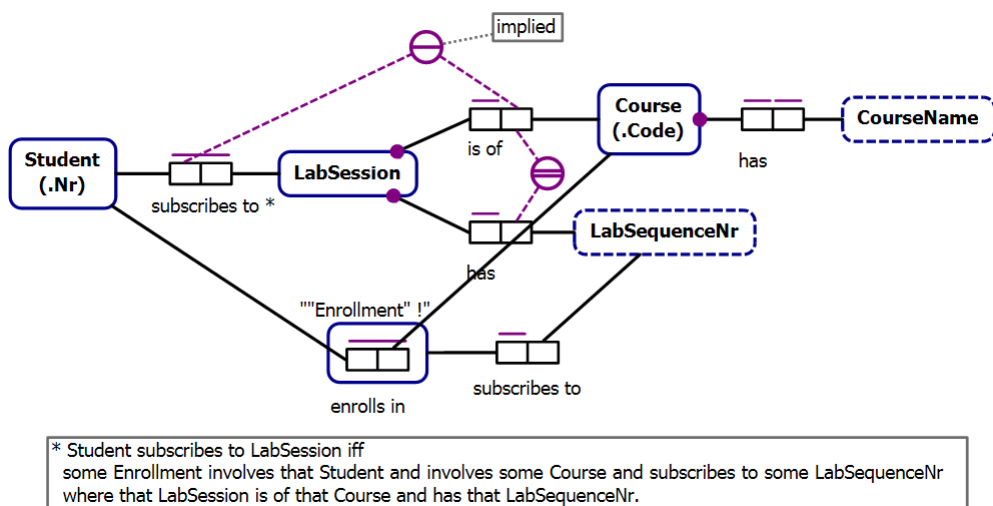
ORM fact types are set-based, not bag-based, so a spanning UC is the weakest UC option for any fact type. In this example, the spanning UC is implied by the stronger, external UC at the top of the figure. This can be indicated by displaying the UC in green as shown below (this display option is available in the Visio ORM stencil and in a more advanced version of NORMA).



Comments added 2018 Nov 1:

It would be more realistic to record the enrolment of a student in a course before the student subscribes to a lab session for that course. In that case, the lab session subscription fact type may be derived as shown below. I've also added the UC on CourseName's role. The external UC at the top is now implied so may be omitted. The implicit link fact types for the objectification ("Enrollment involves Student" etc) are used in the derivation rule. I've made Enrollment independent, so the labSequenceNr column in the Enrollment table is nullable.

ORM schema:



Relational Schema:

