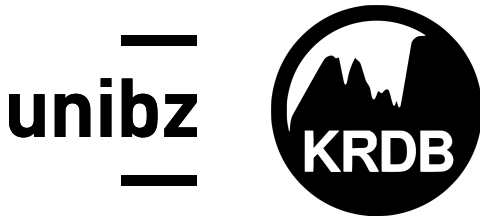


Data and Process Modelling

Lab 4. Schema transformations and optimizations

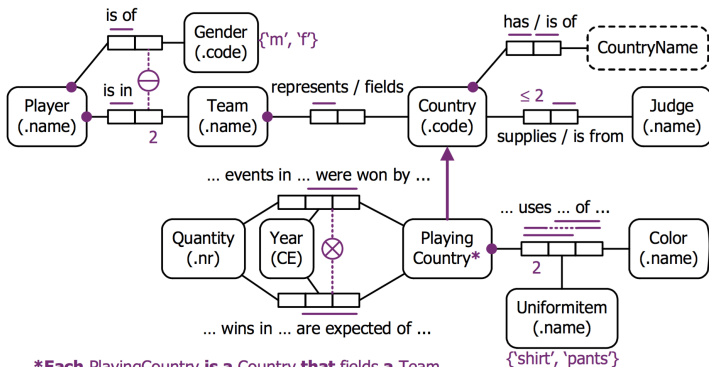
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Transforming a Diagram

Consider the following ORM diagram (taken from Halpin's book).



Exercises

1. Apply relational mapping.
2. Transform the schema using the techniques seen so far, towards minimizing the number of tables.
3. Reapply relational mapping.

Advanced Constraints in the Relational Model

When applying relational mapping to complex examples like previous one, consider also the following advanced constraints:

- Combined optionals: $R(\dots, [O_1, O_2], \dots)$ means that in every tuple of R , either values for O_1 or O_2 are both specified, or they are both NULL.



- Column exclusion: $R(\dots, C1, C2, \dots)$ means that whenever a value appear in column $C1$, it cannot appear in column $C2$ (and vice-versa).



- Row exclusion: $R(\dots, C1, C2, \dots)$ means that, for every tuple of R , whenever the tuple contains a certain value in column $C1$, then *that* tuple cannot contain the same value in column $C2$ (and vice-versa).