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Exercise: More subkeys

You are given the following table, with data, that identifies works of “classical” music that are in a CD or MP3 library. Draw the *relation scheme* for a lossless join decomposition of this table. You may assume that composer names are unique.

**Compositions**

|  |  |  |  |
| --- | --- | --- | --- |
| title | composer | nationality | yearOfBirth |
| Symphony #9 | Beethoven | German | 1770 |
| Violin Concerto | Beethoven | German | 1770 |
| Violin Concerto | Brahms | German | 1841 |
| Symphony #9 | Shostakovich | Russian | 1906 |
| Clarinet Concerto | Mozart, W.A. | German | 1756 |
| Symphony #9 | Dvorak | Czech | 1841 |

**First**, look one-by-one at each attribute:

If I know the value of “title”, what (if anything) else do I know?

You do not know anything else based only on the title, except for Clarinet Concerto

Try it the other way: What other attribute(s) will tell me the value of:

title? Only Mozart, W.A. will identify a title

composer? Title and year of birth

nationality? Title and year of birth

year of birth? Composer will tell you about their year of birth, since each

composer only has one year of birth

title *and* composer? No combination of nationality and year of birth will uniquely

identify a title and composer

nationality *and* year of birth? A title and composer will tell you what the

composer’s nationality and year of birth is

all four attributes in the table? None of the given data will tell you about all four

attributes, except for all 4 attributes themselves

Is there a candidate key for the whole table? If so, what is it? Title and year of birth

because there are no 2 same composers or nationalities that have the same title and year of birth

Is there a subkey? Is so, what is it and why? Composer and nationality will tell you about

some titles