

Step 1

1. Starting schema: R
2. Decompose on {composer} → {composer, birthplace, continent}
3. Results:
R1 = {composer, era, era_dates, work, setting}
R2 = {composer, birthplace, continent}

Step 2

1. Starting schema: R1
2. Decompose on {composer, work} → {setting}
3. Results:
R3 = {composer, work, era, era_dates}
R4 = {composer, work, setting}

Step 3

1. Starting schema: R3
2. Decompose on {era} → {era dates}
3. Results:
R5 = {era, composer, work}
R6 = {era, era_dates}

Step 4 (4NF)

1. Starting schema: R2
2. Decompose on {composer} → {birthplace}
3. Results:
R7 = {composer, continent}
R8 = {composer, birthplace}

Final Database:

- R4 = {composer, work, setting} only FD is {composer, work} → {setting}
- R5 = {era, composer, work} no FD but it is the key
- R6 = {era, era_dates} only FD is {era} → {era dates}
- R7 = {composer, continent} using {composer} → {birthplace} & {birthplace} → {continent}
({composer} → {continent})
- R8 = {composer, birthplace} only FD is {composer} → {birthplace}