1a. Assuming all attributes to have atomic values, the relation in 1NF. In FD3, there is partial functional dependency between author\_name and Author\_affil. In FD1, there is partial functional dependency among Book\_title, Publisher and Book\_type. So, the relation is not in 2NF.

1b. For 2NF, we will decompose Author\_affil (fully functionally dependent on Author\_name). Book\_type, publisher and List\_price is not dependent on Author\_name, so we’ll decompose them.

For 3NF, we’ll decompose List\_price (dependent on only Book\_type).



1NF

2NF

3NF

2. Functional dependency

1. Doesn’t hold: Text Williams maps to different courses in row 3 and 5.
2. Doesn’t hold: Text Williams maps to different instructors in row 3 and 5.
3. Holds
4. Holds
5. Doesn’t hold:
6. Course Data Structures maps to different quarters in row 1 and 4. Course Systems Programming maps to different quarters in row 2 and 6.