

### **Functional Dependencies from Domain Description**

Manuscript\_id → man\_num, man\_title, man\_date, man\_status, man\_auth, man\_icode  
Author\_id → auth\_fname, auth\_lname, auth\_affiliation, auth\_order, auth\_email  
Editor\_id → editor\_fname, editor\_lname  
Reviewer\_id → reviewer\_fname, reviewer\_lname, reviewer\_affiliation  
Issue\_id → issue\_period, issue\_year, issue\_volume, issue\_num, issue\_print\_date  
Man\_id, Reviewer\_id → feedback\_appropriateness, feedback\_clarity,  
feedback\_methodology, feedback\_contribution, feedback\_recommendation,  
feedback\_review\_date

### **Functional Dependencies from 2A**

Manuscript\_id → manuscript\_title, date\_received, manuscript\_status, auth\_idAuthor,  
interestcode\_idInterestCode, author\_email  
Auth\_id → auth\_names, auth\_affiliation  
Journal\_id → publication\_year, publication\_period  
Editor\_id → editor\_fname, editor\_lname  
Reviewer\_id → reviewerName, reviewerEmail, reviewerAffiliation, interestCode-  
IdInterestCode

### **Extra constraints incorporated into our schema**

#### **Changes**

- Removed author\_email and shifted it to author because relationship with Manuscript was not well defined enough to include multiple authors
- Added auth\_order and auth\_email because before we couldn't record all authors- now we can have multiple authors and also have the primary author email.
- Changed Journal\_id to Issue\_id and added issue\_volume, issue\_num, issue\_print\_date because we weren't able to record this information before
- Deleted ICode entity relationship because Interest code was a partial dependency, now we have manuscript determine icode so we can move to 3NF. Deleted due to redundancy
- Have new FD Man\_id, Reviewer\_id → ... because there was no way to record this information before.

### **cyclic relationships**

We found our 2A schema to have no cyclic relationships. We did not have a superkey allowed you to get all of the other entities.

### **3NF**

We had first decided to create a iCode entity and have a relationship with manuscript and reviewer. But, that led to problems were the iCode entity prevented our schema from going to 2NF because it created a partial dependency in the reviewer entity. Having iCode and a reviewer could determine the manuscript, but having just code was already determining the manuscript, thus a partial dependency. We also got rid of transitive dependencies by making sure each entity is identified by a unique key, can't be defined by any other key, and that key doesn't define any other entity.