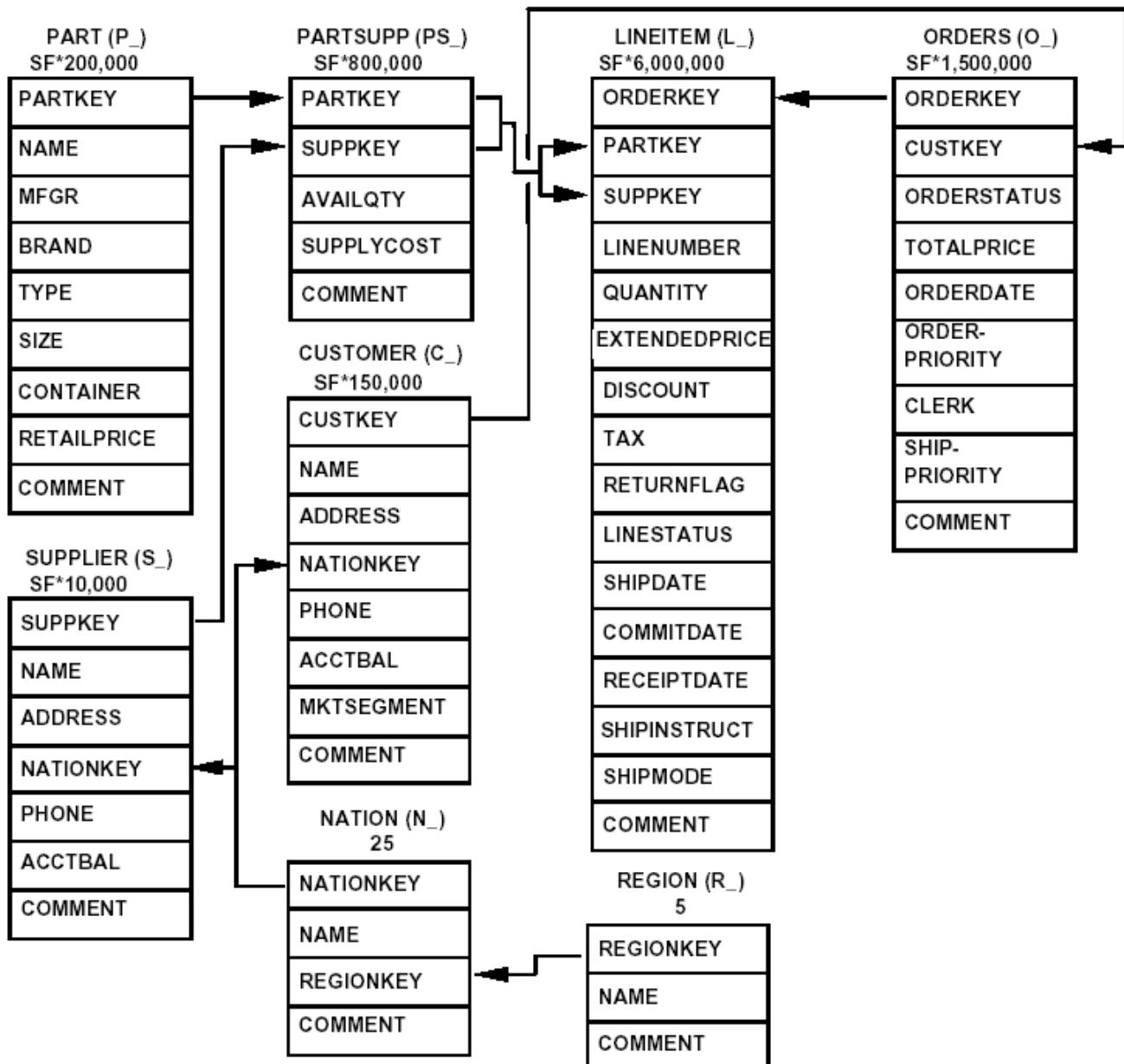


# Relational Algebra: Aggregation

## Database Schema

## Problems



### Legend:

- The parentheses following each table name contain the prefix of the column names for that table;
- The arrows point in the direction of the one-to-many relationships between tables;
- The number/formula below each table name represents the cardinality (number of rows) of the table. Some are factored by SF, the Scale Factor, to obtain the chosen database size. The cardinality for the LINEITEM table is approximate (see Clause 4.2.5).

1. Find the line items (orderKey, partKey) that are to be packed in a "JUMBO JAR" container and shipped by "TRUCK".
2. Find the line items for which the quantity ordered exceeds the quantity available. (ignore all dates)
3. Find the pairs of suppliers and customers from the same nation, which did business together.
4. List all supplied parts (from the PartSupp table) with an available quantity between 9986 and 9989 (not inclusive) and all the orders containing that supplied part.