Axioms –

1. **Axiom of reflexivity –**
   If A is a set of attributes and B is subset of A, then A holds B. If $B \subseteq A$ then $A \rightarrow B$ This property is trivial property.
2. **Axiom of augmentation –**
   If $A \rightarrow B$ holds and Y is attribute set, then $AY \rightarrow BY$ also holds. That is adding attributes in dependencies, does not change the basic dependencies. If $A \rightarrow B$, then $AC \rightarrow BC$ for any C.
3. **Axiom of transitivity –**
   Same as the transitive rule in algebra, if $A \rightarrow B$ holds and $B \rightarrow C$ holds, then $A \rightarrow C$ also holds. $A \rightarrow B$ is called as A functionally that determines B. If $X \rightarrow Y$ and $Y \rightarrow Z$, then $X \rightarrow Z$

Secondary Rules –

These rules can be derived from the above axioms.

1. **Union –**
   If $A \rightarrow B$ holds and $A \rightarrow C$ holds, then $A \rightarrow BC$ holds. If $X \rightarrow Y$ and $X \rightarrow Z$ then $X \rightarrow YZ$
2. **Composition –**
   If $A \rightarrow B$ and $X \rightarrow Y$ holds, then $AX \rightarrow BY$ holds.
3. **Decomposition –**
   If $A \rightarrow BC$ holds then $A \rightarrow B$ and $A \rightarrow C$ hold. If $X \rightarrow YZ$ then $X \rightarrow Y$ and $X \rightarrow Z$
4. **Pseudo Transitivity –**
   If $A \rightarrow B$ holds and $BC \rightarrow D$ holds, then $AC \rightarrow D$ holds. If $X \rightarrow Y$ and $YZ \rightarrow W$ then $XZ \rightarrow W$.