⑥ 1. SELECT X.SID, Y.SIP
   FROM Catalog X, Catalog Y
   WHERE X.PID = Y.PID AND X.PRICE > Y.PRICE

2. SELECT SID
   FROM (Suppliers join Catalog on (SID)) join (Parts join Catalog on (PID)) on (SID)

   WHERE color = 'red' OR address = 'Ruston City'

⑧ Student (
$\overset{A}{SSN}$, $\overset{B}{SNAME}$, $\overset{C}{SAddress}$, $\overset{D}{HScode}$, $\overset{E}{HSname}$, $\overset{F}{HScity}$, $\overset{G}{GPA}$, $\overset{H}{Priority}$)

FD $\{ D \rightarrow E, F$ p.d
   $G \rightarrow H$ t.d
   $A \rightarrow B, C, G \}$ p.d

$A \quad B \quad C \quad D \quad E \quad F \quad G \quad H$

$AD^+ = ADBCEFGH$

R (A B C D E F G H)
   $\longrightarrow$ R₁ (GH)
   $\longrightarrow$ R₂ (GABCDEF)
         $\longrightarrow$ R₂₁ (DEF)
         $\longrightarrow$ R₂₂ (DGABC)
               $\longrightarrow$ R₂₂₁ (ABCG)
               $\longrightarrow$ R₂₂₂ (AD)

R₁ (GH)
R₂₁ (DEF)
R₂₂₁ (ABCG)
R₂₂₂ (AD)

F

$\sigma_{starname}$

$\bowtie \; Director \geq ABCDEF$

$\sigma_{language = "German"}$ StarIn

Movie

2.
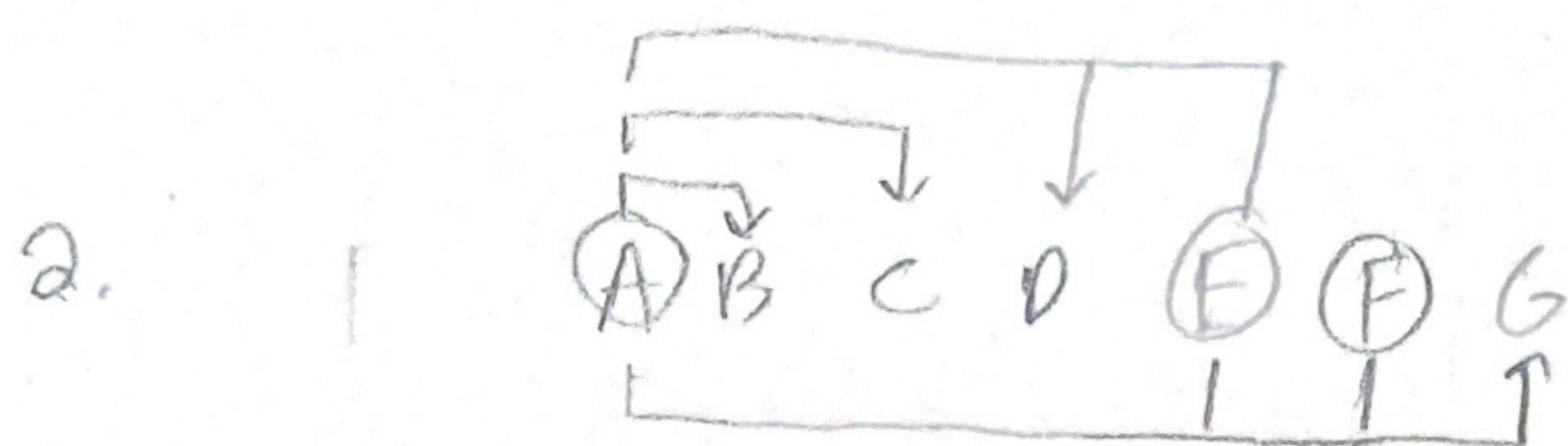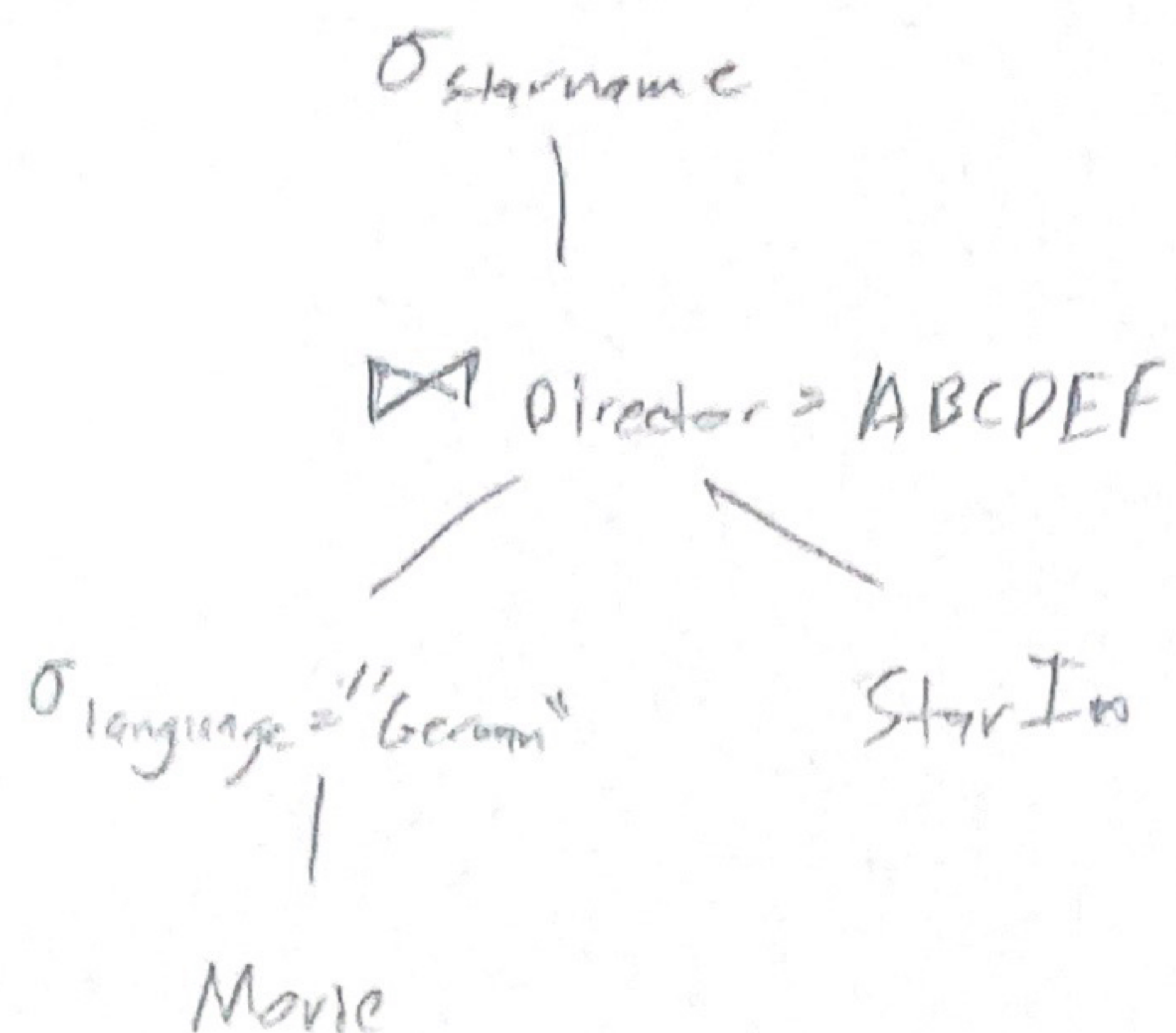
$A \rightarrow B$ pd

$A \rightarrow C$ pd

$AE \rightarrow D$ pd

$AEF \rightarrow G$ pd

$AEF^+ = ABCDEFG$

$R(ABCDEFG)$

    $\hookrightarrow R(AB)$

    $\hookrightarrow R(AC)$

    $\hookrightarrow R(AED)$

    $\hookrightarrow R(AEFG)$

$\boxed{B}$

3. Step 1) Read R into memory completey and make it accessible through an
in-memory index structure

Step 2) for each tuple in S, search if it already exists in R and delete it
from S if it exists

Step 3) Output all remaining tuples of S.