

Relationale Algebra - Übung III

→ Gruppe 4

Lucerne University of
Applied Sciences and Arts

**HOCHSCHULE
LUZERN**

www.hslu.ch

Aufgabe 1

a) $A \div B_1 \rightarrow$ alle supplier die das Teil "p₂" liefern.

$A \div B_2 \rightarrow$ alle supplier die die Teile "p₁" & "p₄" liefern.

$A \div B_3 \rightarrow$ der supplier der die Teile "p₁" & "p₂" & "p₄" liefert.

Aufgabe 2

a) $\Pi_{\text{sname}} (S \bowtie R \bowtie (\sigma_{\text{color} = "red"}(B)))$

$\Pi_{\text{sname}} (\sigma_{\text{color} = "red"} \wedge R.\text{sid} = S.\text{sid} \wedge R.\text{bid} = B.\text{bid} (S \times R \times B))$

b) $\Pi_{\text{color}} (B \bowtie R \bowtie (\sigma_{\text{sname} = "Lubber"}(S)))$

$\Pi_{\text{color}} (\sigma_{\text{sname} = "Lubber"} \wedge R.\text{sid} = S.\text{sid} \wedge R.\text{bid} = B.\text{bid} (B \times R \times S))$

c) $\Pi_{\text{sname}} (S \bowtie R)$

$\Pi_{\text{sname}} (\sigma_{\text{s.sid} \wedge R.\text{sid}} (S \times R))$

Aufgabe 3

a) $\Pi_{\text{sname}} (S \bowtie R \bowtie (\sigma_{\text{color} = "red"} \vee \text{color} = "green") (B))$

$\Pi_{\text{sname}} (\sigma_{R.\text{sid} = S.\text{sid} \wedge R.\text{bid} = B.\text{bid}} (S \times R \times (\sigma_{\text{color} = "red"} \vee \text{color} = "green") (B)))$

b) $\Pi_{\text{sname}} (\sigma_{RB.S.\text{sid} = S.\text{sid} \wedge RB.B.\text{bid} = B.\text{bid}} (S \times (P_{RB} (R \bowtie (\sigma_{\text{color} = "red"} (B)))) \times \dots \times (P_{GBS} (R \bowtie (\sigma_{\text{color} = "green"} (B))))))$

* GBS → Green-Boat-Sailor
RBS → Red-Boat-Sailor

c) $\Pi_{\text{sname}} (S \bowtie (\Pi_{\text{sid}} (\sigma_{\text{count}(\text{sid}) \geq 2} (R))))$

Aufgabe 4

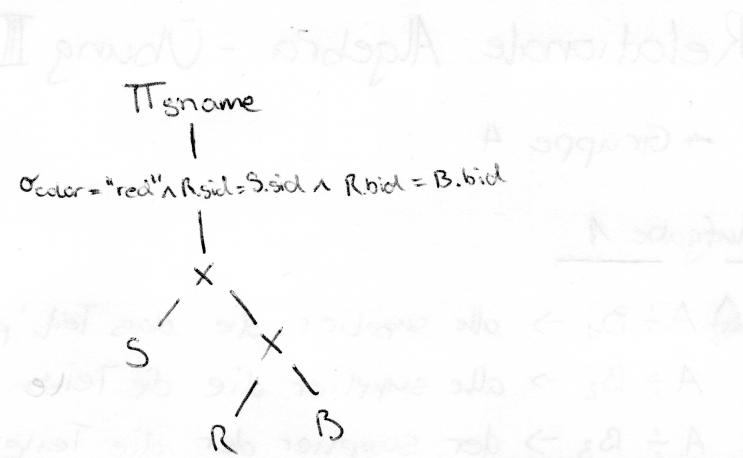
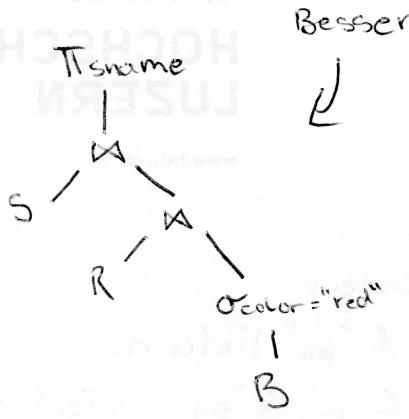
a) $\Pi_{\text{sid}} (\sigma_{\text{age} > 20} (S)) \setminus (R \bowtie (\sigma_{\text{color} = "red"} (B)))$

b) $\Pi_{\text{sname}} (S \bowtie \Pi_{\text{sid}} (R \div B))$

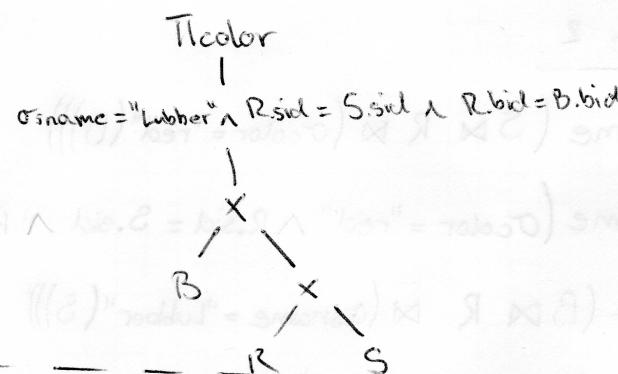
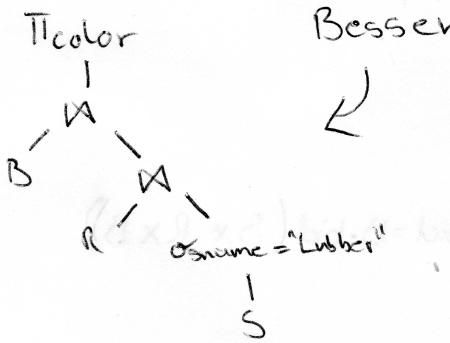
c) $\Pi_{\text{sname}} (S \bowtie \Pi_{\text{sid}} (R \div (\sigma_{\text{bname} = "Interlace"} (B))))$

Aufgabe 5

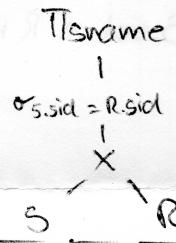
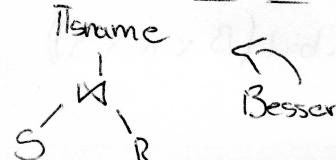
2a)



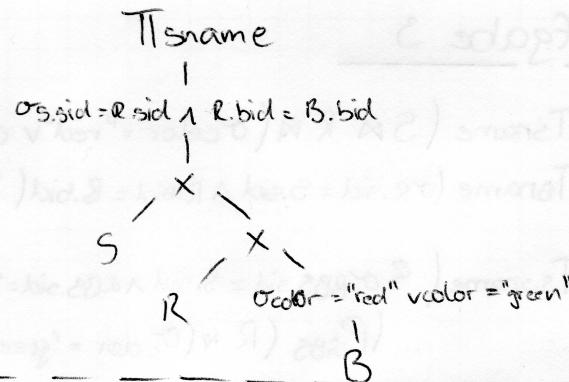
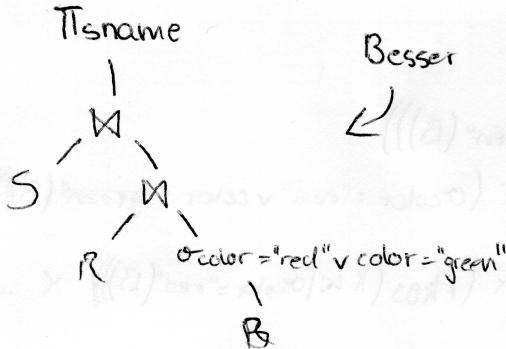
2b)



2c)

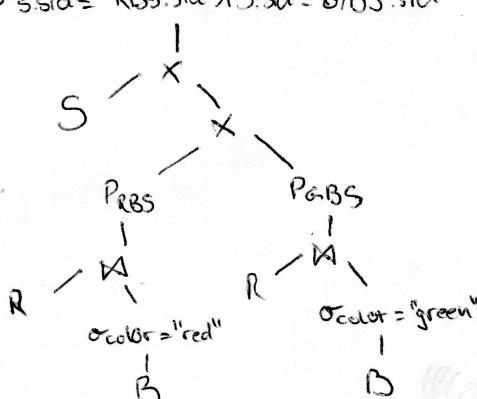


3a)

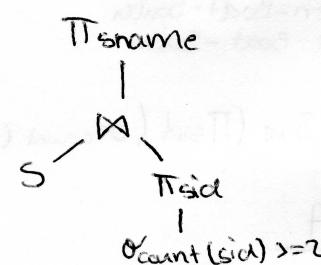


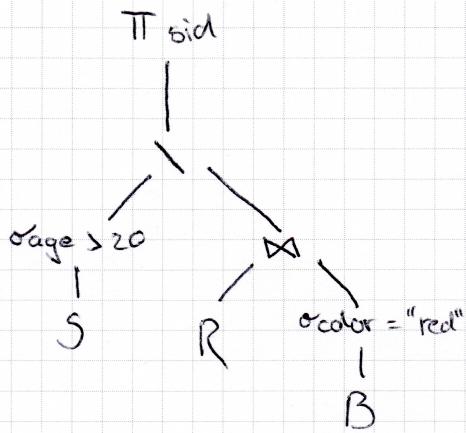
3b)

$\exists \text{S.sid} = \text{R.BS.sid} \wedge \text{S.sid} = \text{G1BS.sid}$

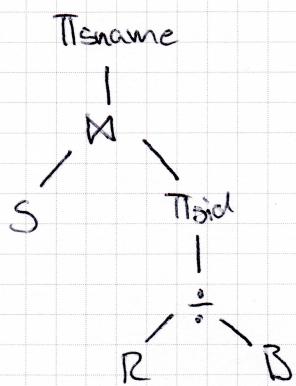


3c)





4b)



4c)

