

第一次作业 徐浩博 20200210108

2.2

插入：在 instruction 表内插入

(10000, Yau, Maths, 100000).

department 表内无 Maths, 故破坏了  
外键约束

删除：将 department 表内  
(Comp. Sci. Taylor, 100000)  
删除, 而 instruction 表内有条目对应  
的 dept\_name 是 Comp. Sci. 故破坏了  
外键约束

2.6

1.  $\Pi_{\text{person-name}} (\sigma_{\text{city} = \text{"Miami"}} (\text{employee}))$

2.  $\Pi_{\text{person-name}} (\sigma_{\text{salary} > 100000} (\text{works}))$

3.  $\Pi_{\text{person-name}} (\sigma_{\text{salary} > 100000 \wedge \text{city} = \text{"Miami"}} (\text{employee} \bowtie \text{works}))$

2.9 1.  $\Pi_{ID, \text{course-id}} (\text{takes}) \div \Pi_{\text{course-id}} (\sigma_{\text{dept-name} = \text{"Comp. Sci."}} (\text{course}))$

2.  $\Pi_{ID} (\text{takes}) - \Pi_{ID} ((\Pi_{ID} (\text{takes})$   
 $\times \Pi_{\text{course-id}} (\sigma_{\text{dept-name} = \text{"Comp. Sci."}} (\text{course}))$   
 $- \Pi_{ID, \text{course-id}} (\text{takes}))$

2.14.

1.  $\Pi_{ID, person\_name} ( \sigma_{company\_name = "BigBank"} ( employee \bowtie works ) )$

2.  $\Pi_{ID, person\_name, city} ( \sigma_{company\_name = "BigBank"} ( employee \bowtie works ) )$

3.  $\Pi_{ID, person\_name, street, city} ( \sigma_{company\_name = "BigBank" \wedge salary > 1000} ( employee \bowtie works ) )$

4.  $\Pi_{ID, person\_name} ( employee \bowtie works$

$\bowtie employee.city = company.city \wedge works.company\_name = company.company\_name$   
 $Company )$