第九章   2019218211 李浩然

```sql
select Cname
from student, course, sc
where student.Sno = SC.Sno and Sc.Sno = Course.Cno and student.Sdept = 'IS'
```

最初语法树   关系代数   优化后

结果 π Cname π Cname
 | | |
Project (Cname) σ student.Sept='IS' σ SC.Cno = Course.Cno
 | | |
Select (student.Sdept='IS') σ SC.Cno = Course.Cno   ×
 | | /   \
join (Sc.Sno = Cours Cno)   × σ smd.Sno   Course
   /   \   /   \ |
Join(student.Sno = Sc.Sno σ student.Sno   Course   ×
   /   \   Course = Sc.Sno   /   \
Student   SC   Studer   Sc   SC σ student.Sdept = 'IS'
                                          |
                                        Student