

# 第十次实验

(1)用alter table语句将SC表中的on delete cascade改为on delete no action,重新插入SC的数据（按照实验一）。再删除Stu\_Union中sno为'10001'的数据。观察结果，并分析原因。

```
1 ALTER TABLE SC DROP CONSTRAINT FK__sc__cno__3A4CA8FD;
2 ALTER TABLE SC DROP CONSTRAINT FK__sc__sno__395884C4;
3 ALTER TABLE SC ADD CONSTRAINT FK_SC_SNO FOREIGN KEY(sno)
4 REFERENCES Stu_Union(sno) on delete no action;
5 ALTER TABLE SC ADD CONSTRAINT FK_SC_CNO FOREIGN KEY(cno)
6 REFERENCES Course(cno) on delete no action;
7 delete from Stu_Union where sno='10001'
```

```
ALTER TABLE SC DROP CONSTRAINT FK__sc__cno__3A4CA8FD;
ALTER TABLE SC DROP CONSTRAINT FK__sc__sno__395884C4;
ALTER TABLE SC ADD CONSTRAINT FK_SC_SNO FOREIGN KEY(sno)
REFERENCES Stu_Union(sno) on delete no action;
ALTER TABLE SC ADD CONSTRAINT FK_SC_CNO FOREIGN KEY(cno)
REFERENCES Course(cno) on delete no action;
delete from Stu_Union where sno='10001'
```

100 %

消息

消息 547, 级别 16, 状态 0, 第 8 行  
DELETE 语句与 REFERENCE 约束“FK\_SC\_SNO”冲突。该冲突发生于数据库“School”, 表“dbo.sc”, column 'sno'。  
语句已终止。

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on delete no action意味着当从表中有匹配的记录时，主表中相应的候选键不允许 update/delete操作。此处SC表中的两个外键都改成了on delete no action，也就不能从主表Stu\_Union中删除键值了。

(2)用alter table语句将SC表中的on delete no action改为on delete set NULL,重新插入SC的数据（按照实验一）。再删除Stu\_Union中sno为'10001'的数据。观察结果，并分析原因。

```

1 ALTER TABLE SC DROP CONSTRAINT FK_SC_SNO;
2 ALTER TABLE SC DROP CONSTRAINT FK_SC_CNO;
3 ALTER TABLE SC ADD CONSTRAINT FK_SC_SNO FOREIGN KEY(sno)
4 REFERENCES Stu_Union(sno) on delete set null;
5 ALTER TABLE SC ADD CONSTRAINT FK_SC_CNO FOREIGN KEY(cno)
6 REFERENCES Course(cno) on delete set null;
7 delete from Stu_Union where sno='10001'

```

```

ALTER TABLE SC DROP CONSTRAINT FK_SC_SNO;
ALTER TABLE SC DROP CONSTRAINT FK_SC_CNO;
ALTER TABLE SC ADD CONSTRAINT FK_SC_SNO FOREIGN KEY(sno)
REFERENCES Stu_Union(sno) on delete set null;
ALTER TABLE SC ADD CONSTRAINT FK_SC_CNO FOREIGN KEY(cno)
REFERENCES Course(cno) on delete set null;
delete from Stu_Union where sno='10001'

```

100 %

消息

消息 1761, 级别 16, 状态 0, 第 4 行  
 由于一个或多个引用列不可为 Null, 因此无法使用 SET NULL 引用操作创建外键 "FK\_SC\_SNO"。  
 消息 1750, 级别 16, 状态 1, 第 4 行  
 无法创建约束或索引。请参阅前面的错误。

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因为Stu\_Union表中的sno是非空NULL的，引用它的外键也就不能为NULL，不能设置为on delete set NULL。

**(3)建立事务T3，修改ICBC\_Card表的外键属性，使其变为on delete set NULL,尝试删除students表中一条记录。观察结果，并分析原因。**

```

1 begin transaction T3
2 alter table ICBC_Card drop constraint
  FK_icbc_card__stu_c__42E1EEFE;
3 alter table ICBC_Card add constraint FK_ICBC_Card foreign
  key(stu_card_id)
4 references stu_card(card_id) on delete set NULL;
5 delete from STUDENTS where sid='800001216';
6 select * from stu_card;
7 select * from icbc_card;
8 commit transaction T3

```

```

begin transaction T3
alter table ICBC_Card drop constraint FK_icbc_card__stu_c__42E1EEFE;
alter table ICBC_Card add constraint FK_ICBC_Card foreign key(stu_card_id)
references stu_card(card_id) on delete set NULL;
delete from STUDENTS where sid='800001216';
select * from stu_card;
select * from icbc_card;
commit transaction T3

```

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结果 消息

消息 547, 级别 16, 状态 0, 第 5 行  
DELETE 语句与 REFERENCE 约束"FK\_CHOICES\_STUDENTS"冲突。该冲突发生于数据库"School", 表"dbo.CHICES", column 'sid'。  
语句已终止。

(2 行受影响)

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Choices使用了外键关联Students表，采用on delete no action。当从表中有匹配的记录时，主表中相应的候选键不允许update/delete操作。

**(4)创建一个班里的学生互助表，规定：包括学生编号，学生姓名，学生的帮助对象，每个学生有且仅有一个帮助对象，帮助对象也必须是班里的学生。（表的自参照问题）**

```

1 create table mutual_help(
2     sid char(5),
3     sname varchar(20),
4     help_stu char(5),
5     CONSTRAINT PK_help primary key(sid)
6 );
7 alter table mutual_help add constraint FK_help foreign key(help_stu)
8 references mutual_help(sid);

```

```
create table mutual_help(  
    sid char(5),  
    sname varchar(20),  
    help_stu char(5),  
    CONSTRAINT PK_help primary key(sid)  
);  
alter table mutual_help add constraint FK_help foreign key(help_stu)  
references mutual_help(sid);
```

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消息

命令已成功完成。

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(5)学校学生会的每个部门都有一个部长，每个部长领导多个部员，每个部只有一个部员有评测部长的权利，请给出体现这两种关系（领导和评测）的两张互参照的表的定义。（两个表互相参照的问题）

```
1 create table department(  
2     leader varchar(20),  
3     eval_name varchar(20),  
4     constraint PK_department primary key(leader)  
5 );
```

```
create table department(  
    leader varchar(20),  
    eval_name varchar(20),  
    constraint PK_department primary key (leader)  
);
```

100 %



消息

命令已成功完成。

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```
1 create table student(  
2     eval_name varchar(20),  
3     leader varchar(20),  
4     constraint PK_student primary key (eval_name),  
5     constraint FK_student foreign key (leader) references  
6     department (leader)  
7 );  
8 alter table department add constraint FK_department foreign  
key (eval_name)  
references student (eval_name);
```

```
create table student(  
    eval_name varchar(20),  
    leader varchar(20),  
    constraint PK_student primary key(eval_name),  
    constraint FK_student foreign key(leader) references department(leader)  
);  
alter table department add constraint FK_department foreign key(eval_name)  
references student(eval_name);
```

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消息

命令已成功完成。

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