

```
-- What postgresQL does when some tuples can't be removed
-- due to a foreign-key constraint, but others can.
```

```
dbsrv1% psql csc343h-dianeh
psql (9.1.14)
Type "help" for help.
```

```
csc343h-dianeh=> set search_path to university;
SET
```

```
-- There are 19 courses.
```

```
csc343h-dianeh=> select * from course;
```

cnum	name	dept	breadth
343	Intro to Databases	CSC	f
207	Software Design	CSC	f
148	Intro to Comp Sci	CSC	f
263	Data Struct & Anal	CSC	f
320	Intro to Visual Computing	CSC	f
200	Intro Archaeology	ANT	t
203	Human Biol & Evol	ANT	f
150	Organisms in Environ	EEB	f
216	Marine Mammal Bio	EEB	f
263	Compar Vert Anatomy	EEB	f
110	Narrative	ENG	t
205	Rhetoric	ENG	t
235	The Graphic Novel	ENG	t
200	Environmental Change	ENV	f
320	Natl & Intl Env Policy	ENV	f
220	Mediaeval Society	HIS	t
296	Black Freedom	HIS	t
222	X	CSC	f
100	Y	CSC	

```
(19 rows)
```

```
-- Which have been offered?
```

```
csc343h-dianeh=> select * from course where exists
```

```
csc343h-dianeh-> (select * from offering where
```

```
csc343h-dianeh(> offering.dept = course.dept
```

```
csc343h-dianeh(> and offering.cnum = course.cnum);
```

cnum	name	dept	breadth
343	Intro to Databases	CSC	f
207	Software Design	CSC	f
148	Intro to Comp Sci	CSC	f
263	Data Struct & Anal	CSC	f
320	Intro to Visual Computing	CSC	f
200	Intro Archaeology	ANT	t
203	Human Biol & Evol	ANT	f
150	Organisms in Environ	EEB	f
216	Marine Mammal Bio	EEB	f
263	Compar Vert Anatomy	EEB	f
110	Narrative	ENG	t
205	Rhetoric	ENG	t
235	The Graphic Novel	ENG	t
200	Environmental Change	ENV	f
320	Natl & Intl Env Policy	ENV	f
220	Mediaeval Society	HIS	t
296	Black Freedom	HIS	t

```
(17 rows)
```

```
-- Which have never been offered?
```

```
csc343h-dianeh=> select * from course where not exists
```

```
csc343h-dianeh-> (select * from offering where
```

```
csc343h-dianeh(> offering.dept = course.dept
csc343h-dianeh(> and offering.cnum = course.cnum);
  cnum |                name                | dept | breadth
-----+-----+-----+-----
    222 | COBOL programming                  | CSC  | f
    100 | CSC for Future Prime Ministers     | CSC  |
(2 rows)
```

```
-- Let's try deleting all the CSC courses. Two of them
-- won't violate any foreign-key constraints, because they were
-- never offered, so could be safely deleted.
-- The others all will violate a foreign-key constraint:
-- offerings will no longer have a course tuple
-- to refer to. No reaction policy was specified in table
-- Offering, so it defaults to reject.
csc343h-dianeh=> delete from course where dept = 'CSC';
ERROR: update or delete on table "course" violates foreign key constraint "offering_cnum_fkey" on
table "offering"
DETAIL: Key (cnum, dept)=(343, CSC) is still referenced from table "offering".
```

```
-- Okay, so the DBMS refused to remove course csc343. What about
-- the others? The courses that were never offered could have been
-- safely removed.
csc343h-dianeh=> select * from course where not
exists (select * from offering where offering.dept = course.dept
and offering.cnum = course.cnum);
  cnum | name | dept | breadth
-----+-----+-----+-----
    222 | X    | CSC  | f
    100 | Y    | CSC  |
(2 rows)
```

```
-- But they weren't. The others, of course, could not be removed.
-- So the courses table is unchanged.
```

```
csc343h-dianeh=> select * from course;
  cnum |                name                | dept | breadth
-----+-----+-----+-----
    343 | Intro to Databases                  | CSC  | f
    207 | Software Design                    | CSC  | f
    148 | Intro to Comp Sci                   | CSC  | f
    263 | Data Struct & Anal                  | CSC  | f
    320 | Intro to Visual Computing           | CSC  | f
    200 | Intro Archaeology                   | ANT  | t
    203 | Human Biol & Evol                   | ANT  | f
    150 | Organisms in Environ                | EEB  | f
    216 | Marine Mammal Bio                   | EEB  | f
    263 | Compar Vert Anatomy                 | EEB  | f
    110 | Narrative                           | ENG  | t
    205 | Rhetoric                           | ENG  | t
    235 | The Graphic Novel                   | ENG  | t
    200 | Environmental Change                | ENV  | f
    320 | Natl & Intl Env Policy              | ENV  | f
    220 | Mediaeval Society                  | HIS  | t
    296 | Black Freedom                       | HIS  | t
    222 | X                                    | CSC  | f
    100 | Y                                    | CSC  |
(19 rows)
```

```
-- I would NOT assume that other DBMSs do the same thing in this circumstance
```