*-- HAVING to the rescue*

**SELECT** *EXTRACT*(**YEAR FROM** proc\_start\_date) **AS year**,

*COUNT*(proc\_id) **AS** conf\_count

**FROM** proceedings

**GROUP BY year**

**HAVING** conf\_count >= 10;

*-- what about no group by?*

**SELECT**

*COUNT*(proc\_id) **AS** conf\_count

**FROM** proceedings

**HAVING** conf\_count >= 10;

*-- functionally dependent columns*

**SELECT** proc\_id, proc\_title, proc\_start\_date, *COUNT*(article\_id) **AS** article\_count

**FROM** proceedings

**JOIN** article a **USING** (proc\_id)

**GROUP BY** proc\_id

**ORDER BY** article\_count **DESC**

**LIMIT** 10;

*-- not functionally dependent columns*

**SELECT** proc\_id, proc\_title, proc\_start\_date, *COUNT*(article\_id) **AS** article\_count

**FROM** proceedings

**JOIN** article a **USING** (proc\_id)

**GROUP BY** proc\_id

**ORDER BY** article\_count **DESC**

**LIMIT** 10;

*-- WHERE and HAVING*

**SELECT** *EXTRACT*(**YEAR FROM** proc\_start\_date) **AS year**,

*COUNT*(proc\_id) **AS** conf\_count

**FROM** proceedings

**WHERE** proc\_start\_date >= **'1990-01-01'**

**GROUP BY year**

**HAVING** conf\_count > 15

**ORDER BY year**;

*-- lets play with pets*

**USE** people;

*-- How many pets does each person have?*

**SELECT pers\_id**, **pers\_name**, *COUNT*(pet\_id) **AS** npets

**FROM** person

**JOIN** pet **ON** person.**pers\_id** = pet.owner\_id

**GROUP BY pers\_id**;

*-- B isn't there? But they have 0 pets*

**SELECT pers\_id**, **pers\_name**, *COUNT*(pet\_id) **AS** npets

**FROM** person

**LEFT OUTER JOIN** pet **ON** person.**pers\_id** = pet.owner\_id

**GROUP BY pers\_id**;