



Extended Aggregation (Cont.)

- Multiple rollups and cubes can be used in a single group by clause
 - Each generates set of group by lists, cross product of sets gives overall set of group by lists

- E.g.,

```
select item_name, color, size, sum(number)  
from sales  
group by rollup(item_name), rollup(color, size)
```

generates the groupings

$$\{item_name, ()\} \times \{(color, size), (color), ()\}$$
$$= \{ (item_name, color, size), (item_name, color), (item_name), (color, size), (color), () \}$$

- ```
select item_name, color, clothes_size, sum(quantity)
from sales
group by grouping sets ((color, clothes_size),
 (clothes_size, item_name));
```