



# Extended Aggregation (Cont.)

- The **rollup** construct generates union on every prefix of specified list of attributes
- ```
select item_name, color, size, sum(number)  
from sales  
group by rollup(item_name, color, size)
```

Generates union of four groupings:

$\{ (item\_name, color, size), (item\_name, color), (item\_name), ( ) \}$

- Rollup can be used to generate aggregates at multiple levels of a hierarchy.
- E.g., suppose table *itemcategory*(*item\_name*, *category*) gives the category of each item. Then

```
select category, item_name, sum(number)  
from sales, itemcategory  
where sales.item_name = itemcategory.item_name  
group by rollup(category, item_name)
```

would give a hierarchical summary by *item\_name* and by *category*.