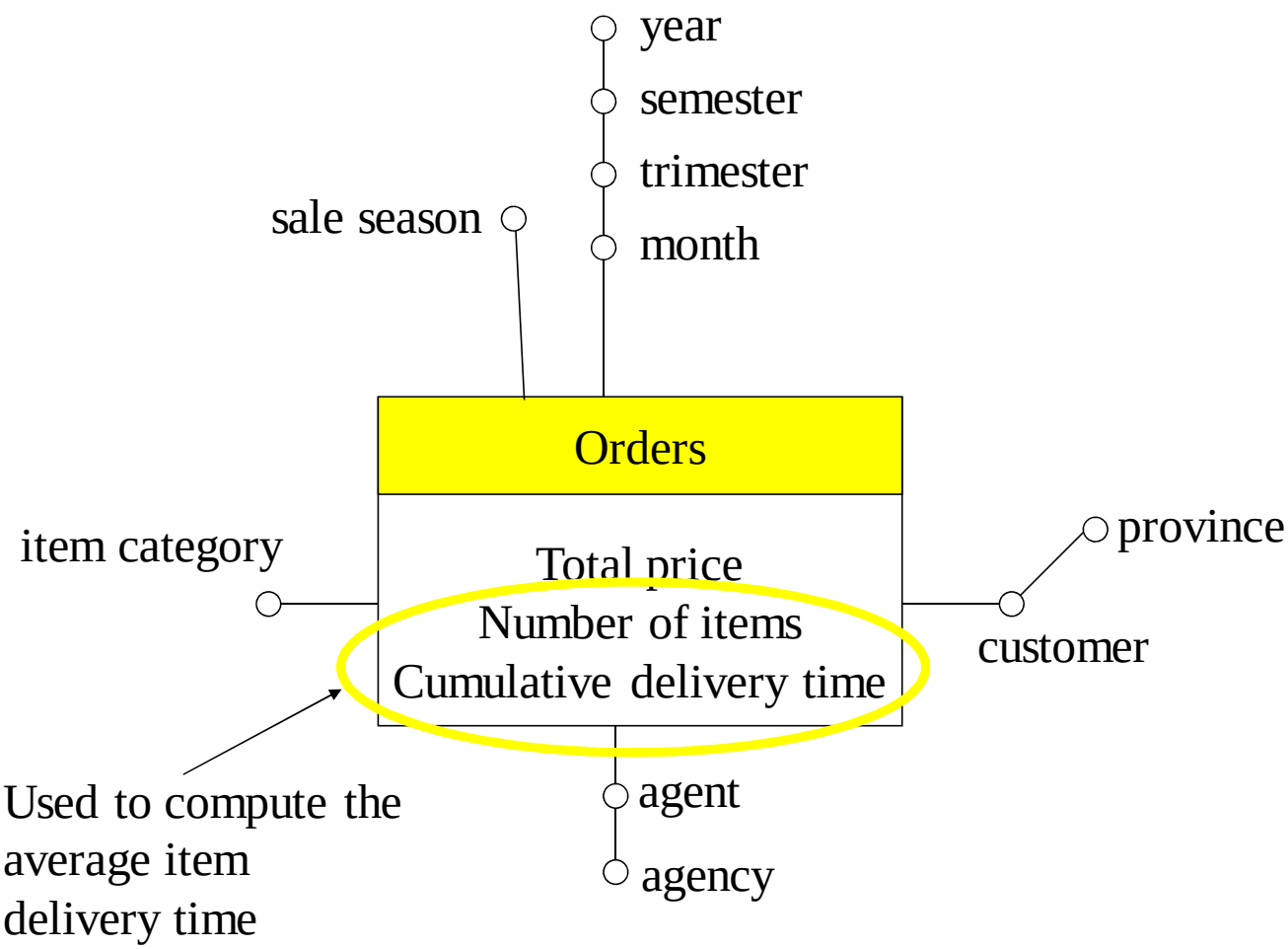
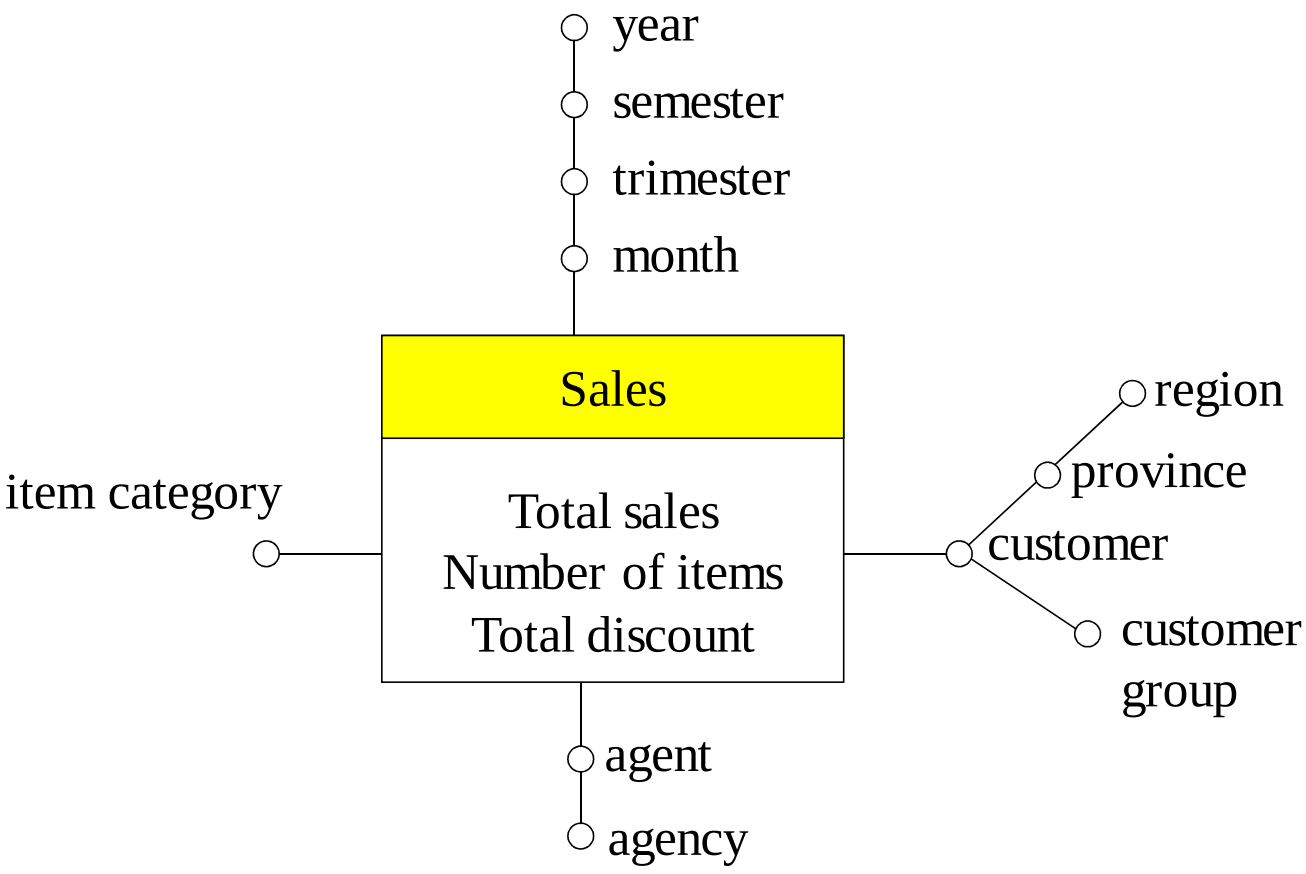

year
semester
trimester
month
sale season
Orders
item category
Total price
Number of items
Cumulative delivery time
province
customer
Used to compute the average item delivery time
agent
agency


year
semester
trimester
month
Sales
item category
Total sales
Number of items
Total discount
region
province
customer
customer group
agent
agency

Q1-2-3

```
SELECT
        ST.Trimester, ST.Semester, ST.Year, IC.Category, C.Province, C.Region, SUM(Amount)
FROM
        SALES S, SALE_TIME ST, ITEM_CATEGORY IC, CUSTOMERS C
WHERE
        S.CodST = ST.CodST AND S.CodC = C.CodC AND S.CodIC = IC.CodIC
GROUP BY
        ST.Trimester, ST.Semester, ST.Year, IC.Category, C.Province, C.Region;
```

Maximum cardinality of the materialized view:

- 4 trimesters x 10 item categories x 100 provinces ≈ 4000 << 12 x 10^6 → benefit

Q4

```
SELECT
        IC.Category, TO.SaleSeason, C.Province, SUM(Price)
FROM
        ORDERS O, ITEM_CATEGORY IC, ORDER_TIME OT, CUSTOMERS C
WHERE
        O.CodIC = IC.CodIC AND O.CodOT = OT.CodOT AND O.CodC = C.CodC
GROUP BY
        IC.Category, OT.SaleSeason, C.Province;
```

Maximum cardinality of the materialized view:

- 10 item categories x 2 sale seasons x 100 provinces ≈ 2000 << 360 x 10^6 → benefit

Q5

```
SELECT
        OT.Month,
        OT.Year,
        IC.Category,
        C.Region,
        SUM(DeliveryTime)/SUM(NumberOfItems) as AVERAGE_DELIVERY_TIME
FROM
        ORDERS O,
        ORDER_TIME OT,
        ITEM_CATEGORY IC,
        CUSTOMERS C
WHERE
        O.CodOT = OT.CodOT AND
        O.CodIC = IC.CodIC AND
        O.CodC = C.CodC
GROUP BY
        OT.Month, OT.Year, IC.Category, C.Region;
```

Maximum cardinality of the materialized view:

- 1 year x 12 months x 10 item categories x 30 regions ≈ 3000 << 360 x 10^6 → benefit