

# Working with relationships

INTERMEDIATE DATA MODELING IN POWER BI

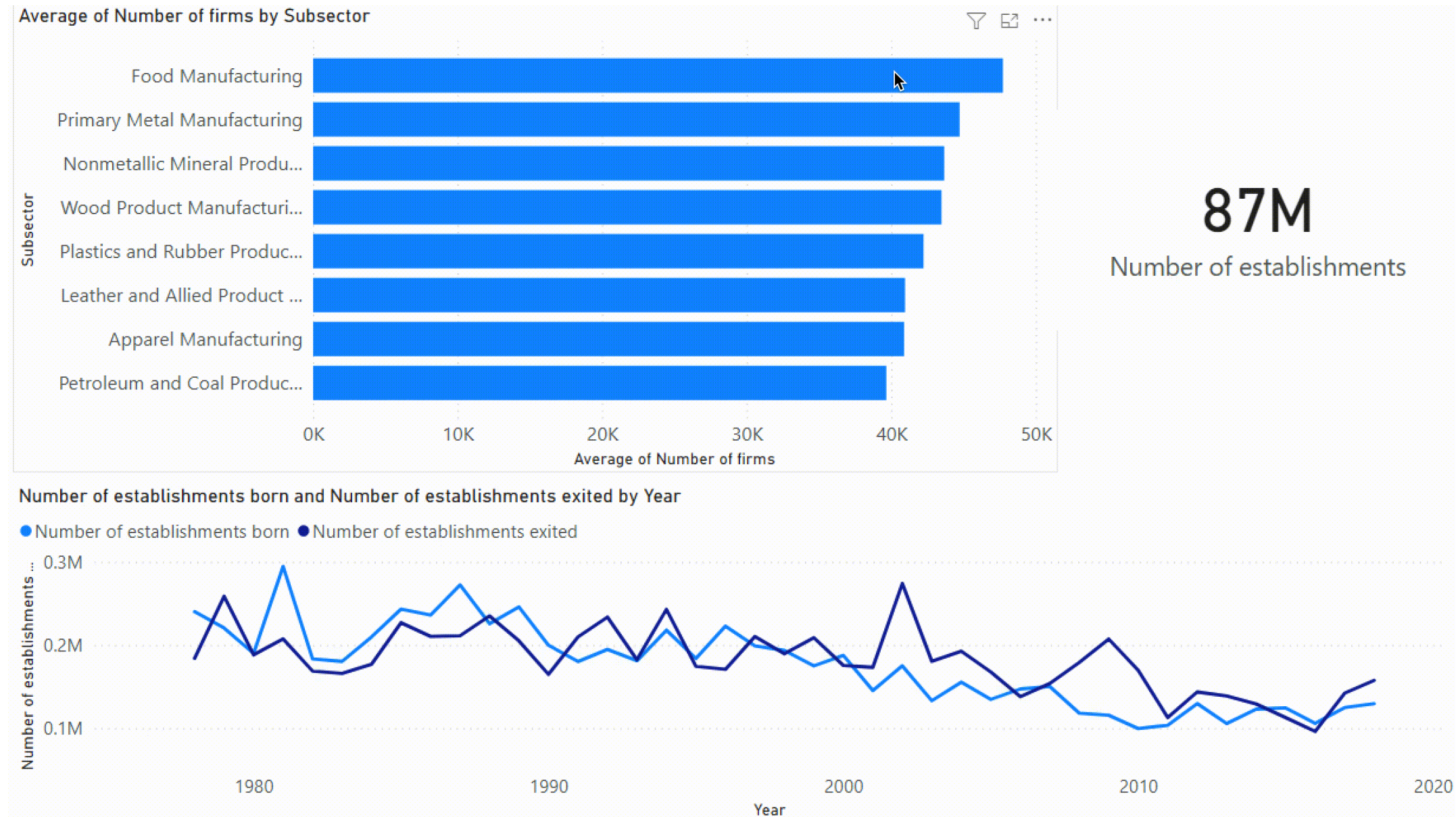


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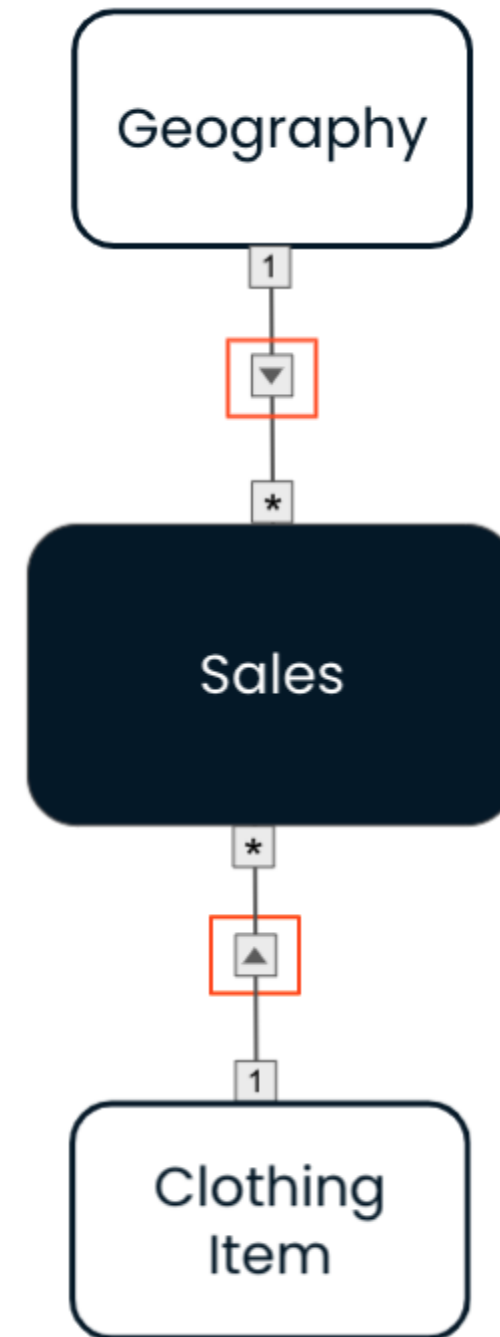
# Cross filtering

**Cross-filtering:** Selecting a value in one visual narrows down visible data in other visuals



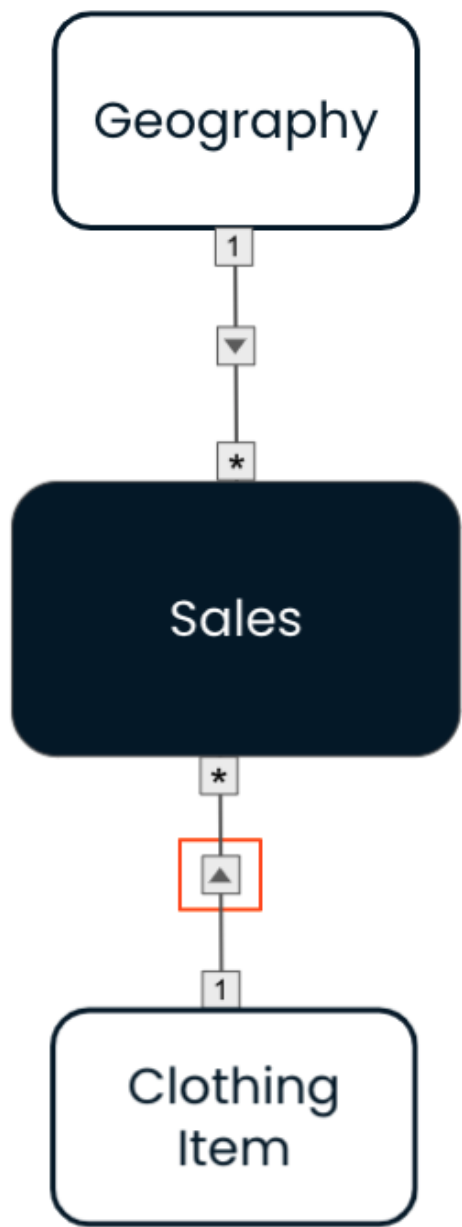
# Filter direction

- All relationships have a cross filter direction
- Determines the direction that filters will propagate
- Example:
  - Geography -> Sales
  - Clothing Item -> Sales
- From Dimension to Fact



# Filter direction

Data model:



Dimension - Clothing Item

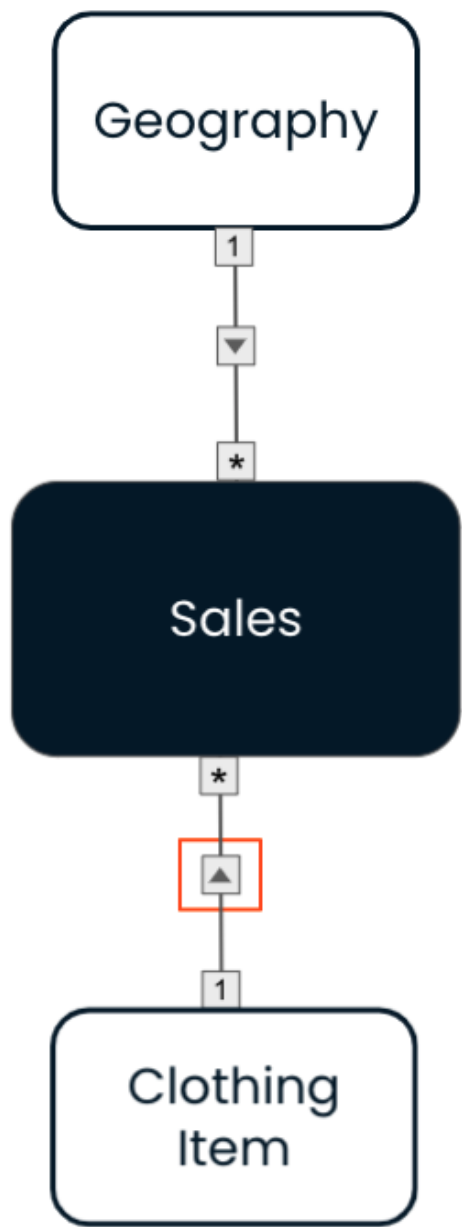
Product Id	Product
C1	T-shirt
C2	Socks
C3	Sweater

Fact - Sales

Id	Units	Amount	Product Id
001	3	60	C2
002	2	10	C1
003	1	70	C3
004	1	50	C3
005	5	50	C3

# Filter direction

Data model:



Dimension – Clothing Item

Product Id	Product
C1	T-shirt
C2	Socks
C3	Sweater



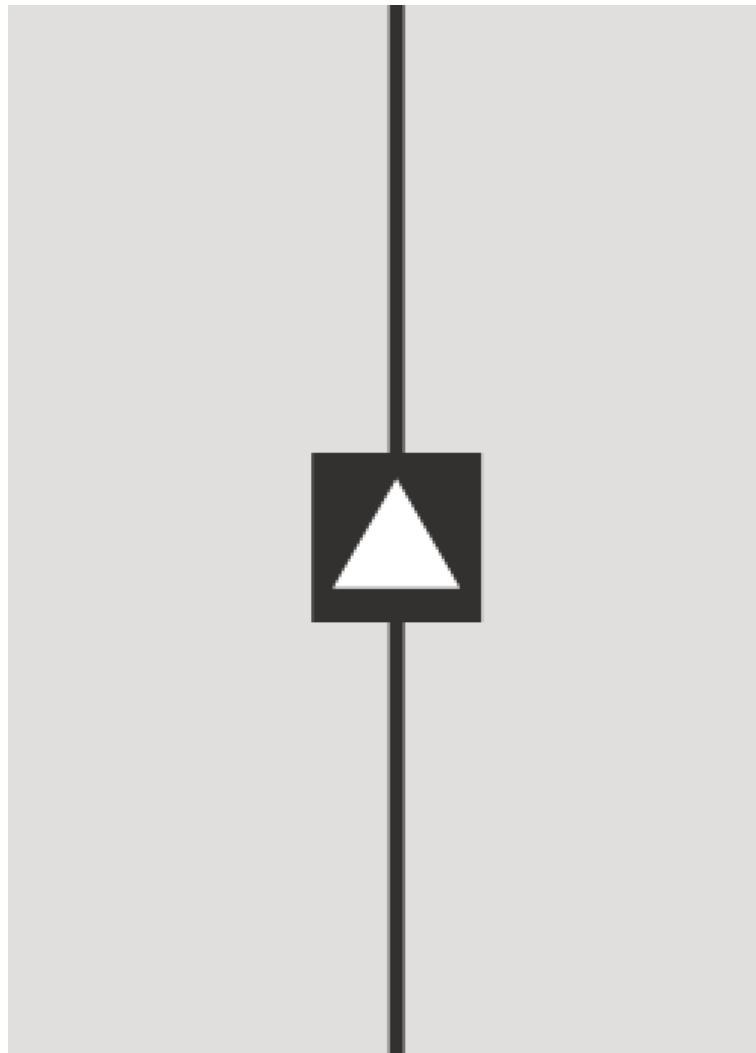
Fact – Sales

Id	Units	Amount	Product Id
001	3	60	C2
002	2	10	C1
003	1	70	C3
004	1	50	C3
005	5	50	C3

# Filter direction options

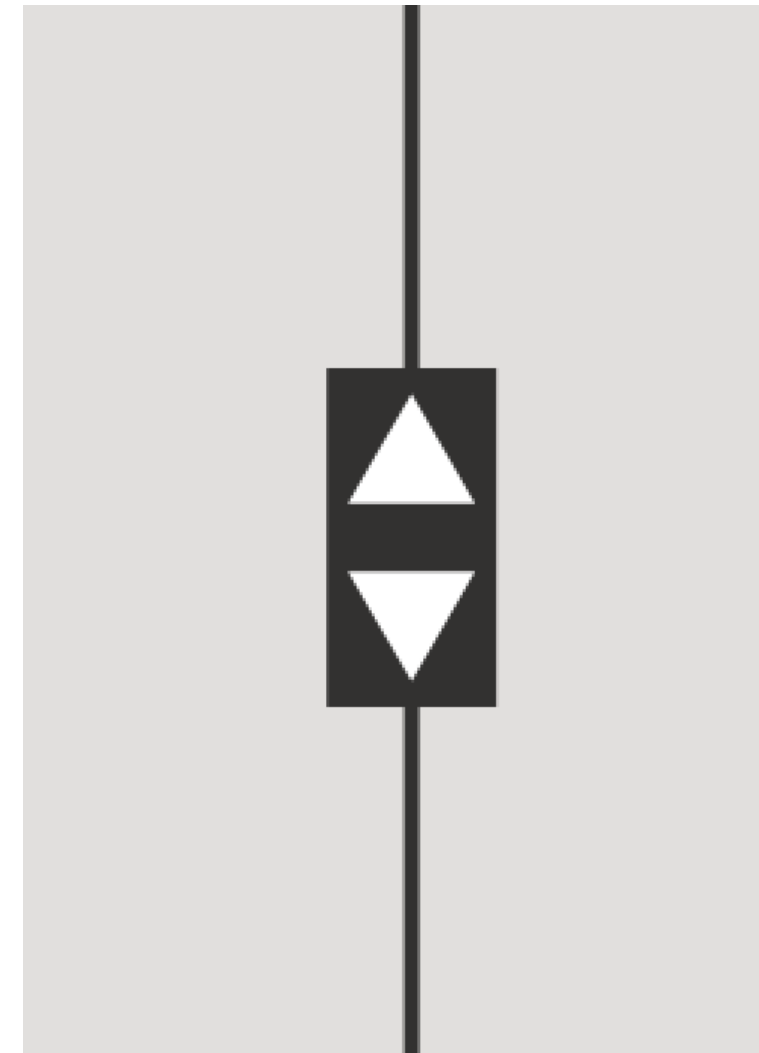
## Single direction

Filter in one direction



## Bi-directional

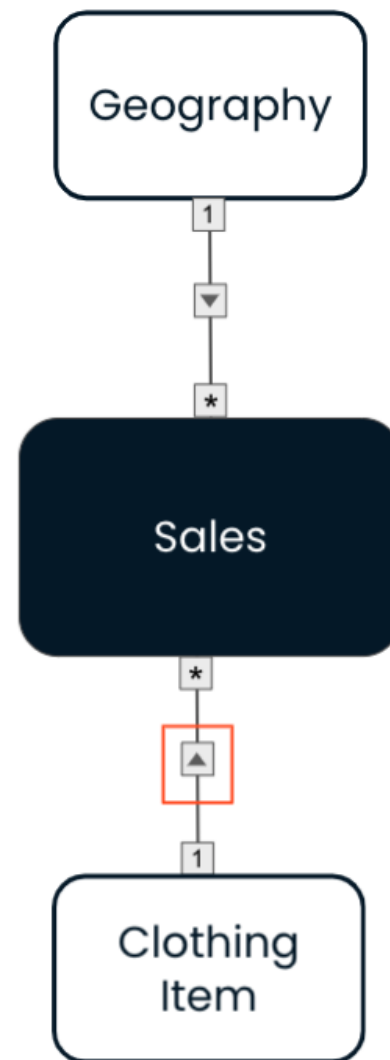
Filter in both directions



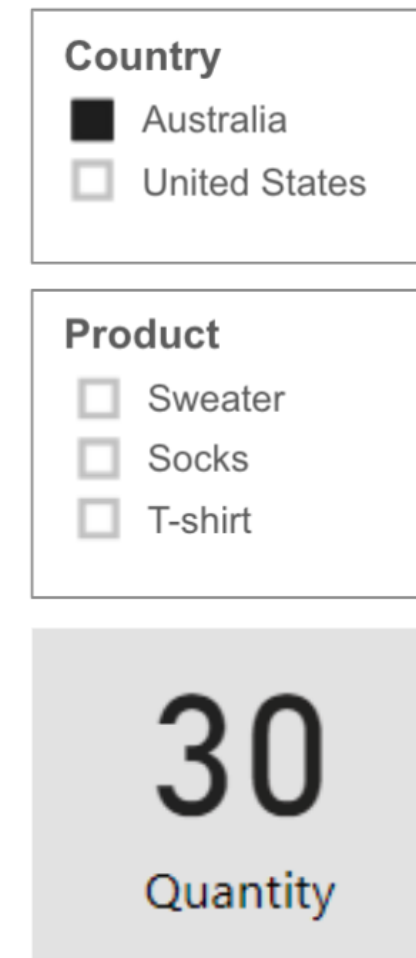
# Bi-directional filtering: use case

Show only relevant slicer entries

Data model:



Report view:



# Bi-directional filtering: use case

Only sweaters were sold in Australia

Fact – Sales

<b>Id</b>	<b>Units</b>	<b>Amount</b>	<b>Product Id</b>	<b>Country Id</b>
001	3	60	C2	US
002	2	10	C1	US
003	1	70	C3	AU
004	1	50	C3	AU
005	5	50	C3	AU

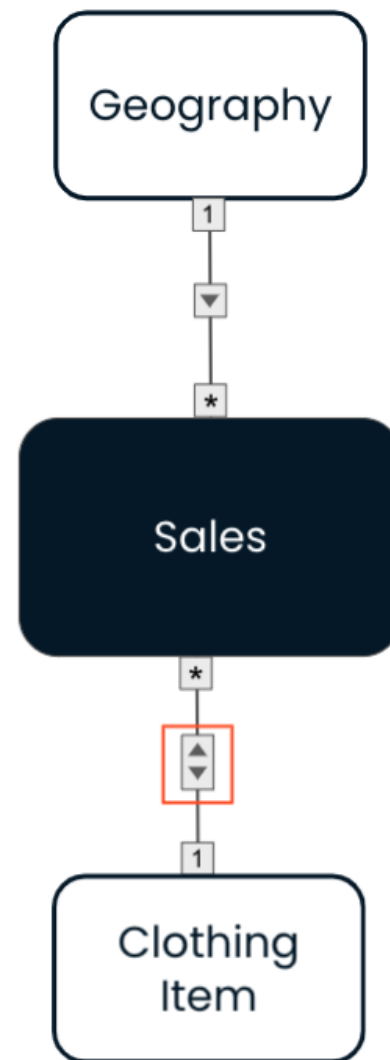
\*Product Id: C3 = Sweater, Country Id: AU = Australia



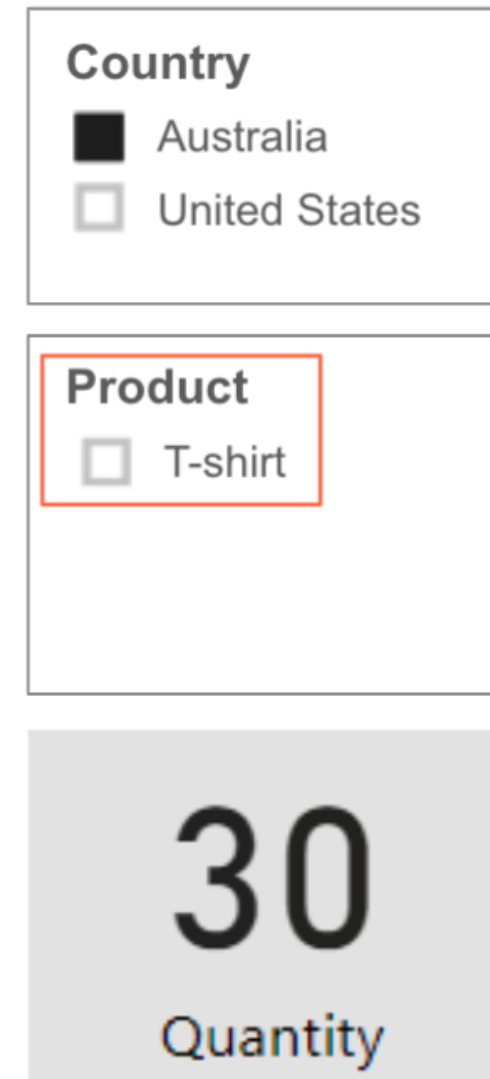
# Bi-directional filtering: use case

Show only relevant slicer entries

Data model:

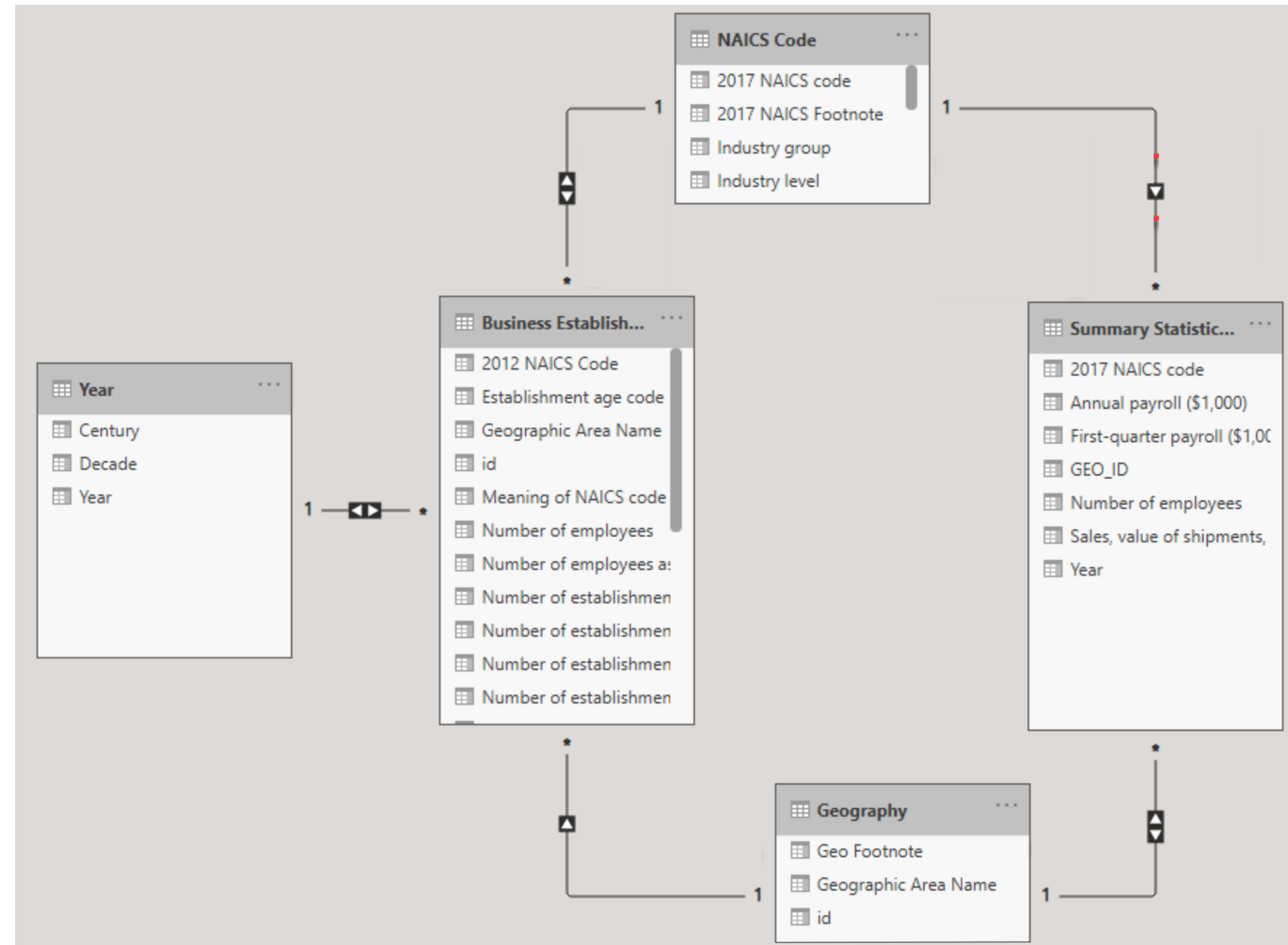


Report view:



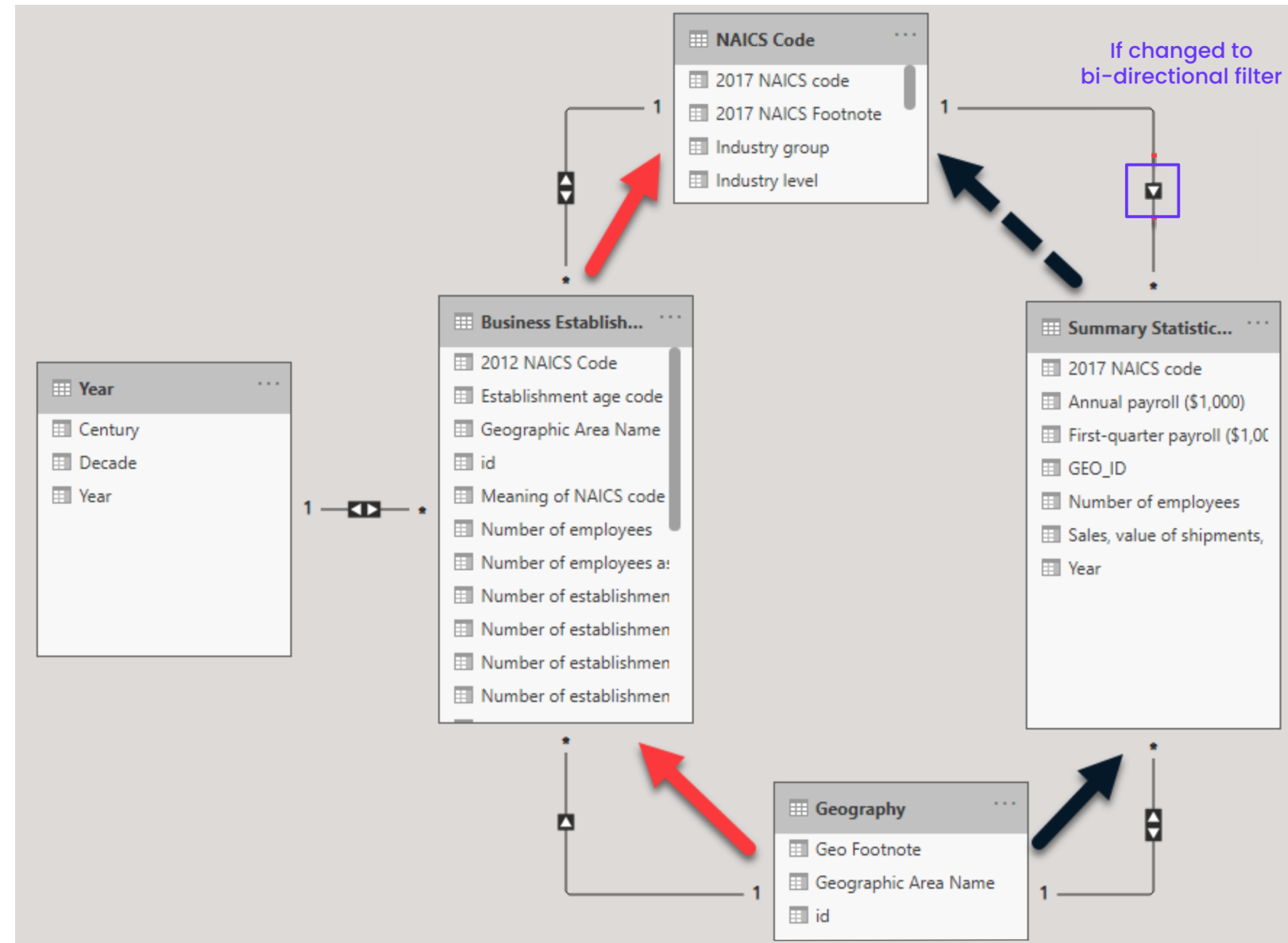
# Bi-directional filtering and paths

Bi-directional filters cannot allow for two separate paths between two tables



# Bi-directional filtering and paths

Bi-directional filters cannot allow for two separate paths between two tables



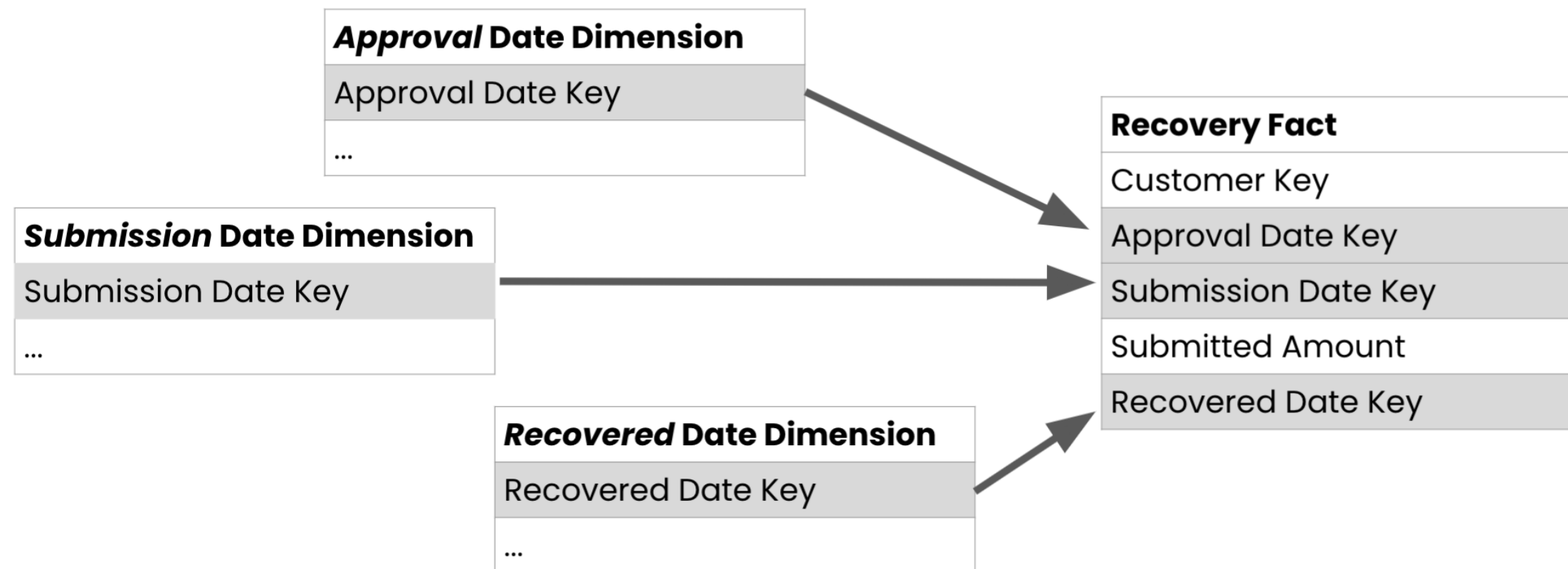
# Role-playing dimensions

- Sometimes we need to create multiple relationships between tables



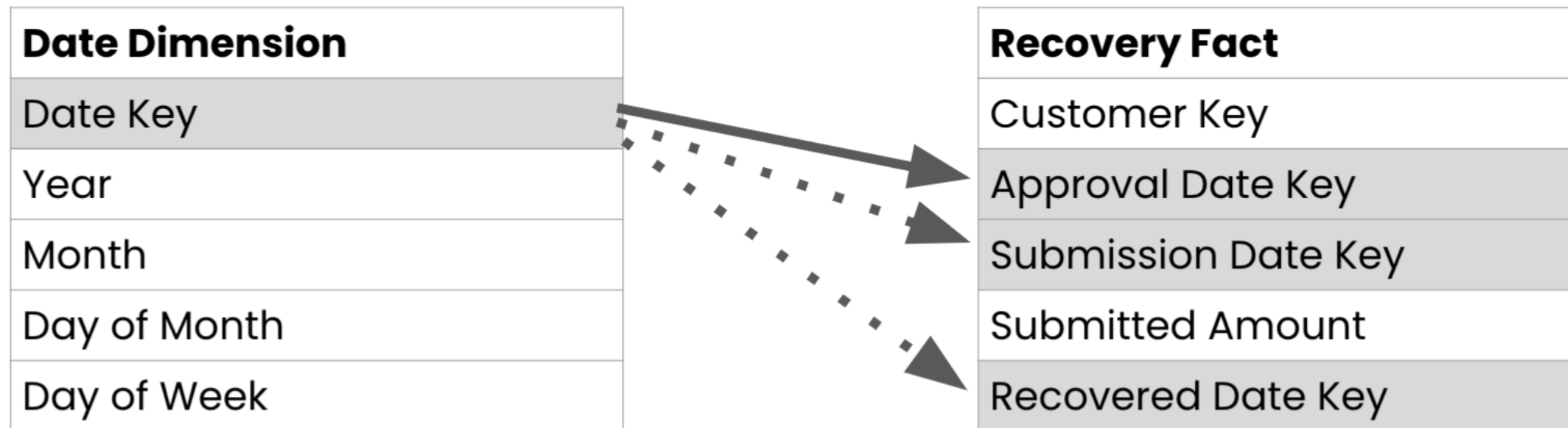
# Role-playing dimensions

- Kimball model
- **Role-playing dimension:**
  - Dimension that can filter related facts differently
- Typically implemented as views of the Date dimension



# Role-playing dimensions in Power BI

- Create multiple relationships on a dimension, but only one is active



- Use `USERELATIONSHIP()` in DAX to specify which relationship to use:

```
Measure Name = CALCULATE(<Measurement function>,  
                        USERELATIONSHIP(<Dimension Key Column>, <Fact Key Column>)
```

# Let's practice!

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# Cross-filtering and role-playing Dimensions

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# Let's practice!

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