An Introduction to [Sets]() and [LOD]()

Sleeper Chapter 15, 16

Agenda

How to create a Set: fixed vs dynamic.

Five ways to use a set:

- As a filter
- To encode marks
- In calculated fields
- As dimension fields
- Within a custom hierarchy

An Introduction to Level of Detail Expressions.

Sets are custom fields that **define a subset of data** based on some conditions.

There are two types of sets: dynamic and fixed. The members of a dynamic set change when the underlying data changes.

How to Create a Set

Create a Bar Chart:

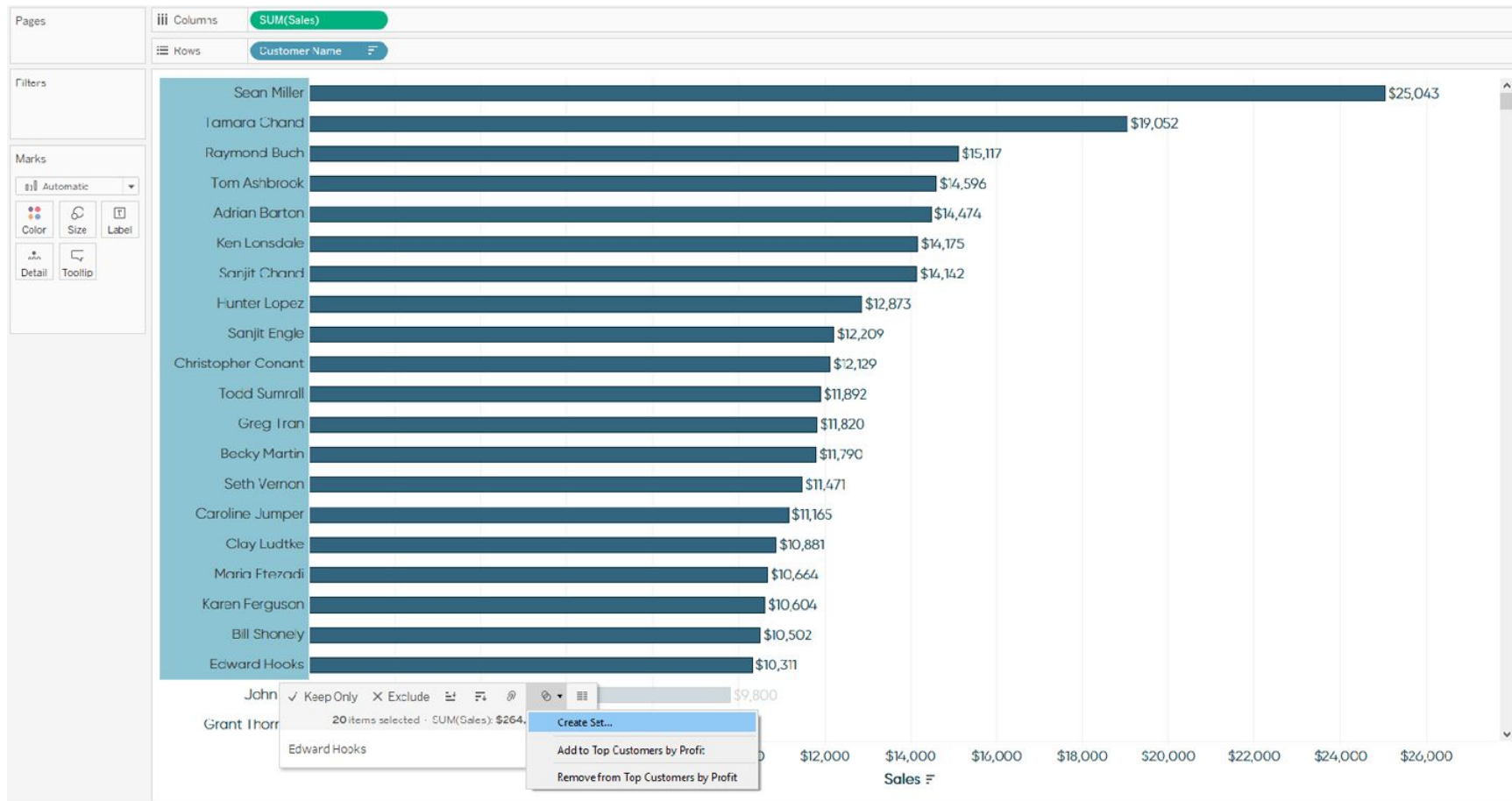- Columns: Sum(Sales)
- Rows: Customer Name

Option 1 - Fixed Set:

- Right-click dimension members on a view > click the Venn diagram icon **Create Set...** (See screenshot on the next page)
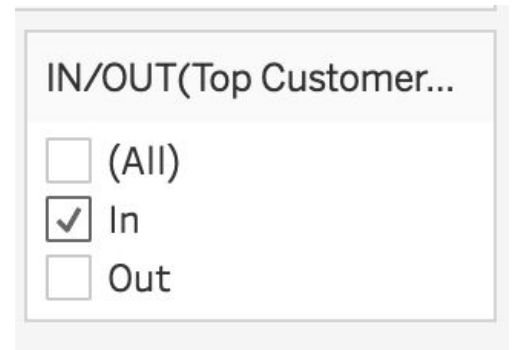
Option 2 - Either Fixed or Dynamic:

- Right-click the **Customer Name** dimension on the Dimensions area of the Data pane > **Create** > **Set...**

1. Using a Set as a Filter

A set can be used as a filter by right-clicking a set from the **Sets** area of the Data pane and choosing **Show Filter**.

IN/OUT(Top Customer...

☐ (All)
☑ In
☐ Out

2. A Set to Encode Marks

Create a scatterplot of Customer Profit Ratio by Quantity:

- Columns: Sum(Quantity)
- Rows: AGG(Profit Ratio)
- Detail Marks Card: Customer Name

To make it stand out, drag the Set **Top 20 Customers by Sale** to the **Color** Cards Mark.

Top customers on a scatterplot

You can encode marks on a view by a set.

In / Out of Top 20 Customers by Sales
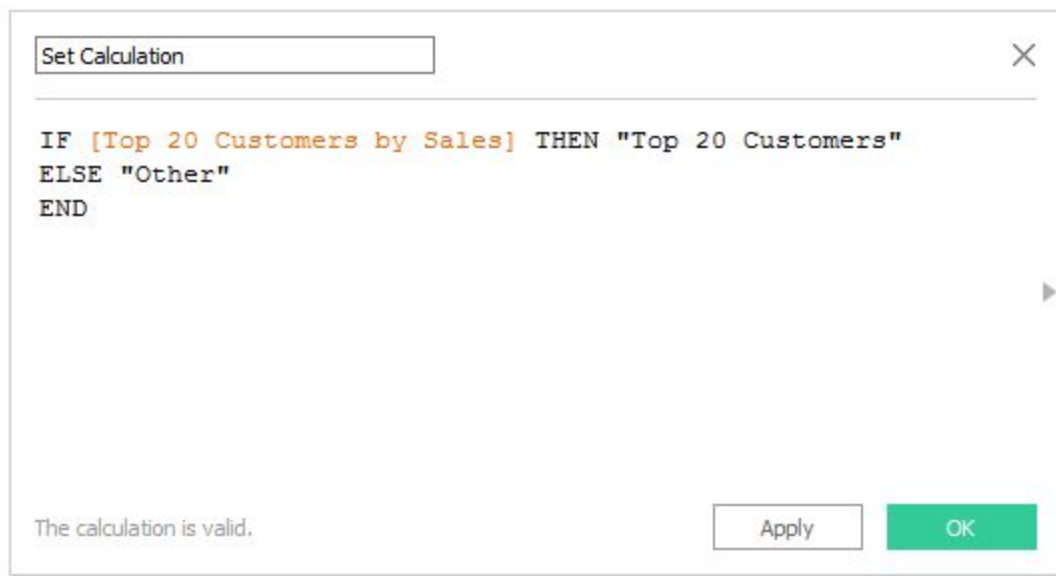- In
- Out
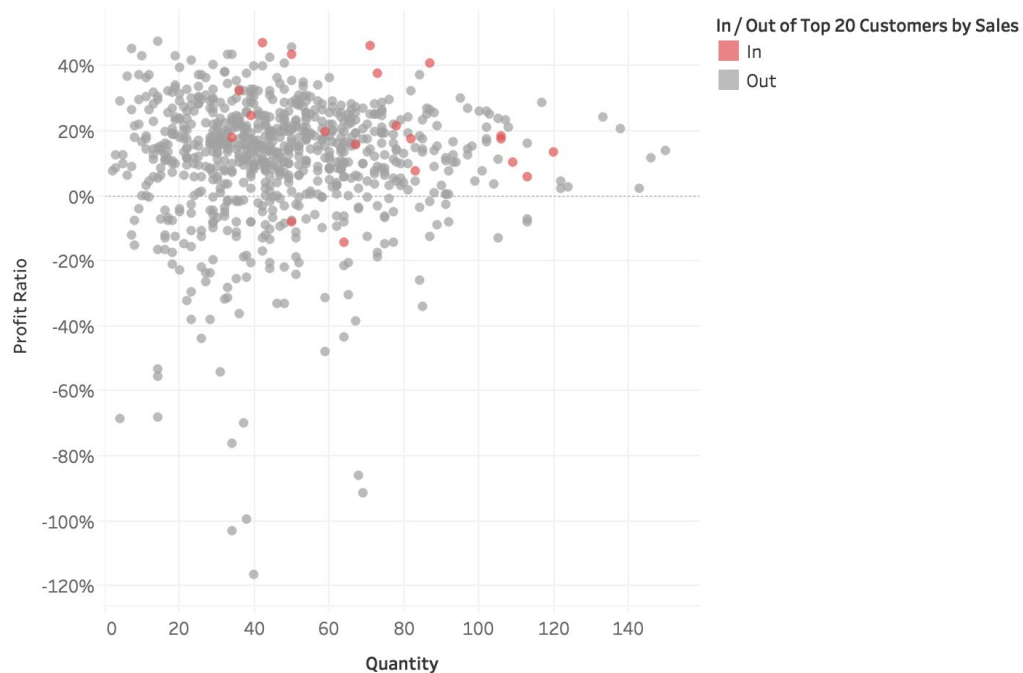
Sum of Quantity vs. Profit Ratio. Color shows details about In / Out of Top 20 Customers by Sales. Details are shown for Customer Name.

https://learning.oreilly.com/library/view/practical-tableau/9781491977309/ch15.html

3. Use Sets in Calculated Fields

You can treat dimension members differently based on whether or not they are in a set.

4. A Set Can Be Used Like Dimensions

Same Viz, drag the set from the Sets area of the Data pane to the Columns shelf:

- Columns: IN/OUT(Top 20 Customers) , Sum(Quantity)
- Rows: AGG(Profit Ratio)
- Detail Marks Card: Customer Name
- Color Marks Card: IN/OUT(Top 20 Customers)

In / Out of Top Customers

Sets can be used just like dimensions.
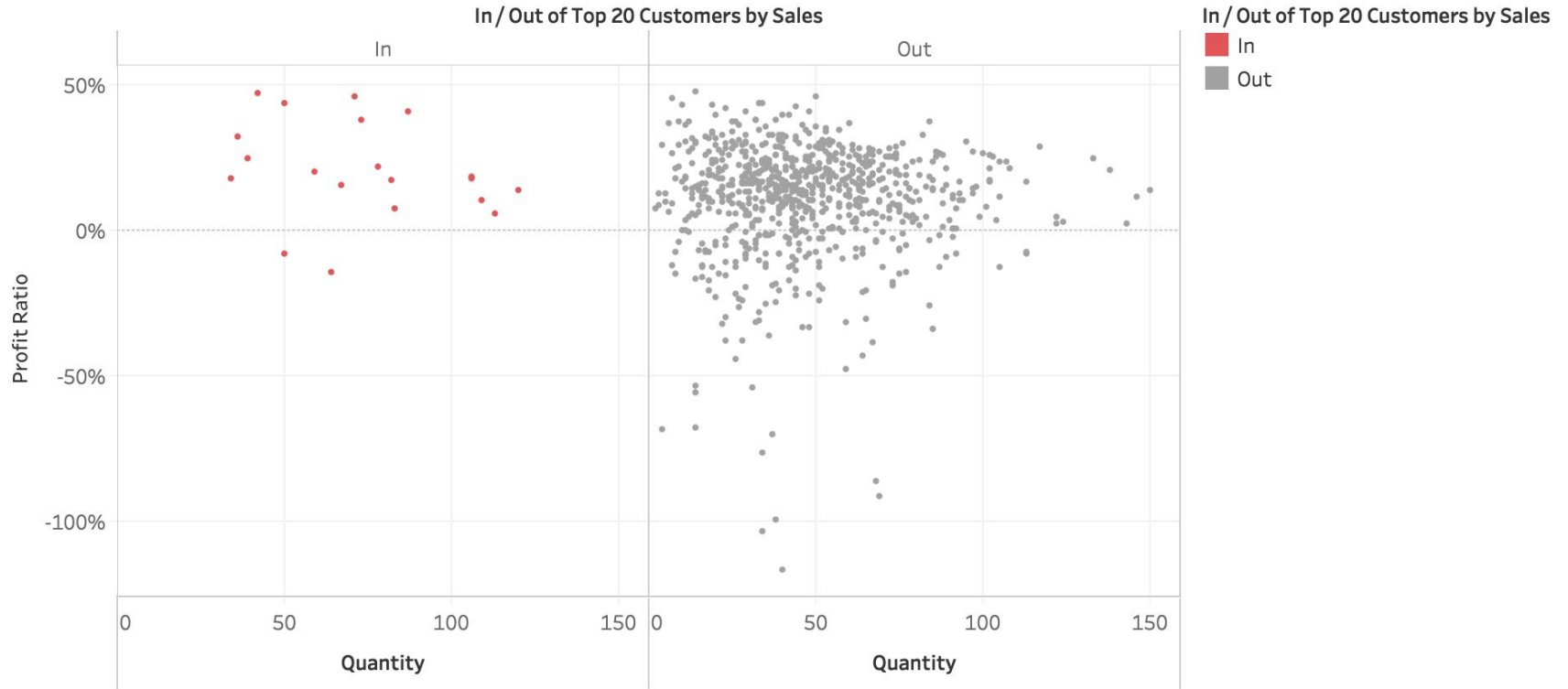
Sum of Quantity vs. Profit Ratio broken down by In / Out of Top 20 Customers by Sales. Color shows details about In / Out of Top 20 Customers by Sales. Details are shown for Customer Name. The view is filtered on In / Out of Top 20 Customers by Sales, which keeps Out and In.

https://learning.oreilly.com/library/view/practical-tableau/9781491977309/ch15.html

5. Use Sets Within Custom Hierarchy

Create a custom hierarchy by selecting the **Customer Name** and **Segment** dimensions, right-click, hover over **Hierarchy**, and choose **Create Hierarchy**.

Drag the **Top 20 Customers by Sales** set into the hierarchy:
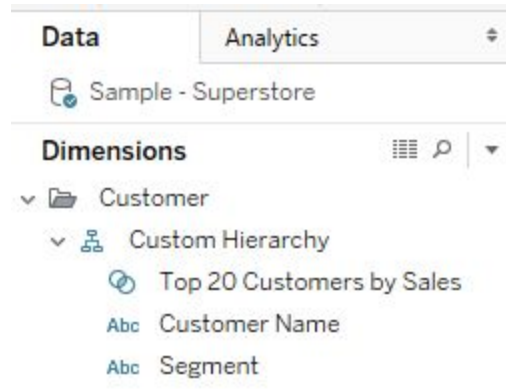
- Columns: Sum(Sales)
- Rows: IN/OUT(Top 20 Customers)

Custom Hierarchy

Allows the ability to drill down...

In / Out of T..	Customer Name	Segment	
In	Adrian Barton	Consumer	
	Becky Martin	Consumer	
	Bill Shonely	Corporate	
	Caroline Jumper	Consumer	
	Christopher Conant	Consumer	
	Clay Ludtke	Consumer	
	Edward Hooks	Corporate	
	Greg Tran	Consumer	
	Hunter Lopez	Consumer	
	Karen Ferguson	Home Office	
	Ken Lonsdale	Consumer	
	Maria Etezadi	Home Office	

Level of Detail (**LOD**) Expression allows you to change the most granular place where an analysis takes place.

Sales by Category / Sub-Category

Start by creating a bar chart:

- Columns: Sum(Sales)
- Rows: Category

Sales by Category and Sub-Category

Category	Sub-Catego..	Sales
Furniture	Bookcases	
	Chairs	
	Furnishings	
	Tables	
Office Supplies	Appliances	
	Art	
	Binders	
	Envelopes	
	Fasteners	
	Labels	
	Paper	
	Storage	
	Supplies	
Technology	Accessories	
	Copiers	
	Machines	
	Phones	
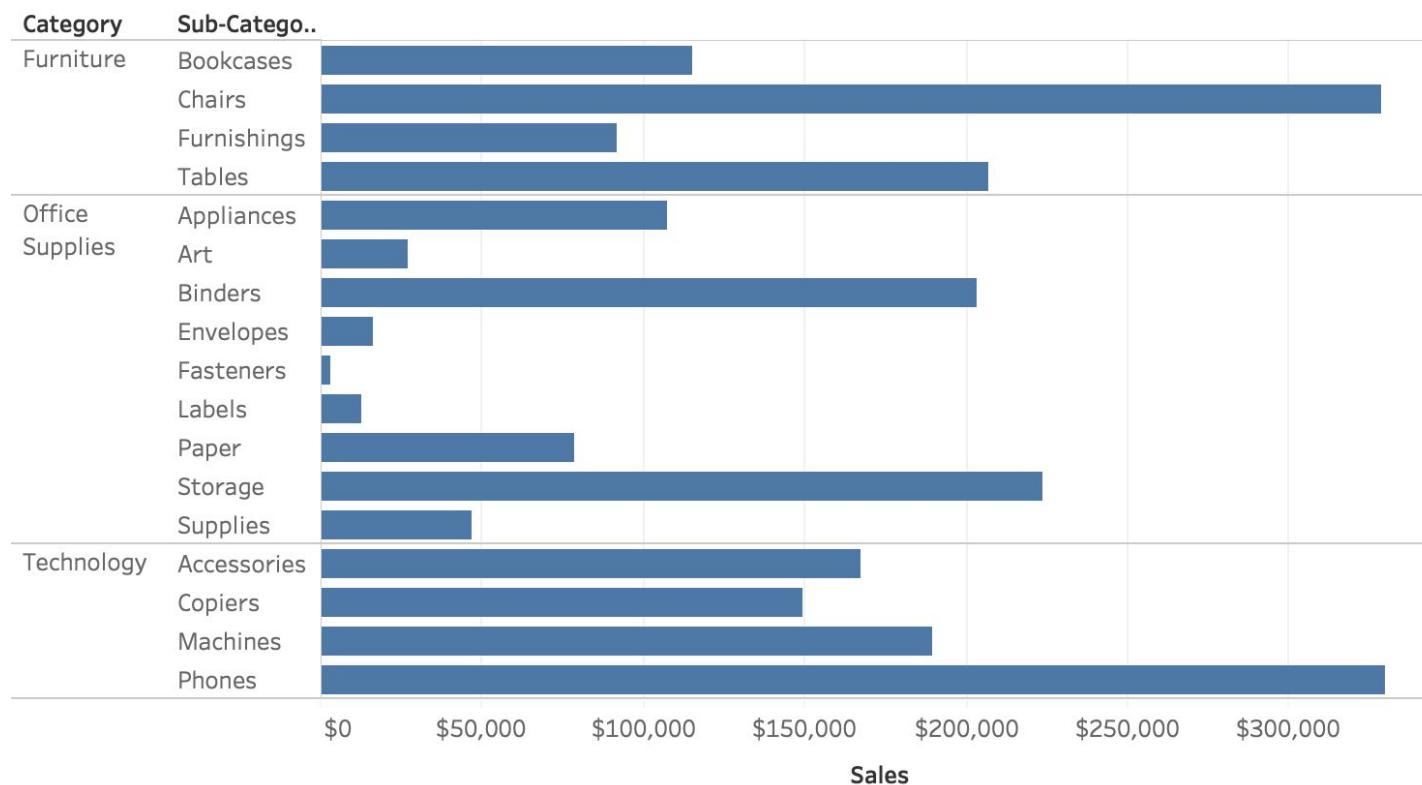
Sum of Sales for each Sub-Category broken down by Category.

Create a calculated field with the following formula:

{EXCLUDE [Sub-Category]: Sum([Sales])}

Name it '***Sales Excluding Sub-Category***' & drag it to the Column Shelf:

- Columns: Sum(Sales), ATTR(Sales Excluding Sub-Category)
- Rows: Category

LOD Expression Keywords

FIXED   fix the measure at a certain level of detail

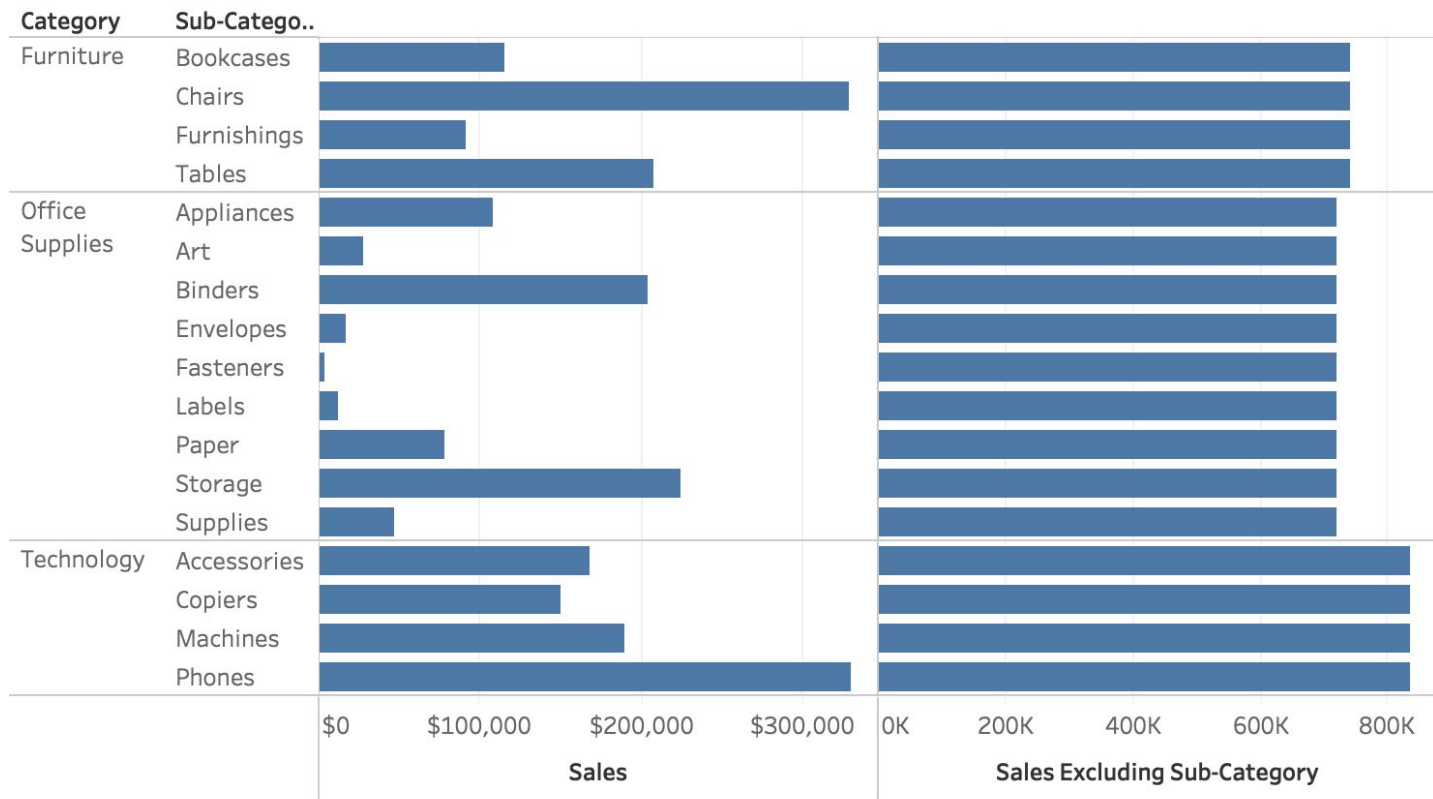**INCLUDE**   include dimensions that are **not** on the view

EXCLUDE   exclude dimensions that **are** on the view

Top 15 LOD expressions: https://www.tableau.com/about/blog/LOD-expressions

Excluding Sub-Category

Category	Sub-Catego..	Sales	Sales Excluding Sub-Category
Furniture	Bookcases		
	Chairs		
	Furnishings		
	Tables		
Office Supplies	Appliances		
	Art		
	Binders		
	Envelopes		
	Fasteners		
	Labels		
	Paper		
	Storage		
	Supplies		
Technology	Accessories		
	Copiers		
	Machines		
	Phones		

Sum of Sales and Sales Excluding Sub-Category as an attribute for each Sub-Category broken down by Category.

Two different levels of detail on one view.
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The contribution of each sub-category to its category:

Create yet another calculated field with the following formula:

Sum(Sales) / Sum([Sales Excluding Sub-Category])

Name it '***Sub-Category Contribution***' & drag it to the Column Shelf:

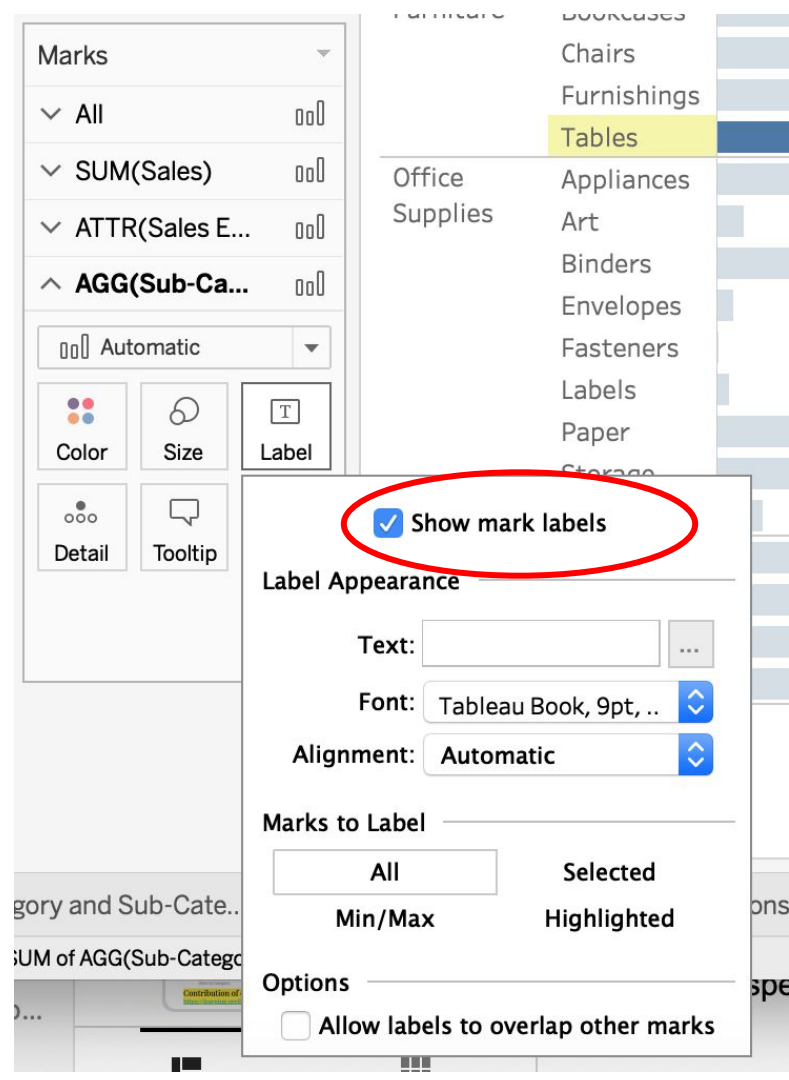- Columns: Sum(Sales), ATTR(Sales Excluding…, AGG(Sub-Category Cont…
- Rows: Category

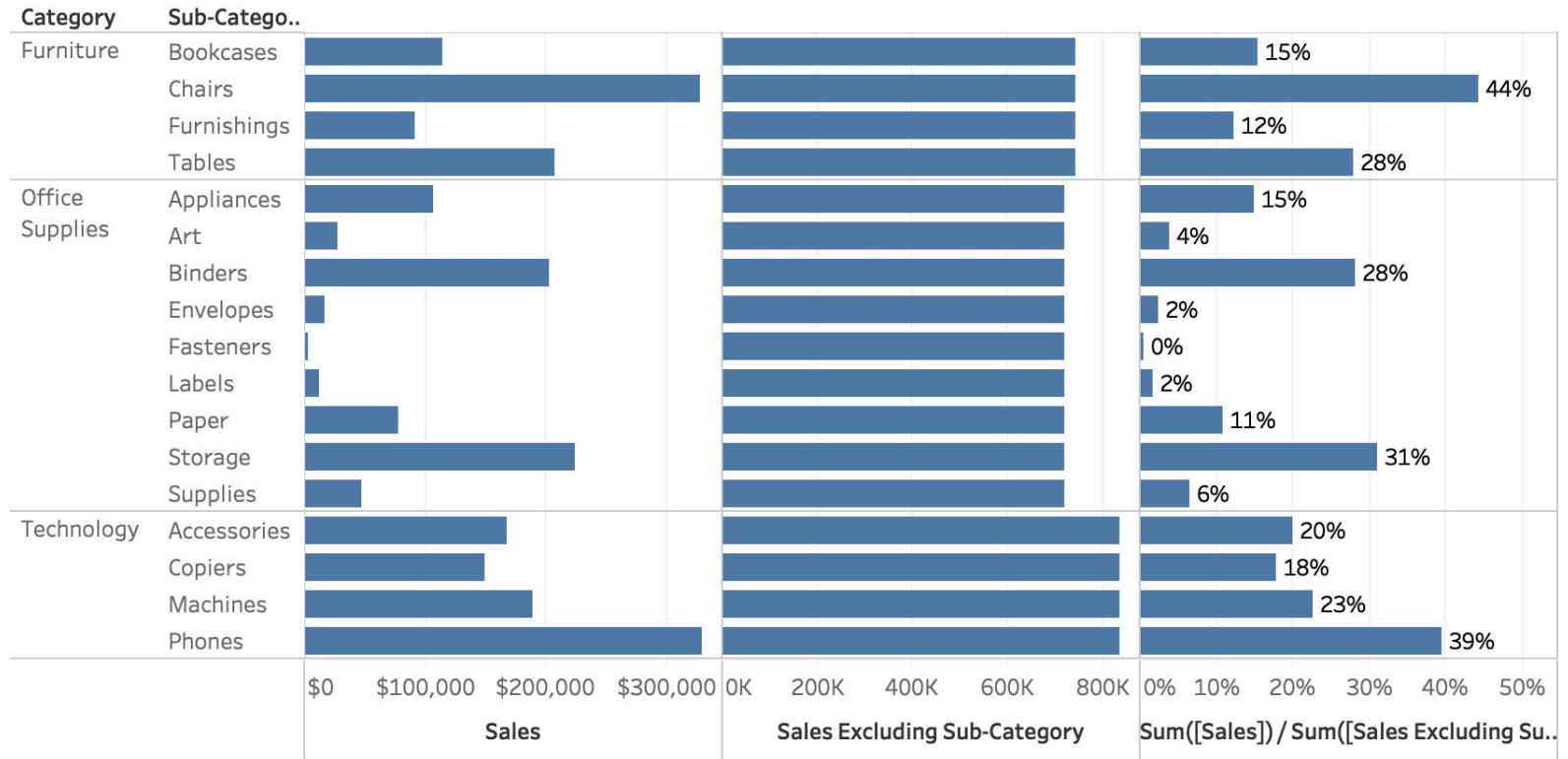# To configure % labels:

Display the % labels:

- Click on **Label** Marks Card for AGG(Sub-Category Contribution) and check the box **Show Mark Labels.**

Configure %:

- Right click on the last columns pill AGG(Sub-Category Contr... then select **Format** > **Pane** > **Default** > **Numbers** > **Percent.**

LOD Calculations

Category	Sub-Catego..	Sales	Sales Excluding Sub-Category	Sum([Sales]) / Sum([Sales Excluding Su..
Furniture	Bookcases			15%
	Chairs			44%
	Furnishings			12%
	Tables			28%
Office Supplies	Appliances			15%
	Art			4%
	Binders			28%
	Envelopes			2%
	Fasteners			0%
	Labels			2%
	Paper			11%
	Storage			31%
	Supplies			6%
Technology	Accessories			20%
	Copiers			18%
	Machines			23%
	Phones			39%

Sales axis: $0, $100,000, $200,000, $300,000
Sales Excluding Sub-Category axis: 0K, 200K, 400K, 600K, 800K
Sum([Sales]) / Sum([Sales Excluding Su.. axis: 0%, 10%, 20%, 30%, 40%, 50%

Sum of Sales, Sales Excluding Sub-Category as an attribute and Sum([Sales]) / Sum([Sales Excluding Sub-Category]) for each Sub-Category broken down by Category.

Contribution of each sub-category to its respective category.
https://learning.oreilly.com/library/view/practical-tableau/9781491977309/ch16.html