Welcome!

Today we will be whipping up some tasty data treats in the Tableau kitchen using our Data Blending tool.

This presentation is geared towards those who are already familiar with this technique but for those of you who are new, Data Blending is a concept created by Tableau to help people combine data sets from two different sources that may be partially related to each other.

This allows you to use data from two different data sources to combine into views.

Don’t worry if you don’t understand everything we cover today because this is a more advanced topic.

We will have a pre-recorded video of this presentation available afterwards so that you can review any concepts you didn’t understand and have more time to practice some of the more difficult problems you didn’t get a chance to solve.
Because of the limited amount of time I’ll be reviewing the basic concepts quickly so that we have enough time to answer and review some data blending related problems.

I also in advance want to acknowledge and thank some of our customers, such as Joe Mako, who’s contributions to the community forum have helped me compile some of the examples and solutions I show today.

(Switch slide)
Before we begin, I would like to share two quotes from the great Julia Child. (Read quotes)

“Learn from your mistakes, be fearless, and above all have fun”

“The only real stumbling block is fear of failure, In cooking you’ve got to have a what-the-hell attitude”

- Julia Child

Let’s keep in mind that as we explore Data Blending, we may become confused or make mistakes. It’s easy to become frustrated when that happens.

But if we adopt a bold adventurous attitude and are willing to try new things and experiment, we may discover that we can do things with our data that we never thought we could do. We may also have a lot of fun in the process.
So without further ado....... 

(Switch slide)
À la cuisine!

Let’s get started!

(Switch slide)
Let’s begin by discussing the required elements and steps to make Data Blending work.

(Switch slide)
All you need to begin Data Blending is a common dimension from your primary data source and a measure to analyze from your secondary data source.

Coarser or finer level dimensions may be added for additional flavor but their level of granularity will determine which source you may use them from.

(Switch slide)
A quick note about Level of Detail or Granularity.

Granularity can be thought of in the context of cuts of meat.

A higher level of granularity or coarser dimension is a larger group comprised of smaller parts. Or in other words, a single member matched with multiple members. For example, the Steer is itself at a much coarser level than its primal cuts (Rib, Chuck) which in turn are at a coarser level than its smaller cuts (T-bone steak, Rib Eye steak).

Conversely, a lower level of granularity or finer dimension makes up a much larger set of parts. Or in other words, multiple members match with a single member. For example, Short Ribs are at a finer level than the Chuck primal cut.
Here is an overview of the ingredients we will be using today.

(Read slide)
(Switch slide)
Here is the base recipe for making a tasty dish from Data Blending.

**Instructions**

1. Add Common Dimension
2. Add Measure
3. Add other Measures & Dimensions
4. Season
5. Serve hot or cold
Let's put our recipe to the test!

(Display Tableau Desktop)
Blending 101 Problem:

I have multiple data sources that contains data that is partially related to each other.

Using Restaurant Supplier and Food Outlet as our data sources, in 30 seconds or less let’s create a view.
I would like to see over time how Restaurant Supplier sales are doing (Date & Restaurant Supplier Sales).

If you’re not sure where to start, remember the Data Blending Recipe.

Blending 101 Solution:

We need to have a common field from the primary data source and a measure from the secondary data source.
Don’t forget to put the common field in your view first.
You can’t blend on a common measure, only a common dimension.

Note that blending relationships are bi-directional. Whatever data source the common field comes from becomes the primary data source.
Any data source, except for cubes which must always be the primary data source, can be primary or secondary.
You’ll also notice the blue check mark next to the primary data source and the orange check mark next to the secondary data source.

The common field in the secondary data source will be identified by a orange link symbol. Fields from the secondary data source in the view will also have an orange check mark on it.

When Data Blending, Tableau will create a left join on the primary key (common field) with the primary data source. That means all values from the primary and only matches from the secondary data source are returned.

In this example, although I have data for Restaurant Supplier sales for the years 2009 & 2012, those values are excluded from the view because my date field from the Food Outlet data source only contains date values for the years 2010 & 2011.

You’ll also notice that if I try to add any coarser (Vegetarian) or finer (Area Code) level dimension from the primary data source into the view (Color Shelf), the measure will remain aggregated at the level of the finest common field.

Coarser level dimensions from the secondary data source will work in the view but finer level dimensions will not because when Data Blending, queries sent to the different data sources are aggregated to the same level of detail before the results are combined in the view.

We’ll see examples of aggregated results during data blending in further examples.

Review Blending 101:

So when blending remember to place the common field dimension into your view first.

Blending performs a left join so any values that don’t match with the primary key in the primary data source will be excluded.

If you have fields with different levels of detail in your view, measures from the secondary data source will be aggregated at the level of the lowest common field.

(Switch Slides)
Now let’s discuss how to do some quick prep work with your fields so that they work when you’re blending.

(Show Tableau Desktop)

Field Names Problem:

In some cases we may have common fields in our data sources but Tableau doesn’t automatically recognize them.

I want to analyze the relationship between my Container Costs (Food Outlet), a measure that is in my second data source, and Storage Costs (Restaurant Supplier) using the field Food Category (Restaurant Supplier).

There are several ways to make Tableau recognize that the Food Category field has a relationship with the Category – Food field.

You can either rename one of the fields (right click & Rename) or from the Data Menu, Edit Relationships, Choose Custom and associate the two fields together.

Field Values Problem:
In some cases we may have common fields in our data sources but Tableau doesn’t automatically recognize matching members within them.

I want to see the Number of Guest Appearances (Restaurant Supplier) that each Celebrity Chef (Food Outlet) has made but I notice that even though I have matching members for Ina Garten and Wolfgang Puck in the common field from my other data source, I don’t see any matching values for them so Tableau returns NULL values.

Field Values Solution:

You can simply right click on a member and Edit the Alias for that member. Spelling and Case matter.

You can also create a calculated field to fix different values.
Example:

IF [State]= "Mass" THEN "Massachusetts"
ELSE [State]
END

Notice that when we don’t have any matching values Tableau will still provide us with NULLS.

We’ll discuss NULL values in a bit.

Groups Problem:

I may want to use an Ad Hoc Group (Course Menu) created in my secondary data source in my view but Ad Hoc Groups from secondary data sources can’t be used when data blending.

Groups Solution:

Instead of using an Ad Hoc Group, I can create a Calculated Group in my secondary data source and use that in place of the Ad Hoc Group.

IF ([Recipe Name] = "Bagel Spice Garlic Bread"
OR [Recipe Name] = "Onion Rings"
OR [Recipe Name] = "Spanish Garlic Soup")
THEN "Appetizer"
```
ELSEIF ([Recipe Name] = "Apple Strudel"
OR [Recipe Name] = "Beer Ice Cream Float"
OR [Recipe Name] = "Summer Punch"
OR [Recipe Name] = "Tropical Fruit Juice Smoothie"
OR [Recipe Name] = "Whole Wheat Bread Pudding")
THEN "Dessert"

ELSE "Main Course"

END

Review Kitchen Prep:

When Tableau doesn’t automatically recognize common fields you can rename Fields or Edit Relationships to associate common fields between data sources.

You can also the alias of members within a field if Tableau does not find a match.

Spelling and Case count for Field Names and Dimension Members.

Because you can’t use Ad Hoc groups from secondary data sources when data blending, use a calculated group instead.

(Switch Slides)```
Earlier we saw that when Tableau does not find any matching values, it returns NULL values.

(Show Tableau Desktop)  
(Show Field Values Worksheet)

It’s easy to exclude NULL values from your view so that you only see values for matching members between your data sources.  
When you do, this will be similar to performing an Inner Join.

Filter Subset Problem:

If you have a subset of values in a secondary data source, you can filter the primary data source using those values using the same procedure.  
My Order ID subset data source has a subset of all the Order IDs in the primary data source. Note that Order ID is a common field between the two data sources.

Filter Subset Solution:

Just place the field from the secondary data source that contains a subset of the values in your view and exclude the NULLS.
Filter Subset Problem 2 (Bonus):

If you have an aggregated common field in your view you can still filter the view to display only the subset of values.

Filter Subset 2 Solution:

Place a copy of the non-aggregated common field on the Level of Detail shelf with the field from the secondary data source.

As you can see filtering between two different data sources follows the same Data Blending rules which require a common field from the primary data source in the view.

(Switch slides)
Filter Secondary Data Source Problem:

In this view that combines sales from both data sources by Region, I would like to include sales from the Secondary Data source only if they belong to the Meat and Seafood Category.

If I place the secondary field on the filter shelf, I am unable to filter by individual members in that field.

Filter Secondary Data Source Problem:

There are two ways to solve this problem.

IF Statement Solution

1. Create a calculated field in the secondary data source that only returns values for Meat and Seafood category sales.

```plaintext
if [Food Category] = "Meat and Seafood" then [Restaurant Supplier Sales] else 0 End
```

Name the new field – Meat and Seafood Sales.
2. Create a calculated field in the primary data source that combines all primary sales with only secondary Meat and Seafood sales.

\[ \text{SUM}([\text{Food Outlet Sales}]) + \text{SUM}([\text{Restaurant Supplier}.[\text{Meat and Seafood Sales}])] \]

Constant Calculation Solution
1. Create a string calculation in the primary data source

"Meat and Seafood"

3. Name the calculated field the same name as the field in the secondary data source that you are trying to filter by.

2. Place this calculated field on the LOD shelf

Parameter Solution (Bonus)
I would like the user to select from the different members they would like to filter by.

Create a parameter that will allow them to choose from that field’s members.

Parameter Method:
1. From the primary data source create a string list parameter using the secondary field you want to filter by.
2. Create a calculated field that contains just that parameter and make sure to name it the same name as the secondary field you are trying to filter by.

This method gets around the inability to filter by dimensions at a finer LOD from the secondary data source by excluding members that don’t exist in the primary data source (remember that blending performs a left outer join).

Filter 2\textsuperscript{nd} Bonus:

How would I also filter out sales from the secondary data source so that I only return values for the years 2010 and 2011?

Filter 2\textsuperscript{nd} Bonus Solution:
1. Create a calculated field in the primary data source with the value TRUE
2. Create a calculated field in the secondary data source with the same field name

\[ \text{YEAR}([\text{Date}])=2010 \]

OR
YEAR([Date])=2011

3. Place the primary calculated field on the LOD shelf.

If you want to include and exclude multiple values from a secondary data source field then
1. You can use an IF statement within a calculated field in the secondary data source

IF [Food Category] = “Meat and Seafood”
OR
[Food Category] = “Bread and Grains”
THEN [Sales]
END

2. Use this calculated field in a new primary calculated field to combine the sales for both data sources

1. You can create a T/F statement for both sources (same field name) and place primary field on LOD shelf.

Secondary data source:
[Food Category] = “Meat and Seafood”
OR
[Food Category] = “Bread and Grains”

Primary data source:
TRUE

Summary:
Measures are always filtered at the range of the lowest common field in the view to exclude rows from the aggregated result set.
(Show example)

Quick filters work with dimensions from the secondary data source if they are at a coarser level than the common field.
(Show example)

If you have set created in a secondary data source, you will not be able to use that as a filter when blending (much like ad-hoc groups)
(Show example)

Limitations of Filters when data blending (if time permits explain and show example)
1. Measures from secondary data sources don’t include the ability to filter by “All Values”.
2. Dimensions from secondary data sources don’t include the ability to filter by “Wildcard”, “Condition” and “Top”.
3. If you are filtering a dimension from the primary data source, you can’t use a secondary data source field when using “Condition” or “Top”.
Remember that when data blending, Tableau aggregates results before combining them into a view.

This applies to dimensions as well.

(Show desktop)

Attribute Problem:

We can use Table Calculations when Data Blending.

In this sheet we have a dimension from the secondary data source and are using a quick Table Calculation to calculate percent of total sales.

If all these fields were from the same data source we would be able to calculate the percent of total by Region (change market size to ATTRIBUTE, check ignore in table calculations, and compute using pane down), Market Size (compute using pane down), or by All Regions or by TOTAL Sales (compute using table down) by partitioning the data accordingly.

Here we can still see the percent of TOTAL sales for every Region (compute using table down) and by each Region (compute using pane down) but because the
secondary data source field (market size) is aggregated and by default is ignored in
Table Calculations, we are unable to see the % of total sales by Market Size.

ATTRIBUTES by default are ignored in Table Calculations.

When we uncheck Ignore in Table Calculations to try to partition by Market Size we
don’t get the correct result.
How do we get the correct result?

Attribute Solution:

We don’t get the correct result because the quick Table Calculation that we created is
using the TOTAL function to calculate the total sales of each market size by region.

The TOTAL function attempts to find the total for all database rows that contribute to
the market size partition but the Market Size field is from the secondary data source
and already aggregated so we can’t calculate the total sales by Market Size for each
Region at the database level. (A TOTAL function is a separate query to the underlying
data and WINDOW_functions are an aggregate of an aggregate)

We must use the combined result in the view.

Therefore we must change the Table Calculation to use WINDOW_SUM instead of
TOTAL.

WINDOW_SUM will use the aggregated total displayed in the view.

Make sure that you uncheck Ignore in Table Calculations and compute using pane
down.

Now we can see the % of total sales by market size.

Attribute Problem 2 (Bonus):

Show % of Total by Coarsest field from primary data source (Vegetarian Gluten Free)
as well as by the field from the secondary data source.

Attribute 2 Solution:

If the blended field is the coarsest field in the view, then you can display the % of total
by that field if you summarize values from ADVANCED, compute using by the two
finer fields (starting with finest field), order along AUTOMATIC, at the level DEEPEST,
and restarting NONE. Make sure to uncheck Ignore in Table Calculations for the field from the secondary data source.

Table down will show % of TOTAL

Changing TOTAL to WINDOW_SUM, summarize values from ADVANCED, compute using fields from primary data source – starting with coarser field, at the level DEEPEST, order along AUTOMATIC, and restarting every coarser field will show % of Total by Coarser primary field).

Attribute Problem 3 (Bonus):

Show % total when 2 dimensions from secondary data source in view

Attribute 3 Solution:

% of TOTAL
1. Compute using table down
2. Ignore all dimensions from secondary data source in Table Calculations

% of Total by either dimension from secondary data source
1. Change TOTAL to WINDOW_SUM
2. Uncheck ignore in Table Calculations for that dimension only
3. Compute using Pane Down

Explanation of Aggregated Results:

Tableau submits separate queries to each data source and then combines the aggregated results in the view.

As a result, you won’t be able to slice through measures with dimensions the normal way.

Common fields from the primary data source will work normally. (Show example)

Coarser level fields from the primary data source will allow you to partition your common field members normally. (Show example)

All dimensions from the secondary data source are aggregated as attributes. The attribute aggregation helps ensure a consistent level of detail when blending multiple data sources, provides a way to aggregate dimensions when computing table calculations, which require an aggregate expression, and can increase query
performance because it is computed locally.

Attributes are computed with the following formula:

IF MIN([dimension]) = MAX([dimension]) THEN MIN([dimension]) ELSE "*" END

The above formula is computed in Tableau after the data is retrieved from the initial query.
The asterisk (*) is actually a visual indicator of a special type of NULL value that occurs when there are multiple values.

Finer level dimensions from the secondary data source, whether they are a common field or not, will always return an asterisk value (*) if they contain multiple matching members for each mark.

(Show example of coarser field from primary data source and finer field from secondary data source)

It is possible to combine fields at different levels of detail from both data sources as long as they are coarser than the common field from the primary data source in the view.

If there’s only one member it will show the member value.

REVIEW
1. ATTRIBUTES can be ignored in Table Calculations
2. WINDOW_SUM will allow you to find the TOTAL of partitions created with dimensions from the secondary data source
3. Make sure that any fields from the secondary data source are at a coarser level than the common field
When blending the order in which you place fields in your view matter (the common field from your primary data source must be placed in the view first).

Only dimensions can be used as common fields.

Either the field name must be the same (case and spelling matter – you can rename fields) or you must establish a relationship between fields with different names.

Members must match between both fields for you to see any blended results otherwise you will receive NULL values.

Case and spelling count for members within a common field (you can edit aliases).

Results are aggregated before being combined in a view.

Coarser level fields from the secondary data source will produce desired results while finer level fields, if containing multiple matching members for a mark will produce an asterisk (*).

Filtering blended results follows the same rules.

ATTRIBUTES by default are ignored in Table Calculations but can be used to partition
data if necessary.
Now that we’ve covered the basics of Data Blending we’ll go over some common techniques used while Data Blending to help analyze your data.

(Switch slide)
There are some limitations on how you can sort fields when you are data blending.

You can’t use a secondary field to define the criteria for sorting a primary field.

It is also not currently possible to define a computed sort on a secondary field.

Sorting Problem:

I would like to sort my view in ascending order by the values in a calculated field which is created using a field from the secondary data source.

I also want this sort to be intact when I filter by the different storage types.

I don’t see any option however to sort by that field.

Sorting Solution:

Convert the calculated field to a Discrete field and then place that field to the left of the State field.
Uncheck show header for that field.

Sorting Problem Bonus:
How would I sort these values in descending order?

Sorting Bonus Solution:

Add a negative symbol to the calculated field.

A discrete field will be automatically be sorted in numeric order which allows you to sort the partitions in your view by that order.
Earlier we saw that if there are no matching members between both data sources, Tableau will return a NULL value.

NULL Problem:

I’ve created a calculated field (COMBINED SALES) that finds the sum of two measures, each from a different data source.

I would like to see the combined results in my view but I’m not getting the correct result when there are only values for one of the measures used in my calculation.

There is more than one way to solve this problem.
If you have time, find two different ways to solve the problem.

NULL Solution:

The problem is that Tableau will not return a result if there are NULL values.
Remember that NULL values are blank entries and are not the same as Zeroes which are numbers.

Value + NULL = NULL
Value + 0 = Value
It is necessary to convert any NULL values into zeroes so that we get the correct result.

Here are two ways to do so:

First solution:
1. Create calculated field using the IFNULL function

\[ \text{IFNULL} \left( \text{SUM}([\text{Restaurant Supplier Sales}]) + \text{SUM}([\text{Food Outlet}.[\text{Food Outlet Sales}]), \text{SUM}([\text{Restaurant Supplier Sales}]) \right) \]

This statement will return only the value for the measure from the primary data source if the sum of both measures results in a NULL value.

Second solution:
1. From the primary source data pane, create a calculated field for the measure from the secondary data source.
2. Use the new calculated field with a ZN function in the original calculation.

This solution applies the ZN function to the measure from the secondary data source after the blend occurs as opposed to before (converts NULLS to Zero after they occur).
Sometimes its helpful to compare the aggregate values with detailed values in the same view.

Detail & Aggregate Problem:

In this view I am comparing the average endorsement fees of each celebrity chef against the average endorsement fees of all celebrity chefs.

I would like to be able to filter out any number of specific celebrity chefs from my view to show only certain chefs against the total average.

I know its possible to hide each celebrity chef from the view but I would like to be able to use the quick filter option instead.

Using the quick filter option however changes the total average because it excludes the data for any specific celebrity chef from the total endorsement fees used to calculate the total average.

Detail & Aggregate Solution:

1. Duplicate the data connection
2. Edit relationships to remove any association between fields across the data
sources except for any Date level fields & the Celebrity Chef field (these fields create a relationship between both data connections)

3. Replace the Endorsement Fee field with the one from the duplicate connection. (make sure that Celebrity Chef is placed on the color shelf for the primary data source)

Calculated Field Problem (Bonus):

In this view I am comparing each celebrity chef’s % of total consulting fees using the calculated field - Consulting Share.

Without using the Hide option, I would like to exclude certain chefs from my view using a quick filter to filter by TV network. When I use the quick filter however, that changes the % of total consulting fees because it excludes all the data belonging to those chefs associated with that TV Network from the total consulting fees used to calculate the % total.

Calculated Field Solution:

1. Duplicate the data connection
2. Edit Relationships and remove Celebrity Chef from the list so that values related to each celebrity chef are not filtered out when you filter out a specific TV network.
3. Edit the calculated field and replace the consulting fees field used to calculate TOTAL with the same field from the duplicate connection. Notice that when you use a field from a secondary data source, Tableau will automatically aggregate it for you. Calculations that use fields from two different data sources must always be aggregated.
4. Test the filter.
5. Keep in mind that anytime you use a calculation created using fields from two data sources, you must use a common field in your view to use it otherwise the field from the secondary data source in that calculation will be aggregated at the TOTAL level.

So you can see that duplicating the data connection and blending a data source with itself is a useful way to exclude certain values within a data source from being filtered.

(Switch slide)
It may be useful to see data aggregated at a higher level than is available within your primary data source.

Roll-up Problem:

I have fields in both my data sources at different levels of detail.

The field from my secondary data source is at a coarser level than the common field from my primary data source.

I would like to see a measure (Marketing) from the primary source aggregated at the level of the coarser field from the secondary data source (TV network – see two colored lines in same chart instead of lines colored by TV show).

Roll-up Solution:

Place common field (Celebrity Chef) from primary data source and coarser field (TV network) from secondary data source on rows shelf.

Create Primary Group with coarser field (group members accordingly).

Give Primary Group same name as coarser level field.
Recreate view using Primary Group and measure from primary data source.

Using this method you filter values at the range of a coarser level field in the secondary data source.

You can also create groups using members from finer fields just by right clicking on that field and selecting “Create Group”.

This method may allow you to create fields that are in common with another coarser level field from your second data source.

Remember that you can’t use Ad-hoc groups created in secondary data sources when data blending.

Roll-up Problem 2 (bonus):

Solve the same problem without creating a Primary Group.

Roll-up 2 Solution:

1. Create a Table Calculation field

   IF FIRST()=0 THEN WINDOW_SUM(SUM(MARKETING)) END

   The following calculation allows you to limit the first row as the only row where Tableau evaluates WINDOW_SUM by using the IF statement inside. The IF statement outside is normally evaluated after the WINDOW_SUM is evaluated for each row.

   This may help improve query performance because you don’t sort all the rows in the window for every row that needs to be evaluated (just for the first row).

   (CREDIT to Richard Leeke & Joe Mako).

   IF (FIRST()=0) THEN WINDOW_SUM(SUM([Marketing]),0, IIF (FIRST()=0, LAST(), 0)) END

2. Replace the measure with this new Table Calculation field.
3. Uncheck Ignore in Table Calculations on TV Network field.
4. Edit Table Calculation, Compute using ADVANCED – Celebrity Chef, & Order Along – Marketing Sum
5. Place TV Network on the Color Shelf.
6. Filter NULLS
7. Place Celebrity Chef on the Level of Detail shelf.

Partition Question (bonus):

I would like to see the average Turnout Number (same as reference line) by Turnout Rating.

So we want a single bar showing the average Turnout Number for each Turnout Rating partition (there should only be 3 lines).

Here are there two aggregations, the pane is partitioned by SUM of Turnout Number and by the AVERAGE of Turnout Number by Turnout Rating.

Its possible to accomplish the solution with primary groups but try to solve it without creating a primary group.

Partition Bonus Solution:

1. CREATE TABLE CALCULATION - WINDOW_AVG(SUM(Turnout Number)) TO DO WHAT REFERENCE LINE DOES

2. PLACE TABLE CALCULATION ON COLUMNS - IT DOESN'T GIVE YOU RESULTS YOU WANT (NEED TO SET PARTITIONING - CALCULATED FIELD TO PARTITION ON Turnout Rating AND RUN ACROSS Appearance ID & IGNORE DATE - DON'T PARTITION ON DATE)

NORMALLY YOU CAN IGNORE DATE BY TURNING IT INTO ATTRIBUTE AND CHECK IGNORE IN TABLE CALCULATIONS

BUT BECAUSE IT IS COMMON FIELD - LINKING BETWEEN TWO DATA SOURCES IN DATA BLEND YOU CAN'T CHANGE DATE TO ATTRIBUTE (must keep as discrete value)

MUST DO ADVANCED

3. Turnout Rating DEFAULTS TO BEING IGNORED SO MUST TURN IT ON TO BE CONSIDERED IN TABLE CALCULATIONS
4. GO TO EDIT TABLE CALCULATION
5. ADVANCED
6. COMPUTE USING Appearance ID & DATE (IN THAT ORDER)
7. ORDER ALONG IS UNIMPORTANT
8. At LEVEL OF Appearance ID (RUN ACROSS Appearance ID AND IGNORE DATE VALUES - ANOTHER WAY TO IGNORE IN TABLE CALCULATIONS)

BUT YOU GET 4 BARS FOR EACH AND IF YOU REMOVE Appearance ID THEN YOU GET INCORRECT VALUE

TO GET 1 BAR EDIT TABLE CALCULATION

9. IF FIRST()=0 THEN WINDOW_AVG(SUM(LENGTH)) ELSE NULL END
(Calculation that tells Tableau to return value for first row and nulls for every other row)

10. REMOVE Turnout Number
11. PLACE Appearance ID ON LOD SHELF

12. Show label for marks.

(Switch Slide)
(Show desktop)
It is possible to place a common field on the LOD shelf when data blending if you don’t want to include that field in your view.

However, overlapping marks may occur because placing a common field will disaggregate your measure by the number of members in the field (for every member one mark is generated).

Overlapping Problem (Bonus):

How do I show a single mark for each row?

Overlapping Bonus Solution:

1. Roll-up data

OR

1. WINDOW_SUM table calculation (in primary data source)
   1. IF FIRST()=0 then WINDOW_SUM(SUM([Order Quantity])) END
   2. Uncheck ignore in Table Calculations on secondary field
   3. Compute table calculation along common field
Some of the techniques we covered:

1. Use discrete measure values to sort by measure values from a secondary data source.
2. Convert NULL values to zero using functions so that you get a result from calculations combining fields from different data sources.
3. Duplicate a data connection and blend a data source with itself to exclude values from a filter.
4. Create a Primary Group using a coarser field from the secondary data source to roll-up data from a primary data source. This may help if you have overlapping marks.
5. It is also possible to partition your data from a primary data source by a coarser level field from the secondary data source using table calculations.

(Switch Slide)
Blending Summary

- Common field
- Rename or Edit Relationships
- Level of Detail & Attributes
- Edit Aliases
- Primary Group
- NULL values