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Free Training Transcript:  
Nested LOD Expressions

Welcome to this Nested LOD Expressions video. This video is intended to be a conceptual explanation of certain deeper aspects of LOD Expressions. To learn the fundamentals, please see the video [Introduction to LOD Expressions](#)

## Nested LOD Expressions

Some analysis questions can be quite elaborate. Nesting LOD Expressions can help in these complex scenarios. To understand how nested LOD Expressions will behave, it's important to know how they're evaluated. For example, what if we want to take this plot of how many Customers have made a specific number of orders and find the average number of orders made.

If we just bring out an average line, Tableau calculates the red line here – the average of the values on the horizontal axis. Is this really what we want? This average is adding the values on the axis and dividing by the total number of options, regardless of how many customers made each number of orders. Or rather, do we want the average across all customers of the number of orders made, considering the fact ten customers made 1 order and 117 customers made 6 orders?

Nesting LOD expressions can help us do that. The initial LOD Expression, here, gives us the number of orders made per customer. We can then take the average of that, and then take a second, FIXED LOD Expression at the scope of the table – that is, across all customers. Note that this average is smaller, as the volume of customers who made fewer orders is now taken into account.

## Context of Nested Expressions

Let's leave that example and break down the idea of context for a nested LOD Expression. Nested calculations inherit their dimensionality from the outer calculation. That is to say, the context for an inner calculation is defined by its parent, not the sheet. Here we have two nested expressions—both of which would yield the same result. Why? Because the nested expression in the first example inherits its dimensionality from the outer calculation – that is, Customer ID is included with Country. This is the same as originally doing the calculation FIXED at the level of Customer ID and Country, and then both of these averages are FIXED to the level of Country.

The aggregation and replication behavior of a nested LOD expression follows the same rules as FIXED. Replication (or aggregation) occurs to match the parent dimensions. If the inner calculation is more aggregated than the outer, the inner results are replicated to the outer calculation. If the inner calculation is more granular than the outer calculation, the results are aggregated by the outer calculation. In this case, the outer LOD has a finer aggregation than the inner, so the results are replicated from the inner to the outer, then the overall results are aggregated down to the Viz LOD, yielding the final results.

## Conclusion

Thank you for watching this LOD training video on nested expressions. We invite you to continue with the Free Training videos to learn more about using Tableau.