Filtered Aggregation Functions

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Filters are useful for queries where the results should reflect a new, filtered value. On this page you learn about comparative versus derivative filters, and the functions, and the keywords that you can use with them.

Comparative and Derivative Filters

Comparative filters compare two segments of some whole against each in the **Search** bar. For example, a company that has locations across the United States, may want to compare total revenue in the West to the East segment. In a comparative filter, one of the segments you are comparing is filtered.

An example of a comparative filter is comparing west revenue with total revenue. In these cases, one measure is a *filtered measure*, for example, `revenue region = west` is a filtered measure.

Derivative filters add a column to your results which is derived from other columns in the same results. For example, you search for revenue and cost and want to calculate profit in your result.

Some examples of comparative and derivative filters in the real world are:

- revenue of this_soap versus all_soaps (Comparative filter)
- tax as a percentage of revenue (derivative)
- count revenue as a percentage of state revenue (comparative with a derivative)

If you plan to create these types of filters, you need to understand how to create filter functions.

Use Filter Functions

Filter functions take two arguments, the column (measure or attribute) to aggregate and the filter condition:

```
FUNCTION_NAME(condition, <column name>)
```

Alchemer Dashboard's functional library will include the following functions:

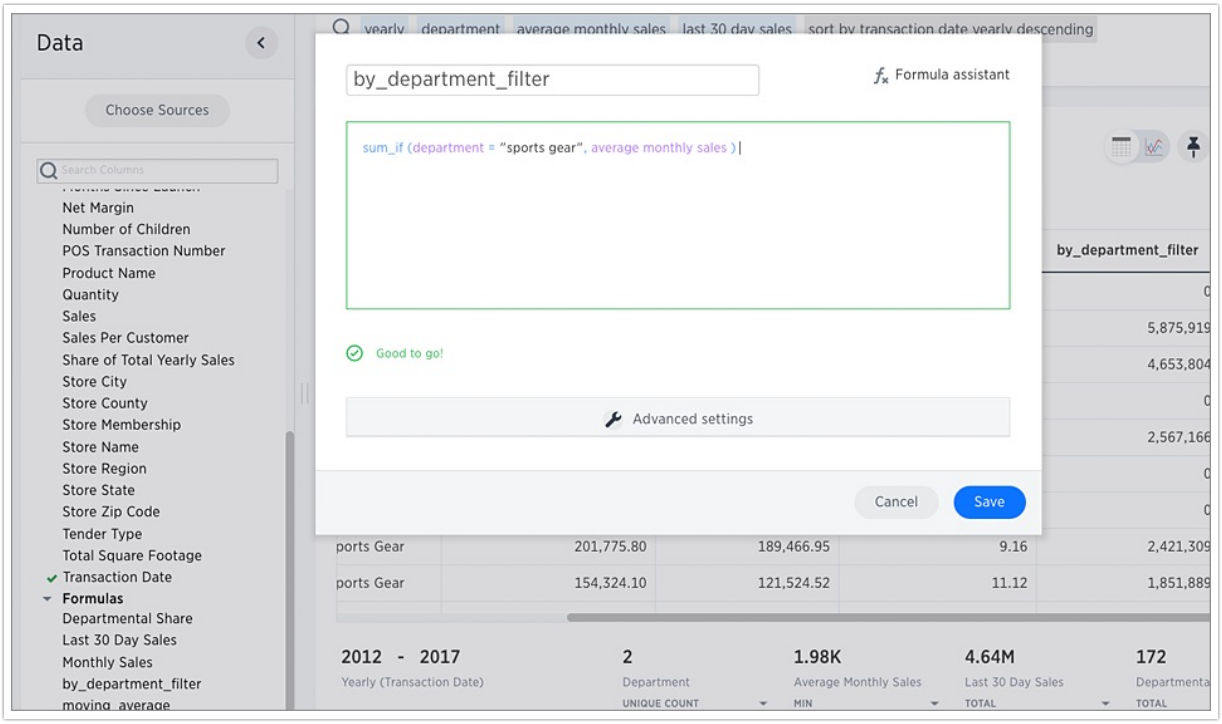
- `sum_if`
- `average_if`
- `count_if`
- `unique_count_if`
- `max_if`
- `min_if`
- `stddev_if`

- `variance_if`
- `vs`
- `all`

The following table illustrates some examples of these functions in use:

Function	Examples
`sum_if(region='west', revenue)`	Only aggregate the revenue for the values corresponding to west region.
`count_if(region ='west', region)`	Only aggregate the region for the values corresponding to west region.
`count_if(revenue > 100, red)`	Count the number of times red appears when revenue was greater than 100 (row level revenue data, not aggregated).

A condition can have multiple filters like `sales region = west OR region = east`. You can also just type a value such as `east` as in `sales east` as a filter. If there are no rows matching the criteria, the condition returns a 0 (zero). A 0 can result in situations where there are logic errors in the formula, so be sure to double-check your work.



After you have aggregated with a filter, you can do further comparisons with the `vs` and `all` keywords.

Using the Vs and All Keywords

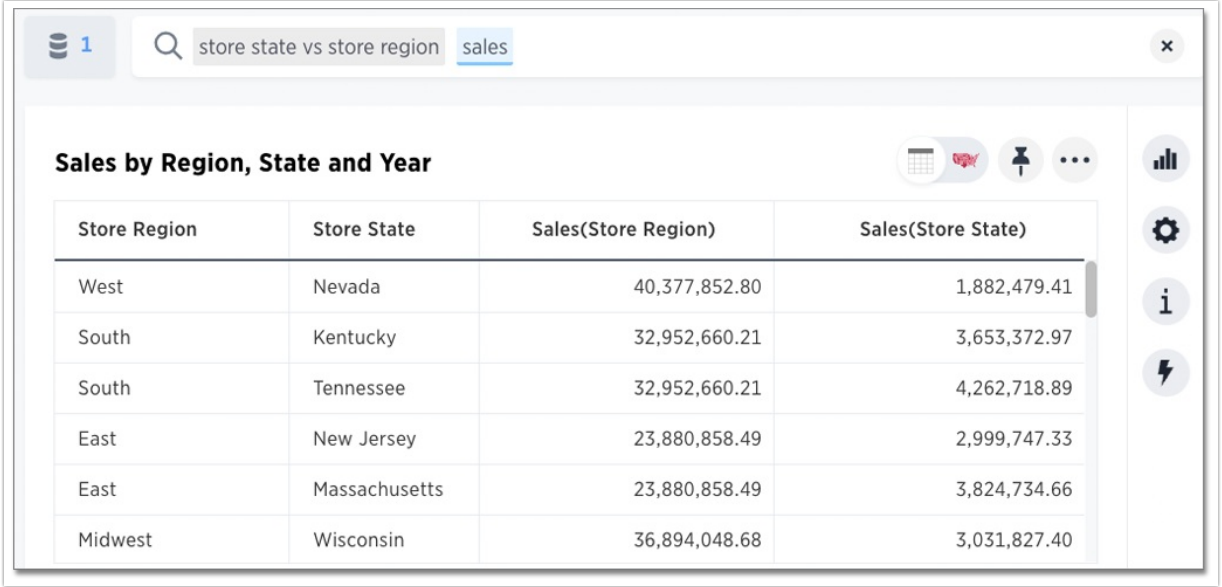
You can use the `vs` and `all` keywords to expand the usefulness of your comparison filters. It compares a measure across different sets of filters and or groupings. The basic format of a comparison search is:

`<common search tokens> (A` **vs** `B) <common search tokens>`

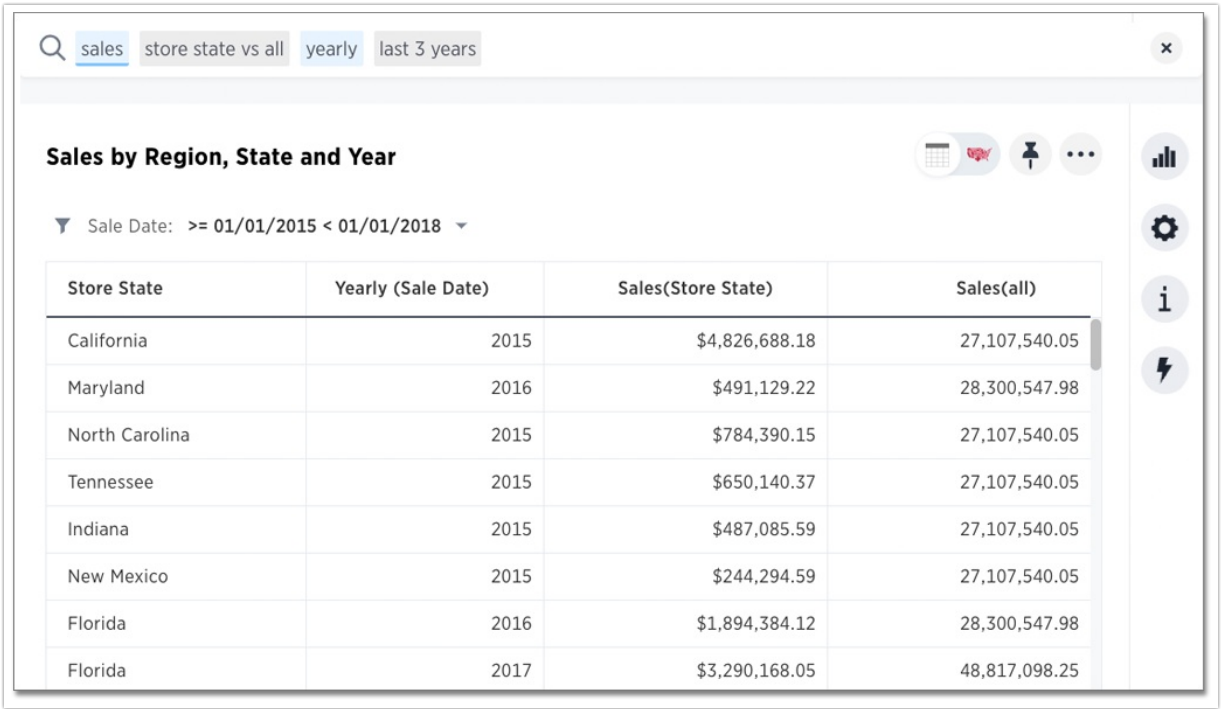
For example:

`revenue region last 10 years vs all`

Try this syntax on using the Superstore example data. The first `vs` example compares two segments with a single search token:

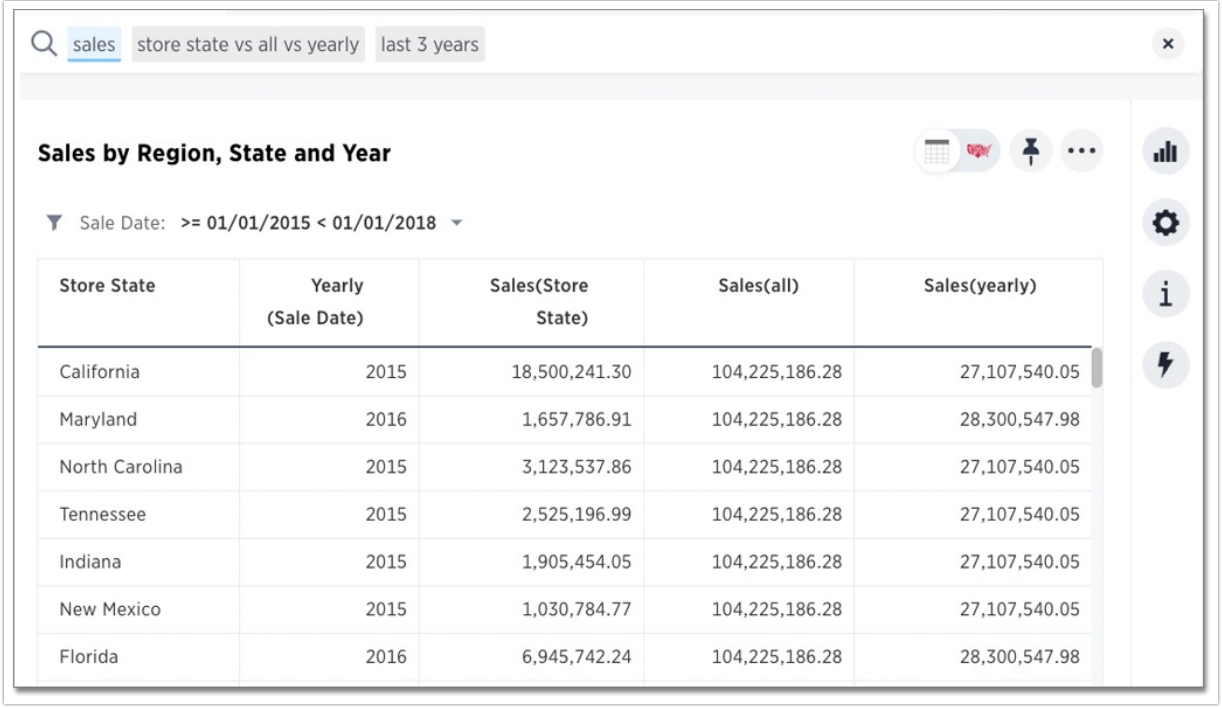


The system automatically applies the `sales` token to both sides and groups each segment. You can use the `all` keyword to break out the segments and avoid grouping.



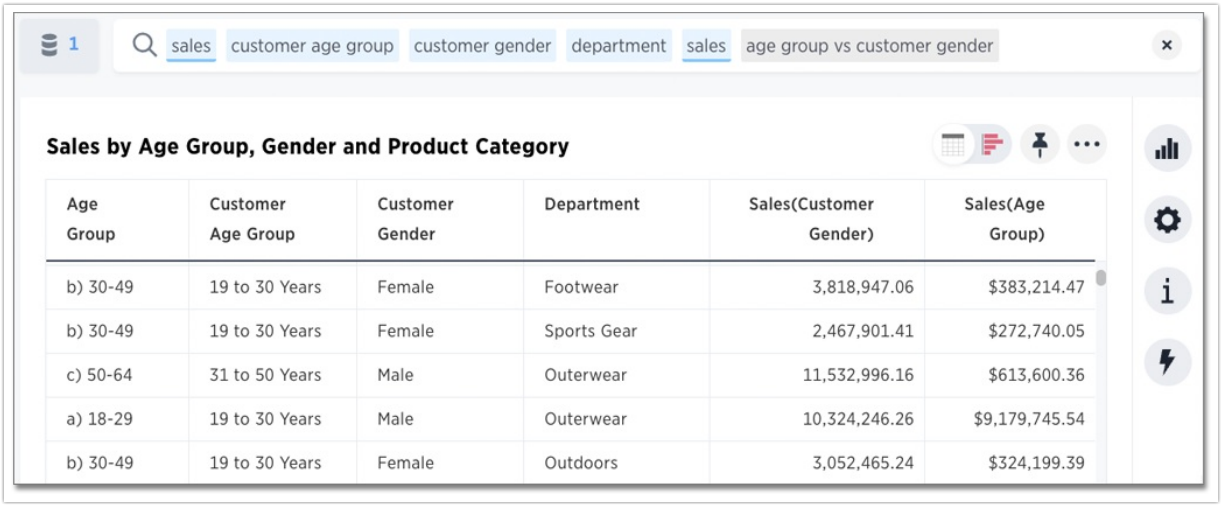
Store State	Yearly (Sale Date)	Sales(Store State)	Sales(all)
California	2015	$4,826,688.18	27,107,540.05
Maryland	2016	$491,129.22	28,300,547.98
North Carolina	2015	$784,390.15	27,107,540.05
Tennessee	2015	$650,140.37	27,107,540.05
Indiana	2015	$487,085.59	27,107,540.05
New Mexico	2015	$244,294.59	27,107,540.05
Florida	2016	$1,894,384.12	28,300,547.98
Florida	2017	$3,290,168.05	48,817,098.25

You can also provide multiple `vs` instances:



Store State	Yearly (Sale Date)	Sales(Store State)	Sales(all)	Sales(yearly)
California	2015	18,500,241.30	104,225,186.28	27,107,540.05
Maryland	2016	1,657,786.91	104,225,186.28	28,300,547.98
North Carolina	2015	3,123,537.86	104,225,186.28	27,107,540.05
Tennessee	2015	2,525,196.99	104,225,186.28	27,107,540.05
Indiana	2015	1,905,454.05	104,225,186.28	27,107,540.05
New Mexico	2015	1,030,784.77	104,225,186.28	27,107,540.05
Florida	2016	6,945,742.24	104,225,186.28	28,300,547.98

Of course, you can compare across different columns as well:



Age Group	Customer Age Group	Customer Gender	Department	Sales(Customer Gender)	Sales(Age Group)
b) 30-49	19 to 30 Years	Female	Footwear	3,818,947.06	$383,214.47
b) 30-49	19 to 30 Years	Female	Sports Gear	2,467,901.41	$272,740.05
c) 50-64	31 to 50 Years	Male	Outerwear	11,532,996.16	$613,600.36
a) 18-29	19 to 30 Years	Male	Outerwear	10,324,246.26	$9,179,745.54
b) 30-49	19 to 30 Years	Female	Outdoors	3,052,465.24	$324,199.39

Other supported formats you can try:

- `sales accessory6 accessory12 vs all`
- `sales monthly accessory6 vs last year`
- `sales staples file caddy vs all monthly` answers what the share of sales belonging to the file caddy by month
- `sales (germany ariel vs laundry) july 2017 time` answers what is the category share of Germany Ariel for July 17?

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