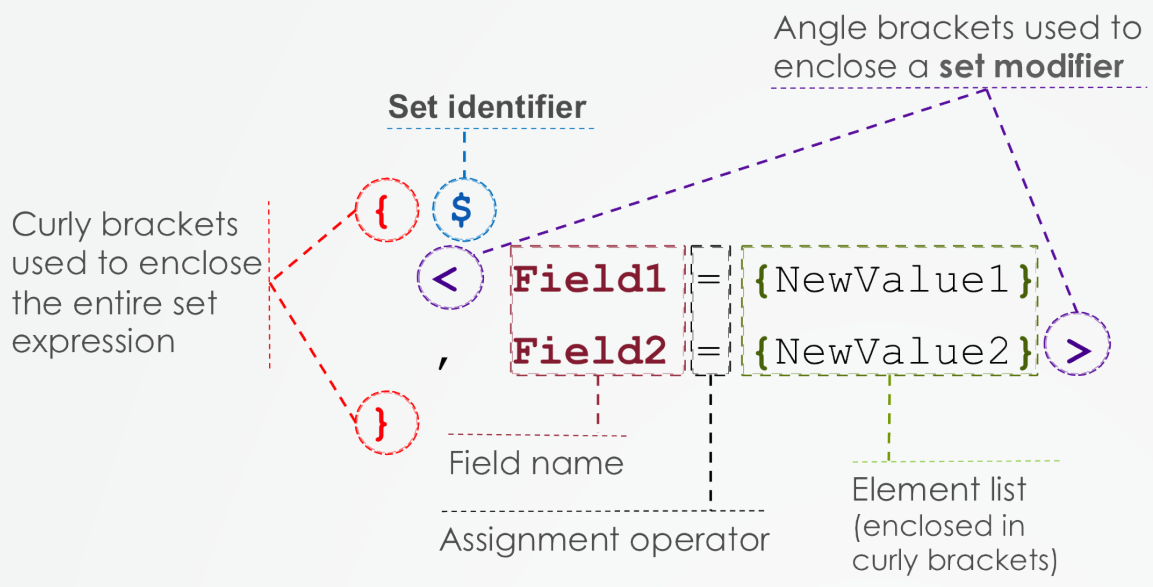
SET ANALYSIS CHEAT SHEET

ANATOMY OF A SET EXPRESSION



To build set expressions, we must first get the syntax right. Understand the various elements that make up a set expression and what characters are used to enclose each of them.

`{ }` - Used to enclose the entire set expression, and *also* to enclose the element list.

`$` or `1` - Common values used as the set identifier. (See below)

`< >` - Used to enclose a set modifier.

BASIC CONCEPTS

- **Set identifier**: is used to define the *starting point* in the definition of the alternative record set that will be used in the final expression.
- **Set modifier**: is the set of field-value definitions with which we *modify* the initial record set. This can also be thought of as the set of *filters* that we want to apply on the record set.
- **Element list**: is a list of values we use to filter the record set on a given field. An element list is tied to a specific field.

SET IDENTIFIERS

The following set identifiers are the most commonly used:

`$` when the alternative record set should be initially based on the **current user selections**.

`1` when the alternative record set should be initially based on the **full record set** (all the data contained in the QlikView document), ignoring all user selections.

`BM01` (the ID of a bookmark) to use the selection state stored in a bookmark as basis for the alternative record set.

ELEMENT LISTS

- Text elements are enclosed in **straight single quotes**.
  eg:
  `<Region = {'North'}>`
- We can use search strings enclosed in **straight double quotes**.
  eg:
  `<Age = {">=18"}>`
- Numeric values in the element list **do not require quotes**.
  eg:
  `<Year = {2013}>`

OPERATORS

There are two types of operators:
a) **Assignment Operators**: to determine how to combine the field values with an element list.
b) **Set Operators**: to work with several element lists or several set modifiers.

Notes:
In the following diagrams, A and B represent set modifiers, elements lists or the field's initial record set, depending on the context.

Included in the final record set.

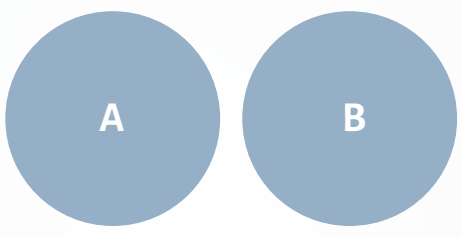
Not included in the final record set.

Both types of operators work similarly, and the only difference is that assignment operators carry an equal (=) sign as suffix, while their set operator counterparts do not.

Use the following diagrams to understand the result of each operator.

UNION

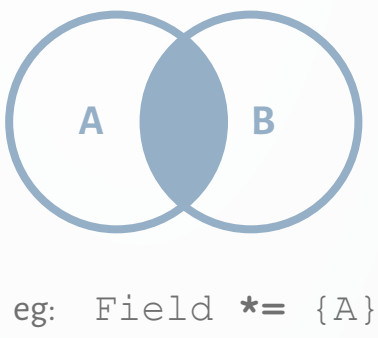
`+` Implicitly defines a union between a field's inital record set and the element list, between two element lists or between two set modifiers.




```
eg:  Field += {A}
eg:       {A} + {B}
eg:       <A> + <B>
```

INTERSECTION

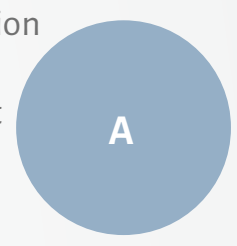
`*` Used to define the alternative record set based on the **intersection** between a field's initial record set and an element list, between two element lists, or between two set modifiers.




```
eg:  Field *= {A}
eg:       {A} * {B}
eg:       <A> * <B>
```

RE-ASSIGNMENT

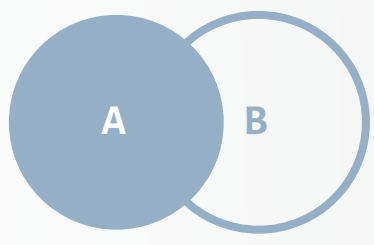
`=` *Redefines* the selection for a certain field. This is only used as assignment operator and there is no equivalent set operator.




```
eg:  Field = {A}
```

EXCLUSION

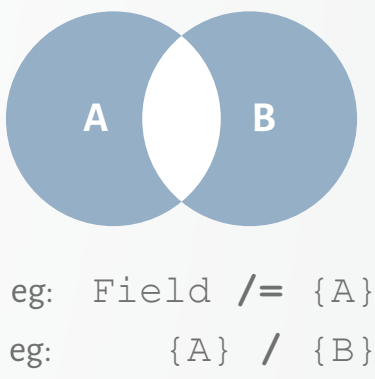
`-` Implicitly defines an **exclusion** between a field's inital record set and the element list, between two element lists or between two set modifiers.




```
eg:  Field -= {A}
eg:       {A} - {B}
eg:       <A> - <B>
```

SYMMETRIC DIFFERENCE

`/` Used to define a **symmetric difference** (XOR). The modified record set will contain the values that are present in either one set, but not in both.




```
eg:  Field /= {A}
eg:       {A} / {B}
eg:       <A> / <B>
```

PRO TIPS

QLIKVIEW COMPONENTS SCRIPTING LIBRARY

Using set analysis for period-over-period comparisons (*point in time reporting*) has never been easier. With the QlikView Components scripting library, you can generate **set variables** automatically and use them in your expressions right away.

One line of code to create both a master calendar table *and* the related set variables.

```
CALL Qvc.CalendarFromField('OrderDate');
```

Then, on the expression, you can get, for instance, the *previous year's month to date* sales with:

```
Sum($(vSetPreviousYearMTD) Sales)
```

Visit *www.qlikviewcomponents.org* to learn more.

ELEMENT FUNCTIONS

There are two special functions that can be used in set expressions to implicitly specify an element list. The functions are:

- `P()` - to use all **possible** values in a field (as dictated by the current selection state) as the element list.
- `E()` - to use all **excluded** values in a field (as dictated by the current selection state) as the element list.

A quick example:

```
Sum({1<Year = p(Year)>} Sales)
```

This expression will use the full set of data disregarding all user selections (using `1` as the set identifier), but take into account those records corresponding to the years that the user has selected. In other words, only selections made on the `Year` field are considered.

RESOURCES

To learn more about the power of Set Analysis:

- Memorize this Cheat Sheet!
- Consider joining an online course at the *Q-On Training Center* (`www.q-on.bi`) delivered by top experts. Available in English and Spanish.
- Visit the series of blog posts titled "*The Magic of Set Analysis*" at the *AfterSync* blog (`http://blog.aftersync.com`).
- Get your hands on the *QlikView 11 for Developers* book, authored by Miguel García and Barry Harmsen.
- Get your hands dirty and start experimenting!

ABOUT

This material was created by Miguel García and is mainly based on chapter 11 of the book *QlikView 11 for Developers*, as well as course materials used for the *Mastering Set Analysis* course at *Q-On Training Center* (`www.q-on.bi`).

This material is brought to you by:

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