How to use Boolean Operations in the Formula as Subsidiary for “IF” Condition

Applies to:
SAP BW 3.5 & BI 7.0. For more information, visit the EDW homepage.

Summary
This paper will explain you how to use Boolean Operations as subsidiary for IF condition. The article assumes no prior knowledge of Reporting and provides an exhaustive solution replete with screenshots for clear understanding.

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# Table of Contents

Introduction ........................................................................................................................................... 3  
Business Scenario .................................................................................................................................. 3  
The Result............................................................................................................................................. 3  
Solution ................................................................................................................................................ 3  
  Use Boolean operations in the formula................................................................................................. 3  
Step By Step Procedure ......................................................................................................................... 4  
  1. Create Data Target based on the scenario: ......................................................................................... 4  
  2. Create Query on the Info Provider: ................................................................................................. 5  
Logic used........................................................................................................................................... 5  
  Formula Variable with processing type Replacement path................................................................. 6  
Calculated Key Figure............................................................................................................................ 8  
Formula using Boolean Operations ....................................................................................................... 8  
  The logic goes as below ......................................................................................................................... 8  
  Formula used is................................................................................................................................... 8  
Result of the Query............................................................................................................................... 9  
Related Content.................................................................................................................................... 10  
Disclaimer and Liability Notice........................................................................................................... 11
Introduction
In this Article we will discuss on how to use the Boolean operations in the formula to achieve the expected result for a given Query. Here we will discuss this using a simple scenario.

Business Scenario
Let’s take the Employee report of an organization into consideration for our scenario. In this report the user want to display the number of days an employee is in a particular position. Let us take an employee 104 is having 5 positions (51000132, 51009094, 51031562, 51037596, 99999999), now in the report we need to display the number of days the employee 104 have served in respective positions.

The Result
When the user executes the Employee Report, the report should provide the details of the number of days the employee have worked in respective positions taking “DATE TO” as the system date whenever the report is executed.

Solution

Use Boolean operations in the formula
To achieve the above required result, we are going to use the option of Boolean Operations in the formula. Whenever we need to use an “IF” condition in the report level we can go with the Boolean Operations. In the next step we will see the step-by-step procedure to achieve the above scenario.
Step By Step Procedure

1. Create Data Target based on the scenario:

Here for our scenario, we will take Employee and the Employee Position as Key fields and “DATE FROM” and “DATE TO” in the data fields. Here when we check the field “DATE TO” for the current position “999999999” we can see that the value is “31.12.9999” (the value is given as 31.12.9999 because we don’t know till when he is going to continue in this position). When the report is executed then we will get wrong data for the current position. So to tackle this issue we will make use of Boolean Operations in the formula. For this we will make use of a dummy field, we will define the dummy field in the DSO level and use this in the formula to calculate the number of days an employee is in a particular position.

The data in the DSO is as follows. We can see the values for the field “DATE0”, we have maintained it as 31.12.9999 to use it in the formula.
2. Create Query on the Info Provider:

Go to the Query designer and create a Query based on the DSO created. Based on our scenario let’s take the fields Employee, Position, Date of Joining, Valid From, Valid To and the Date0 in the Rows and in the Columns we will use a formula (we will discuss about the formula in detail) as below.

Logic used

Here we are not having any issues in calculating the number of days for all the positions except the current position (we are facing issue because the “Date To” field is maintained as 31.12.9999 for the current position), to tackle this issue we will use a calculated key figure.

Before going to the calculated key figure, as we need to use the characteristics in the formula we need to create Formula Variable with replacement path, for the characteristics: “DATE FROM”, “DATE TO” and “DATE0”. Below are the screen shots for the variables.
Formula Variable with processing type Replacement path

For DATE0:

For DATE FROM:
For DATE TO:

Here for our scenario we will be using calculated key figure in the formula in combination with the Boolean operations to achieve the required result.

The calculated key figure is as below.

**Date 31.12.9999 - is the formula variable with replacement path, for the field “DATE0”.** Here we are checking if the “DATE TO” field is 31.12.9999 or not. If the difference is zero then the “DATE TO” field is 31.12.9999, else some other value. We will use this in the formula and achieve the required result.
Calculated Key Figure

Formula using Boolean Operations

Here we are going to calculate the number of days an employee is in a particular position by using a formula with the help of Boolean Operations.

We can use Boolean operations in the formula in place of IF conditions. The result of a Boolean operation is “1” or “0”, so we will use this in the formula for “IF” condition. For our scenario we will check if the calculated Key Figure “Date 31.12.9999” is zero or not using the Boolean Operation.

We will use the SAP Defined Variable “Current Date”, to calculate the number of days in the current position.

The logic goes as below

If “DATE TO” is not equal to 31.12.9999, then the number of days in the position is the difference between “DATE TO” and “DATE FROM”. If “DATE TO” is equal to 31.12.9999, then the number of days in the Position is the difference between “CURRENT DATE” and “DATE FROM”.

Here we are going to use the Boolean operations “logical equal” and “logical not equal to”. As we know the Boolean operations will result in “1” if the result is correct and will result in “0” if the result is incorrect.

Formula used is

\[ \text{('Difference is 0 or not.') <> 0) * ('Date To' - 'Date From') + ('Difference is 0 or not.') == 0) * ('Current Date' - 'Date From') \]
Result of the Query

When the query is executed we are going to get the below result as expected.

In this way we can use the Boolean Operations in the Report and get the expected result. Boolean Operations can be used as subsidiary for IF condition.
Related Content
For more information please go through these URLs:
http://help.sap.com/saphelp_nw04/helpdata/en/0b/b47e78e7d24889af4c7599ba0ddf19/frameset.htm
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