6.4.2 Expression Element

The expression element appears in RuleDef Element. It is an expression that evaluates to a result when it is run. For example the expression below might evaluate to true or false depending on the value of ITEM_OID.

<Expression> ITEM_OID eq 50</Expression>

OpenClinica defines a specific language for creating these expressions. This language supports Logical, Arithmetic, and Conditional operators. We will list those in tables below. Alongside operators OpenClinica supports the user of Integers, Strings and OpenClinica variables in order to do the evaluation.

The expression above is using ITEM_OID, which is an OpenClinica variable and 50, which is a number, with the operator being an equal. OpenClinica out of the box supports the following operators

The Equality and Relational Operators

eq	Equal to	Variables used with this operator could be of any type
ne	Not Equal to	Variables used with this operator could be of any type
ct	Contains	Variables used with this operator could be of any type
gt	Greater Than	Variables used with this operator should be of a number type
gte	Greater Than or Equal to	Variables used with this operator should be of a number type
lt	Less Than	Variables used with this operator should be of a number type
lte	Less Than or Equal to	Variables used with this operator should be of a number type

Some example expressions using the above operators

- ITEM_OID eq YELLOW
- ITEM_OID lt (-15)
- ITEM_OID gt 5
- 5 gte ITEM_OID
- YELLOW ne GREEN
- ITEM_OID ct "2014"

The Conditional Operators

and	and	Variables used with this operator should be of a boolean type
or	or	Variables used with this operator should be of a boolean type

Some example expression using the above operators

- ITEM_OID eq YELLOW and ITEM_OID_2 gt 5
- (ITEM_OID eq YELLOW) and (ITEM_OID_2 gt 5)
- (YELLOW neq GREEN) or (ITEM_OID_2 gt 5)

The Arithmetic Operators

+	Addition	Variables used with this operator should be of a number type

-	Subtraction	Variables used with this operator should be of a number type
*	Multiplication	Variables used with this operator should be of a number type
/	Division	Variables used with this operator should be of a number type

Some example expression using the above operators

- ITEM_OID + 35 eq 50
- ITEM_OID 10 eq 34 AND ITEM_OID_2 gt 45
- ((ITEM_OID 10) eq 34) AND (ITEM_OID_2 gt 45)

Statements can be used in these expressions. Now OpenClinica utilizes what is known as contextual statements, meaning as in the examples above you can put

ITEM_OID and OpenClinica will automatically complete the statement so to make it legal. Lets use an example

```
<Target Context="OC_RULES_V1">SED_OID[ALL].CRF_OID.GROUP_OID.ITEM_OID</Target>
<Expression> ITEM_OID eq 50</Expression>
```

What will actually happen here when this expression is being evaluated is that ITEM_OID will be substituted by

```
SED_OID[ordinal].CRF_OID.GROUP_OID.ITEM_OID
```

In order to support cross form edit checks we actually include a complete statement. One side not regarding that is we cannot use ALL in the expressions.

Dates within Rules

Rules supports the following operators to be used with dates

The Equality and Relational Operators		
eq	Equal to	ITEM_OID eq 2008-12-12
ne	Not Equal to	ITEM_OID ne 2008-12-12
gt	Greater Than	ITEM_OID gt 2008-12-12
gte	Greater Than or Equal to	ITEM_OID gte 2008-12-12
lt	Less Than	ITEM_OID lt 2008-12-12
lte	Less Than or Equal to	ITEM_OID lte 2008-12-12

The format of the date included in an expression should be **yyyy-MM-dd .**

Example: January 01, 2010 should be written as : 2010-01-01

You can also use _CURRENT_DATE to compare values against the current server date. For example, with a NotificationAction, to notify Participants of a Form that must be completed on the next day, you could use an expression such as:

<Expression>**SE_OID.STARTDATE eq (_CURRENT_DATE +1) and SE_OID.STATUS ne "complete"**</Expression>

This would send a notification one day in advance of the expected form completion date as long as the form was not already completed by the Participant.

Functional approval by Laura Keita. Signed on 2016-08-17 7:43AM

Approved for publication by Ben Baumann. Signed on 2016-08-17 8:44AM

Not valid unless obtained from the OpenClinica document management system on the day of use.