# Durational Aggregation

Rule ID: DQC\_0084

### Rule function

This rule identifies where the values of a durational element for a series of periods of time do not aggregate to the value representing the aggregated period in the instance. The rule matches sub periods based on the start date and end date into a contiguous period of time. The rule then matches the calculated contiguous period to equivalent periods reported in the instance. For example the rule will check that the values for Q1 + Q2 for any durational element is equal to the value for that element for the first half of the year. The rule works for all base taxonomy elements and time periods reported in the instance.

### Problem solved by the rule

This rule addresses inconsistencies in tagging the same element from period to period. The rule flags the following data quality errors:

* 1. Values tagged with 0 instead of being tagged with nil.
  2. Inconsistent addition across periods
  3. Two way elements tagged with the inappropriate sign.
  4. Inappropriate element selection across periods.
  5. Inappropriate decimals.

Example rule message

Sum of the cumulative periods of -241,000 for us-gaap:NetIncomeLoss does not match the reported total of -240,541

Period values are:

2018-04-01 to 2018-06-30 -35,000

2018-07-01 to 2018-09-30 -154,000

2018-10-01 to 2018-12-31 -38,000

2019-01-01 to 2019-03-31 -14,000

This rule takes into account possible rounding of values across periods and the decimals associated with each fact. If there is a difference between the sum of the periods and the aggregate value reported the difference may be due to incorrect decimals associated with the individual fact values. The filer should check that the fact values do not have a decimal value that implies a higher level of accuracy than intended.

The rule excludes elements in the base taxonomy that cannot be aggregated such as concepts that represent an average.

The properties of this us-gaap:NetIncomeLoss fact are:

Period :2018-04-01 to 2019-03-31

Dimensions :

Unit : USD

Rule Element Id:9298

Rule version: 10.0

For Developers

The Global Rule Logic document contains general guidelines for implementation of rules.

The rule message template contains text and parametric reference to arguments of the rule operation, using the syntax ${parameter} to indicate that insertion of a parameter’s value is to occur.

Message template

Sum of the cumulative periods of {$sum-periods} for {$fact1.concept.name} does not match the reported total of {$fact1}

Period values are:

{$period-message}

This rule takes into account possible rounding of values across periods and the decimals associated with each fact. If there is a difference between the sum of the periods and the aggregate value reported the difference may be due to incorrect decimals associated with the individual fact values. The filer should check that the fact values do not have a decimal value that implies a higher level of accuracy than intended.

The rule excludes elements in the base taxonomy that cannot be aggregated such as concepts that represent an average.

The properties of this {$fact1.concept.name} fact are:

Period :{$fact1.period}

Dimensions : {$fact1.dimensions.join(', ','=')}

Unit : {$fact1.unit}

Decimals: {$fact1.decimals}

Rule Element Id:{$rule\_id}

Rule version: {$ruleVersion}

### Rule element ID index

The rule element id is used to identify unique elements or combinations of elements tested in the rule.

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| --- | --- |
| Rule Element ID | Elements |
| DQC.US.0083.9298 | Base taxonomy elements only |