# Foxpath – extension functions

This document is work in progress. It describes extension functions supported by the Foxpath language.

## concat-group

Abbreviations: -

### Summary

Transforms a list of concatenated values into an indented list, which expresses on each level a grouping by value.

### Parameters

* values – a list of strings interpreted as concatenated lists
* sep? – separator used by concatenation; default: #
* emptyLinesControl – the i-th character is the number of empty lines to be inserted after each level on the i-th level (i = 1, 2, 3, …); example: “11” means one empty line after each value on level 1, and one empty line after each value on level 2

### Examples

The following example analyzes a set of WSDL files and represents the functionality as a four-level tree of names: API package, API (WSDL), operation, message:

fox "/projects/bhub/download/bhub-20210205//\*.wsdl\\wsdl:portType\wsdl:operation\wsdl:\*\ ('\*\*\*package: '||bdname()||'#~api: '||bfname()||'#'||..\@name|| '#'||rpad(local-name()||':',8)||@message\remove-prefix(.)) => group-concat((), '01')"

=>

\*\*\*package: OilandGasTSW  
. ~api: BulkCommodityNominationERPByBasicDataQueryResponse\_In.wsdl  
. . BulkCommodityNominationERPByBasicDataQueryResponse\_In  
. . . input: BulkCommodityNominationERPByBasicDataQuery\_sync  
. . . output: BulkCommodityNominationERPByBasicDataResponse\_sync  
. . . fault: StandardMessageFault  
  
. ~api: BulkCommodityNominationERPByIDQueryResponse\_In.wsdl  
. . BulkCommodityNominationERPByIDQueryResponse\_In  
. . . input: BulkCommodityNominationByIDQuery\_sync  
. . . output: BulkCommodityNominationByIDResponse\_sync  
. . . fault: StandardMessageFault  
  
. ~api: BulkCommodityNominationERPChangeRequestConfirmation\_In.wsdl  
. . BulkCommodityNominationERPChangeRequestConfirmation\_In  
. . . input: BulkCommodityNominationERPChangeRequest\_sync  
. . . output: BulkCommodityNominationERPChangeConfirmation\_sync  
. . . fault: StandardMessageFault  
  
. ~api: BulkCommodityNominationERPCreateRequestConfirmation\_In.wsdl  
. . BulkCommodityNominationERPCreateRequestConfirmation\_In  
. . . input: BulkCommodityNominationERPCreateRequest\_sync  
. . . output: BulkCommodityNominationERPCreateConfirmation\_sync  
. . . fault: StandardMessageFault  
  
. ~api: BulkCommodityNominationERPNotification\_Out.wsdl  
. . BulkCommodityNominationERPNotification\_Out  
. . . input: BulkCommodityNominationERPNotification\_async  
  
\*\*\*package: S4HANAOPAPI  
. ~api: OP\_ALLOCATIONPOSTINGCREATEREQUEST\_IN.wsdl  
. . AllocationPostingCreateRequest\_In  
. . . input: AllocationPostingBulkCreateRequest  
. . . output: AllocationPostingBulkCreateResponse  
. . . fault: StandardMessageFault  
. ~api: OP\_APPOINTMENT\_ACTIVITY\_BULK\_REQUEST\_IN.wsdl  
. . AppointmentActivityRequest\_In  
. . . input: AppointmentActivityBulkRequest

## name-path

Abbreviations: npath, np

### Summary

Returns name paths leading to the input nodes, starting from the root node or from an ancestor node.

### Parameters

* nodes? – nodes whose name path shall be returned;

default value: current context node

* numSteps? – the maximum number of steps to be included; for example, “2” means only the last two steps, that is, the name of the parent node and of the node itself
* contextNode? – the paths shall be relative to this node, rather than starting at the root node

### Examples

Get the paths of all <xs:documentation> elements found in WSDLs; return sorted, distinct-values:

fox "../download/bhub-20210203//\*.wsdl\\xs:documentation\name-path() => distinct-values() => sort()"

Response (long lines folded for readibility):

/wsdl:definitions/wsdl:types/xsd:schema/xsd:annotation/xsd:documentation

/wsdl:definitions/wsdl:types/xsd:schema/xsd:complexType/xsd:all/xsd:element/xsd:annotation/

xsd:documentation

/wsdl:definitions/wsdl:types/xsd:schema/xsd:complexType/xsd:all/xsd:element/xsd:complexType/xsd:all/

xsd:element/xsd:annotation/xsd:documentation

…

~~~

Get the last three steps of the paths of all <xs:documentation> elements found in WSDLs; return the paths along with their frequencies:

fox "../download/bhub-20210203//\*.wsdl\\xs:documentation[not(\*)]\npath(., 3) =>f()"

Response:

xsd:complexType/xsd:annotation/xsd:documentation (2278)

xsd:element/xsd:annotation/xsd:documentation .... (5718)

xsd:simpleType/xsd:annotation/xsd:documentation . (28)

~ ~ ~

Get the paths from all <xs:simpleType> elements to their attributes, descendants and descendant attributes; return the paths along with their frequencies:

fox "/projects/bhub/download/bhub-20210203//\*.wsdl\\xs:simpleType\name-path(all-descendants(.), (), .) =>f()"

Response:

@name ................................................... (37545)

restriction ............................................. (2)

restriction/@base ....................................... (2)

restriction/enumeration ................................. (11)

restriction/enumeration/@value .......................... (11)

xs:restriction .......................................... (36)

xs:restriction/@base .................................... (36)

xs:restriction/xs:maxLength ............................. (23)

xs:restriction/xs:maxLength/@value ...................... (23)

xs:restriction/xs:pattern ............................... (13)

xs:restriction/xs:pattern/@value ........................ (13)

xsd:annotation .......................................... (25669)

xsd:annotation/xsd:documentation ........................ (25669)

xsd:annotation/xsd:documentation/@xml:lang .............. (25669)

xsd:annotation/xsd:documentation/ccts:RepresentationTerm (25641)

xsd:restriction ......................................... (64700)

xsd:restriction/@base ................................... (64700)

xsd:restriction/xsd:enumeration ......................... (11160)

xsd:restriction/xsd:enumeration/@value .................. (11160)

xsd:restriction/xsd:fractionDigits ...................... (1239)

xsd:restriction/xsd:fractionDigits/@value ............... (1239)

xsd:restriction/xsd:length .............................. (1957)

xsd:restriction/xsd:length/@value ....................... (1957)

xsd:restriction/xsd:maxInclusive ........................ (1328)

xsd:restriction/xsd:maxInclusive/@value ................. (1328)

xsd:restriction/xsd:maxLength ........................... (57365)

xsd:restriction/xsd:maxLength/@value .................... (57365)

xsd:restriction/xsd:minInclusive ........................ (1313)

xsd:restriction/xsd:minInclusive/@value ................. (1313)

xsd:restriction/xsd:minLength ........................... (39518)

xsd:restriction/xsd:minLength/@value .................... (39518)

xsd:restriction/xsd:pattern ............................. (2114)

xsd:restriction/xsd:pattern/@value ...................... (2114)

xsd:restriction/xsd:totalDigits ......................... (1315)

xsd:restriction/xsd:totalDigits/@value .................. (1315)

xsd:restriction/xsd:whiteSpace .......................... (1)

xsd:restriction/xsd:whiteSpace/@value ................... (1)

### Related functions

local-name-path – returns name paths, using local names, rather than lexical names

json-name-path – returns name paths, using JSON names, rather than the element names