2.4 Document Subsets

Some applications require the ability to create a physical representation for an XML document subset (other than the one generated by default, which can be a proper subset of the document if the comments are omitted). Implementations of XML canonicalization that are based on XPath can provide this functionality with little additional overhead by accepting a node-set as input rather than an octet stream. The processing of an element node ***E*** MUST be modified slightly when an XPath node-set is given as input and the element's parent is omitted from the node-set. This is necessary because omitted nodes SHALL not break the inheritance rules of inheritable attributes [C14N-Issues] defined in the xml namespace.

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[Definition:] **Simple inheritable attributes** are attributes that have a value that requires at most a simple redeclaration. This redeclaration is done by supplying a new value in the child axis. The redeclaration of a simple inheritable attribute ***A*** contained in one of ***E***'s ancestors is done by supplying a value to an attribute ***Ae*** inside ***E*** with the same name. Simple inheritable attributes are `xml:lang` and `xml:space`.

The method for processing the attribute axis of an element ***E*** in the node-set is hence enhanced. All element nodes along ***E***'s ancestor axis are examined for the nearest occurrences of simple inheritable attributes in the xml namespace, such as `xml:lang` and `xml:space` (whether or not they are in the node-set). From this list of attributes, any simple inheritable attributes that are already in ***E***'s attribute axis (whether or not they are in the node-set) are removed. Then,

lexicographically merge this attribute list with the nodes of ***E***'s attribute axis that are in the node-set. The result of visiting the attribute axis is computed by processing the attribute nodes in this merged attribute list.

The `xml:id` attribute is not a simple inheritable attribute and no processing of these attributes is performed.

The `xml:base` attribute is not a simple inheritable attribute and requires special processing beyond a simple redeclaration. Hence the processing of ***E***'s attribute axis needs to be enhanced further. A "join-URI-References" function is used for `xml:base` fix up. It incorporates xml:base attribute values from omitted xml:base attributes and updates the xml:base attribute value of the element being fixed up, as follows.

An `xml:base` fixup is performed on an element E as follows. Let ***E*** be an element in the node set whose ancestor axis contains successive elements ***En***...***E1*** (in reverse document order) that are omitted and ***E***=***En+1*** is included. (It is important to note that ***En..E1*** is for contiguously omitted elements, for example only `e2` in the example in section 3.8.) The fix-up is only performed if at least one of ***E1*** ... ***En*** had an `xml:base` attribute. In that case let ***X1*** ... ***Xm*** be the values of the `xml:base` attributes on ***E1*** ... ***En+1*** (in document order, from outermost to innermost, ***m*** <= ***n+1***). The sequence of values is reduced in reverse document order to a single value by first combining ***Xm*** with ***Xm-1***, then the result with ***Xm-2***, and so on by calling the "join-URI-References" function until the new value for ***E***'s `xml:base` attribute remains. The result may also be null or empty (`xml:base=""`) in which case `xml:base` MUST NOT be rendered.

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Deleted: takes any URI (Base) from an ancestor and joins a relative URI of ***E*** (R) (in most cases after the last slash) of the former and then normalizes the result. We describe here a simple method for providing this functionality similar to that found in sections 5.2.1, 5.2.2. and 5.2.4. of RFC 3986 with the following modifications:
<#>Perform RFC 3986 section 5.2.1. " Pre-parse the Base URI" modified as follows.
<#>The scheme component is not required in the base URI (Base). (i.e. Base.scheme may be null)
<#>Perform RFC 3986 section 5.2.2. "Transform References" modified as follows to ignore the fragment part of R
<#>After parsing R set R.fragment = null
<#>5.2.4. "Remove Dot Segments" is modified to keep leading "../" segments and to prevent the erroneous creation of an output that looks like a net path. (seg/.././/pseudo-netpath/seg/file.ext)
<#>several changes as in "Remove Dot Segments" ... (see Apendix)

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Deleted: This function may also be called with the URI to be fixed up (R) being null (i.e. when no `xml:base` attribute exists in ***E***) or empty "" (`xml:base=""`). The base URI (Base) may also be unknown in which case the Algorithm is performed with Base.scheme = null, Base.authority = null, Base.path = "" and Base.query = nu ... [1]

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Note that this xml:base fixup is only performed if an element with an xml:base attribute is removed. Specifically, it is not performed if the element is present but the attribute is removed.

The join-URI-References function takes an xml:base attribute value from an omitted element and combines it with other contiguously omitted values to create a value for an updated xml:base attribute. A simple method for doing this is similar to that found in sections 5.2.1, 5.2.2 and 5.2.4 of RFC 3986 with the following modifications:

- Perform RFC 3986 section 5.2.1. " Pre-parse the Base URI" modified as follows.
  - The scheme component is not required in the base URI (Base). (i.e. Base.scheme may be null)
  - Replace a trailing ".." segment with "../" segment before processing.

- 5.2.4. "Remove Dot Segments" is modified as follows:
  - Keep leading "../" segments
  - Replace multiple consecutive "/" characters with a single "/" character.
  - Append a "/" character to a trailing ".." segment

- Perform RFC 3986 section 5.2.2. "Transform References" modified as follows to ignore the fragment part of R
  - After parsing R set R.fragment = null

- The algorithm is modified to ensure that a combination of two xml:base attribute values that include relative path components (i.e., path components that do not begin with a '/' character) results in an attribute value

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that is a relative path component.

Then, lexicographically merge this fixed up attribute with the nodes of ***E***'s attribute axis that are in the node-set. The result of visiting the attribute axis is computed by processing the attribute nodes in this merged attribute list.

Attributes in the XML namespace other than `xml:base`, `xml:id`, `xml:lang`, and `xml:space` MUST be processed as ordinary attributes.

3.8 Document Subsets and XML Attributes

Input Document	`<!DOCTYPE doc [`
	`<!ATTLIST e2 xml:space (default|prese`
	`<!ATTLIST e3 id ID #IMPLIED>`
	`]>`
	`<doc xmlns="http://www.ietf.org" xmlr`
	`xml:base="something/else">`
	`  <e1>`
	`  <e2 xmlns="" xml:id="abc" xml:s`
	`  <e3 id="E3" xml:ba`
	`  </e2>`
	`  </e1>`
	`</doc>`

Document Subset Expression	`<!-- Evaluate with declaration xmlns:`
	
	`(//. | //@* | //namespace::*)`
	`[`
	`  self::ietf:e1 or (parent::ietf:e1`
	`  or`
	`  count(id("E3")|ancestor-or-self::n`
	`self::node())`
	`]`

Canonical Form	`<e1 xmlns="http://www.ietf.org" xmlns`
	`xml:base="something/else"><e3 xmlns="`
	`xml:space="preserve"></e3><`

Demonstrates:

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- `xml:id` not inherited.
- simple inheritable XML attribute inherited (`xml:space`)
- `xml:base` fixup performed

Appendix A

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The following informative table outlines example results of the modified Remove Dot Segments algorithm described in Section 2.4.

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