W3C Standards Update

xslt / xquery / xpath
Ready to Deploy!

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Current Status

- XPath/XQuery 3.1:
  PROPOSED RECOMMENDATION
  17 January 2017

- XSLT 3.0:
  2nd CANDIDATE RECOMMENDATION
  7 February 2017

WHAT THE F?

- (A) Strategic things that move the language into new areas

- (B) Important functionality giving measurable productivity benefits

- (C) Goodies that just make programming more fun (or less like beating your head...)

STRATEGIC FOR XQUERY

- Higher Order Functions

    - ability to handle variety and change

- JSON support

    - because not all data is XML

STRATEGIC FOR XSLT

- Streaming
  - handling large source documents
- Packaging
  - handling large application suites
- HTML5
- JSON

important benefits

- Parse/Serialize within the language

- Maps and Arrays

- Standardized UCA Collations

- Grouping in XQuery

- Generalized collections

- XSLT: non-tree input and output

GOODIES: little things

- Operators: !, ||, ?, =>
- Text value templates in XSLT
- Union types
- tokenize(), contains-token()
- switch in XQuery
- function-lookup()

State of the Project

- Finished, except for the final signoff

- Successful, measured by
  - interoperable implementations
  - deployment in critical applications
  - the quality of the language specifications
  - the scope of application
  - thriving user community

And What Happens Next?

- Everyone pauses for breath...

- Community initiatives to build on the W3C baseline

    - function libraries

    - auxiliary standards e.g. XSLT packaging

- More implementations, hopefully

- New Generation query and transformation languages, perhaps?

Questions?

XSD 1.1 Retrospective

- Standard finished April 2012

- WG now closed down

- Final push was 3-4 people

- Well received by users

- 3 implementations: is this enough?

- Business case for investment is tough

XQuery 3.0

- Only the second version of XQuery

  - (in 14 years)

- Active investment by implementors

- Turns the language into a complete functional programming language

- Many extra "goodies" that users can adopt easily

  - group by, try/catch, switch, ...

Higher Order Functions

```
declare function sort(
    $input as item()*,
    $key as (function(item()) as xs:anyAtomicValue)) {
  for $item in $input
  order by $key($item)
  return $item
};

sort(//employee,
    function($e){current-date() - $e/joining-date})
```

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XPath 3.0

- Who needs it?

  - Key part of XSLT 3.0 and XQuery 3.0

  - Free-standing XPath widely used (DOM, Selenium, &c &c) but stuck on 1.0.

  - Little interest outside the XSLT and XQuery context

3.1

- Produced very quickly, largely because most of the work was done well before 3.0 finished

- Focus is on maps, arrays, and JSON

- Tension: is JSON something that exists in the big bad world outside XQuery, or does it have equal status to XML?

Maps and Arrays

- Lossless representation of JSON data

- Rich data structures for working data without the overheads of XML

- Immutable (like sequences)

- No "identity"

- Initiated in XSLT 3.0 for streaming applications, migrated to XPath 3.1

XSLT 3.0

- Getting closer: 2nd Last Call in October 2014

- A big and complex spec, getting the bugs out is challenging

- WG is stretched for resources

- 2 declared implementors (Saxon and Exselt)

  - selected features also in Altova

XSLT 3.0

- Streaming
  - processing large documents
- Packaging
  - independent development of stylesheet modules
- Plus...
  - maps, try/catch, merge, evaluate
  - HTML5 serialization, UCA collation
  - higher-order functions

Still to do

- XQuery Update 3.1

- Full Text 3.1

- … remember to switch off the lights?

Questions?