XFrames

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Abstract

XFrames is an XML application for composing documents together, replacing HTML Frames. By being a separate application from XHTML, it allows content negotiation to determine if the user agent accepts frames; by encoding the 'population' of frames in the URI, it allows framesets to be bookmarked.

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Contents

1 Introduction

This section is informative.

Frames were introduced into HTML at version 4.0 [HTML4]. They introduced a manner of composing several HTML documents into a single view to create an application-like interface.

However, Frames introduced several usability problem that caused several commentators to advise Web site builders to avoid them at all costs. Examples of such usability problems are:

- The [back] button works unintuitively in many cases.
- You cannot bookmark a collection of documents in a frameset, or send someone a reference to the collection.
- If you do a [reload], the result may be different to what you had.
- [page up] and [page down] are often hard to do.
- You can get trapped in a frameset.
- Searching finds HTML pages, not Framed pages, so search results usually give you pages without the navigation context that they were intended to be in.
- Since you can't content negotiate, `noframes` markup is necessary for user agents that don't support frames. However, almost no one produces `noframes` content, and so it ruins Web searches, since search engines are examples of user agents that do not support frames.
- There are security problems caused by the fact that it is not visible to the user when different frames come from different sources.

This document defines a separate XML application, not a part of XHTML *per se*, that allows similar functionality to HTML Frames, with fewer usability problems, principally by making the content of the frameset visible in its URI.

2 XFrames

This section is normative.

This specification defines an XML application called XFrames. It uses the XML Namespaces [NAME] identifier: `http://www.w3.org/2002/06/xframes/`

All examples in this document are informative.

The remainder of this section describes the elements and attributes in XFrames, and their semantics.

The XFrames Module supports the following element and attributes:

Element	Attributes	Content Model
frames	class (NMTOKENS), xml:id (ID), title (CDATA), xml:base (URI)	head?, (group | frame+)
head	class (NMTOKENS), xml:id (ID), title (CDATA)	title, style*
title	class (NMTOKENS), xml:id (ID), title (CDATA)	PCDATA
style	class (NMTOKENS), xml:id (ID), title (CDATA), type* (ContentType), media (MediaDesc), source (URI)	PCDATA
group	class (NMTOKENS), xml:id (ID), title (CDATA), compose ("vertical"* | "horizontal" | "single" | "free" | QName), xml:base (URI)	(group | frame)+
frame	class (NMTOKENS), xml:id (ID), title (CDATA), source (URI)	EMPTY

Implementations: DTD, RELAX NG, XML Schema

Note that the datatype called 'URI' in this specification refers to the Internationalized Resource Identifier (IRI) [IRI].

Example XFrames document:

```
<frames xmlns="http://www.w3.org/2002/06/xframes/">
   <head>
      <title>Home page</title>
      <style type="text/css">
         #banner {height: 10em }
         #atoz, #nav {width: 20%}
         #footer {height: 4em }
      </style>
   </head>
   <group compose="vertical">
      <frame xml:id="banner" source="banner.xhtml"/>
      <group compose="horizontal">
         <frame xml:id="atoz" source="atoz.xhtml"/>
         <frame xml:id="main" source="news.xhtml"/>
         <frame xml:id="nav" source="nav.xhtml"/>
      </group>
      <frame xml:id="footer" source="copyright.xhtml"/>
   </group>
</frames>
```

2.1 The frames Element

An XFrames document is a specification for composing several documents, potentially of different types, together in a view. The `frames` element forms the container for the composed document. The individual sub-documents ('frames') may be composed together in a rectangular space by placing them next to, or above, each other in rows and columns, or they may be displayed as separate

movable window-like panes, or as tabbed panes, or in any other suitable manner. The collection of frames in an XFrames document is referred to as a *frameset*. The `frames` element has the following additional attribute on top of the set of attributes common to all elements:

`xml:base`
: Used for resolving relative URIs when populating frames within the document. See [XMLBASE].

2.2 The head Element

The `head` element contains meta-data about the document, specifying a title, and a style sheet.

2.3 The title Element

The `title` element contains an identifying text for the document, that may be used by a user agent to label the document.

2.4 The style Element

The `style` element allows the specification of styling instructions that affect the presentation of the frames in the document. Apart from common attributes, the `style` element has the following attributes:

`type`
: This required attribute specifies the style sheet language of the element's contents. The style sheet language is specified as a content type (e.g., "`text/css`"). A value must be supplied for this attribute; there is no default value.

`source`
: This optional attribute specifies the URI reference of a stylesheet. If that stylesheet is available, it is used in place of the content of the `style` element; otherwise the content of the `style` element is used.

`media`
: This optional attribute is a comma-separated list of media descriptors used by the stylesheet processor to determine if this style definition applies to the current document in the current circumstances.

2.5 The group Element

The `group` element specifies a series of groups and single frames. The groups and single frames are positioned together according to styling applied to them; in the absence of styling, the `compose` attribute should be used by the user agent as an indication of how the frames are to be composed. There is one additional attribute:

`xml:base`

Used for resolving relative URIs when populating frames within the document. See [XMLBASE].

2.6 The frame Element

The `frame` element is a place holder for the content of a document. It has one additional attribute:

`source`
: This attribute specifies a URI-reference for a default document to populate the frame, if that is not done via a parameter to the frameset document's URI.

2.7 The compose Attribute

The `compose` attribute supplies a suggestion to the user agent for how a group of frames should be composed. Styling applied from a stylesheet may override or ignore the suggestion; user agents for particular devices may find it necessary to use other styling: for instance a device with a very small screen may only offer a presentation of the frames' titles, and allow each frame to be selected individually (a variant of 'single'); otherwise a user agent should use the suggestion for positioning.

The `compose` attribute has the following values:

`vertical`
: The grouped elements are tiled vertically above each other. (A group with `compose="vertical"` is referred to further in this specification as a *column*.)

`horizontal`
: The grouped elements are tiled horizontally next to each other. (A group with `compose="horizontal"` is referred to further in this specification as a *row*.)

`single`
: At any moment only one of the grouped frames is visible; any of the others can be made visible by selecting it. The user must be able to see that there are other frames available, and the user must be able to access any one of them. The method used to select another frame is not defined. It may be done using a series of tabs, a menu, or some other means. The frame or group's title should be used as the identifier used for selection.

`free`
: The elements are made available as free-standing moveable overlappable windows within the space available.

`A QName`

This specification makes no normative statement about how these values affect layout. It is there to allow implementations to supply other layout possibilities. In the absence of any other styling information, when an implementation encounters a value it does not recognize, it should treat it as equivalent to `vertical`.

2.8 Common Attributes

`xml:id`

This attribute assigns a name to an element. This name must be unique in an XFrames document. It may be used as a style sheet selector, a target anchor for hypertext links or as a means to reference a particular element for general purpose processing by user agents.

`class`

This attribute assigns a class name or set of class names to an element. Any number of elements may be assigned the same class name or names. Multiple class names must be separated by white space characters. It may be used as a style sheet selector (when an author wishes to assign style information to a set of elements) or for general purpose processing by user agents.

`title`

This attribute offers advisory information about the element for which it is set. It may be used to document the purpose of a frame, and may be useful for non-visual user agents to help the user understand the structure of a set of frames.

2.9 Examples of Layout

This section is informative.

All these examples assume at least a surrounding `<frames xmlns="http://www.w3.org/2002/06/xframes/">` element. The `xml:id` attributes have been omitted from the `frame` elements for clarity.

1. To place two documents next to each other, you specify

   ```
   <group compose="horizontal"><frame/><frame/></group>
   ```

2. To put two documents one above the other, you specify

   ```
   <group compose="vertical"><frame/><frame/></group>
   ```

3. To specify a layout that looks like the following

   ```
    -------
   |   |   |
   |---|   |
   ```

```
|   |   |
 -------
```

you specify

```
<group compose="horizontal">
    <group compose="vertical">
        <frame/>
        <frame/>
    </group>
    <frame/>
</group>
```

4. A layout like

```
 -------
|   |   |
|-------|
|       |
 -------
```

you specify as

```
<group compose="vertical">
    <group compose="horizontal">
        <frame/>
        <frame/>
    </group>
    <frame/>
</group>
```

5. A layout like

```
 -----
|     |
|-----|
|  |  |
|-----|
|     |
 -----
```

you specify

```
<group compose="vertical">
    <frame/>
    <group compose="horizontal">
        <frame/>
        <frame/>
    </group>
    <frame/>
</group>
```

6. A layout like

```
 -----
|  |  |
|--+--|
```

```
|  |  |
 -----
```

can be specified as either a column of two rows, or a row of two columns:

```
<group compose="vertical">
    <group compose="horizontal">
        <frame/>
        <frame/>
    </group>
    <group compose="horizontal">
        <frame/>
        <frame/>
    </group>
</group>
```

or

```
<group compose="horizontal">
    <group compose="vertical">
        <frame/>
        <frame/>
    </group>
    <group compose="vertical">
        <frame/>
        <frame/>
    </group>
</group>
```

7. A tabbed frameset:

```
<group compose="single">
    <frame/>
    <frame/>
    <frame/>
</group>
```

Replace `"single"` with `"free"` for moveable frames.

3 Populating a Frameset

An XFrames document is normally referenced by a URI reference [URI] of the form `http://example.org/home.xframes#frames(id1=uri1,id2=uri2,...)`.

That is to say, the part before the '#' is a URI identifying an XFrames document. After the '#' comes the word 'frames', followed by, in brackets, one or more associations separated by commas.

3.1 Syntax

```
xframes-URI-reference = [ absoluteURI | relativeURI ] [ "#frames(" associations
")" ]

associations = association | associations "," association
```

```
association = id "=" URI-reference
```

Each association consists of an identifer, an equals sign, and a URI reference, with no intervening whitespace. Matched brackets within the URI reference, and commas enclosed within matched brackets, may be left unescaped; all other brackets and commas must be escaped according to URI escaping rules: %2c for comma, %28 for open bracket, and %29 for close bracket.

3.2 Assigning a resource to a frame

Each identifier in an association identifies a `frame` element within the XFrames document with an `xml:id` attribute with that value. The associated URI reference is then assigned to that frame. If there is no frame with such an `xml:id`, the association is ignored. If there is more than one association for the same `xml:id`, the textually last one is used.

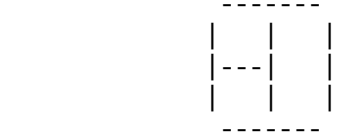
If a frame within the document is not populated (because it has no `xml:id` attribute, or because there is no association that uses its id), and it has a `source` attribute, the URI reference in that attribute is used instead. If an unpopulated frame has no `source` attribute, the frame is left blank.

An XFrames document may also be referenced with an unadorned URI (i.e., not a URI reference), such as `http://example.org/home.xframes`, in which case the frames are populated only using the source attributes where present.

Relative parameter URIs are interpreted relative to the XFrames document, taking into account any `xml:base` [XMLBASE] value on the `frames` element; relative URIs in `source` attributes are interpreted according to any `xml:base` attributes on enclosing elements, and otherwise relative to the XFrames document.

Having associated URIs to the frames, the XFrames document is displayed accordingly.

For example, in a document `home.xframes`, describing the following layout



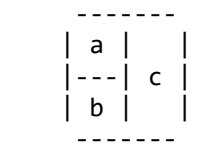
as

```
<group compose="horizontal">
    <group compose="vertical">
        <frame xml:id="one"/>
        <frame xml:id="two"/>
    </group>
    <frame xml:id="three" source="main.xml"/>
</group>
```

and populated as follows

```
home.xframes#frames(one=a.xhtml,two=b.xhtml,three=c.xhtml)
```

the frames would be populated by assigning `a.xhtml` to the frame with `xml:id="one"`, `b.xhtml` to the frame with `xml:id="two"`, and `c.xhtml` to the frame with `xml:id="three"`:



Populated as follows:

```
home.xframes#frames(one=a.xhtml,two=b.xhtml)
```

the frame with `xml:id="three"` would be populated with `main.xml`.

Populated as follows

```
home.xframes#frames(one=a.xhtml)
```

the frame with `xml:id="two"` would additionally be left blank.

Populated as follows:

```
home.xframes#frames(four=nav.xml)
```

the frames with `xml:id="one"` and `xml:id="two"` would be blank, and the frame with `xml:id="three"` would be associated with `main.xml` (and `nav.xml` would be ignored); this is identical to populating it with the unadorned URI `home.xframes`.

3.3 Links and Targets

If a document assigned to a frame contains hyperlinks, and one of these is activated by some means (such as by the user clicking on it), then the URI of that hyperlink is normally assigned to the frame instead, and the XFrames document is redisplayed.This changes the URI associated with the XFrames document, by adding or replacing an association between the frame and the URI for the frame document; this would normally be visible to the user. If the frame containing the document does not have an xml:id attribute, so that such an association is not possible, the entire frameset is replaced by the linked-to document.

If the hyperlink is in some way *targetted* (for instance by being associated with a *target* attribute in XHTML 1.0 [XHTML]), then in the containing frameset a frame with an `xml:id` equal to the target is located, and the URI is associated with that frame instead. If the current frameset contains no such `xml:id`, but the frameset is associated with a frame in another frameset, then the process continues with that frameset, and so on. If no matching `xml:id` is found, then the targetted resource is processed in an entirely new environment with that target identifier (for instance, a visual browser might open a new window).

4 Sizing, Styling and Rendering of Frames

Styling, positioning, and sizing of frames is done using a style sheet in CSS or some other suitable styling language. This means that there is nothing normative in the values of the `compose` attribute except a suggestion on how they should be rendered, and a default composition in the absence of other styling information.

In the absence of other styling information, the height of a row is the height of its highest directly contained element; the height of a column is the sum of the heights of its directly contained elements.

In the absence of other styling information, the width of a column is the width of its widest directly contained element; the width of a row is the sum of the widths of its directly contained elements.

In the absence of other styling information, the height and width of a frame is either obtained from the intrinsic dimensions of the framed content (such as an image), or otherwise by sharing the available space equally over such undimensioned elements at the same level (so in a column of three frames, each frame is allocated one third of the height of the column; with a column of two frames and a row, the row is still allocated one third of the height of the column, even if the row itself contains more columns; in a column of three frames where one frame has been assigned a height, the remaining space is divided over the other two frames).

Note that any stylesheet in an XFrames document has no effect on the contents of any frame.

5 Documents Assigned to Frames

This specification does not require conformant XFrames user agents to accept or refuse any particular type of document for assignment to a frame, though it must accept at least one.

A Module Implementations

This appendix is *normative*.

A.1 DTD Implementation

A.1.1 XFrames DTD

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- ..................................................................... -->
<!-- XFrames DTD ........................................................... -->
<!-- URI: http://www.w3.org/MarkUp/DTD/xframes-1.dtd

     This is XFrames - an XML application for composing documents together.
```

```
     Copyright ©2002-2005 W3C (MIT, ERCIM, Keio), All Rights Reserved.

       Editor:   Masayasu Ishikawa <mimasa@w3.org>
       Revision: $Id: xframes-1.dtd,v 1.8 2005/10/04 12:50:58 mimasa Exp $

     Permission to use, copy, modify and distribute the XFrames DTD and its
     accompanying documentation for any purpose and without fee is hereby
     granted in perpetuity, provided that the above copyright notice and
     this paragraph appear in all copies.  The copyright holders make no
     representation about the suitability of the DTD for any purpose.

     It is provided "as is" without expressed or implied warranty.

     This DTD module is identified by the PUBLIC and SYSTEM identifiers:

       PUBLIC "-//W3C//DTD XFrames 1.0//EN"
       SYSTEM "http://www.w3.org/MarkUp/DTD/xframes-1.dtd"

     Revisions:
     (none)
     ..................................................................... -->

<!-- XFrames

     frames, head, title, style, group, frame

     This XFrames DTD declares elements and attributes defining
     XFrames, an XML application for composing documents together.
-->

<!-- Datatypes

     defines containers for the following datatypes, many of
     these imported from other specifications and standards.
-->

<!-- media type, as per [RFC2045] -->
<!ENTITY % ContentType.datatype "CDATA" >

<!-- A comma-separated list of media descriptors as described by [CSS2].
     The default is all.
-->
<!ENTITY % MediaDesc.datatype "CDATA" >

<!-- An Internationalized Resource Identifier Reference, as defined by [IRI].
-->
<!ENTITY % URI.datatype "CDATA" >

<!-- XFrames Qname (Qualified Name) Module -->
<!ENTITY % xframes-qname.mod
    PUBLIC "-//W3C//ENTITIES XFrames Qualified Names 1.0//EN"
           "xframes-qname-1.mod" >
%xframes-qname.mod;

<!-- Common Attributes

     This module declares many of the common attributes for the XFrames DTD.
     %XFRAMES.xmlns.attrib; is declared in the XFrames Qname module.
```

```
-->

<!ENTITY % XFRAMES.Common.extra.attrib "" >

<!ENTITY % XFRAMES.Common.attrib
  "class   NMTOKENS  #IMPLIED
   xml:id  ID        #IMPLIED
   title   CDATA     #IMPLIED
   %XFRAMES.xmlns.attrib;
   %XFRAMES.Common.extra.attrib;"
>

<!-- frames element ..................................... -->
<!ENTITY % XFRAMES.frames.content
  "( %XFRAMES.head.qname;?,
   ( %XFRAMES.group.qname; | %XFRAMES.frame.qname;+ ) )"
>
<!ELEMENT %XFRAMES.frames.qname; %XFRAMES.frames.content; >
<!ATTLIST %XFRAMES.frames.qname;
    %XFRAMES.Common.attrib;
    xml:base  %URI.datatype;  #IMPLIED
>

<!-- head element ....................................... -->
<!ENTITY % XFRAMES.head.content
  "( %XFRAMES.title.qname;, %XFRAMES.style.qname;* )"
>
<!ELEMENT %XFRAMES.head.qname; %XFRAMES.head.content; >
<!ATTLIST %XFRAMES.head.qname;
    %XFRAMES.Common.attrib;
>

<!-- title element ...................................... -->
<!ENTITY % XFRAMES.title.content "( #PCDATA )" >
<!ELEMENT %XFRAMES.title.qname; %XFRAMES.title.content; >
<!ATTLIST %XFRAMES.title.qname;
    %XFRAMES.Common.attrib;
>

<!-- style element ..................................... -->
<!ENTITY % XFRAMES.style.content "( #PCDATA )" >
<!ELEMENT %XFRAMES.style.qname; %XFRAMES.style.content; >
<!ATTLIST %XFRAMES.style.qname;
    %XFRAMES.Common.attrib;
    type    %ContentType.datatype;  #REQUIRED
    media   %MediaDesc.datatype;    #IMPLIED
    source  %URI.datatype;          #IMPLIED
>

<!-- group element ..................................... -->
<!ENTITY % XFRAMES.group.content
  "( ( %XFRAMES.group.qname; | %XFRAMES.frame.qname; )+ )"
>
<!ELEMENT %XFRAMES.group.qname; %XFRAMES.group.content; >
<!-- possible values for the compose attribute are:
     "vertical", "horizontal", "single", "free", or a QName
-->
<!ATTLIST %XFRAMES.group.qname;
```

```
    %XFRAMES.Common.attrib;
    compose   CDATA           'vertical'
    xml:base  %URI.datatype;  #IMPLIED
>

<!-- frame element ..................................... -->
<!ENTITY % XFRAMES.frame.content "EMPTY" >
<!ELEMENT %XFRAMES.frame.qname; %XFRAMES.frame.content; >
<!ATTLIST %XFRAMES.frame.qname;
    %XFRAMES.Common.attrib;
    source  %URI.datatype;  #IMPLIED
>

<!-- end of xframes-1.dtd -->
```

A.1.2 XFrames Qname Module

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- ................................................................... -->
<!-- XFrames Qname Module  ............................................. -->
<!-- URI: http://www.w3.org/MarkUp/DTD/xframes-qname-1.mod

     This is XFrames - an XML application for composing documents together.

     Copyright ©2002-2005 W3C (MIT, ERCIM, Keio), All Rights Reserved.

     Revision: $Id: xframes-qname-1.mod,v 1.5 2005/09/21 18:03:25 mimasa Exp $

     This DTD module is identified by the PUBLIC and SYSTEM identifiers:

       PUBLIC "-//W3C//ENTITIES XFrames Qualified Names 1.0//EN"
       SYSTEM "http://www.w3.org/MarkUp/DTD/xframes-qname-1.mod"

     Revisions:
     (none)
     ................................................................... -->

<!-- XFrames Qname (Qualified Name) Module

     This module is contained in two parts, labeled Section 'A' and 'B':

       Section A declares parameter entities to support namespace-
       qualified names, namespace declarations, and name prefixing
       for XFrames and extensions.

       Section B declares parameter entities used to provide
       namespace-qualified names for all XFrames element types:

         %XFRAMES.frames.qname;   the xmlns-qualified name for <frames>
         ...

     XFrames extensions would create a module similar to this one.
     Included in the XML distribution is a template module
     ('template-qname-1.mod') suitable for this purpose.
-->

<!-- Section A: XFrames XML Namespace Framework :::::::::::::::::::: -->
```

```
<!-- 1. Declare a %XFRAMES.prefixed; conditional section keyword, used
        to activate namespace prefixing. The default value should
        inherit '%XFRAMES.NS.prefixed;' from the DTD driver, so that unless
        overridden, the default behaviour follows the overall DTD
        prefixing scheme.
-->
<!ENTITY % XFRAMES.NS.prefixed "IGNORE" >
<!ENTITY % XFRAMES.prefixed "%XFRAMES.NS.prefixed;" >

<!-- 2. Declare a parameter entity (eg., %XFRAMES.xmlns;) containing
        the URI reference used to identify the XFrames namespace
-->
<!ENTITY % XFRAMES.xmlns  "http://www.w3.org/2002/06/xframes/" >

<!-- 3. Declare parameter entities (eg., %MODULE.prefix;) containing
        the default namespace prefix string(s) to use when prefixing
        is enabled. This may be overridden in the DTD driver or the
        internal subset of an document instance. If no default prefix
        is desired, this may be declared as an empty string.

     NOTE: As specified in [XMLNAMES], the namespace prefix serves
     as a proxy for the URI reference, and is not in itself significant.
-->
<!ENTITY % XFRAMES.prefix  "x" >

<!-- 4. Declare parameter entities (eg., %XFRAMES.pfx;) containing the
        colonized prefix(es) (eg., '%XFRAMES.prefix;:') used when
        prefixing is active, an empty string when it is not.
-->
<![%XFRAMES.prefixed;[
<!ENTITY % XFRAMES.pfx  "%XFRAMES.prefix;:" >
]]>
<!ENTITY % XFRAMES.pfx  "" >

<!-- declare qualified name extensions here ............ -->
<!ENTITY % xframes-qname-extra.mod "" >
%xframes-qname-extra.mod;

<!-- 5. The parameter entity %XFRAMES.xmlns.extra.attrib; may be
        redeclared to contain any non-XFrames namespace declaration
        attributes for namespaces embedded in XML. The default
        is an empty string.  XLink should be included here if used
        in the DTD.
-->
<!ENTITY % XFRAMES.xmlns.extra.attrib "" >

<![%XFRAMES.prefixed;[
<!ENTITY % XFRAMES.NS.decl.attrib
     "xmlns:%XFRAMES.prefix;  %URI.datatype;  #FIXED '%XFRAMES.xmlns;'
      %XFRAMES.xmlns.extra.attrib;"
>
]]>
<!ENTITY % XFRAMES.NS.decl.attrib
     "%XFRAMES.xmlns.extra.attrib;"
>

<!-- Declare a parameter entity %XFRAMES.NS.decl.attrib; containing all
```

```
     XML namespace declaration attributes used by XFrames, including
     a default xmlns declaration when prefixing is inactive.
-->
<![%XFRAMES.prefixed;[
<!ENTITY % XFRAMES.xmlns.attrib
     "%XFRAMES.NS.decl.attrib;"
>
]]>
<!ENTITY % XFRAMES.xmlns.attrib
     "xmlns                   %URI.datatype;  #FIXED '%XFRAMES.xmlns;'
      %XFRAMES.xmlns.extra.attrib;"
>

<!-- Section B: XML Qualified Names ::::::::::::::::::::::::::::: -->

<!-- 6. This section declares parameter entities used to provide
        namespace-qualified names for all XFrames element types.
-->

<!ENTITY % XFRAMES.frames.qname "%XFRAMES.pfx;frames" >
<!ENTITY % XFRAMES.head.qname   "%XFRAMES.pfx;head" >
<!ENTITY % XFRAMES.title.qname  "%XFRAMES.pfx;title" >
<!ENTITY % XFRAMES.style.qname  "%XFRAMES.pfx;style" >
<!ENTITY % XFRAMES.group.qname  "%XFRAMES.pfx;group" >
<!ENTITY % XFRAMES.frame.qname  "%XFRAMES.pfx;frame" >

<!-- end of xfames-qname-1.mod -->
```

A.2 RELAX NG Implementation

```
<?xml version="1.0" encoding="UTF-8"?>
<grammar ns="http://www.w3.org/2002/06/xframes/" xml:lang="en"
         xmlns="http://relaxng.org/ns/structure/1.0"
         xmlns:xml="http://www.w3.org/XML/1998/namespace"
         xmlns:a="http://relaxng.org/ns/compatibility/annotations/1.0"
         datatypeLibrary="http://www.w3.org/2001/XMLSchema-datatypes">

  <a:documentation>
    XFrames RELAX NG pattern
    URI: http://www.w3.org/MarkUp/RELAXNG/xframes-1.rng

    This is XFrames - an XML application for composing documents together.

    Copyright ©2002-2005 W3C (MIT, ERCIM, Keio), All Rights Reserved.

        Editor:   Masayasu Ishikawa (mimasa@w3.org)
        Revision: $Id: xframes-1.rng,v 1.19 2005/10/05 23:53:41 mimasa Exp $

    Permission to use, copy, modify and distribute the XFrames RELAX NG
    pattern and its accompanying documentation for any purpose and without
    fee is hereby granted in perpetuity, provided that the above copyright
    notice and this paragraph appear in all copies. The copyright holders
    make no representation about the suitability of this RELAX NG pattern
    for any purpose.

    It is provided "as is" without expressed or implied warranty.
  </a:documentation>
```

```
<a:documentation>
  XFrames

  frames, head, title, style, group, frame

  This XFrames RELAX NG pattern declares elements and attributes defining
  XFrames, an XML application for composing documents together.
</a:documentation>

<start>
  <choice>
    <ref name="frames"/>
  </choice>
</start>

<div>
  <a:documentation>
    Datatypes
  </a:documentation>

  <define name="ContentType.datatype">
    <a:documentation>
      ContentType.datatype

      media type, as per [RFC2045]
    </a:documentation>
    <text/>
  </define>

  <define name="MediaDesc.datatype">
    <a:documentation>
      A comma-separated list of media descriptors as described by [CSS2].
      The default is all.
    </a:documentation>
    <data type="string">
      <param name="pattern">[^,]+(,\s*[^,]+)*</param>
    </data>
  </define>

  <define name="QName.datatype">
    <a:documentation>
      QName.datatype

      An [XMLNS]-qualified name.
    </a:documentation>
    <data type="QName"/>
  </define>

  <define name="URI.datatype">
    <a:documentation>
      URI.datatype

      An Internationalized Resource Identifier Reference, as defined
      by [IRI].
    </a:documentation>
    <data type="anyURI"/>
  </define>
```

```
</div>

<div>
  <a:documentation>
    Common Attributes

    class, xml:id, title
  </a:documentation>

  <define name="XFRAMES.Common.extra.attrib">
    <empty/>
  </define>

  <define name="XFRAMES.Common.attrib">
    <optional>
      <attribute name="class">
        <data type="NMTOKENS"/>
      </attribute>
    </optional>
    <optional>
      <attribute name="xml:id">
        <data type="ID"/>
      </attribute>
    </optional>
    <optional>
      <attribute name="title"/>
    </optional>
    <ref name="XFRAMES.Common.extra.attrib"/>
  </define>
</div>

<div>
  <a:documentation>
    frames element
  </a:documentation>

  <define name="XFRAMES.frames.content">
    <optional>
      <ref name="head"/>
    </optional>
    <choice>
      <ref name="group"/>
      <oneOrMore>
        <ref name="frame"/>
      </oneOrMore>
    </choice>
  </define>

  <define name="frames">
    <element name="frames">
      <ref name="attlist.frames"/>
      <ref name="XFRAMES.frames.content"/>
    </element>
  </define>

  <define name="attlist.frames" combine="interleave">
    <ref name="XFRAMES.Common.attrib"/>
    <optional>
```

```
      <attribute name="xml:base">
        <ref name="URI.datatype"/>
      </attribute>
    </optional>
  </define>
</div>

<div>
  <a:documentation>
    head element
  </a:documentation>

  <define name="XFRAMES.head.content">
    <ref name="title"/>
    <zeroOrMore>
      <ref name="style"/>
    </zeroOrMore>
  </define>

  <define name="head">
    <element name="head">
      <ref name="attlist.head"/>
      <ref name="XFRAMES.head.content"/>
    </element>
  </define>

  <define name="attlist.head" combine="interleave">
    <ref name="XFRAMES.Common.attrib"/>
  </define>
</div>

<div>
  <a:documentation>
    title element
  </a:documentation>

  <define name="XFRAMES.title.content">
    <text/>
  </define>

  <define name="title">
    <element name="title">
      <ref name="attlist.title"/>
      <ref name="XFRAMES.title.content"/>
    </element>
  </define>

  <define name="attlist.title" combine="interleave">
    <ref name="XFRAMES.Common.attrib"/>
  </define>
</div>

<div>
  <a:documentation>
    style element
  </a:documentation>

  <define name="XFRAMES.style.content">
```

```
    <text/>
  </define>

  <define name="style">
    <element name="style">
      <ref name="attlist.style"/>
      <ref name="XFRAMES.style.content"/>
    </element>
  </define>

  <define name="attlist.style" combine="interleave">
    <ref name="XFRAMES.Common.attrib"/>
    <attribute name="type">
      <ref name="ContentType.datatype"/>
    </attribute>
    <optional>
      <attribute name="media" a:defaultValue="all">
        <ref name="MediaDesc.datatype"/>
      </attribute>
    </optional>
    <optional>
      <attribute name="source">
        <ref name="URI.datatype"/>
      </attribute>
    </optional>
  </define>
</div>

<div>
  <a:documentation>
    group element
  </a:documentation>

  <define name="XFRAMES.group.content">
    <oneOrMore>
      <choice>
        <ref name="group"/>
        <ref name="frame"/>
      </choice>
    </oneOrMore>
  </define>

  <define name="group">
    <element name="group">
      <ref name="attlist.group"/>
      <ref name="XFRAMES.group.content"/>
    </element>
  </define>

  <define name="attlist.group" combine="interleave">
    <ref name="XFRAMES.Common.attrib"/>
    <optional>
      <attribute name="compose" a:defaultValue="vertical">
        <choice>
          <value>vertical</value>
          <value>horizontal</value>
          <value>single</value>
          <value>free</value>
```

```
            <ref name="QName.datatype"/>
          </choice>
        </attribute>
      </optional>
      <optional>
        <attribute name="xml:base">
          <ref name="URI.datatype"/>
        </attribute>
      </optional>
    </define>
  </div>

  <div>
    <a:documentation>
      frame element
    </a:documentation>

    <define name="XFRAMES.frame.content">
      <empty/>
    </define>

    <define name="frame">
      <element name="frame">
        <ref name="attlist.frame"/>
        <ref name="XFRAMES.frame.content"/>
      </element>
    </define>

    <define name="attlist.frame" combine="interleave">
      <ref name="XFRAMES.Common.attrib"/>
      <optional>
        <attribute name="source">
          <ref name="URI.datatype"/>
        </attribute>
      </optional>
    </define>
  </div>

</grammar>
```

A.3 XML Schema Implementation

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema
    xmlns:xs="http://www.w3.org/2001/XMLSchema"
    targetNamespace="http://www.w3.org/2002/06/xframes/"
    xmlns="http://www.w3.org/2002/06/xframes/"
    xmlns:xml="http://www.w3.org/XML/1998/namespace"
    elementFormDefault="qualified">

  <xs:annotation>
    <xs:documentation xml:lang="en">
      This is XFrames - an XML application for composing documents together.
      URI: http://www.w3.org/MarkUp/SCHEMA/xframes-1.xsd

      Copyright ©2002-2005 W3C (MIT, ERCIM, Keio), All Rights Reserved.
```

```
      Editor:   Masayasu Ishikawa (mimasa@w3.org)
      Revision: $Id: xframes-1.xsd,v 1.3 2005/10/05 23:57:23 mimasa Exp $

    Permission to use, copy, modify and distribute this XML Schema for
    XFrames and its accompanying documentation for any purpose and without
    fee is hereby granted in perpetuity, provided that the above copyright
    notice and this paragraph appear in all copies. The copyright holders
    make no representation about the suitability of this XML Schema
    for any purpose.

    It is provided "as is" without expressed or implied warranty.
  </xs:documentation>
</xs:annotation>

<xs:import namespace="http://www.w3.org/XML/1998/namespace"
  schemaLocation="http://www.w3.org/2001/xml.xsd">
  <xs:annotation>
    <xs:documentation xml:lang="en">
      Get access to the XML namespace
    </xs:documentation>
  </xs:annotation>
</xs:import>

<xs:annotation>
  <xs:documentation xml:lang="en">
    Datatypes
  </xs:documentation>
</xs:annotation>

<xs:simpleType name="ContentType.datatype">
  <xs:annotation>
    <xs:documentation xml:lang="en">
      media type, as per [RFC2045]
    </xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string"/>
</xs:simpleType>

<xs:simpleType name="MediaDesc.datatype">
  <xs:annotation>
    <xs:documentation>
      A comma-separated list of media descriptors as described by [CSS2].
      The default is all.
    </xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:pattern value="[^,]+(,\s*[^,]+)*"/>
  </xs:restriction>
</xs:simpleType>

<xs:simpleType name="QName.datatype">
  <xs:annotation>
    <xs:documentation>
      An [XMLNS]-qualified name.
    </xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:QName"/>
</xs:simpleType>
```

```
<xs:simpleType name="URI.datatype">
  <xs:annotation>
    <xs:documentation xml:lang="en">
      An Internationalized Resource Identifier Reference, as defined
      by [IRI].
    </xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:anyURI"/>
</xs:simpleType>

<xs:attributeGroup name="Common.attrib">
  <xs:annotation>
    <xs:documentation xml:lang="en">
      Common attributes
    </xs:documentation>
  </xs:annotation>
  <xs:attribute name="class" type="xs:NMTOKENS"/>
  <xs:attribute ref="xml:id"/>
  <xs:attribute name="title" type="xs:string"/>
</xs:attributeGroup>

<xs:element name="frames">
  <xs:complexType>
    <xs:sequence>
      <xs:element minOccurs="0" maxOccurs="1" ref="head"/>
      <xs:choice>
        <xs:element ref="group"/>
        <xs:element minOccurs="1" maxOccurs="unbounded" ref="frame"/>
      </xs:choice>
    </xs:sequence>
    <xs:attributeGroup ref="Common.attrib"/>
    <xs:attribute ref="xml:base"/>
  </xs:complexType>
</xs:element>

<xs:element name="head">
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="title"/>
      <xs:element minOccurs="0" maxOccurs="unbounded" ref="style"/>
    </xs:sequence>
    <xs:attributeGroup ref="Common.attrib"/>
  </xs:complexType>
</xs:element>

<xs:element name="title">
  <xs:complexType mixed="true">
    <xs:attributeGroup ref="Common.attrib"/>
  </xs:complexType>
</xs:element>

<xs:element name="style">
  <xs:complexType mixed="true">
    <xs:attributeGroup ref="Common.attrib"/>
    <xs:attribute name="type" type="ContentType.datatype" use="required"/>
    <xs:attribute name="media" type="MediaDesc.datatype"/>
    <xs:attribute name="source" type="URI.datatype"/>
```

```
    </xs:complexType>
  </xs:element>

  <xs:element name="group">
    <xs:complexType>
      <xs:choice minOccurs="1" maxOccurs="unbounded">
        <xs:element ref="group"/>
        <xs:element ref="frame"/>
      </xs:choice>
      <xs:attributeGroup ref="Common.attrib"/>
      <xs:attribute name="compose" default="vertical">
        <xs:simpleType>
          <xs:union memberTypes="QName.datatype">
            <xs:simpleType>
             <xs:restriction base="xs:token">
               <xs:enumeration value="vertical"/>
               <xs:enumeration value="horizontal"/>
               <xs:enumeration value="single"/>
               <xs:enumeration value="free"/>
             </xs:restriction>
           </xs:simpleType>
          </xs:union>
        </xs:simpleType>
      </xs:attribute>
    </xs:complexType>
  </xs:element>

  <xs:element name="frame">
    <xs:complexType>
      <xs:attributeGroup ref="Common.attrib"/>
      <xs:attribute name="source" type="URI.datatype"/>
    </xs:complexType>
  </xs:element>

</xs:schema>
```

B References

This appendix is *normative*.

B.1 Normative References

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