



RDFa in HTML: a lightweight profile

Rules for interpreting RDFa attributes in HTML 4-based documents

ApTest Proposal Draft 14 May 2009

This version:

<http://www3.aptest.com/standards/2009/APTEST-rdfa-html-20090514>

Latest version:

<http://www3.aptest.com/standards/rdfa-html>

Editors:

Shane McCarron, Applied Testing and Technology, Inc. shane@aptest.com

This document is also available in these non-normative formats: PostScript version, PDF version, ZIP archive, and Gzip'd TAR archive.

Copyright © 2009 ApTest. All rights reserved.

Abstract

Embedding meta-information in XHTML documents via RDFa in XHTML: Syntax and Processing [RDFaSYNTAX [p.33]] is an excellent way to ensure that more semantic information is available in documents with very little authoring overhead. This document extends that significant advantage beyond XML / XHTML into traditional HTML-based documents. Since HTML is by far the most prevalent grammar for web pages, enabling their easy annotation will dramatically increase the penetration of semantic information throughout the web.

Status of this Document

This section describes the status of this document at the time of its publication. Other documents may supersede this document.

This is a draft proposal for review and comment. It is the work of its Editors, but represents years of discussion and analysis by a variety of members of the semantic web community and the W3C RDFa Task Force [RDFaTF [p.34]].

Table of Contents

1. Introduction3
1.1. Examples3
2. Conformance Requirements7
2.1. Document Conformance7
2.2. User Agent Conformance7
2.3. RDFa Processor Conformance7
3. HTML Profile9
A. HTML4+RDFa DTD	11
A.1. HTML4+RDFa 1.0 DTD	11
A.2. SGML Open Catalog Entry for HTML4+RDFa	30
B. Deployment Advice	31
C. References	33
C.1. Related Specifications	33
C.2. Other References	33
F. Change History	35
G. Acknowledgments	37

1. Introduction

This section is informative.

In "RDFa in XHTML: Syntax and Processing Rules" [RDFaSYNTAX [p.33]], the W3C defined a method for capturing meta-information in XHTML Family documents via existing and new attributes. While that was a significant effort and represented a major advance for the semantic web, it was insufficient for many web developers who want to continue to rely upon established technologies such as HTML 4.01 [HTML4 [p.33]].

Some members of the RDFa Task Force [RDFaTF [p.34]] at the W3C had discussed from time to time the possibility of supporting the same annotation techniques in HTML documents. At its most basic level, there is little difference between XHTML and HTML - in particular in the areas where RDFa has an impact. The meta data elements in XHTML and HTML are identical (`meta` and `link`), and where the attributes used by RDFa in XHTML overlap with those already defined in HTML 4, they do so in ways that are compatible with HTML.

This document describes a *profile* of RDFa that permits the introduction of RDFa into HTML document, and the rules that Conforming RDFa processors need to follow to extract RDF from properly annotated documents. It does this by *simply* describing the differences from the RDFa in XHTML rules.

This document has been prepared by Applied Testing and Technology, Inc. in consultation with many members of the RDFa in XHTML Task Force and other interested parties.

1.1. Examples

The following examples were copied from the [RDFaSYNTAX [p.33]] document and modified to conform to the requirements of this specification.

As an HTML author you will already be familiar with using `meta` and `link` to add additional information to your documents:

```
<!DOCTYPE HTML PUBLIC "-//ApTest//DTD HTML4+RDFa 1.0//EN"
    "http://www3.aptest.com/standards/DTD/html4-rdfa-1.dtd">
<html lang="en">
  <head>
    <title>Page 7</title>
    <meta name="author" content="Mark Birbeck" >
    <link rel="prev" href="page6.html" >
    <link rel="next" href="page8.html" >
  </head>
  <body>...</body>
</html>
```

RDFa makes use of this concept, enhancing it with the ability to make use of other vocabularies by using compact URIs:

```
<!DOCTYPE HTML PUBLIC "-//ApTest//DTD HTML4+RDFa 1.0//EN"
      "http://www3.aptest.com/standards/DTD/html4-rdfa-1.dtd">
<html
  xmlns:foaf="http://xmlns.com/foaf/0.1/"
  xmlns:dc="http://purl.org/dc/elements/1.1/"
  lang="en"
  >
  <head>
    <title>My home-page</title>
    <meta property="dc:creator" content="Mark Birbeck">
    <link rel="foaf:topic" href="http://www.formsPlayer.com/#us">
  </head>
  <body>...</body>
</html>
```

Although not widely used, HTML already supports the use of @rel and @rev on the a element. This becomes more useful in RDFa with the addition of support for different vocabularies:

```
This document is licensed under a
<a xmlns:cc="http://creativecommons.org/ns#"
  rel="cc:license"
  href="http://creativecommons.org/licenses/by-nc-nd/3.0/">
  Creative Commons License
</a>.
```

Not only can URLs in the document be re-used to provide metadata, but so can inline text:

```
<!DOCTYPE HTML PUBLIC "-//ApTest//DTD HTML4+RDFa 1.0//EN"
      "http://www3.aptest.com/standards/DTD/html4-rdfa-1.dtd">
<html
  xmlns:cal="http://www.w3.org/2002/12/cal/ical#"
  lang="en"
  >
  <head><title>Jo's Friends and Family Blog</title></head>
  <body>
    <p>
      I'm holding
      <span property="cal:summary">
        one last summer Barbecue
      </span>,
      on September 16th at 4pm.
    </p>
  </body>
</html>
```

If some displayed text is different to the actual 'value' it represents, more precise values can be added, which can optionally include datatypes:

```
<!DOCTYPE HTML PUBLIC "-//ApTest//DTD HTML4+RDFa 1.0//EN"
      "http://www3.aptest.com/standards/DTD/html4-rdfa-1.dtd">
<html
  xmlns:cal="http://www.w3.org/2002/12/cal/ical#"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema#"
  lang="en"
  >
  <head><title>Jo's Friends and Family Blog</title></head>
```

```

<body>
  <p>
    I'm holding
    <span property="cal:summary">
      one last summer Barbecue
    </span>,
    on
    <span property="cal:dtstart" content="2007-09-16T16:00:00-05:00"
      datatype="xsd:dateTime">
      September 16th at 4pm
    </span>.
  </p>
</body>
</html>

```

In many cases a block of mark-up will contain a number of properties that relate to the same item; it's possible with RDFa to indicate the type of that item:

```

<!DOCTYPE HTML PUBLIC "-//ApTest//DTD HTML4+RDFa 1.0//EN"
  "http://www3.aptest.com/standards/DTD/html4-rdfa-1.dtd">
<html
  xmlns:cal="http://www.w3.org/2002/12/cal/ical#"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema#"
  lang="en"
  >
  <head><title>Jo's Friends and Family Blog</title></head>
  <body>
    <p typeof="cal:Vevent">
      I'm holding
      <span property="cal:summary">
        one last summer Barbecue
      </span>,
      on
      <span property="cal:dtstart" content="2007-09-16T16:00:00-05:00"
        datatype="xsd:dateTime">
        September 16th at 4pm
      </span>.
    </p>
  </body>
</html>

```

The metadata features available in HTML only allow information to be expressed about the document itself. RDFa allows the document to contain metadata information about other documents and resources:

```

<!DOCTYPE HTML PUBLIC "-//ApTest//DTD HTML4+RDFa 1.0//EN"
  "http://www3.aptest.com/standards/DTD/html4-rdfa-1.dtd">
<html
  xmlns:biblio="http://example.org/"
  xmlns:dc="http://purl.org/dc/elements/1.1/"
  lang="en"
  version="HTML4+RDFa 1.0"
  >
  <head profile="http://www.w3.org/1999/xhtml/vocab">
    <title>Books by Marco Pierre White</title>
  </head>

```

```
<body>
  I think White's book
  ' <span about="urn:ISBN:0091808189" typeof="biblio:book"
      property="dc:title">
    Canteen Cuisine
  </span>'
  is well worth getting since although it's quite advanced stuff, he
  makes it pretty easy to follow. You might also like
  <span about="urn:ISBN:1596913614" typeof="biblio:book"
      property="dc:description">
    White's autobiography
  </span>.
</body>
</html>
```

2. Conformance Requirements

This section is normative.

The keywords "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC2119 [p.33]].

Note that all examples in this document are informative, and are not meant to be interpreted as normative requirements.

2.1. Document Conformance

A strictly conforming HTML+RDFa document is a document that requires only the facilities described as mandatory in this specification. Such a document satisfies the following criteria:

1. There SHOULD be a DOCTYPE declaration in the document prior to the root element. When a DOCTYPE declaration is used, the public identifier included in the DOCTYPE declaration must be "-//ApTest//DTD HTML4+RDFa 1.0//EN".. The system identifier MAY be changed to reflect local system conventions.
2. The DTD subset must not be used to override any parameter entities in the DTD.
3. The root element of the document MUST be `html`.
4. There MAY be a `@version` attribute on the `html` element with the value "HTML4+RDFa 1.0"
5. There MAY be a `@profile` attribute on the `head` element that includes the value "http://www.w3.org/1999/xhtml/vocab".

2.2. User Agent Conformance

A conforming user agent MUST support all of the features required in this specification. A conforming user agent must also support the User Agent conformance requirements as defined in the HTML 4.01 Recommendation [HTML4 [p.33]] section on "Conformance: requirements and recommendations".

2.3. RDFa Processor Conformance

A conforming RDFa Processor MUST conform to the requirements in [RDFaSYNTAX [p.33]] for such processors. In addition, a conforming RDFa Processor MUST support the additional requirements as defined in this specification.

3. HTML Profile

This section is normative.

The base Recommendation for RDFa is the RDFa in XHTML specification [RDFaSYNTAX [p.33]]. That document defines the processing model for extracting RDF from an XHTML document. In order to support similar processing in HTML documents, this specification adopts the [RDFaSYNTAX [p.33]] rules with the minor variations below:

1. The @lang attribute MUST be supported in the same manner as the @xml:lang attribute. If both attributes are specified on the same element, the value of the @xml:lang attribute MUST take precedence.

This ensures that documents can use either the XML convention of annotating a language using @xml:lang or the traditional HTML mechanism of @lang.

2. If the object of a triple would be an XMLLiteral, and the input to the processor is not well-formed [XML [p.33]], then the processor MUST NOT generate the triple.

This is because a consuming application will always assume that data of type XMLLiteral is *well-formed*. Note that the input is not *required* to be well-formed. Moreover, this is only relevant when the object is intended to contain the text AND the non-text child nodes. For objects that are text-only, specifying a @datatype of " " or ensuring that all child-nodes are text only will have the expected behavior.

In addition, document authors should be aware that RDFa in XHTML permits the use of "compact URIs", or CURIEs. In RDFa in XHTML, the mapping mechanism for associating a *prefix* with a *URI* relies upon the @xmlns attribute syntax (e.g., xmlns:prefix="http://www.example.com/myvocabulary#"). This syntax is also used in RDFa in HTML. Such a declaration will result in a warning being issued from traditional SGML DTD-based validation technologies such as those offered by the W3C [VALIDATOR [p.34]]. The warnings associated with these attribute declarations can be safely ignored, as they will not effect the portability of the HTML4+RDFa 1.0 document among modern user agents nor among Conforming RDFa Processors.

A. HTML4+RDFa DTD

This appendix is *normative*.

This appendix includes an implementation of the HTML4+RDFa 1.0 language as an SGML DTD. It is implemented by combining the HTML 4.01 Transitional DTD with the attributes defined in the XHTML Metainformation Attribute Module. There are direct links to the various files, and the files are also contained in the "Gzip'd TAR" and "Zip" archives linked to at the top of this document. Please note that the files targeted by the "latest version" links may change slowly over time. See the W3C XHTML2 Working Group home page for more information.

A.1. HTML4+RDFa 1.0 DTD

You can download this version of this file from <http://www.w3.org/TR/2008/APTEST-rdfa-html-20090514/DTD/html4-rdfa-1.dtd>. The latest version is available at <http://www.w3.org/MarkUp/DTD/html4-rdfa-1.dtd>.

```
<!--
  This is the HTML 4.01 + RDFa DTD, which includes
  presentation attributes and elements that W3C expects to phase out
  as support for style sheets matures. Authors should use the Strict
  DTD when possible, but may use the Transitional DTD when support
  for presentation attribute and elements is required.

  HTML 4 includes mechanisms for style sheets, scripting,
  embedding objects, improved support for right to left and mixed
  direction text, and enhancements to forms for improved
  accessibility for people with disabilities.

  Draft: $Date: 2009/05/14 04:13:22 $

  Editor:
    Shane McCarron <shane@aptest.com>

  Original Authors:
    Dave Raggett <dsr@w3.org>
    Arnaud Le Hors <lehors@w3.org>
    Ian Jacobs <ij@w3.org>

  Further information about RDFa is available at:
    http://www.w3.org/TR/rdfa-syntax

  Further information about HTML 4.01 is available at:

    http://www.w3.org/TR/1999/REC-html401-19991224

  And further information about RDFa is available at:

    http://www.w3.org/TR/rdfa-syntax

  The HTML 4.01 specification includes additional
  syntactic constraints that cannot be expressed within
  the DTDs.
```

```

-->
<!ENTITY % HTML.Version "HTML4+RDFa 1.0"
  -- Typical usage:

  <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01+RDFa 1.0//EN"
    "http://www.w3.org/MarkUp/DTD/html401-rdfa-1.dtd">
  <html>
  <head>
  ...
  </head>
  <body>
  ...
  </body>
</html>

  The URI used as a system identifier with the public identifier allows
  the user agent to download the DTD and entity sets as needed.

-->

<!--===== Imported Names =====>
<!-- Feature Switch for frameset documents -->
<!ENTITY % HTML.Frameset "IGNORE">

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

<!ENTITY % ContentTypes "CDATA"
  -- comma-separated list of media types, as per [RFC2045]
  -->

<!ENTITY % Charset "CDATA"
  -- a character encoding, as per [RFC2045]
  -->

<!ENTITY % Charsets "CDATA"
  -- a space-separated list of character encodings, as per [RFC2045]
  -->

<!ENTITY % LanguageCode "NAME"
  -- a language code, as per [RFC1766]
  -->

<!ENTITY % Character "CDATA"
  -- a single character from [ISO10646]
  -->

<!ENTITY % LinkTypes "CDATA"
  -- space-separated list of link types
  -->

<!ENTITY % MediaDesc "CDATA"
  -- single or comma-separated list of media descriptors
  -->

<!ENTITY % URI "CDATA"

```

```

    -- a Uniform Resource Identifier,
       see [URI]
    -->

<!ENTITY % Datetime "CDATA" -- date and time information. ISO date format -->

<!ENTITY % Script "CDATA" -- script expression -->

<!ENTITY % StyleSheet "CDATA" -- style sheet data -->

<!ENTITY % FrameTarget "CDATA" -- render in this frame -->

<!ENTITY % Text "CDATA">

<!-- Parameter Entities -->

<!ENTITY % head.misc "SCRIPT|STYLE|META|LINK|OBJECT" -- repeatable head elements -->

<!ENTITY % heading "H1|H2|H3|H4|H5|H6">

<!ENTITY % list "UL | OL | DIR | MENU">

<!ENTITY % preformatted "PRE">

<!ENTITY % Color "CDATA" -- a color using sRGB: #RRGGBB as Hex values -->

<!-- There are also 16 widely known color names with their sRGB values:

    Black = #000000    Green = #008000
    Silver = #C0C0C0   Lime  = #00FF00
    Gray   = #808080   Olive = #808000
    White  = #FFFFFF   Yellow = #FFFF00
    Maroon = #800000   Navy  = #000080
    Red    = #FF0000   Blue  = #0000FF
    Purple = #800080   Teal  = #008080
    Fuchsia= #FF00FF   Aqua  = #00FFFF
-->

<!ENTITY % bodycolors "
    bgcolor      %Color;      #IMPLIED -- document background color --
    text         %Color;      #IMPLIED -- document text color --
    link         %Color;      #IMPLIED -- color of links --
    vlink        %Color;      #IMPLIED -- color of visited links --
    alink        %Color;      #IMPLIED -- color of selected links --
">

<!--===== Character mnemonic entities =====>

<!ENTITY % HTMLlat1 PUBLIC
    "-//W3C//ENTITIES Latin1//EN//HTML"
    "http://www.w3.org/TR/html401/HTMLlat1.ent">
%HTMLlat1;

<!ENTITY % HTMLsymbol PUBLIC
    "-//W3C//ENTITIES Symbols//EN//HTML"

```

```

    "http://www.w3.org/TR/html401/HTMLsymbol.ent">
%HTMLsymbol;

<!ENTITY % HTMLspecial PUBLIC
    "-//W3C//ENTITIES Special//EN//HTML"
    "http://www.w3.org/TR/html401/HTMLspecial.ent">
%HTMLspecial;
<!--===== Generic Attributes =====>

<!ENTITY % coreattrs
    "id          ID          #IMPLIED -- document-wide unique id --
     class       CDATA      #IMPLIED -- space-separated list of classes --
     style       %StyleSheet; #IMPLIED -- associated style info --
     title       %Text;     #IMPLIED -- advisory title --"
    >

<!ENTITY % i18n
    "lang        %LanguageCode; #IMPLIED -- language code --
     xml:lang    %LanguageCode; #IMPLIED
     dir         (ltr|rtl)    #IMPLIED -- direction for weak/neutral text --"
    >

<!ENTITY % events
    "onclick     %Script;     #IMPLIED -- a pointer button was clicked --
     ondblclick  %Script;     #IMPLIED -- a pointer button was double clicked--
     onmousedown %Script;     #IMPLIED -- a pointer button was pressed down --
     onmouseup   %Script;     #IMPLIED -- a pointer button was released --
     onmouseover %Script;     #IMPLIED -- a pointer was moved onto --
     onmousemove %Script;     #IMPLIED -- a pointer was moved within --
     onmouseout  %Script;     #IMPLIED -- a pointer was moved away --
     onkeypress  %Script;     #IMPLIED -- a key was pressed and released --
     onkeydown   %Script;     #IMPLIED -- a key was pressed down --
     onkeyup     %Script;     #IMPLIED -- a key was released --"
    >

<!ENTITY % CURIE "CDATA" >
<!ENTITY % CURIEs "CDATA" >
<!ENTITY % URIorSafeCURIE "CDATA" >

<!ENTITY % metainformation
    "about       %URIorSafeCURIE; #IMPLIED
     content     CDATA          #IMPLIED
     datatype    %CURIE;       #IMPLIED
     typeof      %CURIEs;      #IMPLIED
     property    %CURIEs;      #IMPLIED
     rel         %CURIEs;      #IMPLIED
     rev         %CURIEs;      #IMPLIED
     resource    %URIorSafeCURIE; #IMPLIED"
    >

<!-- Reserved Feature Switch -->
<!ENTITY % HTML.Reserved "IGNORE">

<!-- The following attributes are reserved for possible future use -->
<![ %HTML.Reserved; [
<!ENTITY % reserved
    "datasrc     %URI;         #IMPLIED -- a single or tabular Data Source --
     datafld     CDATA        #IMPLIED -- the property or column name --"

```

```

    dataformatas (plaintext|html) plaintext -- text or html --"
  >
]]>

<!ENTITY % reserved "">

<!ENTITY % attrs "%coreattrs; %i18n; %events; %metainformation;">

<!ENTITY % align "align (left|center|right|justify) #IMPLIED"
    -- default is left for ltr paragraphs, right for rtl --
  >

<!--===== Text Markup =====>

<!ENTITY % fontstyle
  "TT | I | B | U | S | STRIKE | BIG | SMALL">

<!ENTITY % phrase "EM | STRONG | DFN | CODE |
    SAMP | KBD | VAR | CITE | ABBR | ACRONYM" >

<!ENTITY % special
  "A | IMG | APPLET | OBJECT | FONT | BASEFONT | BR | SCRIPT |
  MAP | Q | SUB | SUP | SPAN | BDO | IFRAME">

<!ENTITY % formctrl "INPUT | SELECT | TEXTAREA | LABEL | BUTTON">

<!-- %inline; covers inline or "text-level" elements -->
<!ENTITY % inline "#PCDATA | %fontstyle; | %phrase; | %special; | %formctrl; ">

<!ELEMENT (%fontstyle;|%phrase;) - - (%inline;)*>
<!ATTLIST (%fontstyle;|%phrase;)
  %attrs;                -- %coreattrs, %i18n, %events --
  >

<!ELEMENT (SUB|SUP) - - (%inline;)*    -- subscript, superscript -->
<!ATTLIST (SUB|SUP)
  %attrs;                -- %coreattrs, %i18n, %events --
  >

<!ELEMENT SPAN - - (%inline;)*        -- generic language/style container -->
<!ATTLIST SPAN
  %attrs;                -- %coreattrs, %i18n, %events --
  %reserved;            -- reserved for possible future use --
  >

<!ELEMENT BDO - - (%inline;)*        -- I18N BiDi over-ride -->
<!ATTLIST BDO
  %coreattrs;           -- id, class, style, title --
  lang                 %LanguageCode; #IMPLIED -- language code --
  dir                 (ltr|rtl)      #REQUIRED -- directionality --
  >

<!ELEMENT BASEFONT - O EMPTY        -- base font size -->
<!ATTLIST BASEFONT
  id                   ID            #IMPLIED -- document-wide unique id --
  size                 CDATA         #REQUIRED -- base font size for FONT elements --
  color                %Color;       #IMPLIED -- text color --
  face                 CDATA         #IMPLIED -- comma-separated list of font names --

```

```

>

<!ELEMENT FONT - - (%inline;)*           -- local change to font -->
<!ATTLIST FONT
  %coreattrs;                          -- id, class, style, title --
  %i18n;                                -- lang, dir --
  size          CDATA          #IMPLIED -- [+|-]nn e.g. size="+1", size="4" --
  color         %Color;        #IMPLIED -- text color --
  face          CDATA          #IMPLIED -- comma-separated list of font names --
>

<!ELEMENT BR - O EMPTY                   -- forced line break -->
<!ATTLIST BR
  %coreattrs;                          -- id, class, style, title --
  clear         (left|all|right|none) none -- control of text flow --
>

<!--===== HTML content models =====>

<!--
  HTML has two basic content models:

  %inline;      character level elements and text strings
  %block;       block-like elements e.g. paragraphs and lists
-->

<!ENTITY % block
  "P | %heading; | %list; | %preformatted; | DL | DIV | CENTER |
  NOSCRIPT | NOFRAMES | BLOCKQUOTE | FORM | ISINDEX | HR |
  TABLE | FIELDSET | ADDRESS">

<!ENTITY % flow "%block; | %inline;">

<!--===== Document Body =====>

<!ELEMENT BODY O O (%flow;)* +(INS|DEL) -- document body -->
<!ATTLIST BODY
  %attrs;                                -- %coreattrs, %i18n, %events --
  onload          %Script;  #IMPLIED -- the document has been loaded --
  onunload        %Script;  #IMPLIED -- the document has been removed --
  background      %URI;     #IMPLIED -- texture tile for document
                                     background --
  %bodycolors;    -- bgcolor, text, link, vlink, alink --
>

<!ELEMENT ADDRESS - - ((%inline;)|P)*    -- information on author -->
<!ATTLIST ADDRESS
  %attrs;                                -- %coreattrs, %i18n, %events --
>

<!ELEMENT DIV - - (%flow;)*             -- generic language/style container -->
<!ATTLIST DIV
  %attrs;                                -- %coreattrs, %i18n, %events --
  %align;          -- align, text alignment --
  %reserved;      -- reserved for possible future use --
>

<!ELEMENT CENTER - - (%flow;)*          -- shorthand for DIV align=center -->

```

```

<!ATTLIST CENTER
  %attrs;                -- %coreattrs, %i18n, %events --
>

<!--===== The Anchor Element =====>

<!ENTITY % Shape "(rect|circle|poly|default)">
<!ENTITY % Coords "CDATA" -- comma-separated list of lengths -->

<!ELEMENT A - - (%inline;)* -(A)      -- anchor -->
<!ATTLIST A
  %attrs;                -- %coreattrs, %i18n, %events --
  charset      %Charset;    #IMPLIED -- char encoding of linked resource --
  type         %ContentType; #IMPLIED -- advisory content type --
  name         CDATA        #IMPLIED -- named link end --
  href        %URI;        #IMPLIED -- URI for linked resource --
  hreflang    %LanguageCode; #IMPLIED -- language code --
  target      %FrameTarget; #IMPLIED -- render in this frame --
  accesskey   %Character;   #IMPLIED -- accessibility key character --
  shape       %Shape;       rect    -- for use with client-side image maps --
  coords      %Coords;     #IMPLIED -- for use with client-side image maps --
  tabindex    NUMBER       #IMPLIED -- position in tabbing order --
  onfocus    %Script;     #IMPLIED -- the element got the focus --
  onblur      %Script;     #IMPLIED -- the element lost the focus --
>

<!--===== Client-side image maps =====>

<!-- These can be placed in the same document or grouped in a
      separate document although this isn't yet widely supported -->

<!ELEMENT MAP - - ((%block;) | AREA)+ -- client-side image map -->
<!ATTLIST MAP
  %attrs;                -- %coreattrs, %i18n, %events --
  name                 CDATA      #REQUIRED -- for reference by usemap --
>

<!ELEMENT AREA - O EMPTY      -- client-side image map area -->
<!ATTLIST AREA
  %attrs;                -- %coreattrs, %i18n, %events --
  shape      %Shape;     rect    -- controls interpretation of coords --
  coords     %Coords;    #IMPLIED -- comma-separated list of lengths --
  target     %FrameTarget; #IMPLIED -- render in this frame --
  nohref     (nohref)   #IMPLIED -- this region has no action --
  alt        %Text;      #REQUIRED -- short description --
  tabindex   NUMBER     #IMPLIED -- position in tabbing order --
  accesskey  %Character; #IMPLIED -- accessibility key character --
  onfocus   %Script;   #IMPLIED -- the element got the focus --
  onblur     %Script;   #IMPLIED -- the element lost the focus --
>

<!--===== The LINK Element =====>

<!--
Relationship values can be used in principle:

a) for document specific toolbars/menus when used
with the LINK element in document head e.g.

```

```

        start, contents, previous, next, index, end, help
    b) to link to a separate style sheet (rel=stylesheet)
    c) to make a link to a script (rel=script)
    d) by stylesheets to control how collections of
        html nodes are rendered into printed documents
    e) to make a link to a printable version of this document
        e.g. a postscript or pdf version (rel=alternate media=print)
-->

<!ELEMENT LINK - O EMPTY          -- a media-independent link -->
<!ATTLIST LINK
  %attrs;                          -- %coreattrs, %i18n, %events --
  charset      %Charset;           #IMPLIED -- char encoding of linked resource --
  href         %URI;               #IMPLIED -- URI for linked resource --
  hreflang    %LanguageCode;      #IMPLIED -- language code --
  type        %ContentType;       #IMPLIED -- advisory content type --
  media       %MediaDesc;         #IMPLIED -- for rendering on these media --
  target      %FrameTarget;       #IMPLIED -- render in this frame --
  >

<!--===== Images =====>

<!-- Length defined in strict DTD for cellpadding/cellspacing -->
<!ENTITY % Length "CDATA" -- nn for pixels or nn% for percentage length -->
<!ENTITY % MultiLength "CDATA" -- pixel, percentage, or relative -->

<![ %HTML.Frameset; [
<!ENTITY % MultiLengths "CDATA" -- comma-separated list of MultiLength -->
]]>

<!ENTITY % Pixels "CDATA" -- integer representing length in pixels -->

<!ENTITY % IAlign "(top|middle|bottom|left|right)" -- center? -->

<!-- To avoid problems with text-only UAs as well as
      to make image content understandable and navigable
      to users of non-visual UAs, you need to provide
      a description with ALT, and avoid server-side image maps -->
<!ELEMENT IMG - O EMPTY          -- Embedded image -->
<!ATTLIST IMG
  %attrs;                          -- %coreattrs, %i18n, %events --
  src      %URI;                   #REQUIRED -- URI of image to embed --
  alt      %Text;                 #REQUIRED -- short description --
  longdesc %URI;                 #IMPLIED -- link to long description
                                     (complements alt) --
  name     CDATA                  #IMPLIED -- name of image for scripting --
  height   %Length;              #IMPLIED -- override height --
  width    %Length;              #IMPLIED -- override width --
  usemap   %URI;                 #IMPLIED -- use client-side image map --
  ismap    (ismap)               #IMPLIED -- use server-side image map --
  align    %IAlign;              #IMPLIED -- vertical or horizontal alignment --
  border   %Pixels;              #IMPLIED -- link border width --
  hspace   %Pixels;              #IMPLIED -- horizontal gutter --
  vspace   %Pixels;              #IMPLIED -- vertical gutter --
  >

<!-- USEMAP points to a MAP element which may be in this document
      or an external document, although the latter is not widely supported -->

```

```

<!--===== OBJECT =====>
<!--
  OBJECT is used to embed objects as part of HTML pages
  PARAM elements should precede other content. SGML mixed content
  model technicality precludes specifying this formally ...
-->

<!ELEMENT OBJECT - - (PARAM | %flow;)*
-- generic embedded object -->
<!ATTLIST OBJECT
  %attrs; -- %coreattrs, %il8n, %events --
  declare (declare) #IMPLIED -- declare but don't instantiate flag --
  classid %URI; #IMPLIED -- identifies an implementation --
  codebase %URI; #IMPLIED -- base URI for classid, data, archive--
  data %URI; #IMPLIED -- reference to object's data --
  type %ContentType; #IMPLIED -- content type for data --
  codetype %ContentType; #IMPLIED -- content type for code --
  archive CDATA #IMPLIED -- space-separated list of URIs --
  standby %Text; #IMPLIED -- message to show while loading --
  height %Length; #IMPLIED -- override height --
  width %Length; #IMPLIED -- override width --
  usemap %URI; #IMPLIED -- use client-side image map --
  name CDATA #IMPLIED -- submit as part of form --
  tabindex NUMBER #IMPLIED -- position in tabbing order --
  align %IAAlign; #IMPLIED -- vertical or horizontal alignment --
  border %Pixels; #IMPLIED -- link border width --
  hspace %Pixels; #IMPLIED -- horizontal gutter --
  vspace %Pixels; #IMPLIED -- vertical gutter --
  %reserved; -- reserved for possible future use --
>

<!ELEMENT PARAM - O EMPTY -- named property value -->
<!ATTLIST PARAM
  id ID #IMPLIED -- document-wide unique id --
  %metainformation; -- metadata attributes --
  name CDATA #REQUIRED -- property name --
  value CDATA #IMPLIED -- property value --
  valuetype (DATA|REF|OBJECT) DATA -- How to interpret value --
  type %ContentType; #IMPLIED -- content type for value
  when valuetype=ref --
>

<!--===== Java APPLET =====>
<!--
  One of code or object attributes must be present.
  Place PARAM elements before other content.
-->
<!ELEMENT APPLET - - (PARAM | %flow;)* -- Java applet -->
<!ATTLIST APPLET
  %coreattrs; -- id, class, style, title --
  %metainformation; -- metadata attributes --
  codebase %URI; #IMPLIED -- optional base URI for applet --
  archive CDATA #IMPLIED -- comma-separated archive list --
  code CDATA #IMPLIED -- applet class file --
  object CDATA #IMPLIED -- serialized applet file --
  alt %Text; #IMPLIED -- short description --
  name CDATA #IMPLIED -- allows applets to find each other --

```

```

width      %Length;      #REQUIRED -- initial width --
height     %Length;      #REQUIRED -- initial height --
align      %IAAlign;     #IMPLIED  -- vertical or horizontal alignment --
hspace     %Pixels;      #IMPLIED  -- horizontal gutter --
vspace     %Pixels;      #IMPLIED  -- vertical gutter --
>

<!--===== Horizontal Rule =====>

<!ELEMENT HR - O EMPTY -- horizontal rule -->
<!ATTLIST HR
  %attrs;                -- %coreattrs, %i18n, %events --
  align      (left|center|right) #IMPLIED
  noshade     (noshade)          #IMPLIED
  size        %Pixels;          #IMPLIED
  width       %Length;          #IMPLIED
>

<!--===== Paragraphs =====>

<!ELEMENT P - O (%inline;)*          -- paragraph -->
<!ATTLIST P
  %attrs;                -- %coreattrs, %i18n, %events --
  %align;                -- align, text alignment --
>

<!--===== Headings =====>

<!--
  There are six levels of headings from H1 (the most important)
  to H6 (the least important).
-->

<!ELEMENT (%heading;) - - (%inline;)* -- heading -->
<!ATTLIST (%heading;)
  %attrs;                -- %coreattrs, %i18n, %events --
  %align;                -- align, text alignment --
>

<!--===== Preformatted Text =====>

<!-- excludes markup for images and changes in font size -->
<!ENTITY % pre.exclusion "IMG|OBJECT|APPLET|BIG|SMALL|SUB|SUP|FONT|BASEFONT">

<!ELEMENT PRE - - (%inline;)* -(%pre.exclusion;) -- preformatted text -->
<!ATTLIST PRE
  %attrs;                -- %coreattrs, %i18n, %events --
  width      NUMBER      #IMPLIED
>

<!--===== Inline Quotes =====>

<!ELEMENT Q - - (%inline;)*          -- short inline quotation -->
<!ATTLIST Q
  %attrs;                -- %coreattrs, %i18n, %events --
  cite        %URI;      #IMPLIED  -- URI for source document or msg --
>

```

```

<!--===== Block-like Quotes =====>

<!ELEMENT BLOCKQUOTE - - (%flow;)*      -- long quotation -->
<!ATTLIST BLOCKQUOTE
  %attrs;                                -- %coreattrs, %i18n, %events --
  cite      %URI;                        #IMPLIED -- URI for source document or msg --
  >

<!--===== Inserted/Deleted Text =====>

<!-- INS/DEL are handled by inclusion on BODY -->
<!ELEMENT (INS|DEL) - - (%flow;)*      -- inserted text, deleted text -->
<!ATTLIST (INS|DEL)
  %attrs;                                -- %coreattrs, %i18n, %events --
  cite      %URI;                        #IMPLIED -- info on reason for change --
  datetime  %Datetime;                  #IMPLIED -- date and time of change --
  >

<!--===== Lists =====>

<!-- definition lists - DT for term, DD for its definition -->

<!ELEMENT DL - - (DT|DD)+              -- definition list -->
<!ATTLIST DL
  %attrs;                                -- %coreattrs, %i18n, %events --
  compact   (compact)                  #IMPLIED -- reduced interitem spacing --
  >

<!ELEMENT DT - O (%inline;)*          -- definition term -->
<!ELEMENT DD - O (%flow;)*            -- definition description -->
<!ATTLIST (DT|DD)
  %attrs;                                -- %coreattrs, %i18n, %events --
  >

<!-- Ordered lists (OL) Numbering style

  1  arabic numbers      1, 2, 3, ...
  a  lower alpha        a, b, c, ...
  A  upper alpha        A, B, C, ...
  i  lower roman        i, ii, iii, ...
  I  upper roman        I, II, III, ...

  The style is applied to the sequence number which by default
  is reset to 1 for the first list item in an ordered list.

  This can't be expressed directly in SGML due to case folding.
-->

<!ENTITY % OLStyle "CDATA"           -- constrained to: "(1|a|A|i|I)" -->

<!ELEMENT OL - - (LI)+                -- ordered list -->
<!ATTLIST OL
  %attrs;                                -- %coreattrs, %i18n, %events --
  type      %OLStyle;                  #IMPLIED -- numbering style --
  compact   (compact)                  #IMPLIED -- reduced interitem spacing --
  start     NUMBER                      #IMPLIED -- starting sequence number --
  >

```

```

<!-- Unordered Lists (UL) bullet styles -->
<!ENTITY % ULStyle "(disc|square|circle)">

<!ELEMENT UL - - (LI)+ -- unordered list -->
<!ATTLIST UL
  %attrs; -- %coreattrs, %i18n, %events --
  type %ULStyle; #IMPLIED -- bullet style --
  compact (compact) #IMPLIED -- reduced interitem spacing --
>

<!ELEMENT (DIR|MENU) - - (LI)+ -(%block;) -- directory list, menu list -->
<!ATTLIST DIR
  %attrs; -- %coreattrs, %i18n, %events --
  compact (compact) #IMPLIED -- reduced interitem spacing --
>
<!ATTLIST MENU
  %attrs; -- %coreattrs, %i18n, %events --
  compact (compact) #IMPLIED -- reduced interitem spacing --
>

<!ENTITY % LIStyle "CDATA" -- constrained to: "(%ULStyle;|%OLStyle;)" -->

<!ELEMENT LI - O (%flow;)* -- list item -->
<!ATTLIST LI
  %attrs; -- %coreattrs, %i18n, %events --
  type %LIStyle; #IMPLIED -- list item style --
  value NUMBER #IMPLIED -- reset sequence number --
>

<!--===== Forms =====>
<!ELEMENT FORM - - (%flow;)* -(FORM) -- interactive form -->
<!ATTLIST FORM
  %attrs; -- %coreattrs, %i18n, %events --
  action %URI; #REQUIRED -- server-side form handler --
  method (GET|POST) GET -- HTTP method used to submit the form--
  enctype %ContentType; "application/x-www-form-urlencoded"
  accept %ContentTypes; #IMPLIED -- list of MIME types for file upload --
  name CDATA #IMPLIED -- name of form for scripting --
  onsubmit %Script; #IMPLIED -- the form was submitted --
  onreset %Script; #IMPLIED -- the form was reset --
  target %FrameTarget; #IMPLIED -- render in this frame --
  accept-charset %Charsets; #IMPLIED -- list of supported charsets --
>

<!-- Each label must not contain more than ONE field -->
<!ELEMENT LABEL - - (%inline;)* -(LABEL) -- form field label text -->
<!ATTLIST LABEL
  %attrs; -- %coreattrs, %i18n, %events --
  for IDREF #IMPLIED -- matches field ID value --
  accesskey %Character; #IMPLIED -- accessibility key character --
  onfocus %Script; #IMPLIED -- the element got the focus --
  onblur %Script; #IMPLIED -- the element lost the focus --
>

<!ENTITY % InputType
  "(TEXT | PASSWORD | CHECKBOX |
  RADIO | SUBMIT | RESET |

```

```

    FILE | HIDDEN | IMAGE | BUTTON)"
  >

<!-- attribute name required for all but submit and reset -->
<!ELEMENT INPUT - O EMPTY          -- form control -->
<!ATTLIST INPUT
  %attrs;                                -- %coreattrs, %i18n, %events --
  type          %InputType;    TEXT      -- what kind of widget is needed --
  name          CDATA          #IMPLIED  -- submit as part of form --
  value         CDATA          #IMPLIED  -- Specify for radio buttons and checkboxes --
  checked       (checked)     #IMPLIED  -- for radio buttons and check boxes --
  disabled      (disabled)    #IMPLIED  -- unavailable in this context --
  readonly      (readonly)    #IMPLIED  -- for text and passwd --
  size          CDATA          #IMPLIED  -- specific to each type of field --
  maxlength     NUMBER        #IMPLIED  -- max chars for text fields --
  src           %URI;         #IMPLIED  -- for fields with images --
  alt           CDATA          #IMPLIED  -- short description --
  usemap        %URI;         #IMPLIED  -- use client-side image map --
  ismap         (ismap)       #IMPLIED  -- use server-side image map --
  tabindex     NUMBER        #IMPLIED  -- position in tabbing order --
  accesskey    %Character;    #IMPLIED  -- accessibility key character --
  onfocus     %Script;       #IMPLIED  -- the element got the focus --
  onblur       %Script;       #IMPLIED  -- the element lost the focus --
  onselect     %Script;       #IMPLIED  -- some text was selected --
  onchange     %Script;       #IMPLIED  -- the element value was changed --
  accept       %ContentTypes; #IMPLIED  -- list of MIME types for file upload --
  align        %IAlign;      #IMPLIED  -- vertical or horizontal alignment --
  %reserved;                                -- reserved for possible future use --
  >

<!ELEMENT SELECT - - (OPTGROUP|OPTION)+ -- option selector -->
<!ATTLIST SELECT
  %attrs;                                -- %coreattrs, %i18n, %events --
  name          CDATA          #IMPLIED  -- field name --
  size          NUMBER        #IMPLIED  -- rows visible --
  multiple      (multiple)    #IMPLIED  -- default is single selection --
  disabled      (disabled)    #IMPLIED  -- unavailable in this context --
  tabindex     NUMBER        #IMPLIED  -- position in tabbing order --
  onfocus     %Script;       #IMPLIED  -- the element got the focus --
  onblur       %Script;       #IMPLIED  -- the element lost the focus --
  onchange     %Script;       #IMPLIED  -- the element value was changed --
  %reserved;                                -- reserved for possible future use --
  >

<!ELEMENT OPTGROUP - - (OPTION)+ -- option group -->
<!ATTLIST OPTGROUP
  %attrs;                                -- %coreattrs, %i18n, %events --
  disabled      (disabled)    #IMPLIED  -- unavailable in this context --
  label         %Text;        #REQUIRED -- for use in hierarchical menus --
  >

<!ELEMENT OPTION - O (#PCDATA)        -- selectable choice -->
<!ATTLIST OPTION
  %attrs;                                -- %coreattrs, %i18n, %events --
  selected      (selected)    #IMPLIED  --
  disabled      (disabled)    #IMPLIED  -- unavailable in this context --
  label         %Text;        #IMPLIED  -- for use in hierarchical menus --
  value         CDATA          #IMPLIED  -- defaults to element content --

```

```

>
<!ELEMENT TEXTAREA - - (#PCDATA)          -- multi-line text field -->
<!ATTLIST TEXTAREA
  %attrs;                                -- %coreattrs, %i18n, %events --
  name          CDATA          #IMPLIED
  rows          NUMBER         #REQUIRED
  cols          NUMBER         #REQUIRED
  disabled      (disabled)    #IMPLIED -- unavailable in this context --
  readonly      (readonly)    #IMPLIED
  tabindex      NUMBER         #IMPLIED -- position in tabbing order --
  accesskey     %Character;    #IMPLIED -- accessibility key character --
  onfocus      %Script;       #IMPLIED -- the element got the focus --
  onblur        %Script;       #IMPLIED -- the element lost the focus --
  onselect      %Script;       #IMPLIED -- some text was selected --
  onchange      %Script;       #IMPLIED -- the element value was changed --
  %reserved;    -- reserved for possible future use --
>

<!--
  #PCDATA is to solve the mixed content problem,
  per specification only whitespace is allowed there!
-->
<!ELEMENT FIELDSET - - (#PCDATA,LEGEND,(%flow;)* -- form control group -->
<!ATTLIST FIELDSET
  %attrs;                                -- %coreattrs, %i18n, %events --
>

<!ELEMENT LEGEND - - (%inline;)*          -- fieldset legend -->
<!ENTITY % LAlign "(top|bottom|left|right)">

<!ATTLIST LEGEND
  %attrs;                                -- %coreattrs, %i18n, %events --
  accesskey     %Character;    #IMPLIED -- accessibility key character --
  align         %LAlign;       #IMPLIED -- relative to fieldset --
>

<!ELEMENT BUTTON - -
  (%flow;)* -(A|%formctrl;|FORM|ISINDEX|FIELDSET|IFRAME)
  -- push button -->
<!ATTLIST BUTTON
  %attrs;                                -- %coreattrs, %i18n, %events --
  name          CDATA          #IMPLIED
  value         CDATA          #IMPLIED -- sent to server when submitted --
  type          (button|submit|reset) submit -- for use as form button --
  disabled      (disabled)    #IMPLIED -- unavailable in this context --
  tabindex      NUMBER         #IMPLIED -- position in tabbing order --
  accesskey     %Character;    #IMPLIED -- accessibility key character --
  onfocus      %Script;       #IMPLIED -- the element got the focus --
  onblur        %Script;       #IMPLIED -- the element lost the focus --
  %reserved;    -- reserved for possible future use --
>

<!--===== Tables =====>

<!-- IETF HTML table standard, see [RFC1942] -->

<!--

```

The BORDER attribute sets the thickness of the frame around the table. The default units are screen pixels.

The FRAME attribute specifies which parts of the frame around the table should be rendered. The values are not the same as CALS to avoid a name clash with the VALIGN attribute.

The value "border" is included for backwards compatibility with <TABLE BORDER> which yields frame=border and border=implied. For <TABLE BORDER=1> you get border=1 and frame=implied. In this case, it is appropriate to treat this as frame=border for backwards compatibility with deployed browsers.

```
-->
<!ENTITY % TFrame "(void|above|below|hsides|lhs|rhs|vsides|box|border)">

<!--
The RULES attribute defines which rules to draw between cells:

If RULES is absent then assume:
    "none" if BORDER is absent or BORDER=0 otherwise "all"
-->

<!ENTITY % TRules "(none | groups | rows | cols | all)">

<!-- horizontal placement of table relative to document -->
<!ENTITY % TAlign "(left|center|right)">

<!-- horizontal alignment attributes for cell contents -->
<!ENTITY % cellhalign
    "align      (left|center|right|justify|char) #IMPLIED
     char       %Character;      #IMPLIED  -- alignment char, e.g. char=':' --
     charoff    %Length;         #IMPLIED  -- offset for alignment char --"
    >

<!-- vertical alignment attributes for cell contents -->
<!ENTITY % cellvalign
    "valign     (top|middle|bottom|baseline) #IMPLIED"
    >

<!ELEMENT TABLE - -
    (CAPTION?, (COL*|COLGROUP*), THEAD?, TFOOT?, TBODY+)>
<!ELEMENT CAPTION - - (%inline;)*      -- table caption -->
<!ELEMENT THEAD - O (TR)+              -- table header -->
<!ELEMENT TFOOT - O (TR)+              -- table footer -->
<!ELEMENT TBODY O O (TR)+              -- table body -->
<!ELEMENT COLGROUP - O (COL)*          -- table column group -->
<!ELEMENT COL - O EMPTY                -- table column -->
<!ELEMENT TR - O (TH|TD)+              -- table row -->
<!ELEMENT (TH|TD) - O (%flow;)*        -- table header cell, table data cell-->

<!ATTLIST TABLE
    %attrs;                               -- coreattrs, %il8n, %events --
    summary      %Text;                   #IMPLIED  -- purpose/structure for speech output--
    width        %Length;                 #IMPLIED  -- table width --
    border       %Pixels;                 #IMPLIED  -- controls frame width around table --
    frame        %TFrame;                 #IMPLIED  -- which parts of frame to render --
    rules        %TRules;                 #IMPLIED  -- rulings between rows and cols --
    cellspacing  %Length;                 #IMPLIED  -- spacing between cells --
```

```

    cellpadding %Length;          #IMPLIED -- spacing within cells --
    align        %TAlign;         #IMPLIED -- table position relative to window --
    bgcolor      %Color;          #IMPLIED -- background color for cells --
    %reserved;                    -- reserved for possible future use --
    datapagesize CDATA            #IMPLIED -- reserved for possible future use --
  >

<!ENTITY % CAlign "(top|bottom|left|right)">

<!ATTLIST CAPTION
  %attrs;                        -- %coreattrs, %i18n, %events --
  align        %CAlign;          #IMPLIED -- relative to table --
  >

<!--
COLGROUP groups a set of COL elements. It allows you to group
several semantically related columns together.
-->
<!ATTLIST COLGROUP
  %attrs;                        -- %coreattrs, %i18n, %events --
  span        NUMBER            1      -- default number of columns in group --
  width       %MultiLength;     #IMPLIED -- default width for enclosed COLs --
  %cellhalign;                  -- horizontal alignment in cells --
  %cellvalign;                  -- vertical alignment in cells --
  >

<!--
COL elements define the alignment properties for cells in
one or more columns.

The WIDTH attribute specifies the width of the columns, e.g.

    width=64          width in screen pixels
    width=0.5*       relative width of 0.5

The SPAN attribute causes the attributes of one
COL element to apply to more than one column.
-->
<!ATTLIST COL
  %attrs;                        -- %coreattrs, %i18n, %events --
  span        NUMBER            1      -- COL attributes affect N columns --
  width       %MultiLength;     #IMPLIED -- column width specification --
  %cellhalign;                  -- horizontal alignment in cells --
  %cellvalign;                  -- vertical alignment in cells --
  >

<!--
Use THEAD to duplicate headers when breaking table
across page boundaries, or for static headers when
TBODY sections are rendered in scrolling panel.

Use TFOOT to duplicate footers when breaking table
across page boundaries, or for static footers when
TBODY sections are rendered in scrolling panel.

Use multiple TBODY sections when rules are needed
between groups of table rows.
-->

```

```

<!ATTLIST (THEAD|TBODY|TFOOT)          -- table section --
  %attrs;                               -- %coreattrs, %i18n, %events --
  %cellhalign;                          -- horizontal alignment in cells --
  %cellvalign;                           -- vertical alignment in cells --
  >

<!ATTLIST TR                            -- table row --
  %attrs;                               -- %coreattrs, %i18n, %events --
  %cellhalign;                          -- horizontal alignment in cells --
  %cellvalign;                           -- vertical alignment in cells --
  bgcolor %Color;                        #IMPLIED -- background color for row --
  >

<!-- Scope is simpler than headers attribute for common tables -->
<!ENTITY % Scope "(row|col|rowgroup|colgroup)">

<!-- TH is for headers, TD for data, but for cells acting as both use TD -->
<!ATTLIST (TH|TD)                       -- header or data cell --
  %attrs;                               -- %coreattrs, %i18n, %events --
  abbr %Text;                            #IMPLIED -- abbreviation for header cell --
  axis CDATA                             #IMPLIED -- comma-separated list of related headers--
  headers IDREFS                          #IMPLIED -- list of id's for header cells --
  scope %Scope;                          #IMPLIED -- scope covered by header cells --
  rowspan NUMBER                          1 -- number of rows spanned by cell --
  colspan NUMBER                          1 -- number of cols spanned by cell --
  %cellhalign;                           -- horizontal alignment in cells --
  %cellvalign;                           -- vertical alignment in cells --
  nowrap (nowrap)                        #IMPLIED -- suppress word wrap --
  bgcolor %Color;                        #IMPLIED -- cell background color --
  width %Length;                         #IMPLIED -- width for cell --
  height %Length;                        #IMPLIED -- height for cell --
  >

<!--===== Document Frames =====>

<!--
  The content model for HTML documents depends on whether the HEAD is
  followed by a FRAMESET or BODY element. The widespread omission of
  the BODY start tag makes it impractical to define the content model
  without the use of a marked section.
-->

<![ %HTML.Frameset; [
<!ELEMENT FRAMESET - - ((FRAMESET|FRAME)+ & NOFRAMES?) -- window subdivision-->
<!ATTLIST FRAMESET
  %coreattrs;                            -- id, class, style, title --
  rows %MultiLengths; #IMPLIED          -- list of lengths,
                                          default: 100% (1 row) --
  cols %MultiLengths; #IMPLIED          -- list of lengths,
                                          default: 100% (1 col) --
  onload %Script;                        #IMPLIED -- all the frames have been loaded --
  onunload %Script;                     #IMPLIED -- all the frames have been removed --
  >
]]>

<![ %HTML.Frameset; [
<!-- reserved frame names start with "_" otherwise starts with letter -->

```

```

<!ELEMENT FRAME - O EMPTY -- subwindow -->
<!ATTLIST FRAME
  %coreattrs; -- id, class, style, title --
  longdesc %URI; #IMPLIED -- link to long description
    (complements title) --
  name CDATA #IMPLIED -- name of frame for targetting --
  src %URI; #IMPLIED -- source of frame content --
  frameborder (1|0) 1 -- request frame borders? --
  marginwidth %Pixels; #IMPLIED -- margin widths in pixels --
  marginheight %Pixels; #IMPLIED -- margin height in pixels --
  noresize (noresize) #IMPLIED -- allow users to resize frames? --
  scrolling (yes|no|auto) auto -- scrollbar or none --
>
]]>

<!ELEMENT IFRAME - - (%flow;)* -- inline subwindow -->
<!ATTLIST IFRAME
  %coreattrs; -- id, class, style, title --
  longdesc %URI; #IMPLIED -- link to long description
    (complements title) --
  name CDATA #IMPLIED -- name of frame for targetting --
  src %URI; #IMPLIED -- source of frame content --
  frameborder (1|0) 1 -- request frame borders? --
  marginwidth %Pixels; #IMPLIED -- margin widths in pixels --
  marginheight %Pixels; #IMPLIED -- margin height in pixels --
  scrolling (yes|no|auto) auto -- scrollbar or none --
  align %IAAlign; #IMPLIED -- vertical or horizontal alignment --
  height %Length; #IMPLIED -- frame height --
  width %Length; #IMPLIED -- frame width --
>

<![ %HTML.Frameset; [
<!ENTITY % noframes.content "(BODY) -(NOFRAMES)">
]]>

<!ENTITY % noframes.content "(%flow;)*">

<!ELEMENT NOFRAMES - - %noframes.content;
  -- alternate content container for non frame-based rendering -->
<!ATTLIST NOFRAMES
  %attrs; -- %coreattrs, %il8n, %events --
>

<!--===== Document Head =====>
<!-- %head.misc; defined earlier on as "SCRIPT|STYLE|META|LINK|OBJECT" -->
<!ENTITY % head.content "TITLE & ISINDEX? & BASE?">

<!ELEMENT HEAD O O (%head.content;) +(%head.misc;) -- document head -->
<!ATTLIST HEAD
  %attrs;
  profile %URI; #IMPLIED -- named dictionary of meta info --
>

<!-- The TITLE element is not considered part of the flow of text.
  It should be displayed, for example as the page header or
  window title. Exactly one title is required per document.
  -->
<!ELEMENT TITLE - - (#PCDATA) -(%head.misc;) -- document title -->

```

```

<!ATTLIST TITLE %attrs>

<!ELEMENT ISINDEX - O EMPTY          -- single line prompt -->
<!ATTLIST ISINDEX
  %coreattrs;          -- id, class, style, title --
  %i18n;              -- lang, dir --
  prompt      %Text;      #IMPLIED -- prompt message -->

<!ELEMENT BASE - O EMPTY          -- document base URI -->
<!ATTLIST BASE
  href      %URI;      #IMPLIED -- URI that acts as base URI --
  target    %FrameTarget; #IMPLIED -- render in this frame --
  >

<!ELEMENT META - O EMPTY          -- generic metainformation -->
<!ATTLIST META
  %i18n;          -- lang, dir, for use with content --
  %metainformation;
  http-equiv  NAME      #IMPLIED -- HTTP response header name --
  name        NAME      #IMPLIED -- metainformation name --
  scheme      CDATA     #IMPLIED -- select form of content --
  >

<!ELEMENT STYLE - - %StyleSheet   -- style info -->
<!ATTLIST STYLE
  %i18n;          -- lang, dir, for use with title --
  type          %ContentType; #REQUIRED -- content type of style language --
  media        %MediaDesc;   #IMPLIED -- designed for use with these media --
  title        %Text;       #IMPLIED -- advisory title --
  >

<!ELEMENT SCRIPT - - %Script;     -- script statements -->
<!ATTLIST SCRIPT
  charset      %Charset;   #IMPLIED -- char encoding of linked resource --
  type        %ContentType; #REQUIRED -- content type of script language --
  language    CDATA       #IMPLIED -- predefined script language name --
  src         %URI;       #IMPLIED -- URI for an external script --
  defer       (defer)     #IMPLIED -- UA may defer execution of script --
  event       CDATA       #IMPLIED -- reserved for possible future use --
  for         %URI;       #IMPLIED -- reserved for possible future use --
  >

<!ELEMENT NOSCRIPT - - (%flow;)*  -- alternate content container for non script-based rendering -->
<!ATTLIST NOSCRIPT
  %attrs;          -- %coreattrs, %i18n, %events --
  >

<!--===== Document Structure =====>
<!ENTITY % version "version CDATA #FIXED '%HTML.Version;'">

<![ %HTML.Frameset; [
<!ENTITY % html.content "HEAD, FRAMESET">
]]>

<!ENTITY % html.content "HEAD, BODY">

<!ELEMENT HTML O O (%html.content;) -- document root element -->

```

```
<!ATTLIST HTML
  %attrs;
  %version;
>
```

A.2. SGML Open Catalog Entry for HTML4+RDFa

This section contains the SGML Open Catalog-format definition [CATALOG [p.33]] of the public identifiers for HTML4+RDFa 1.0.

You can download this version of this file from <http://www.w3.org/TR/2008/APTEST-rdfa-html-20090514/DTD/html4-rdfa.cat>. The latest version is available at <http://www.w3.org/MarkUp/DTD/html4-rdfa.cat>.

```
-- ..... --
-- File catalog ..... --

-- HTML4+RDFa 1.0 Catalog Data File

Revision: $Revision: 1.1 $

See "Entity Management", SGML Open Technical Resolution 9401 for detailed
information on supplying and using catalog data. This document is available
from OASIS at URL:

    <http://www.oasis-open.org/html/tr9401.html>
--

OVERRIDE YES

PUBLIC "-//ApTest//DTD HTML4+RDFa 1.0//EN"          "html4-rdfa-1.dtd"
```

B. Deployment Advice

This section is informative.

Documents written using the markup language defined in this specification can be validated using the DTD defined in Appendix A [p.11] . If a document author wants to facilitate such validation, they should include the following declaration at the top of their document:

```
<!DOCTYPE HTML PUBLIC "-//ApTest//DTD HTML4+RDFa 1.0//EN"  
    "http://www3.aptest.com/standards/DTD/html4-rdfa-1.dtd">
```


C. References

C.1. Related Specifications

This section is normative.

[RFC2119]

"*Key words for use in RFCs to indicate requirement levels*", RFC 2119, S. Bradner, March 1997.

Available at: <http://www.rfc-editor.org/rfc/rfc2119.txt>

[HTML4]

"*HTML 4.01 Specification*", W3C Recommendation, D. Raggett *et al.*, eds., 24 December 1999.

Available at: <http://www.w3.org/TR/1999/REC-html401-19991224>

[RDFaSYNTAX]

"*RDFa in XHTML: Syntax and Processing*", W3C Recommendation, B. Adida *et al.*, eds., 14 October 2008.

Available at: <http://www.w3.org/TR/2008/REC-rdfa-syntax-20081014>

[URI]

"*Uniform Resource Identifier (URI): Generic Syntax*", RFC 3986, T. Berners-Lee, R. Fielding, L. Masinter, January 2005.

Available at: <http://www.ietf.org/rfc/rfc3986.txt>

[XML]

"*Extensible Markup Language (XML) 1.0 (Fourth Edition)*", W3C Recommendation, T. Bray *et al.*, eds., 16 August 2006.

Available at: <http://www.w3.org/TR/2006/REC-xml-20060816>

The latest version is available at: <http://www.w3.org/TR/REC-xml>

[XMLNS]

"*Namespaces in XML*", W3C Recommendation, T. Bray *et al.*, eds., 14 January 1999.

Available at: <http://www.w3.org/TR/1999/REC-xml-names-19990114>

[XML-LANG]

"*Extensible Markup Language (XML) 1.0 (Third Edition)*", W3C Recommendation, T. Bray *et al.*, eds., 4 February 2004.

Available at: <http://www.w3.org/TR/2004/REC-xml-20040204>

C.2. Other References

This section is informative.

[CATALOG]

Entity Management: OASIS Technical Resolution 9401:1997 (Amendment 2 to TR 9401), Paul Grosso, Chair, Entity Management Subcommittee, SGML Open, 10 September 1997.

See: <http://www.oasis-open.org/html/a401.htm>

[RDFaTF]

RDFa Task Force (See <http://www.w3.org/2001/sw/BestPractices/HTML/>.)

[VALIDATOR]

W3C Markup Validation Service

[XHTMLVOCAB]

"XHTML Vocabulary", XHTML 2 Working Group.

Available at: <http://www.w3.org/1999/xhtml/vocab>

F. Change History

This section is informative.

G. Acknowledgments

This section is informative.