CSS Text Decoration Module Level 3

W3C Working Draft 3 January 2013

This version:

http://www.w3.org/TR/2013/WD-css-text-decor-3-20130103/

Latest version:

http://www.w3.org/TR/css-text-decor-3/

Latest editor's draft:

http://dev.w3.org/csswg/css-text-decor-3/

Previous version:

http://www.w3.org/TR/2012/WD-css-text-decor-3-20121113/

Issues List:

http://www.w3.org/Style/CSS/Tracker/products/10

Discussion:

www-style@w3.org with subject line "`[css-text-decor-3] … message topic …`"

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Abstract

This module contains the features of CSS relating to text decoration, such as underlines, text shadows, and emphasis marks. CSS is a language for describing the rendering of structured documents (such as HTML and XML) on screen, on paper, in speech, etc.

Status of this document

This section describes the status of this document at the time of its publication. Other documents may supersede this document. A list of current W3C publications and the latest revision of this technical report can be found in the W3C technical reports index at http://www.w3.org/TR/.

Publication as a Working Draft does not imply endorsement by the W3C Membership. This is a draft document and may be updated, replaced or obsoleted by other documents at any time. It is inappropriate to cite this document as other than work in progress.

This CSS module has been produced as a combined effort of the W3C Internationalization Activity, and the Style Activity and is maintained by the CSS Working Group. It also includes contributions made by participants in the XSL Working Group (members only).

This document was produced by a group operating under the 5 February 2004 W3C Patent Policy. W3C maintains

a public list of any patent disclosures made in connection with the deliverables of the group; that page also includes instructions for disclosing a patent. An individual who has actual knowledge of a patent which the individual believes contains Essential Claim(s) must disclose the information in accordance with section 6 of the W3C Patent Policy.

Feedback on this draft should be posted to the (archived) public mailing list www-style@w3.org (see instructions) **with `[text-decor]` in the subject line.** You are strongly encouraged to complain if you see something stupid in this draft. The editors will do their best to respond to all feedback.

The following features are at risk and may be cut from the spec during its CR period if there are no (correct) implementations:

- the 'text-decoration-skip' property / 'ink' value
- the line positioning rules

This is a **Last Call Working Draft**. The deadline for comments is **31 January 2013**.

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1. Introduction

This subsection is non-normative.

This module covers text decoration, i.e. decorating the glyphs of the text once typeset according to font and typographic rules. (See [CSS3TEXT] and [CSS3-FONTS].) Such features are traditionally used not only for purely decorative purposes, but also in some cases to show emphasis, for honorifics, and to indicate editorial changes such as insertions, deletions, and misspellings.

CSS Levels 1 and 2 only defined very basic line decorations (underlines, overlines, and strike-throughs) appropriate to Western typographical traditions. Level 3 of this module adds the ability to change the color, style, position, and continuity of these decorations, and also introduces emphasis marks (traditionally used in East Asian typography), and shadows (which were proposed then deferred from Level 2).

1.1. Module Interactions

This module replaces and extends the text-decorating features defined in [CSS21] chapter 16.

1.2. Values

This specification follows the CSS property definition conventions from [CSS21]. Value types not defined in this specification are defined in CSS Level 2 Revision 1 [CSS21]. Other CSS modules may expand the definitions of these value types: for example [CSS3COLOR], when combined with this module, expands the definition of the <color> value type as used in this specification.

In addition to the property-specific values listed in their definitions, all properties defined in this specification also accept the inherit keyword as their property value. For readability it has not been repeated explicitly.

1.3. Terminology

The terms ***character***, ***letter***, and ***content language*** as used in this specification are defined in [CSS3TEXT]. Other terminology and concepts used in this specification are defined in [CSS21] and [CSS3-WRITING-MODES].

2. Line Decoration: Underline, Overline, and Strike-Through

The following properties describe line decorations that are added to the content of an element. When specified on or propagated to an inline box, that box becomes a ***decorating box*** for that decoration, applying the decoration to all its fragments. The decoration is then further propagated to any in-flow block-level boxes that split the inline (see

CSS2.1 section 9.2.1.1). When specified on or propagated to a block container that establishes an inline formatting context, the decorations are propagated to an anonymous inline box that wraps all the in-flow inline-level children of the block container. When specified on or propagated to a ruby box, the decorations are propagated only to the ruby base. For all other box types, the decorations are propagated to all in-flow children.

> Note that text decorations are not propagated to any out-of-flow descendants, nor to the contents of atomic inline-level descendants such as inline blocks and inline tables. They are also not propagated to inline children of inline boxes, although the decoration is *applied* to such boxes.

By default underlines, overlines, and line-throughs are applied only to non-replaced inline boxes, and are drawn over all text (including white space, letter spacing, and word spacing). Atomic inlines, such as images, are not decorated. The ‘text-decoration-skip’ property can be used to modify this behavior, for example allowing atomic inlines to be underlined or requiring that white space be skipped. Margins, borders, and padding of the decorating box are always skipped.

Relatively positioning a descendant moves all text decorations applied to it along with the descendant's text; it does not affect calculation of the decoration's initial position on that line. The ‘visibility’ property, ‘text-shadow’, filters, and other graphical transformations likewise affect text decorations as part of the text they're drawn on, even if the decorations were specified on an ancestor box.

EXAMPLE 1

In the following style sheet and document fragment:

```
blockquote { text-decoration: underline; color: blue; }
em { display: block; }
cite { color: fuchsia; }
```

```
<blockquote>
 <p>
  <span>
   Help, help!
   <em> I am under a hat! </em>

   <cite> –GwieF </cite>
  </span>
 </p>
</blockquote>
```

...the underlining for the blockquote element is propagated to an anonymous inline box that surrounds the span element, causing the text "Help, help!" to be blue, with the blue underlining from the anonymous inline underneath it, the color being taken from the blockquote element. The `<em>text</em>` in the em block is also underlined, as it is in an in-flow block to which the underline is propagated. The final line of text is fuchsia, but the underline underneath it is still the blue underline from the anonymous inline element.

This diagram shows the boxes involved in the example above. The rounded aqua line represents the anonymous inline element wrapping the inline contents of the paragraph element, the rounded blue line represents the span element, and the orange lines represent the blocks.

2.1. Text Decoration Lines: the ‘text-decoration-line’ property

Name:	***text-decoration-line***
Value:	none | [underline || overline || line-through || blink]
Initial:	none
Applies to:	all elements
Inherited:	no (but see prose)
Percentages:	N/A
Media:	visual
Computed value:	as specified

Specifies what line decorations, if any, are added to the element. Values have the following meanings:

'none'
Neither produces nor inhibits text decoration.

'underline'
Each line of text is underlined.

'overline'
Each line of text has a line over it (i.e. on the opposite side from an underline).

'line-through'
Each line of text has a line through the middle.

'blink'
The text blinks (alternates between visible and invisible). Conforming user agents may simply not blink the text. Note that not blinking the text is one technique to satisfy checkpoint 3.3 of WAI-UAAG. This value is **deprecated** in favor of Animations [CSS3-ANIMATIONS].

2.2. Text Decoration Color: the 'text-decoration-color' property

Name:	***text-decoration-color***
Value:	<color>
Initial:	currentColor
Applies to:	all elements
Inherited:	no
Percentages:	N/A
Media:	visual
Computed value:	the computed color

This property specifies the color of text decoration (underlines overlines, and line-throughs) set on the element with

'text-decoration-line'.

The color of text decorations must remain the same on all decorations originating from a given element, even if descendant boxes have different specified colors.

2.3. Text Decoration Style: the 'text-decoration-style' property

Name:	***text-decoration-style***
Value:	solid | double | dotted | dashed | wavy
Initial:	solid
Applies to:	all elements
Inherited:	no
Percentages:	N/A
Media:	visual
Computed value:	as specified

This property specifies the style of the line(s) drawn for text decoration specified on the element. Values have the same meaning as for the border-style properties [CSS3BG]. 'wavy' indicates a wavy line.

The style of text decorations must remain the same on all decorations originating from a given element, even if descendant boxes have different specified styles.

2.4. Text Decoration Shorthand: the 'text-decoration' property

Name:	***text-decoration***
Value:	*<text-decoration-line>* || *<text-decoration-style>* || *<text-decoration-color>*
Initial:	none
Applies to:	all elements
Inherited:	no
Percentages:	N/A
Media:	visual
Computed value:	as specified

This property is a shorthand for setting 'text-decoration-line', 'text-decoration-color', and 'text-decoration-style' in one declaration. Omitted values are set to their initial values. A 'text-decoration' declaration that omits both the 'text-decoration-color' and 'text-decoration-style' values is backwards-compatible with CSS Levels 1 and 2.

EXAMPLE 2

The following example underlines unvisited links with a solid blue underline in CSS1 and CSS2 UAs and a navy dotted underline in CSS3 UAs.

```
:link {
    color: blue;
    text-decoration: underline;
    text-decoration: navy dotted underline; /* Ignored in CSS1/CSS2 UAs */
}
```

2.5. Text Decoration Line Continuity: the 'text-decoration-skip' property

Name:	***text-decoration-skip***
Value:	none | [objects || spaces || ink || edges || box-decoration]
Initial:	objects
Applies to:	all elements
Inherited:	yes
Percentages:	N/A
Media:	visual
Computed value:	as specified

This property specifies what parts of the element's content any text decoration affecting the element must skip over. It controls all text decoration lines drawn by the element and also any text decoration lines drawn by its ancestors. Values have the following meanings:

'none'

Skip nothing: text-decoration is drawn for all text content and for inline replaced elements.

'objects'

Skip this element if it is an atomic inline (such as an image or inline-block).

'spaces'

Skip white space: this includes regular spaces (U+0020) and tabs (U+0009), as well as nbsp (U+00A0), ideographic space (U+3000), all fixed width spaces (such as U+2000–U+200A, U+202F and U+205F), and any adjacent letter-spacing or word-spacing.

'ink'

Skip over where glyphs are drawn: interrupt the decoration line to let text show through where the text decoration would otherwise cross over a glyph. The UA may also skip a small distance to either side of the glyph outline.

'edges'

The UA should place the start and end of the line inwards from the content edge of the *decorating element* so that, e.g. two underlined elements side-by-side do not appear to have a single underline. (This is important in Chinese, where underlining is a form of punctuation.)

'box-decoration'

Skip over the box's margin, border, and padding areas. Note that this only has an effect on decorations imposed by an ancestor.

Note that this property inherits and that descendant elements can have a different setting.

Note that CSS 2.1 required skipping margins, borders, and padding always. In this level, by default only the margins, borders, and padding of the *decorating element* are skipped.

2.6. Text Underline Position: the 'text-underline-position' property

Name:	***text-underline-position***
Value:	auto | alphabetic | [under || [left | right]]
Initial:	auto
Applies to:	all elements
Inherited:	yes
Percentages:	N/A
Media:	visual
Computed value:	as specified

This property sets the position of an underline specified on the same element: it does not affect underlines specified by ancestor elements. Values have the following meanings:

'auto'

The user agent may use any algorithm to determine the underline's position; however it must be placed at or under the alphabetic baseline.

It is suggested that the underline position be 'alphabetic' unless it crosses either subscripted (or otherwise lowered) text, or it affects characters from Asian scripts such as Han or Tibetan, for which an alphabetic underline is too high: in such cases, aligning to the em box edge as described for 'under left' is more appropriate.

'alphabetic'

The underline is positioned relative to the alphabetic baseline. In this case the underline is likely to cross some descenders.

Figure 1. *'text-underline-position: alphabetic'*

'under'

In horizontal writing modes, the underline is positioned relative to the under edge of the element's content box. In

this case the underline usually does not cross the descenders. (This is sometimes called "accounting" underline.) If the underline affects descendants with a lower content edge, the user agent should shift the underline down further to the lowest underlined content box edge. The user agent may ignore elements with ‘vertical-align’ values given as lengths, percentages, ‘top’, or ‘bottom’ when making this adjustment. (Note that images that are not affected by the underline per ‘text-decoration-skip’ will not affect the position of the underline.)

Figure 2. *‘text-underline-position: under’*

> EXAMPLE 3
>
> Because ‘text-underline-position’ inherits, and is not reset by the ‘text-decoration’ shorthand, the following example switches the document to use ‘under’ underlining, which can be more appropriate for writing systems with long, complicated descenders. It is also often useful for mathematical or chemical texts that use many subscripts.
>
> ```
> :root { text-underline-position: under; }
> ```

‘left’

In vertical writing modes, the underline is aligned as for ‘under’, except it is always aligned to the left edge of the text. If this causes the underline to be drawn on the "over" side of the text, then an overline also switches sides and is drawn on the "under" side.

‘right’

In vertical writing modes, the underline is aligned as for ‘under’, except it is always aligned to the right edge of the text. If this causes the underline to be drawn on the "over" side of the text, then an overline also switches sides and is drawn on the "under" side.

If ‘under’ is specified alone, ‘left’ is also implied. If ‘left’ or ‘right’ is specified alone, ‘under’ is also implied.

‘left’ ‘right’

Figure 3. *In vertical writing modes, the ‘text-underline-position’ values ‘left’ and ‘right’ allow placing the underline on either side of the text. (In horizontal writing modes, both values are treated as ‘under’.)*

EXAMPLE 4

The following example styles modern Chinese, Japanese, and Korean texts with the appropriate underline positions in both horizontal and vertical text:

```
:root:lang(ja), [lang|=ja], :root:lang(ko), [lang|=ko] { text-underline-position: under right; }
:root:lang(zh), [lang|=zh] { text-underline-position: under left; }
```

2.7. Determining the Position and Thickness of Line Decorations

In determining the position of text decoration lines, user agents must consider, per line box, the "ideal" positions of all fragments of in-flow inline descendants of the decorating box on that line as follows (treating over-positioned underlines as *over* lines and under-positioned overlines as *under* lines):

over lines
: Align the line decoration with respect to the highest over edge of the considered fragments' EM boxes.

alphabetic underlines
: Calculate an average of the ideal underlining offsets (from their respective alphabetic baselines) of the considered fragments, assigning any inline with non-initial ‘vertical-align’ the ideal offset of its parent. Align the line decoration to the lowest alphabetic baseline considered, with that calculated offset. (Alphabetic baselines can differ between ‘baseline’-aligned boxes if the dominant baseline is non-alphabetic.)

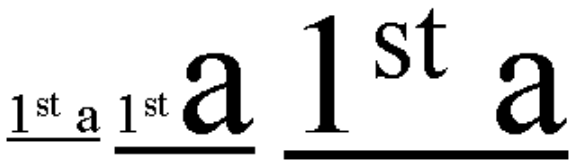
non-alphabetic under lines
: Position the line decoration with respect to the lowest under edge of the considered fragments' EM boxes.

line-throughs
: For each set of considered fragments with the same ‘font-size’, compute an ideal position averaged from their direct contents and font metrics, assigning any fragment with non-initial ‘vertical-align’ the ideal position of its parent. Position the portion of the line across each decorated fragment at that fragment's ideal position. (Essentially, this performs the same sort of averaging as for alphabetic underlines, but recomputes the position when drawing across a descendant with a different computed ‘font-size’. This ensures that the text remains effectively "crossed out" despite any font size changes.)

CSS does not define the thickness of line decorations. In determining the thickness of text decoration lines, user agents may consider the font sizes, faces, and weights of descendants to provide an appropriately averaged thickness.

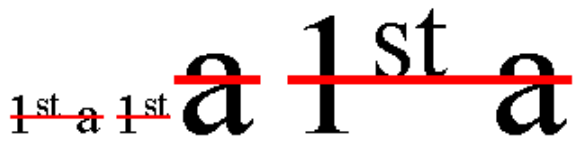
EXAMPLE 5

The following figure shows the averaging for underline:



In the three fragments of underlined text, the underline is drawn consecutively lower and thicker as the ratio of large text to small text increases.

Using the same example, a line-through would in the second fragment, instead of averaging the two font sizes, split the line-through into two segments:



In both cases, however, the superscript, due to the vertical-alignment shift, has no effect on the position of the line.

In some cases (such as in OpenType) the font format can offer information about the appropriate position of an underline. Typically this information gives the position of an ‘alphabetic’ underline; in some cases (especially in CJK fonts), it gives the position of a ‘under left’ underline. (In this case, the font's underline metrics typically touch the bottom edge of the em box). The UA is encouraged to use information (such as the underline thickness, or appropriate alphabetic alignment) from the font wherever appropriate.

3. Emphasis Marks

East Asian documents traditionally use small symbols next to each glyph to emphasize a run of text. For example:

これは日本語の文章です。

Figure 4. *Accent emphasis (shown in blue for clarity) applied to Japanese text*

3.1. Emphasis Mark Style: the ‘text-emphasis-style’ property

Name:	***text-emphasis-style***
Value:	none | [[filled | open] || [dot | circle | double-circle | triangle | sesame]] | <string>
Initial:	none
Applies to:	all elements
Inherited:	yes
Percentages:	N/A
Media:	visual
Computed value:	'none', a pair of keywords representing the shape and fill, or a string

This property applies emphasis marks to the element's text. Values have the following meanings:

'none'
No emphasis marks.

'filled'
The shape is filled with solid color.

'open'
The shape is hollow.

'dot'
Display small circles as marks. The filled dot is U+2022 '•', and the open dot is U+25E6 '◦'.

'circle'
Display large circles as marks. The filled circle is U+25CF '●', and the open circle is U+25CB '○'.

'double-circle'
Display double circles as marks. The filled double-circle is U+25C9 '◉', and the open double-circle is U+25CE '◎'.

'triangle'
Display triangles as marks. The filled triangle is U+25B2 '▲', and the open triangle is U+25B3 '△'.

'sesame'
Display sesames as marks. The filled sesame is U+FE45 '﹅', and the open sesame is U+FE46 '﹆'.

'<string>'
Display the given string as marks. Authors should not specify more than one character in <string>. The UA may truncate or ignore strings consisting of more than one grapheme cluster.

If a shape keyword is specified but neither of 'filled' nor 'open' is specified, 'filled' is assumed. If only 'filled' or 'open' is specified, the shape keyword computes to 'circle' in horizontal writing mode and 'sesame' in vertical writing mode.

The marks should be drawn using the element's font settings with its size scaled down to 50%. However, not all fonts have all these glyphs, and some fonts use inappropriate sizes for emphasis marks in these code points. The UA may opt to use a font known to be good for emphasis marks, or the marks may instead be synthesized by the UA. Marks must remain upright in vertical writing modes: like CJK characters, they do not rotate to match the writing mode.

One example of good fonts for emphasis marks is Adobe's opensource project, Kenten Generic OpenType Font, which is specially designed for the emphasis marks.

The marks are drawn once for each character. However, emphasis marks are not drawn for characters that are:

Word separators or that belong to the Unicode separator classes (Z*). (But note that emphasis marks *are* drawn for a space that combines with any combining characters.)

Characters belonging to the Unicode classes for control codes and unassigned characters (Cc, Cf, Cn).

If emphasis marks are drawn for characters for which ruby is drawn in the same position as the emphasis mark, the ruby should be stacked between the emphasis marks and the base text. In this case, the position of the emphasis marks for a given element should be determined as if all characters have ruby boxes of the same height as the highest ruby box in the element. If the UA is not capable of drawing ruby and emphasis marks on the same side, the UA may hide ruby and draw only emphasis marks.

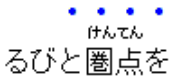


Figure 5. *Emphasis marks applied to 4 characters, and ruby to 2 of them*

A future level of CSS may define controls to specify what to do when emphasis marks and ruby text coincide.

3.2. Emphasis Mark Color: the 'text-emphasis-color' property

Name:	***text-emphasis-color***
Value:	<color>
Initial:	currentColor
Applies to:	all elements
Inherited:	yes
Percentages:	N/A
Media:	visual
Computed value:	as specified

This property specifies the foreground color of the emphasis marks.

The ***'currentcolor'*** keyword computes to itself and is resolved to the value of 'color' after inheritance is performed. This means 'text-emphasis-color' by default matches the text 'color' even as 'color' changes across elements.

3.3. Emphasis Mark Shorthand: the 'text-emphasis' property

Name:	***text-emphasis***
Value:	'<text-emphasis-style>' || '<text-emphasis-color>'
Initial:	see individual properties
Applies to:	all elements
Inherited:	yes
Percentages:	N/A
Media:	visual
Computed value:	see individual properties

This property is a shorthand for setting 'text-emphasis-style' and 'text-emphasis-color' in one declaration. Omitted values are set to their initial values.

Note that 'text-emphasis-position' is not reset in this shorthand. This is because typically the shape and color vary, but the position is consistent for a particular language throughout the document. Therefore the position should inherit independently.

3.4. Emphasis Mark Position: the 'text-emphasis-position' property

Name:	***text-emphasis-position***
Value:	[over | under] && [right | left]
Initial:	over right
Applies to:	all elements
Inherited:	yes
Percentages:	N/A
Media:	visual
Computed value:	as specified

This property describes where emphasis marks are drawn at. The values have following meanings:

'over'
: Draw marks over the text in horizontal writing mode.

'under'
: Draw marks under the text in horizontal writing mode.

'right'
: Draw marks to the right of the text in vertical writing mode.

'left'

Draw marks to the left of the text in vertical writing mode.

Emphasis marks are drawn exactly as if each character was assigned the mark as its ruby annotation text with the ruby position given by 'text-emphasis-position' and the ruby alignment as centered.

The effect of emphasis marks on the line height is the same as for ruby text.

Note, the preferred position of emphasis marks depends on the language. In Japanese for example, the preferred position is 'over right'. In Chinese, on the other hand, the preferred position is 'under right'. The informative table below summarizes the preferred emphasis mark positions for Chinese and Japanese:

Preferred emphasis mark and ruby position

Language	Preferred mark position		Illustration
	Horizontal	Vertical	
Japanese	over	right	これは日本語の文章です。
Chinese	under	right	中華人民共和国

4. Text Shadows: the 'text-shadow' property

Name:	***text-shadow***
Value:	none | [<length>{2,3} && <color>?]#
Initial:	none
Applies to:	all elements
Inherited:	yes
Percentages:	N/A
Media:	visual
Computed value:	a color plus three absolute <length>s

This property accepts a comma-separated list of shadow effects to be applied to the text of the element. Values are interpreted as for 'box-shadow' [CSS3BG]. (But note that spread values are not allowed.) The shadow is applied to all of the element's text as well as any text decorations it specifies.

The shadow effects are applied front-to-back: the first shadow is on top. The shadows may thus overlay each other, but they never overlay the text itself. The shadow must be painted at a stack level between the element's border and/or background, if present, and the elements text and text decoration. UAs should avoid painting text shadows over text in adjacent elements belonging to the same stack level and stacking context. (This may mean that the exact stack level of the shadows depends on whether the element has a border or background: the exact stacking behavior of text shadows is thus UA-defined.)

Unlike 'box-shadow', text shadows are not clipped to the shadowed shape and may show through if the text is partially-transparent. Like 'box-shadow', text shadows do not influence layout, and do not trigger scrolling or increase

the size of the scrollable area.

> The painting order of shadows defined here is the opposite of that defined in the 1998 CSS2 Recommendation.

The 'text-shadow' property applies to both the `::first-line` and `::first-letter` pseudo-elements.

5. Conformance

5.1. Document Conventions

Conformance requirements are expressed with a combination of descriptive assertions and RFC 2119 terminology. The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in the normative parts of this document are to be interpreted as described in RFC 2119. However, for readability, these words do not appear in all uppercase letters in this specification.

All of the text of this specification is normative except sections explicitly marked as non-normative, examples, and notes. [RFC2119]

Examples in this specification are introduced with the words "for example" or are set apart from the normative text with `class="example"`, like this:

> EXAMPLE 7
>
> This is an example of an informative example.

Informative notes begin with the word "Note" and are set apart from the normative text with `class="note"`, like this:

> Note, this is an informative note.

5.2. Conformance Classes

Conformance to CSS Text Level 3 is defined for three conformance classes:

style sheet
: A CSS style sheet.

renderer
: A UA that interprets the semantics of a style sheet and renders documents that use them.

authoring tool
: A UA that writes a style sheet.

A style sheet is conformant to CSS Text Level 3 if all of its declarations that use properties defined in this module have values that are valid according to the generic CSS grammar and the individual grammars of each property as given in this module.

A renderer is conformant to CSS Text Level 3 if, in addition to interpreting the style sheet as defined by the appropriate specifications, it supports all the features defined by CSS Text Level 3 by parsing them correctly and

rendering the document accordingly. However, the inability of a UA to correctly render a document due to limitations of the device does not make the UA non-conformant. (For example, a UA is not required to render color on a monochrome monitor.)

An authoring tool is conformant to CSS Text Level 3 if it writes style sheets that are syntactically correct according to the generic CSS grammar and the individual grammars of each feature in this module, and meet all other conformance requirements of style sheets as described in this module.

5.3. Partial Implementations

So that authors can exploit the forward-compatible parsing rules to assign fallback values, CSS renderers **must** treat as invalid (and ignore as appropriate) any at-rules, properties, property values, keywords, and other syntactic constructs for which they have no usable level of support. In particular, user agents **must not** selectively ignore unsupported component values and honor supported values in a single multi-value property declaration: if any value is considered invalid (as unsupported values must be), CSS requires that the entire declaration be ignored.

5.4. Experimental Implementations

To avoid clashes with future CSS features, the CSS2.1 specification reserves a prefixed syntax for proprietary and experimental extensions to CSS.

Prior to a specification reaching the Candidate Recommendation stage in the W3C process, all implementations of a CSS feature are considered experimental. The CSS Working Group recommends that implementations use a vendor-prefixed syntax for such features, including those in W3C Working Drafts. This avoids incompatibilities with future changes in the draft.

5.5. Non-Experimental Implementations

Once a specification reaches the Candidate Recommendation stage, non-experimental implementations are possible, and implementors should release an unprefixed implementation of any CR-level feature they can demonstrate to be correctly implemented according to spec.

To establish and maintain the interoperability of CSS across implementations, the CSS Working Group requests that non-experimental CSS renderers submit an implementation report (and, if necessary, the testcases used for that implementation report) to the W3C before releasing an unprefixed implementation of any CSS features. Testcases submitted to W3C are subject to review and correction by the CSS Working Group.

Further information on submitting testcases and implementation reports can be found from on the CSS Working Group's website at http://www.w3.org/Style/CSS/Test/. Questions should be directed to the public-css-testsuite@w3.org mailing list.

5.6. CR Exit Criteria

For this specification to be advanced to Proposed Recommendation, there must be at least two independent, interoperable implementations of each feature. Each feature may be implemented by a different set of products, there is no requirement that all features be implemented by a single product. For the purposes of this criterion, we define the following terms:

independent

each implementation must be developed by a different party and cannot share, reuse, or derive from code used by another qualifying implementation. Sections of code that have no bearing on the implementation of this specification are exempt from this requirement.

interoperable

passing the respective test case(s) in the official CSS test suite, or, if the implementation is not a Web browser, an equivalent test. Every relevant test in the test suite should have an equivalent test created if such a user agent (UA) is to be used to claim interoperability. In addition if such a UA is to be used to claim interoperability, then there must one or more additional UAs which can also pass those equivalent tests in the same way for the purpose of interoperability. The equivalent tests must be made publicly available for the purposes of peer review.

implementation

a user agent which: **(1)** implements the specification. **(2)** is available to the general public. The implementation may be a shipping product or other publicly available version (i.e., beta version, preview release, or "nightly build"). Non-shipping product releases must have implemented the feature(s) for a period of at least one month in order to demonstrate stability. **(3)** is not experimental (i.e., a version specifically designed to pass the test suite and is not intended for normal usage going forward).

The specification will remain Candidate Recommendation for at least six months.

Appendix A: Acknowledgements

This specification would not have been possible without the help from: Ayman Aldahleh, Bert Bos, Tantek Çelik, Stephen Deach, John Daggett, Martin Dürst, Laurie Anna Edlund, Ben Errez, Yaniv Feinberg, Arye Gittelman, Ian Hickson, Martin Heijdra, Richard Ishida, Masayasu Ishikawa, Michael Jochimsen, Eric LeVine, Ambrose Li, Håkon Wium Lie, Chris Lilley, Ken Lunde, Nat McCully, Shinyu Murakami, Paul Nelson, Chris Pratley, Marcin Sawicki, Arnold Schrijver, Rahul Sonnad, Michel Suignard, Takao Suzuki, Frank Tang, Chris Thrasher, Etan Wexler, Chris Wilson, Masafumi Yabe and Steve Zilles.

Appendix B: References

Normative references

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Appendix C: Changes

Changes since the May 2012 CSS Writing Modes Module Level 3 WD

Significant changes include:

- Changed line decorations to not skip margins/padding/borders of descendents' inline boxes.
- Clarified and corrected the definitions for line decoration propagation
- Changed the definitions for averaging line decoration positions to better accommodate changes in font size.
- Changed ‘above’ and ‘below’ values of ‘text-emphasis-position’ and ‘text-underline-position’ to ‘over’ and ‘under’ to match terminology in ‘text-decoration-line’.
- Define interaction of ‘text-shadow’ and ‘text-decoration’.

Appendix D: Default UA Stylesheet

This appendix is informative, and is to help UA developers to implement default stylesheet, but UA developers are free to ignore or change.

EXAMPLE 8

```
s, strike, del {
  text-decoration: line-through;
}

u, ins, :link, :visited {
  text-decoration: underline;
}

abbr[title], acronym[title] {
  text-decoration: dotted underline;
}

/* disable inheritance of text-emphasis marks to ruby text:
  emphasis marks should only apply to base text */
rt { text-emphasis: none; }

:root:lang(zh), [lang|=zh] {
/* default emphasis mark position is 'under right' for Chinese */
  text-emphasis-position: under right;
}

:root:lang(ja), [lang|=ja], :root:lang(ko), [lang|=ko] {
/* default underline position is 'under right' for Japanese and Korean */
  text-underline-position: under right;
}

:root:lang(zh), [lang|=zh] {
/* default underline position is 'under left' for Chinese */
  text-underline-position: under left;
}

blink {
  text-decoration-line: blink;
}
```

ISSUE 1 If you find any issues, recommendations to add, or corrections, please send the information to www-style@w3.org with `[css-text-decor-3]` in the subject line.

EXAMPLE 9

While ‘text-decoration-line: blink’ can't be fully reproduced with other existing properties, authors can achieve a very similar effect with the following CSS:

```
@keyframes blink {
  0% {
    visibility: hidden;
    animation-timing-function: step-end;
  }
  25%, 100% {
    visibility: visible;
  }
}
blink {
  animation: blink 1s infinite;
}
```