

# Summary and Checklist: Semantic Structure and Navigation

## Summary

Screen readers and other assistive technologies rely on the underlying semantic markup to convey meaningful information about the structure and content of web pages. The following is a list of all of the main principles covered in this module:

## Checklist

### Page Title

#### Title for Every Page

- The page `<title>` MUST be present and MUST contain text.
- The page `<title>` MUST be updated when the web address changes.

#### Meaningful Page Title

- The page `<title>` MUST be accurate and informative.
- If a page is the result of a user action or scripted change of context, the text of the `<title>` SHOULD describe the result or change of context to the user.
- The `<title>` SHOULD be concise.
- The page `<title>` SHOULD be unique, if possible.
- Unique information SHOULD come first in the `<title>`.
- The page `<title>` SHOULD match (or be very similar to) the top heading in the main content.

### Language

#### Primary Language of Page

- The primary language of the page MUST be identified accurately on the `<html>` element.
- The primary language of the page MUST be identified with a valid value on the `<html>` element.

#### Language of Parts within the Page

- Inline language changes MUST be identified with a valid `lang` attribute.

#### Language Codes

- The language code MUST be valid.

### Landmarks

#### Creating Landmarks (HTML 5, ARIA)

- Landmarks SHOULD be used to designate pre-defined parts of the layout (`<header>`, `<nav>`, `<main>`, `<footer>`, etc.).

#### Best Practices for Landmarks

- All text SHOULD be contained within a landmark region.
- Multiple instances of the same type of landmark SHOULD be distinguishable by different discernible labels (`aria-label` or `aria-labelledby`).
- A page SHOULD NOT contain more than one instance of each of the following landmarks: `banner`, `main`, and `contentinfo`.
- The total number of landmarks SHOULD be minimized to the extent appropriate for the content.

#### Backward Compatibility

- Landmarks SHOULD be made backward compatible.

### General UI Components

- In content implemented using markup languages, the purpose of User Interface Components, icons, and regions MAY be programmatically determinable.

### Headings

#### Real Headings

- Text that acts as a heading visually or structurally SHOULD be designated as a true heading in the markup.
- Text that does not act as a heading visually or structurally SHOULD NOT be marked as a heading.

#### Meaningful Text

- Headings MUST be accurate and informative.
- Heading text SHOULD be concise and relatively brief.

#### Outline/Hierarchy of Content

- Headings SHOULD convey a clear and accurate structural outline of the sections of content of a web page.
- Headings SHOULD NOT skip hierarchical levels.

#### Heading Level 1 Best Practices

- The beginning of the main content SHOULD start with `<h1>`.
- Most web pages SHOULD have only one `<h1>`.

### Links

#### Designate Links Correctly

- Links MUST be semantically designated as such.
- Links and buttons SHOULD be designated semantically according to their functions.

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## Links (continued)

### Link Text

- A link **MUST** have programmatically-discernible text, as determined by the accessible name calculation algorithm.
- The purpose of each link **SHOULD** be able to be determined from the link text alone.
- The link text **SHOULD NOT** repeat the role ("link").
- Features such as labels, names, and text alternatives for content that has the same functionality across multiple web pages **MUST** be consistently identified.

### Links to External Sites, New Windows, Files

- A link that opens in a new window or tab **SHOULD** indicate that it opens in a new window or tab.
- A link to a file or destination in an alternative or non-web format **SHOULD** indicate the file or destination type.
- A link to an external site **MAY** indicate that it leads to an external site.

### Visually Distinguishable from Text

- Links **MUST** be visually distinguishable from surrounding text.

### Visual focus indicator

- All focusable elements **MUST** have a visual focus indicator when in focus.
- Focusable elements **SHOULD** have enhanced visual focus indicator styles.

## Navigation Between Pages

### Navigation Lists

- A navigation list **SHOULD** be designated with the `<nav>` element or `role="navigation"`.
- A navigation list **SHOULD** include a visible method of informing users which page within the navigation list is the currently active/visible page.
- A navigation list **SHOULD** include a method of informing blind users which page within the navigation list is the currently active/visible page.

### Consistency

- Navigation patterns that are repeated on web pages **MUST** be presented in the same relative order each time they appear and **MUST NOT** change order when navigating through the site.

## Navigation Within Pages

### Skip Navigation Links

- A keyboard-functional "skip" link **SHOULD** be provided to allow keyboard users to navigate directly to the main content.
- The "skip link" should be the first focusable element on the page.
- A skip link **MUST** be either visible at all times or visible on keyboard focus.

### Table of Contents

- A table of contents for the page **MAY** be included at the top of the content or in the header.
- If a table of contents for the page is included, it **SHOULD** reflect the heading structure of the page.

### Reading Order and Tab/Focus Order

- The reading order **MUST** be logical and intuitive.
- The navigation order of focusable elements **MUST** be logical and intuitive.
- `tabindex` of positive values **SHOULD NOT** be used.

### Paginated Views

- A paginated view **SHOULD** include a visible method of informing users which view is the currently active/visible view.
- A paginated view **SHOULD** include a method of informing blind users which view is the currently active/visible view.

### Single-Key Shortcuts

- If a single-character-key shortcut exists, then at least one of the following **MUST** be true: single-character-key shortcuts can be turned off, remapped, or are only active when the relevant user interface component is in focus.

## Tables

### Semantic Markup for Tabular Data

- Tabular data **SHOULD** be represented in a `<table>`.

### Table caption/name

- Data tables **SHOULD** have a programmatically-associated caption or name.
- The name/caption of a data table **SHOULD** describe the identity or purpose of the table accurately, meaningfully, and succinctly.
- The name/caption of each data table **SHOULD** be unique within the context of other tables on the same page.

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## Tables (continued)

### Table Headers

- Table headers **MUST** be designated with `<th>`.
- Data table header text **MUST** accurately describe the category of the corresponding data cells.

### Simple Header Associations

- Table data cells **MUST** be associated with their corresponding header cells.

### Grouped Header Associations

- Table data group headers **MUST** be associated with their corresponding data cell groups.

### Complex Header Associations

- Header/data associations that cannot be designated with `<th>` and `scope` **MUST** be designated with `headers` plus `id`.

### Nested or Split Tables

- Data table headers and data associations **MUST NOT** be referenced across nested, merged, or separate tables.

### Table Summary

- A summary **MAY** be provided for data tables.
- A data table summary, if provided, **SHOULD** make the table more understandable to screen reader users.

### Layout Tables

- Tables **SHOULD NOT** be used for the purpose of purely visual (non-data) layout.
- Layout tables **MUST NOT** contain data table markup.

## Lists

### Semantic Markup for Lists

- Lists **MUST** be constructed using the appropriate semantic markup.

## Iframes

### Frame titles

- Iframes that convey content to users **MUST** have a non-empty title attribute.
- The iframe title **MUST** be accurate and descriptive.
- Frames **MUST** have a unique title (in the context of the page).

### Page Title Within an Iframe

- The source page of an iframe **MUST** have a valid, meaningful `<title>`.

### Semantic structure across iframes

- The heading hierarchy of an iframe **SHOULD** be designed to fit within the heading hierarchy of the parent document, if possible.

### Hiding iframes that don't contain meaningful content

- Hidden frames or frames that do not convey content to users **SHOULD** be hidden from assistive technologies using `aria-hidden="true"`.

## Other Semantic Elements

### `<strong>` and `<em>`

- Critical emphasis in the text **SHOULD** be conveyed through visual styling.
- Critical emphasis in the text **SHOULD** be conveyed in a text-based format.

### `<blockquote>` and `<q>`

- The `<blockquote>` element **SHOULD** be used to designate long (block level) quotations.
- The `<blockquote>` element **SHOULD NOT** be used for visual styling alone.
- The `<q>` element (for inline quotations) **SHOULD NOT** be used as the only way to designate quotations.

### `<code>`, `<pre>`

- Code **SHOULD** be marked with the `<code>` element and styled to look different from non-code text.
- Blocks of code **SHOULD** be formatted with the `<pre>` element.

### Strikethrough/Delete and Insert

- Strikethrough text **SHOULD** be marked with the `<del>` element.
- Critical strikethrough text **MUST** be supplemented with a text-based method to convey the meaning of the strikethrough.
- Text designated for insertion **SHOULD** be marked with the `<ins>` element.
- Critical text designated for insertion **MUST** be supplemented with a text-based method to convey the meaning of the insertion.

### Highlighting (`<mark>`)

- Highlighted text **SHOULD** be marked with the `<mark>` element.
- Critical highlighted text **SHOULD** be supplemented with a text-based method to convey the meaning of the highlighting.

## Parsing and Validity

### **Complete Start and End Tags**

- In content implemented using markup languages, elements **MUST** have complete start and end tags.

### **Conflicts and duplicates**

- IDs **MUST** be unique within a web page.
- Names, when provided, of block level elements (e.g. landmarks, tables, iframes, etc.) **SHOULD** be unique within a web page.

### **Parent-child relationships**

- Markup **SHOULD** adhere to required parent-child relationships of elements and attributes.

### **Deprecated Markup**

- Deprecated markup **SHOULD NOT** be used.