

# Structured Content Guidelines Outline

## Document History:

- 21 April 2021:

Archived inherited content to end of this document, started new documentation

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## Guideline:

Use sections, headings, and sub-headings to organize content

## Outcomes

1. Headings with levels organize content
  - a. Method: Relevant headings (All)
    - i. Functional Categories and User Needs
      1. All
        - a. Text
          - i. WCAG:
          - ii. Tutorials:
          - iii. Techniques:
        2. Sensory - Vision & Visual
        3. Sensory Intersections
        4. Physical & Sensory Intersections
        5. Cognitive - Attention
        6. Cognitive - Language & Literacy

7. Cognitive - Memory
    8. Cognitive - Executive
    9. Cognitive & Sensory Intersections
  2. Uses visually distinct headings
    - a. Method: Visually distinct
  3. Conveys hierarchy with semantic structure
    - a. Method: Semantic headings (HTML)
    - b. Method: Semantic ... something (i.e., iOS, other technology)
- 

# ARCHIVED CONTENT

## Outcome:

### Headings with levels organize content

[Link: [\*Outcome, details, and methods for Headings organize content\*](#)]

Organizes content into logical blocks with both heading text and level relevant to the subsequent content to make locating and navigating information easier and faster.

## Method:

### Relevant headings (All)

## Functional Categories and User Needs

This outcome relates to the following functional categories:

- All
  - Text
    - WCAG:
    - Tutorials:
    - Techniques:
- Sensory - Vision & Visual
- Sensory Intersections
- Physical & Sensory Intersections
- Cognitive - Attention
- Cognitive - Language & Literacy
- Cognitive - Memory
- Cognitive - Executive
- Cognitive & Sensory Intersections

## **Relevant WCAG 2.x Success Criteria**

Included on tests worksheet:

- [WCAG 2.2 2.4.6 Level AA - Headings and Labels:](#)  
Headings and labels describe topic or purpose.
- [WCAG 2.2 2.4.10 Section Headings](#)

## **Relevant WCAG 2.x Techniques**

- Included on tests worksheet:
- Not (yet) included on tests worksheet:

- [G130: Providing descriptive headings](#)
- [G131: Providing descriptive labels](#)

### Relevant ACT Rules

- Included on tests worksheet:
- Not (yet) included on tests worksheet:

### Relevant Easy Checks

- Included on tests worksheet:
- Not (yet) included on tests worksheet:

### Relevant Web Accessibility Tutorials

- Included on tests worksheet:
  - Not (yet) included on tests worksheet:
- 

### Outcome:

#### Uses visually distinct headings

text

### Outcome:

#### Conveys hierarchy with semantic structure

text

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What follows is the original content the Structured Content sub-group inherited, as an archive

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## Methods for Content Structure (Headings)

### Functional Outcomes for Headings

- Organizes content into logical blocks with both heading text and level relevant to the subsequent content to make locating and navigating information easier and faster.
  - Uses visually distinct headings so sighted readers can determine the structure.
  - Provides semantic structure that conveys a sense of hierarchy that helps the user explore and navigate the text material to support assistive technology -- headings are coded as headings.
- 

## Relevant headings

### Basics:

#### Functional Outcome

Organizes content into logical blocks with both heading text and level relevant to the subsequent content to make locating and navigating information easier and faster. People can understand the purpose and function of content and sections.

## Why it is important to do it

- Headings are used as navigation features by any user who has a disability that impacts their ability to read. If the heading is not relevant to the subsequent content, it cannot successfully provide navigation support.
- People who are trying to locate controls in an application rely on headings.

## How it satisfies the user need

### Functional Category

- Sensory - Vision & Visual
- Sensory Intersections
- Physical & Sensory Intersections
- Cognitive - Attention
- Cognitive - Language & Literacy
- Cognitive - Memory
- Cognitive - Executive
- Cognitive & Sensory Intersections

### Applies to:

- Documents such as PDF, word processing documents, ePub, and slideware.
- Web-based languages such as HTML, and ARIA.
- Platforms such as iOS, and Android.

## Detail Description

- 1) All headings should contain an appropriate amount of information to allow the user to understand the content being presented between that heading and the next heading.
- 2) Headings are not restricted to text content, they can be used to identify sections containing only images, links, or multimedia.
- 3) Headings level hierarchy should be consistent within their section.
  - a) Don't skip levels when going deeper into the hierarchy (i.e. don't go from H2 to H4).
  - b) You may skip levels when going higher into the hierarchy if it is internally consistent with your header structure (i.e., you may go from H4 to H2).
- 4) Avoid having two headers immediately adjacent with no content in between them.

## Exceptions:

- Don't add headings into quoted or copyrighted material where they are not in the original content.
- Don't use heading content because it's catchy or for SEO reasons;
- Don't use headings for individual form fields or menus.

- Portals, iframes, and ePub books can bring in content with heading levels that are not in the same hierarchy as the rest of the view. For example, a home screen may display data from other parts of a site and have an inconsistent hierarchy with the home page. If there are levels of headings within that content, their levels should be consistent.

## Code Samples (or Examples)

Headings are standard for HTML, and available on iOS since iOS6.

### Native Platforms (iOS)

See the [heading chapter of Apple developer documentation](#)

```
{  
  
  "components": [  
  
    {  
  
      "role": "heading",  
  
      "text": "Mars - Earth's neighbor"  
  
    }  
  
  ]  
  
}
```

## Native Platforms (Android)

See the [heading section of Android developer documentation](#)

If a particular `View` element represents a heading, you can indicate its purpose for accessibility services by setting the element's `android:accessibilityHeading` attribute to `true`.

### Applicable tests (and WCAG 2 Techniques)

- Provides semantic structure to support assistive technology-- headings are coded as headings.
  - [H69: Providing heading elements at the beginning of each section of content](#)
  - [G130: Providing descriptive headings](#)
  - [G141: Organizing a page using headings](#)

### Test 1: Test for sections with headings

1. Check that the content is divided into separate sections
2. Check that each section on the page starts with a heading.

### Expected Results

- Checks #1 and #2 are true

## Test 2: Test for relevance of headings

1. Check that each heading relates to the content contained in the section.

### Expected Results

- Check #1 is true.

## Test 3: Test for accuracy of heading levels

1. Check that each heading is at the correct level.

### Expected Results

- Check #1 is true.

## Test

1. Check that each heading can be used for navigation purposes.

### Expected Results

- Check #1 is true.

## Scoring

### Critical failures for the method or specific tests

- If a heading is not usable for navigation purposes. Examples of this include:
  - Too short (i.e. #Win)
  - Too vague (i.e. "Who wouldn't love this?")
  - Too long (i.e. entire paragraphs, or stuffed with SEO terms)

- Doesn't match (i.e. heading is "Win a trip to Costa Rica" and text is about cotton candy machine repair)
  - Wrong level (i.e. should be an H3 and was tagged as an H6, an H1 that is not the first heading in the document)
  - A repeat instance of an H1
- If a heading is not present when content indicates there should be a heading, that is a critical failure. Examples of this include:
    - Missing from the beginning of a new section of content (unless it is an [Exception](#))

## Assign an adjectival rating

### What is important and why

- *The ability to use valid headings to navigate to relevant content that the user is interested in reduces the amount of time assistive technology users need to spend processing information that they know that they are not interested in.*

|                 |                                                                                                                         |
|-----------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>Rating 0</b> | A critical failure on the path OR only 25% or less of the headings that should exist meet the requirements in Rating 4. |
| <b>Rating 1</b> | No critical failures AND 26-50% or less of the headings that should exist meet the requirements in Rating 4             |
| <b>Rating 2</b> | No critical failures AND 51-80% of the visual headings that should exist meet the requirements in Rating 4              |

|                 |                                                                                                                                                       |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Rating 3</b> | No critical failures AND 81-95% of the visual headings that should exist meet the requirements in Rating 4                                            |
| <b>Rating 4</b> | 96% - 100% of the headings that should exist are:<br><br>1) present<br><br>2) at the correct level, and<br><br>3) can be used for navigation purposes |

---

## Visually Distinct

### Basics:

### Functional Outcome

- People can visually distinguish headings from other content and understand the content structure.

### Why it is important to do it

- Visually distinct headings help sighted users to more easily find blocks of content and understand the relationship between each block.
- Visually distinct headings can help users to maintain focus, can help them orientate, and help them restore context when it is lost.
- People with a language impairment, learning disability, and/or an impaired memory want layouts that help them follow and understand the content without getting overwhelmed.

## How it satisfies the user need

- Rather than reading a page from start to finish, users scan content to understand if what they're looking at is helpful to the task they're trying to complete. Visually distinct headings help users to make quicker decisions on the usefulness of the section.

## Functional Category

- Sensory - Vision & Visual
- Cognitive - Language & Literacy
- Cognitive - Learning
- Cognitive - Memory
- Cognitive - Executive
- Cognitive & Sensory Intersections

## Applies to:

- Documents such as PDF, word processing documents, ePub, and slideware.
- Web-based languages such as HTML, and ARIA.
- Platforms such as iOS, and Android.

## Detail Description

Although there is nothing stopping a designer or developer picking font sizes on whim, using a [typographic scale](#) to create a series of type sizes, line heights, and margins creates a feeling of connectedness in the components in a view. This, combined with well-chosen margins and font weight will make headings more visually distinct than their surrounding body text.

Creating whitespace that is visually closer to its related block of content than the preceding content provides a further visual clue to the relationship between the heading and its content. There should be more whitespace before the heading and less after it.

For plain text where markdown isn't used, a heading is created by leaving two lines of whitespace before, and one line of whitespace after, a line of text.

## Code Samples (or Examples)

Languages that use CSS for styling:

In CSS, size text using relative units such as rem and em for text sizing and margins. If a user scales their browser's text size, text sized in relative elements will resize and still keep their visual connectedness. Line heights are unitless so that they are based on the size of the computed size of the text and will also adapt with any text resizing.

```
:root{  
  
  font-size:100%;  
  
}
```

```
body{  
  
  font-size:1rem;  
  
}
```

```
h1, .h1{
```

```
font-size:2.441rem;

font-weight:700;

line-height:1.25;

margin:0.8em 0 0.262em;

}
```

```
h2, .h2{

font-size:1.953rem;
font-weight:700;

line-height:1.25;

margin:1em 0 0.262em;

}
```

```
p{

margin-top:0;

}
```

Plain text

-----

Here's the end of a paragraph about something very interesting that you're fascinated in and want to read more about.

Here's a heading to describe the next block of text

Here's the beginning of a new paragraph about something even more interesting than the previous paragraph that was, frankly, amazing.

-----

## Plain text with markdown

Markdown syntax can create headings that can be converted into multiple other formats. Because markdown documents are frequently converted into other formats, spacing is more important than purely plain-text documents. Headings in markdown should have one line of blank space before them and no space after them. The # symbol is used to create six levels of headings:

# Heading level one

## Heading level two

### Heading level three

#### Heading level four

##### Heading level five

##### Heading level six

-----

# An exciting document title

Here's the introduction to the document, hopefully with a summary to help readers understand if the contents will be useful to them.

## Here's an interesting second-level heading

This is the beginning of an interesting paragraph of text that you, dear reader, will hopefully enthuse about.

-----

## Testing

### For non-plain-text views

The easiest way to determine if a heading is visually distinct is to carry out a squint test. You can do this by squinting your eyes at a page until the content becomes blurry. You should be able to perceive headings, and their related content, as distinct blocks of content.

If you don't want to or can't squint at a screen, you can use a browser extension such as [No Coffee](#) that simulates different forms of low vision. Again, you're checking to see that headings can be perceived as distinct blocks of content.

If you don't want to use a browser extension, you can use CSS filters on the HTML element to alter the view's presentation. For example, the blur filter will blur the view's content:

```
<html lang="en" style="filter:blur:5px">
```

You can also chain filters, for example by adding a grayscale to remove all the color:

```
<html lang="en" style="filter:blur:5px grayscale(100)">
```

## Testing for plain text

For plain text documents that don't use markdown, read the document and look for content that acts as headings. Check that there are two blank lines above the heading and one blank line after the heading.

## Testing for Markdown

Markdown supports two different styles for headings, but only one style supports more than two levels of headings. For visual consistency, check that one style is used consistently in the document, for example: each heading starts with one or more # characters.

Markdown can also be tested using applications that support in-application markdown previews. Markdown, and a preview of the converted file, can be tested as the file is being written.

## Applicable tests (and WCAG 2 Techniques)

Editor's note: there is only one current 2.x technique (i.e. not a success criterion) for Visually Distinct headings. This *T3: Using standard text formatting conventions for headings*. More tests will be needed for the future.

1. [T3: Using standard text formatting conventions for headings](#)

### WCAG 2.1 Technique T3: Using standard text formatting conventions for headings

#### Procedure for testing headings in plain text documents

1. Check that each heading has two blank lines before it and one blank line after it.

#### Expected Results

- Check #1 is true.

## Scoring

|                 |                                                               |
|-----------------|---------------------------------------------------------------|
| <b>Rating 0</b> | 25% or less of all headings meet the requirements in Rating 4 |
| <b>Rating 1</b> | 26% to 50% of all headings meet the requirements in Rating 4  |
| <b>Rating 2</b> | 51% to 75% of all headings meet the requirements in Rating 4  |

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Rating 3</b> | 76% to 95% of all headings meet the requirements in Rating 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Rating 4</b> | <p>96% or more of all headings meet the following requirements:</p> <ol style="list-style-type: none"> <li>1. Non-plain text headings are larger than body text, are designed to correspond to their heading level, have more contrast than the view's body copy, and are visibly connected to their related content using whitespace. OR</li> <li>2. Plain text headings have two blank lines of space before them and one blank line of space after them. OR</li> <li>3. Markdown headings have one line of space before them, and a suitable, heading level styled consistently with the other headings in the view.</li> </ol> |

- Critical failures for the method or specific tests
  - If there are multiple headings in a path that are not visually distinct, this can cause excessive fatigue, frustration, and confusion for some people. For example, a news outlet can cause fatigue by presenting people with too many different heading styles so they have to read every heading instead of being able to quickly identify sections.

---

## Headings in HTML & ARIA

## Basics:

### Functional Outcome

- People using different user agents and assistive technologies can distinguish headings from other content and understand the content structure.

#### Why it is important to do it

- Assistive Technologies like screen readers rely on semantics in the code to properly help their users understand and navigate the material. For example, screen reader users can bring up a list of headings on the page to browse and navigate to the material they want without having to listen to everything.

#### How it satisfies the user need

- Properly coded headings allow assistive technology users to understand the hierarchy of content and navigate to the section most likely to have the material of interest.

### Functional Category

- Sensory - Vision & Visual
- Sensory Intersections
- Physical & Sensory Intersections
- Cognitive - Language & Literacy
- Cognitive & Sensory Intersections

## Applies to: (Technology or Platform or Language)

- Documents such as PDF, word processing documents, ePub, and slideware.
- Web-based languages such as HTML, and ARIA.
- Platforms such as iOS, and Android.

## Detail Description

Every page should have only one perceivable H1-type heading. There may be more than one in the code, but only one is in view or in the accessibility tree at one time.

There are two ways to approach providing structure in HTML:

- Native HTML semantic tags, such as `<h3>` or `<main>`
- ARIA attributes for HTML tags
- Use one or the other. Don't use both in the same tag or element.

Headings are not only used for organizing text. Headings are also used to organize forms, controls, multimedia and complex applications. They help people locate the information or controls they need.

## Code Samples (or Examples)

HTML:

[Note: This is copied from WCAG 2.1 Technique H42]

### **Example 1: Hierarchical Heading Organization**

In the following example, headings are used in a hierarchical layout with h3 as a subsection of h2, which is a subsection of h1.

<h1>Plant Foods that Humans Eat</h1>

<p>There are an abundant number of plants that humans eat...</p>

<h2>Fruit</h2>

<p> A fruit is a structure of a plant that contains its seeds...</p>

<h3>Apple</h3>

<p>The apple is the pomaceous fruit of the apple tree...</p>

<h3>Orange</h3>

<p>The orange is a hybrid of ancient cultivated origin...</p>

<h3>Banana</h3>

<p>Banana is the common name for herbaceous plants ...</p>

<h2>Vegetables</h2>

<p>A vegetable is an edible plant or part of a plant other than a sweet fruit ...</p>

<h3>Broccoli</h3>

<p>Broccoli is a plant of the mustard/cabbage family ... </p>

<h3>Brussels sprouts</h3>

<p>The Brussels sprout of the Brassicaceae family, is a Cultivar group of wild cabbage ...</p>

<h3>Green beans</h3>

<p>Green beans have been bred for the fleshiness, flavor, or sweetness of their pods...</p>

## Example 2: Headings in a 3-column layout

In this example, the main content of the page is in the middle column of a 3-column page. The title of the main content matches the title of the page, and is marked as h1, even though it is not the first thing on the page. The content in the first and third columns is less important, and marked with h2.

### Note

It is important to note that the example code below is not intended to prescribe what level of heading should be used for a particular section of the web page. In the example, the layout could be presented with the first heading in each column at the same logical level (such as an h1), or as found in the example, where the logical level reflects its importance in relation to the main content.

```
<head>
```

```
<title>Stock Market Up Today</title>
```

```
</head>
```

```
<body>
```

```
<!-- left nav -->
```

```
<div class="left-nav">
```

```
<h2>Site Navigation</h2>
```

```
<!-- content here -->
```

```
</div>
```

```
<!-- main contents -->

<div class="main">

<h1>Stock Market up today</h1>

<!-- article text here -->

</div>


<!-- right panel -->

<div class="left-nav">

<h2>Related links</h2>

<!-- content here -->

</div>

</body>
```

## ARIA:

[Copied from ARIA12 as a hasty example:] This example demonstrates how to implement a level 7 heading using `role="heading"` and the `aria-level` attribute. Since HTML only supports headings through level 6, there is no native element to provide these semantics.

...

```
<h5>Fruit Trees</h5>
```

...

```
<h6>Apples</h6>
```

<p>Apples grow on trees in areas known as orchards...</p>

...

<div role="heading" aria-level="7">Jonagold</div>

<p>Jonagold is a cross between the Golden Delicious and Jonathan varieties...</p>

## Testing

### Applicable tests (and WCAG 2 Techniques)

- Provides semantic structure to support assistive technology-- headings are coded as headings.
  - [H42: Using h1-h6 to identify headings](#)
  - [ARIA12: Using role=heading to identify headings](#)
  - [PDF9: Providing headings by marking content with heading tags in PDF documents](#)

### WCAG 2.1 Technique H42: Using h1-h6 to identify headings

- This test is measured by the number of visual headings on a page, screen, or view
- Percentage (# passed/total # of headings)

#### Procedure [for each test]

2. Check that heading markup is used when content is a heading and the heading markup indicates the appropriate heading level for the content.
3. Check that heading markup is not used when content is not a heading

## **Expected Results**

- Checks #1 and #2 are true..

## WCAG 2.1 Technique ARIA12: Using role=heading to identify headings

- This test is measured by the number of visual headings on a page, screen, or view
- Percentage (# passed/total # of headings)

## **Procedure [for each test]**

1. Examine each element with the attribute role="heading".
2. Determine whether the content of the element is appropriate as a heading.
3. If the element has an aria-level attribute, determine whether the value is the appropriate hierarchical level.

## **Expected Results**

- Checks #2 and #3 are true.

## **Scoring**

### Critical failures for the method or specific tests

- If headings necessary to locating the content necessary to accomplish the task or follow the path are not coded as headings, that is a critical failure

### Assign an adjectival rating

### **What is important and why**

- Headings that only have visual styling without underlying semantic code cannot be properly interpreted by assistive technologies like screen readers. If headings have a

<div> or other tag than an <h1>-<h6>, then aria attributes are used to create a heading with the correct level.

- If a hierarchy of headings is used, then the semantic structure must communicate that hierarchy.
- Without semantic structure the page, screen, or view is just a large blob of text with no organization. People who listen to a page sequentially need the organization to give them the ability to “browse” the material.

**What a 0,1,2, 3, and 4 look like (% cutoff points or additional rules on how to assign a scale rating)**

|                 |                                                                                                                                                            |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Rating 0</b> | Headings have the incorrect semantics (any non-heading element without the necessary heading-related ARIA attributes, like role="heading" aria-level="3"). |
| <b>Rating 1</b> | 50% or less of the visual headings are semantically coded                                                                                                  |
| <b>Rating 2</b> | 51-80% of the visual headings are semantically coded                                                                                                       |
| <b>Rating 3</b> | 81-95% of the visual headings are semantically coded                                                                                                       |
| <b>Rating 4</b> | Whatever technique is used, the 96% - 100% of the sections have properly coded headings and the levels communicate the hierarchy                           |

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## Functional Outcome

- Conveys a sense of hierarchy that helps the user explore and navigate the text material.

### Why it is important to do it

- Assistive Technologies like screen readers rely on semantics in the code to properly help their users understand and navigate the material. For example, screen reader users can bring up a list of headings on the page to browse and navigate to the material they want without having to listen to everything. Well structured and written content helps users quickly understand what content is likely to be in the view.
- Sighted users can use the size, weight, color, and visual placement of headings to understand the view's structure and likely content.

### How it satisfies the user need

- Properly coded headings allow assistive technology users to understand the hierarchy of content and navigate to the section most likely to have the material of interest. Well designed headings stand out visually. Well written headings accurately describe the content that follows them.

## Functional Category

- Sensory - Vision & Visual
- Sensory Intersections
- Physical & Sensory Intersections
- Cognitive - Language & Literacy
- Cognitive & Sensory Intersections

## Applies to: (Technology or Platform or Language)

- Documents such as PDF, word processing documents, ePub, and slideware.
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## Detail Description

There are two ways to approach providing structure in HTML:

- Native HTML semantic tags, such as `<h3>` or `<main>`
  - ARIA attributes for HTML tags
  - Use one or the other. Don't use both in the same tag or element.
-