
**Information technology — User interface
component accessibility —**

**Part 11:
Guidance for alternative text for images**

*Technologies de l'information — Accessibilité du composant interface
utilisateur —*

Partie 11: Lignes directrices pour le texte alternatif pour images

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Contents

Page

Foreword	v
Introduction	vi
1 Scope	1
2 Terms and definitions	1
2.1 Text alternatives and related definitions	1
2.2 Image and related definitions	2
2.3 Importance and related definitions	3
2.4 Information relationship definitions	3
2.5 Image content and related definitions	4
2.6 Image sources and related definitions	4
2.7 Information type definitions	5
3 Framework for describing images and creating text alternatives	6
3.1 Uses of text alternatives	6
3.2 Structure of descriptions	6
3.3 Structure of text alternatives	7
4 Requirements and recommendations for describing images	8
4.1 A procedure for creating text alternatives	8
4.2 Purposes	10
4.2.1 Introduction to purposes	10
4.2.2 Informative purposes	10
4.2.3 Control purposes	11
4.2.4 Decorative purposes	11
4.2.5 Formatting purposes	12
4.2.6 Brevity of statements of purposes	12
4.3 Context of an image	13
4.3.1 Text alternatives relate an image to its context within a document	13
4.3.2 Context of images within panels within a document	13
4.4 Levels of importance	13
4.4.1 Importance is context dependent	13
4.4.2 Importance	14
4.5 Images and image components	16
4.6 Identification of content	18
4.6.1 Introduction to identification of content	18
4.6.2 Subjective content	18
4.6.3 Objective content	18
4.6.4 Relationships of images and their components	20
5 Expanding on the identification and elaboration of content	20
5.1 Introduction	20
5.2 Detailed questions relating to identification ("what")	21
5.2.1 Classifying the image (or image component)	21
5.2.2 Elaborating on textual content	22
5.2.3 Elaborating on physical objects	22
5.2.4 Elaborating on people	22
5.2.5 Elaborating on perceptual objects and perceptual properties of other objects	22
5.2.6 Elaborating subjective descriptions	23
5.2.7 Elaborating on logical relationships / interactions and actions	23
5.2.8 Elaborating on locations/places	24
5.3 Detailed questions relating to temporal elaboration ("when")	24
5.3.1 Introduction to temporal properties	24
5.3.2 Elaborating about time periods	25

5.3.3	Elaborating about events / activities	25
5.3.4	Elaborating sequential relationships	25
5.3.5	Elaborating on states	26
5.3.6	Elaborating on slide shows	26
5.4	Detailed questions relating to physical (spatial) relationship elaboration ("where")	27
5.5	Detailed questions relating to quantitative elaboration ("how much")	27
5.6	Detailed questions relating to procedural elaboration ("how")	28
5.6.1	Elaborating on the intended use of the image	28
5.6.2	Elaborating on control	28
6	Guidance on writing text alternatives	28
6.1	Importance and purpose	28
6.2	Elaborating on the context of an image	28
6.3	Flow with the document content	29
6.4	Story telling	29
6.5	Independence of importance from order	29
7	Guidance on evaluating text alternatives	29
	Bibliography	30

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

In other circumstances, particularly when there is an urgent market requirement for such documents, the joint technical committee may decide to publish an ISO/IEC Technical Specification (ISO/IEC TS), which represents an agreement between the members of the joint technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/IEC TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/IEC TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/IEC TS 20071-11 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 35, *User interfaces*.

Introduction

The saying that "A picture is worth a thousand words" recognizes that images can present a wealth of information. It is important that alternative textual descriptions or representations be used to present the user with a comprehensive account of the purpose and content of images to people unable to see or interpret them.

Text alternatives help people who cannot see the images to understand what the image is of or the purpose it serves by providing the same information in textual form. Text alternatives can be useful to those with visual impairments, those who turned images off in order to improve webpage loading speeds, and those who cannot understand the image being displayed. This document provides guidance for web and document developers to help them create informative descriptions for various types of illustrations.

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Information technology — User interface component accessibility —

Part 11: Guidance for alternative text for images

1 Scope

This part of ISO/IEC 20071 applies to all static images that are used in any type of electronic document. It also applies to individual images within a slide show of electronic images.

NOTE While text alternatives can be implemented via various mechanisms in various types of electronic documents, the contents of this technical report are not dependent on the choice of implementation mechanism or of electronic document type.

This part of ISO/IEC 20071 does not apply to moving images (e.g. movies).

The guidance contained in this part of ISO/IEC 20071 is intended to be used by the person who creates content to be placed in an electronic document. There is no expectation that this person will have any additional expertise beyond understanding the contents of the document and why an image was chosen to be placed within the document.

While the main intent of the guidance within this part of ISO/IEC 20071 is the creation of text alternatives, the information identified in this guidance could be placed in the main document text, reducing the length of the resulting text alternatives. However, placing information in the main document text does not fully replace the function of having some text alternatives for each image.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1 Text alternatives and related definitions

2.1.1

text alternative

a textual description or representation of an image

NOTE 1 By storing this description or representation in text format, it is able to be rendered in any available modality.

NOTE 2 The main audience of text alternatives is the users of screen reading features.

NOTE 3 Text alternatives are often provided to screen reader users in the form of primary and secondary alternative texts of an image.

2.1.2

primary alternative text

main text alternative provided to users of screen readers

NOTE Different technologies and platforms provide various mechanisms for containing and presenting primary alternative text.

EXAMPLE In XHTML, HTML4, and HTML5, primary alternative text is provided in the “alt” attribute of the img tag.

EXAMPLE In Flash™, primary alternative text is provided through the “Name” field.

EXAMPLE In PDF, primary alternative text is provided through the /Alt entry in a structure element’s dictionary.

2.1.3

secondary alternative text

additional text alternative provided to users of screen readers beyond primary alternative text

NOTE Different technologies and platforms provide various mechanisms for containing and presenting secondary alternative text.

EXAMPLE In XHTML and HTML4, secondary alternative text is provided in the “longdesc” attribute of the img tag.

EXAMPLE In Flash™, secondary alternative text is provided through the “Description” field.

EXAMPLE In EPUB, secondary alternative text is provided through the “describedAt” attribute.

2.1.4

main document text

textual content of a document that is always presented to the users

2.2 Image and related definitions

2.2.1

image

<digital> graphical content intended to be presented visually

NOTE This includes graphics that are encoded in any electronic format, including, but not limited to) formats that are comprised of individual pixels (e.g. those produced by paint programs or by photographic means) and formats that comprised of formulas (e.g. those produced as scalable vector drawings).

2.2.2

static image

image where the set of image components and their relationships to one another do not change over time

NOTE 1 This includes images where the content/representation of individual image components might change over time, e.g. indicators where the value they are indicating changes in real time.

NOTE 2 The concept of static image is used for all images that are not slide shows or moving images.

NOTE 3 This use of static image is similar to the ISO/IEC 13249-5 use of “still image”. However, it differs in that a static image might have moving components. ISO/IEC 13249-5 states “A still image user-defined type is generic to image handling. It addresses the need to store, manage, and retrieve information based on aspects of inherent image characteristics such as height, width, and format and based on image features such as average color, color histogram, positional color, and texture. It also addresses the need to employ manipulation such as rotation, scaling as well as similarity assessment.”

2.2.3**slide show**

set of images that replace one another periodically

NOTE 1 The replacement of one static image by another static image can be controlled automatically by the system (in which case the timing for each image is usually predetermined) or manually by the user (where the timing for each image is determined on a case by case basis).

NOTE 2 Slide shows are usually composed of static images, but might include short movies. The interval between static images in a slide show are considered longer than in a movie, such that the motion being portrayed by the slide show would appear staggered instead of smooth like in a movie.

2.2.4**moving image**

image where the contents are dynamically changing

NOTE This includes realistic moving images (often referred to as movies), abstract moving images (often referred to as cartoons), and even non-representational moving images (often referred to as light shows).

2.2.5**component**

<image> logical part of an image that provides important content that the user should be aware of

NOTE 1 Types of image component include (but not limited to) shapes, objects, persons, areas, and text.

NOTE 2 Text components can include natural and/or formal languages (such as mathematical equations).

2.3 Importance and related definitions**2.3.1****importance**

<information about an image> level of need for users to know information about an image (or image component)

2.3.2**essential**

<information about an image> information that is necessary to understand the image and/or its function within the document

2.3.3**significant**

<information about an image> information that is needed for a more detailed understanding of the image within the document to most users most of the time

2.3.4**helpful**

<information about an image> information that provides a thorough understanding to target audiences regarding the image within the document

2.3.5**not important**

<information about an image> information that does not help provide additional understanding about the image within the document to users

2.4 Information relationship definitions**2.4.1****relationship type**

information about an association between entities

2.4.2

logical

<relationship> information about what entities are interacting and how they interact

2.4.3

temporal

<relationship> information about when some action or entity occurs

2.4.4

physical

spatial

<relationship> information about where one entity is in relation to another entity

2.5 Image content and related definitions

2.5.1

content

<image> data, information, objects, relationships, and/or concepts to be communicated from the originator to the user according to certain communication goals

NOTE 1 Adapted from ISO 14915-1 definition 3.1.

NOTE 2 Content can be presented in realistic, abstract, or even non-representational manners. The distinction between these types of presentation is how closely they represent the natural world.

2.5.2

realistic

<type of image> image perceived by the user to faithfully represent data, information, objects, relationships, and/or concepts in the natural world

NOTE Adapted from ISO 14915-3 definition 3.7.5.

EXAMPLE Photographic images, pictures intended to be true-to-life, diagrams used to illustrate how to assemble a set of parts.

2.5.3

abstract

<type of image> image intended to present important major data, information, object, relationship, and/or conceptual components, without faithfully representing them as they occur in the natural world

EXAMPLE Cartoons, abstract art (where the basis for abstraction can be recognized), graphs and charts.

2.5.4

non-representational

<type of image> image intended for decorative purposes without the intent to represent any particular natural world data, information, objects, relationships, and/or concepts

EXAMPLE Art presenting colors and textures (without any recognizable objective contents).

2.6 Image sources and related definitions

2.6.1

source

<image> means of obtaining an image (or image component)

2.6.2**photograph**

<image> electronic copy of an image of something that has its own independent existence in the real world

NOTE While the photograph is a true rendering of the object(s) that it illustrates, those objects can themselves be realistic, abstract, or even non-representational.

2.6.3**electronic drawing**

<image> image created as an original work to be rendered on the computer

NOTE Electronic drawings can be realistic, abstract/non-representational and can contain realistic, abstract/non-representational components. They can even contain embedded photographs as components.

2.7 Information type definitions**2.7.1****physical**

<information within an image> information about phenomena which have a concrete existence; objects, agents, or scenes that have a physical existence

[14915-3 definition 3.6.7]

NOTE This can include states and histories of objects.

2.7.2**value**

<information within an image> quantitative information describing properties of an object

[14915-3 definition 3.6.12]

2.7.3**quantitative**

<information within an image> statistical information or numerical data and the relationships between the numbers

NOTE 1 Quantitative information is often presented in a graphical manner.

NOTE 2 Quantitative images are often used for comparison between related sets of data, such as comparing net profit over a period of time.

NOTE 3 Examples of quantitative images include charts and graphs.

2.7.4**control**

<information within an image> information that can be used to take some action which manipulates data, other objects or their attributes

NOTE Adapted from ISO 14915-2 definition 3.8.

2.7.5**event**

<information within an image> information about a state change, message indicating the occurrence of an action, or conveying a significant change in the world

[14915-3 definition 3.6.6]

2.7.6

state

<information within an image> properties of the environment, objects or agents that remain constant during a period of time

[14915-3 definition 3.6.11]

3 Framework for describing images and creating text alternatives

3.1 Uses of text alternatives

Images are often used to convey a large amount of information quickly, whether it is a diagram for constructing a desk or a photo of what happened at a birthday party. In one glance, a person can retrieve a large amount of information and have a general understanding about the remaining content in the document in which the image resides.

Images are sometimes used to supplement or complement the document content or can be another representation of the same content. However, sometimes the image stands alone or adds information that is not part of the other document content. The information that is present in the image but not the other document content does not get conveyed to those who are unable to see the image. Text alternatives are needed to convey that information.

There are many reasons why a person might need text alternatives, including (but not limited to)

- a) the person has a visual impairment;
- b) the person is using a program that aurally reads the document content while doing something else (such as driving or cooking);
- c) the device being used to view the image is unable to properly display the image or the image is difficult to see, (such as on a mobile device);
- d) the person turned off images on their Web browser to increase loading speed; and
- e) the person cannot understand and/or interpret the image.

Tools (such as screen readers) exist that can read aloud text that appears on a document to those who cannot or are not looking at the screen. If an image can be described and represented textually, then the tools can also read the text alternatives aloud.

Text alternatives might include a description of what the image looks like and/or an interpretation of what the image represents or its function. Different text alternatives might exist for the same image, differing in length and (as a result) information. Technology often allows for a primary alternative text as well as a secondary alternative text. Providing both primary alternative text and secondary alternative text can give the user a choice in the amount of detail they wish to receive about an image.

3.2 Structure of descriptions

In order to write informative text alternatives for an image, it is important to first know the information being represented in the image. It is difficult to share knowledge about an image with others when the writer does not have knowledge of what the image is. Therefore, it is important to gather or identify as much information as possible about an image.

To gather as much information as possible, the following image description structure is used. Initially, the structure identifies information about the whole image. It focuses on information that applies to the entire image. Because an image can have a vast amount of information, the structure breaks down the image into several parts (called image components) and focuses on identifying information about each part (or image component). Breaking down the image into several parts allows for focus on the details of those particular parts, resulting in more information about the image. An image component could be broken down further into additional image components.

The structure of image information (illustrated in Figure 1) for the Whole Image and each image component includes a name, the purpose, the basic image information or content, and the elaboration of the basic image information. The name identifies the part of the image that the information applies. The purpose identifies why the image (or image component) exists on the document. The basic image information or content identifies what is in the image (or image component). The elaboration of the basic information looks at more specific details about the image (or image component).

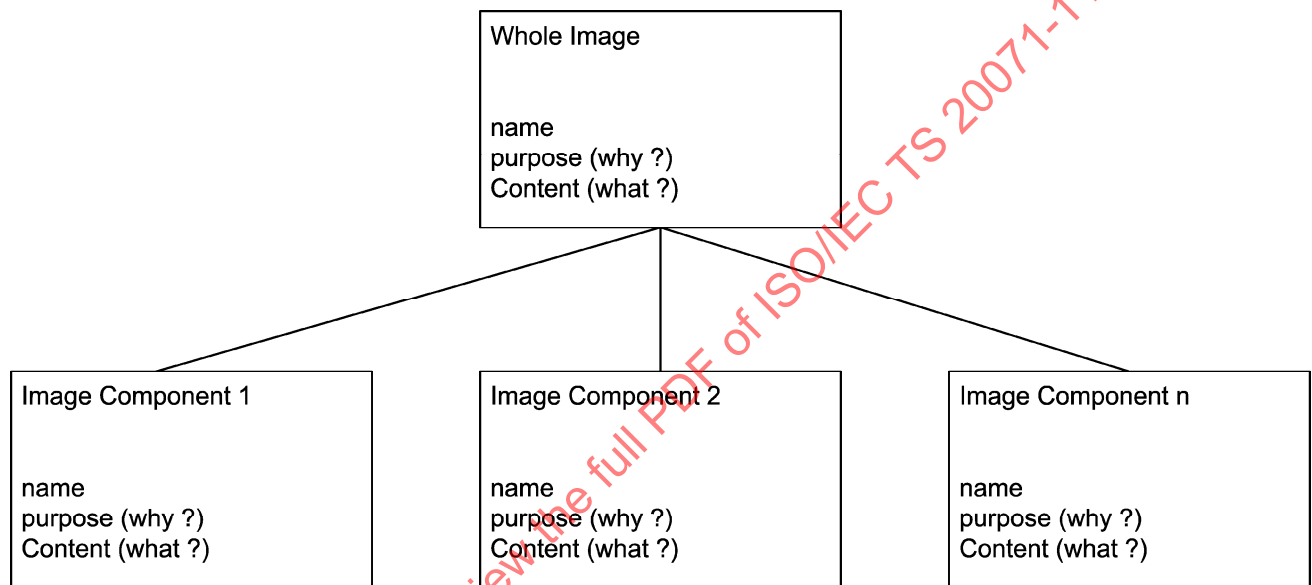


Figure 1 — Structure of image information

The intent of the structure is to identify as much information about an image as possible. The same piece of information might appear multiple times. A piece of information identified at the Whole Image level might be identified again at the image component level or it may be identified as part of multiple image components. It is not necessary for the information to be unique.

3.3 Structure of text alternatives

From the identified image information, the text alternatives are composed. The structure presented in this document strives to generate informative text alternatives for images. The two main kinds of text alternatives are the primary alternative text and the secondary alternative text.

The primary alternative text is sometimes automatically displayed (in a hidden manner) to tools such as screen readers. There is generally a limitation on the length of the primary alternative text. Different tools suggest or impose different limits. For example, for Web pages, it is sometimes suggested that it be less than 125 characters. Given the limited number of characters, the amount of information that primary alternative text can contain is also limited. Therefore, the primary alternative text is often viewed as an overview of the image content, what the image is about, or the function of the image.

The secondary alternative text, on the other hand, generally does not have limits on the length of the description and therefore can contain a larger amount of information about the image. It can consist of details about the image that could not be part of the primary alternative text. Since there is no limit on the amount of information, it can include information that some users might not need.

The structure of text alternatives should be based on the importance of each piece of image information. This importance can help to determine if the information is presented in the primary alternative text, secondary alternative text, both primary and secondary alternative texts, or not at all.

The context in which the image is used is a central concept in this framework. The same image can be used for different reasons or purposes. Depending on the purpose and context, different pieces of information become important or unimportant. Therefore, different text alternatives (both primary and secondary alternative texts) might be created for a single image.

4 Requirements and recommendations for describing images

4.1 A procedure for creating text alternatives

Text alternatives should be created by the person creating the main content of the document and/or selecting the image(s) for use in the document. While various experts might analyze an image to a greater extent (e.g. for cataloguing purposes in a library of images), the important expertise involved in this procedure is understanding the information the image is to convey within its document.

The creation of suitable text alternatives (both the primary and secondary alternative texts) should be based on a thorough understanding of the image, its components, and its purpose in the document within which it is contained. This can be done by applying the following procedure:

a) Identify the purpose of the image

Identify and document the purpose of each image in accordance with Clause 4.2. This step influences which image components and information are important for the user to know.

This involves answering the question "Why?"

b) Identify of the image components

Depending on the purpose of the image, identify the image components in accordance with Clause 6.4. This step is necessary to properly identify information about the image that might be important to the user.

This can be done in a two stage process:

- 1) Identify the image as a whole
- 2) Identify the image components of the image

NOTE Identifying image components is an iterative process. Individual image components can be further separated into a number of (lower level) image components until all components that are important to describe have been identified.

c) Identify the image (or image component) content

Depending on the purpose of the image and the importance of the image (or image components), identify the content about an image and its components in accordance with Clause 4.5.

This involves answering the question "What?"

NOTE 1 "Who" is a specific instance of "What" that involves recognizable people.

NOTE 2 Importance is based on the need of users to know information about the image and is related to the purpose of the image (or image component) and context in which the image is presented. Different information becomes important depending on the purpose of the image and the environment or context of the image.

NOTE 3 While identified content is complex, it might become useful to separate that image (or image component) into several (lower level) image components, in order to better be able to identify simpler content components.

d) Elaborate on the image (or image component) content

Where elaboration aids understanding of the image, elaborate on the description of the image (or image component) in accordance with Clause 4.6 and Clause 5.

This involves answering applicable questions relating to:

- 1) "What?"
- 2) "When?"
- 3) "Where?"
- 4) "How much?"
- 5) "How?"

NOTE 1 This step helps to identify information that might be important to the user.

NOTE 2 While initial identification of image (or image component) content might capture the most obvious information, elaboration focuses more on specific details that might be missed at first glance but that might also be important for the user to know.

e) Organize information into text alternatives

Organize the information obtained in steps a) to d) to improve its readability and allocate to the primary or secondary alternative texts of an image. This involves:

- 1) Removing redundancies within the identified information.
- 2) Allocating each piece of information to primary or secondary alternative text or other applicable location (e.g. caption or main document text) based on the importance of the information. Where the resulting description is too long or too detailed, moving less significant information from the primary and secondary alternative texts of an image.
- 3) Organizing the information in each location in a logical, readable order.
- 4) Ensuring compatibility between the descriptive information with the environment and context of the image (e.g. descriptions outside the image that are redundant or conflicting with this information such as captions and document content).

f) Evaluate text alternatives

Evaluate potential text alternatives (both primary and secondary alternative texts) by someone other than the person who created it to check that it suitably describes the image within the context of the document within which it is contained.

NOTE 1 While it is ideal for this to involve actual user testing, it is important that this step not be omitted due to lack of available users or other resources.

NOTE 2 Evaluation by a colleague or friend is better than no external evaluation at all.

4.2 Purposes

4.2.1 Introduction to purposes

A purpose identifies “why” an image is being presented as part of a document. It often identifies the function that the image serves within the document.

NOTE 1 While it is important to identify the purpose or purposes of an image, it is usually not productive to try and identify the purposes of individual components of an image.

NOTE 2 A “purpose” is similar to but different from a statement of the abstract content of an image. A purpose identifies why the image was presented, while the subjective content identifies the meaning of the object. [see Clause 4.5.2].

Purposes can be classified in terms of:

- informative purposes
- control purposes
- decorative purposes
- formatting purposes

NOTE 3 While the purpose of the image can be considered in terms of the four classifications, it is more useful to describe the purpose instead. For example, “The image is used to illustrate this process” rather than “informative”.

NOTE 4 It is recognized that images (and image components) can have more than one reason for being presented.

- a) The image was chosen to be in the document for a reason (purpose). This purpose should be alternatively achieved by the text alternatives.
- b) Depending on the purpose and the context of use of an image, a statement of purpose may be needed as the first part of the primary alternative text for the image.

4.2.2 Informative purposes

Most images are intended to provide information to the user that duplicates, supplements, and/or provides an example of content that is also presented textually, usually within the same document.

Images used primarily for informative purposes generally contain information that is important for the user to receive.

- a) Where an image is presented for informative purposes, the text alternatives shall include an identification of the content of the image. [see Clause 4.5]

NOTE This often also involves elaboration of the content. [see Clause 4.6]

Some images are accompanied with a caption that provides a brief statement of its purpose. In such cases, repeating the statement of purpose (and especially repeating the caption) in text alternatives is not helpful.

- b) If a caption is associated with an image, and it provides a suitable statement of the purpose of the image, text alternatives should not restate the purpose.

NOTE Within WAI-ARIA it is possible to use the caption as part of the text alternative.

- c) If a caption is not associated with an image, either a caption should be added to the document containing the image or the text alternatives for the image should start with a statement of purpose that would make a suitable caption.

- d) If the main purpose of an image (or image component) is to present information that the user can interpret from an objective description of the image (and its components), then its purpose in the text alternatives may be stated at the level of a caption.
- e) If the purpose of the image (or image component) includes presenting subjective/emotional/motivational information, then this aspect of the purpose should be described in text alternatives.

4.2.3 Control purposes

Images are often used as the basis for developing controls.

NOTE 1 Images can be used with/as controls such as buttons, sliders, knobs, icons, links.

EXAMPLE An image is used as the target for a hyperlink.

The ability to associate text alternatives with these images depends on how they are implemented. In cases where the images are separately addressable from the controls, it is both possible and useful to provide suitable text alternatives.

Images used with/as controls are significant images.

Where an image is used in conjunction with a control, text alternatives should provide both information about the image and its relationship to its associated control.

NOTE 2 This can be fully accomplished by following the guidance within the other parts of this document. [See Clause 5.6]

4.2.4 Decorative purposes

Decorative images are often ignored by creators of text alternatives. However, this can result in failure to provide screen reader users with important information.

The use of images for decorative purposes might be intended to add visual appeal to a document. This visual appeal might be important in attracting and retaining the attention of users to a document. If text alternatives are not used for such images, screen reader users are deprived of getting the same emotional information that is provided visually. However, in this case the image is actually used to present emotional and subjective information [see Clause 4.2.2].

The information present in some decorative images is of minimal importance. Providing text alternatives for such images might create unnecessary work for users of text alternatives.

Some situations of where text alternatives might not be needed or appropriate include:

- a) an image that is used only to fill space that otherwise would be empty;

EXAMPLE 1 Background images composed of colors/textures are often used for the sole role of making Web pages appear attractive, without adding any particular meaning to the Web page.

- b) an image that is excessively used where redundant complete text alternatives for each usage would provide a hindrance to the user.

EXAMPLE 2 A corporate logo is used instead of standard bullets to precede items in a list. The items in the list can also be recognized as items in the list from their formatting, and thus knowledge of the existence of the bullets (or images used to replace standard bullets) does not provide any additional information on formatting. Furthermore, repeatedly providing the same text alternatives for each of these bullets could become annoying to screen reader users.

NOTE It is best to analyze all images according to the procedure in Clause 6.1 and to allow the importance level of descriptive information to determine whether or not text alternatives are needed.

4.2.5 Formatting purposes

Formatting organizes, separates, and/or highlights some information to distinguish it from other information.

Markup languages, such as HTML and SGML, provide explicit means for formatting text entries. If they are properly used, the addition of images, such as horizontal line separators, only provides additional redundant formatting.

NOTE 1 While developers often fail to provide text alternatives for images used for formatting, the use of such images instead of or in addition to standard formatting methods often is also done for decorating the document [see Clause 6.2.4].

NOTE 2 Even if an image used for formatting has multiple image components, these components are not significant or useful in describing the purpose of the image for formatting.

NOTE 3 The existence of components used for formatting within an image might appear to have some importance. However, this can be described by describing the relationship between the components, without needing to describe the means of formatting used, unless they also fulfill some other purpose in the image.

- a) It is not necessary to provide text alternatives to describe the use of images solely for formatting purposes, provided that the formatting information is otherwise provided to the user textually or through markup.

EXAMPLE 1 Fancy borders are used instead of spaces to visually highlight the separation of different chunks of content on a web page. While these borders do not provide any significant content, the distinction between the different chunks of content is primarily provided by the proper use of headings. However, these fancy borders have a second purpose in that they are also used for decorating the web page.

- b) Text alternatives may be provided to describe images used solely for formatting, where such descriptions provide the user with important guidance regarding the use of the document where the image is used.
- c) Where text alternatives are provided to describe formatting purposes, the purpose of the image should be described as simply as possible.

EXAMPLE 2 Text alternatives for a border between two sections of a form states, "Separation between personal information and product information".

- d) If blank images are used to space content out, they should not have text alternatives. However, when the space separates words visually that would otherwise be near each other or otherwise conveys information by the space, this information should be conveyed to the user in some fashion.

4.2.6 Brevity of statements of purposes

Where statements of purpose are included in text alternatives, they should be brief.

NOTE 1 Further details about the purpose (within text alternatives) are provided by identifying the content and identifying qualifications and relationships to the content.

4.3 Context of an image

4.3.1 Text alternatives relate an image to its context within a document

The text alternatives should communicate whatever information that the content provider intended to communicate by choosing to use the image in the document.

NOTE 1 Text alternatives are context dependent and thus are different from information used for cataloguing of images within an image library.

NOTE 2 There is a difference between understanding of the document content and the understanding of the image. Understanding of the image might or might not have an effect on the understanding of the document. It depends on the purpose and context of the image. An image can have an effect on the understanding of the document content in two manners:

- 1) objective information can influence intellectual or knowledge-based understanding. Objective information is factual and/or logical. For example, in a bar chart, the statistical data and axis information are objective information;
- 2) subjective information can influence affective or emotional-based understanding. Subjective information consists of emotions, concepts, opinions, and judgments that are not necessarily universally shared. For example, different cultural interpretations of symbolisms in a painting are subjective information.

4.3.2 Context of images within panels within a document

Each document might be composed of multiple presentation panels. Each presentation panel has its own context.

EXAMPLE A web page (document) for a newspaper article uses presentation panels for: its navigation menu; the article itself, various advertisements; and a footer.

An image within a presentation panel should be described based primarily on the context of the presentation panel

NOTE 1 It is important to focus on the context of the presentation panel in which the image occurs, since the context of the overall document can change unpredictably based on changes to other presentation panels.

NOTE 2 Within this technical report, guidance relating to the document in which an image appears applies to the panel in which the image appears in situations where a document is composed of multiple panels.

4.4 Levels of importance

4.4.1 Importance is context dependent

The importance level of a piece of information relating to an image is context dependent.

NOTE 1 It might change when the use, purpose, and/or context of the image changes.

NOTE 2 In situations where the image presents unique information, this information adds to what is presented in the main document text. Additional objective and subjective information presented in an image is important to the understanding of the document.

NOTE 3 In situations where the image complements (restates, modifies, elaborates, supplements) the main document text, the image might also contain information that is not provided in the main document text. Complimentary objective and subjective information might be important to the understanding of the document. A full understanding of the image can provide a better understanding of the document.

NOTE 4 In situations where the image adds visual appeal, the image creates or modifies the mood of the document, the information might be focused on the subjective rather than the objective understanding of the document. Images used for visual appeal might have little or no objective information relevant to understanding the document. Subjective information might be important to the understanding of the document.

NOTE 5 Text alternatives for an image are intended to inform users of information that the image is communicating. There might be times when the image presents information that conflicts with what is presented in the main document text. The conflicting information could be intentionally or unintentionally presented.

- a) If the conflicting information is intentionally there, then the information should be pointed out and explained as part of the text alternatives or the main document text. Since the conflicting information was intentionally made available visually, it should also be made visible in text alternatives or the main document text.
- b) If the conflicting information is unintentionally there and recognizing this, the decision is made to retain the image despite the conflicting information, then the conflicting information can be ignored in the text alternatives. This is not information that the content provider intended to provide and so should not be highlighted. It can also be ignored in hopes that sighted users will not notice the conflicting information.

4.4.2 Importance

4.4.2.1 Levels of importance

There are three levels of importance (essential, significant, helpful) and one level of being not important.

4.4.2.2 Essential information

Essential information is necessary to understand the image within the document in which it appears.

Essential information shall be presented either in the main document text (when referring to the image) or in the primary alternative text.

NOTE 1 By placing essential information in the main document text (when appropriate) it ensures that all users (not just users with screen readers) will have access to this information.

NOTE 2 The purpose of an image is generally essential, especially for images that are used as user interface elements such as icons.

Essential information may have some or all of the following properties:

- it is aimed at the target audience;
- it must be known in order to comprehend the document;
- most people want/need it most of the time;
- the user would be confused as to what the document is talking about without this information;
- without it, the user has no idea why the image is there or what the image is for;
- it provides a good first impression of the image;
- based on this information, the user will determine if they need/want to know more about it;
- for the content provider, this is the information that the content provider absolutely wants to tell people about;
- it provides the essence, purpose, function, or intent of the image;
- it identifies that the image conflicts with the main document text and that this conflict is intentional.

NOTE 3 As more of these properties apply, it is more likely that the information is essential.

4.4.2.3 Significant information

Significant information is useful for getting a comprehensive understanding of the image within the document in which it appears, when such information is desired by the user (based on the user's understanding of the essential information). Significant information satisfies the more detailed interests of most users most of the time.

Significant information shall be presented either in the primary alternative text or in secondary alternative text.

NOTE 1 The placement of significant information depends on the amount of essential information that is already contained in primary alternative text.

- a) Where all the essential information has been placed in the main document text, then significant information can usually be placed in the primary alternative text.
- b) Where a large amount of essential information has been placed in the primary alternative text, then significant information is better placed in the secondary alternative text to avoid overloading the primary alternative text.

Significant information may have some or all of the following properties:

- it is aimed at the target audience;
- it gives a more detailed and thorough understanding of the image and/or document;
- it is information that could be obtained by more than a quick glance;
- the user should know about it as they are reading the document in order to understand the document;
- the user decided to know more based on the essential information. This information goes into more details about the essential information;
- without this information, the user has an idea of what the image is about and the reason the image is there, but does not have a detailed understanding about it;
- for the content provider, this is information that further explains and gives more details on what the content provider wants to tell the users.

NOTE 2 As more of these properties apply, it is more likely that the information is significant.

4.4.2.4 Helpful information

Helpful information provides a more thorough understanding of the image within the document in which it appear for those users who wish a more detailed description of the image.

Because helpful information is only of interest to some of the users some of the time, it should not be placed in the primary alternative text. It may be placed in secondary alternative text or in a separate document that is linked from either the main document text or the primary alternative text.

Helpful information may have some or all of the following properties:

- it is specific details that might be of interest to some who are the target audience of the document;
- it is targeted towards very specific audiences (other than the target audience) or a subset of the target audience;
- it provides the user with a better understanding of the image when the user is not an expert in the topic area or not the target audience of the document;

- it might reassure the user that they have not missed something of greater importance;
- without this information, the users have a fairly complete understanding of what the document is about but have some things that the users still want to know;
- it includes different or other possible interpretations of the information being expressed by the image;
- for the content provider, this is information that could clarify some things for some people;
- it includes optional extra information that is seldom wanted or needed, but elaborates on what is already there.

NOTE As more of these properties apply, it is more likely that the information is helpful.

4.4.2.5 Not important information

Information is not important if it does not help to provide much additional understanding of the image for any users in order to understand the image or document in which it occurs. This can include information that is not appropriate to consider given the context of the image within the document.

Information that is not important should not be presented to users either in the main document text or in text alternatives.

Information that is not important may have some or all of the following properties:

- very few to no users will want to know or care to know this information;
- it is rarely helpful;
- it is not important enough to mention;
- without this information, the user knows everything they want or need to know in order to understand the document and/or image;
- this is information that might result in unintended confusion or boredom and does not help users understand what the content provider is saying.

NOTE As more of these properties apply, it is more likely that the information is not important.

4.5 Images and image components

An image can be considered first as a whole entity. Some information might be present only when the image is viewed as a whole.

Many images can also be broken down into image components where a number of image components might present important information to the user.

Whether or not a component is identified and elaborated upon depends on how important information about the component is with respect to the purpose and context of the image.

Images can consist of one or more image components. Images can focus on a single component, such as a single shape or icon. Images can contain multiple components that are important for the user to know and understand in order to comprehend the entire image. In an image with multiple components, the components can be considered individually or as a set of components.

Each person, object, shape, text, landmark, or step in a process can be considered an image component.

EXAMPLE 1 In the image in Figure 2, possible components include whole image, the plate of desserts and the cup of coffee. Depending on the purpose and context of the image, it might or might not be necessary to break the image down into smaller components. The plate of desserts could be broken down such that each dessert is its own component.



Figure 2

EXAMPLE 2 In the image in Figure 3, possible components include the whole image, the furnace, the kettle, and the brick. Depending on the purpose and context, it might be important to identify additional components. If the purpose is to illustrate the ways homes were in the 1800s, then it may be important to identify the bench in the background, the rocking chair, the walls, and the flooring as components.



Figure 3

Although image components can be described as part of the whole image (without breaking down into image components), less information about the component is identified as a result. When image components are identified, there will be additional focus and attention on providing detailed information about that image component. It is important to have as much information as possible about an image in order to create appropriate text alternatives.

Images should be broken down into components whenever this helps to identify important information.

4.6 Identification of content

4.6.1 Introduction to identification of content

The question “What” can be asked about both subjective content and objective content.

NOTE The question “Who” can be substituted for “What” when the answer involves people.

The identification of this content is intended to provide the main information elements out of which text alternatives can be constructed. While it can include some amount of elaboration, it is intended to focus on these basic elements. A more extensive focus on the elaboration of these elements is discussed in Clause 4.6 and in Clause 5.

4.6.2 Subjective content

Subjective content answers the question “What is the meaning of this image (or image component)?”

NOTE 1 Clauses 5.1.2 and 5.2.1 provide guidance on potential elaborations of subjective content, for use where such content and/or elaborations are important.

Subjective content can include concepts, theories, symbolic meanings, intended emotions, opinions, judgments, and other explanations that go beyond identifying individual components and obvious relationships.

NOTE 2 A description of the subjective content of an image is similar to but different from a statement of purpose of an image. The subjective content identifies the meaning of the object while a purpose identifies why the image was presented. [see Clause 4.2]

- a) Where the meaning of an image (or image component) is essential, this meaning shall be included within the primary alternative text of an image.
- b) Where the meaning of an image (or image component) is significant, this meaning should be included within the primary alternative text of an image.
- c) Where the meaning of an image (or image component) is helpful, this meaning may be included within the secondary alternative text of an image.

4.6.3 Objective content

4.6.3.1 Identifying objective content

Objective content answers the question “What objects / actions can be identified from the image (or image component)?”

NOTE 1 Actions generally do not occur on their own, they generally involve a subject and/or an object. Thus actions are typically combined with objects in identifying objective content.

EXAMPLE The combination of subject, action, and object can be expressed in various formats, such as those used in: “A boy playing”, “Playing baseball” and “A boy playing baseball”.

NOTE 2 Clause 6 provides a variety of guidance on potential elaborations of objective content, for use where such content and/or elaborations are significant.

Identification can occur over a range from highly specific to highly general. The appropriate level of specificity

NOTE 3 Sub-clauses 4.5.3.2 and 4.5.3.3 provide further discussion about specific and generic objective content. However, they are not definitive. This technical report intentionally avoids making any firm distinction between these two concepts.

Identification of objective content is best done briefly, leaving elaboration to be dealt with later (see Clause 4.6). While it is usually preferable to identify images (or image components) as specifically as possible, it is important not to allow this specificity to impair the understandability of the resulting text alternatives. The object can be described in general or specific terms. [See Clauses 4.5.3.2 and 4.5.3.3].

- a) When it is essential to identify an image (or image component) in terms of objective content, this identification shall be included within the primary alternative text of an image.
- b) When it is significant to identify an image (or image component) in terms of objective content, this identification should be included within the primary or secondary alternative text of an image.
- c) When it is helpful to identify an image (or image component) in terms of objective content, this identification may be included within the secondary alternative text of an image.

4.6.3.2 Generic content

Generic content identifies an object and/or action in a general manner that involves only general everyday knowledge available to a user. It answers the question "What is this?", and/or "What is happening?"

Generic content does not deal with specific branding or naming of an object.

NOTE 1 In English, these general identifications of objects would typically use the indefinite article "a".

EXAMPLE 1 (objects) a man, a baseball player, a car, a building, a table, a tower.

NOTE 2 In English, generic actions tend to specify "What is happening" without identifying "How" the action is performed.

EXAMPLE 2 (actions) skipping, cutting, chopping.

NOTE 3 Generic content can include elaborations that identify properties or attributes of the object or action. Further elaborations of content are discussed in Clause 6.6 and in Clause 7.

EXAMPLE 3 A green car.

4.6.3.3 Specific content

Specific content answers the questions "Who is this?", "What is this?", and/or "What is happening?" It uniquely identifies a particular instance of an object and/or action that can be named in a manner that distinguishes them from other instances of similar objects.

NOTE 1 In addition to graphical objects appearing in an image (or image component), textual objects sometimes also appear. Where the text is readable, it can be considered to be specific content that is to be identified in the primary alternative text of an image.

EXAMPLE 1 A picture of a highway includes a road sign that indicates that Saskatoon is 30 km further down the highway.

Specific content does not interpret the meaning of these objects beyond identifying them. Meaning belongs within subjective content. If an interpretation of the subjective meaning of an image (or image component) is significant, the image (or image component) can be identified at both the specific and subjective levels.

NOTE 2 In English specific names of objects would either be used without an article, or would typically use the definite article "the".

EXAMPLE 2 (objects) Alan Touring, Babe Ruth, the Batmobile.

NOTE 3 In some cases, a specific name is created by adding specific qualifications to what would otherwise be a generic identification. These qualifications are usually made because of their being readily identifiable. Further elaborations of content are discussed in 6.6.

EXAMPLE 3 (objects) King Arthur's round table, the Eiffel tower.

NOTE 4 In English specific actions tend to specify "How" the action is performed in addition to identifying "What is happening".

EXAMPLE 4 (actions) jumping over hurdles at 8.5 m/s.

4.6.4 Relationships of images and their components

4.6.4.1 Importance of relationships

In addition to identifying images (and their components), it is important to identify relationships between images (and their components), both with each other and with the document in which they are displayed. For images with multiple image components, the relationships between those components might be essential to the understanding of the image.

Relationships can provide important information about the content of an image (or image component). However, they are more complex and more diverse than merely answering "What relationships occur?"

EXAMPLE Images of the sides or backs of a computer may be intended to show the possible inputs and outputs to the computer. Knowing the relative locations between a headphones output port and a microphone input port may be important to help users properly insert the correct cables.

Relationships can be categorized into

- a) logical relationships;
- b) temporal relationships;
- c) physical (spatial) relationships.

4.6.4.2 Logical relationships

Logical relationships explain what elements are interacting and how some element (e.g. an image or image component) interacts with some other element (e.g. the Web page where an image is displayed, the image that contains the image component, or some other image component).

NOTE The "purpose" of an image provides a semantic relationship of the image to the document where the image is used.

4.6.4.3 Temporal relationships

Temporal relationships explain when some action occurs or the time in which an entity occurs. This can include when apparent (or intended) changes to an image (or image component) occurs. It can include providing information on the sequencing of events.

4.6.4.4 Physical (spatial) relationships

Physical (spatial) relationships explain where an image (or image component) is located in relation to other physically occurring elements. The positioning of an image provides a physical (spatial) relationship of the image to the document where the image is used.

5 Expanding on the identification and elaboration of content

5.1 Introduction

This clause presents detailed questions that can help in the preparation of text alternatives in certain circumstances.

There are a number of ways that the basic content (identified according to Clause 4.6) can be elaborated. The appropriate types of elaboration depend both on the image (or image component) and on the document within which it is contained.

This clause is organized based on the general questions identified in Clause 4 that these detailed questions are related to. This involves answering applicable questions relating to:

- a) "What?" (going beyond basic identification)
- b) "When?" (including temporal relationships)
- c) "Where?" (including spatial relationships)
- d) "How much?" (including quantitative stuff)
- e) "How?"

It is recognized that many of the detailed questions may overlap with one another. It is better to answer as many questions as apply and then organize the information from the answers once all the answers have been obtained and evaluated for their importance.

These elaborations can be included within the primary or secondary alternative texts of an image depending on their importance.

NOTE While individual pieces of elaboration are often identified individually, they are best presented in a manner that reads smoothly in combination with the content that they elaborate.

5.2 Detailed questions relating to identification ("what")

5.2.1 Classifying the image (or image component)

There are many different ways an image (or image component) can be categorized. This clause identifies some possible ways of classifying an image (or image component). The ways discussed in this clause are neither exhaustive nor definitive.

It is possible to distinguish between:

- a) a realistic image (or image component);
- b) an abstract image (or image component);
- c) a non-realistic image (or image component).

For works of art, it is often important to distinguish the school to which the image belongs (e.g. impressionist, surrealist, etc.).

It is sometimes possible to distinguish the source of the image. For images (or image components) that are known to be a photograph of another image with its own independent existence, it may be important to include this information in the text alternatives.

EXAMPLE 1 A photograph (which can be of various types of images, including paintings, objects, scenes, etc.) which has its own independent existence.

EXAMPLE 2 An electronic drawing (which can be of various types of images, including pictures, charts, graphs, diagrams) rendered for computer display that is created as an original work (and that is not a photograph).

Images (or image components) should be classified in whatever categories have importance within the document within which it is contained.

NOTE It is not necessary to classify images using the terms described here (e.g. realistic, abstract, non-realistic). However, it might be important to classify the image in some appropriate manner, if this classification can quickly let the user know what types of information to expect e.g. if an image is classified as a chart, the user can expect quantitative information.

5.2.2 Elaborating on textual content

It is not appropriate to use an image to present only text that could be otherwise presented as a text element within the document within which it is contained. However, there are many instances of images that contain textual components.

Each separate instance of text within an image can be considered either as a separate component or as an elaboration of a separate component of the image.

- a) All text with some importance in an image should be made available as text in some manner to the user. The manner of making text available will depend on its importance level. This can include:
 - 1) placing large transcriptions (of over 30 continuous characters) within the main document text within which the image is contained or if they are of lesser importance, within the secondary alternative text of the image;
 - 2) placing short transcriptions within the primary alternative text of an image or if they are of lesser importance, within the secondary alternative text of an image.
- b) Text that is blurred or partially obscured and that is not at least helpful may be ignored.

5.2.3 Elaborating on physical objects

Each object in the image can be considered as an image component. The following questions should be considered in creating text alternatives for images (or image components) involving physical objects:

- a) What does the object represent?
- b) What is the brand / model / part name (number) of the object?

5.2.4 Elaborating on people

Each person in the image can be considered as an image component. The following questions should be considered in creating text alternatives for images (or image components) involving people:

- a) Who is the image or image component of?
- b) What does the person look like? (i.e. age, sex, nationality, hair color, eye color, hair style, etc.)
- c) What is the facial expression of the person?
- d) What is the person doing?
- e) What position is the person in? (ex. Standing with hands across the chest)
- f) What other information about the person is important for users to know?

5.2.5 Elaborating on perceptual objects and perceptual properties of other objects

Perceptual content answers the question "What can I know about this?" It describes the physical appearance of the object.

NOTE Perceptual content describes low-level perceptual features of an image (or image component), in a manner similar to that possible by basic vision detection systems.

Typical perceptual features include: color, texture, shape, and pattern.

EXAMPLE Some perceptual features can be expressed as: blue, yellow, blue-green, aqua, smooth, rough, round, square.

Perceptual content does not assign any meanings to any of these features. Meaning belongs within subjective content.

The following questions should be considered in creating text alternatives for the perceptual properties of images (or image components):

- a) What (are) the color(s) of the image (or image component)?
- b) What is the shape the image (or image component)?
- c) What is / are the size / dimensions of the image (or image component)?
- d) What is the texture of the image (or image component)?
- e) How is the image (or image component) positioned? (e.g., sideways, angled, and facing left)
- f) What other perceptual information is important for users to know?

5.2.6 Elaborating subjective descriptions

The following questions should be considered in creating text alternatives for images (or image components) with subjective information:

- a) What concepts are associated with the image or the image component?
- b) What is the image or image component representing or symbolizing?
- c) If the colour(s) of the image or image component is symbolic, what is the colour(s) representing?
- d) What themes are represented?
- e) What emotions are being expressed?
- f) How is the user expected to respond emotionally (with feelings, judgments, and opinions) to the image?
- g) What other subjective information is important for users to know?

5.2.7 Elaborating on logical relationships / interactions and actions

Elaboration on logical relationships / interactions and actions involve both “What” and “How”. (Because “What” comes first, they are discussed under it.)

Logical relationships describe how entities interact with each other to achieve some purpose or goal. They include the various types of relationships that are the foundation of typical entity-relationship diagrams. In Software Engineering terms, these are often referred to as associations.

Actions are seldom depicted without some entity performing them. In this case the activity modifies the subject. Actions can usually be expressed in terms of a verb or verb phrase (e.g. walks carefully, jumps high, falls down). Where an object of the action is involved, an action can be considered to be a logical relationship.

Logical relationships can usually be expressed in terms of a verb (e.g. purchases, builds) or verb phrase that unites a subject (entity) with an object (entity).

EXAMPLE 1 A customer purchases a book.

EXAMPLE 2 The monkey is climbing the banana tree.

EXAMPLE 3 Part A (the seat) is connected to the bicycle at location F.

While it is usual that both the subject and the object will be a part of the image being described, it is possible that either the subject or the object will only be implied. Where the image makes such an implication, it is important that the text alternatives make the user aware of this being implied.

EXAMPLE 4 The sailor is scanning the horizon. It is implied that he is looking for land.

The following questions should be considered in creating text alternatives for images (or image components) involving interactions:

- a) What interaction or action is taking place?
- b) What or who is the subject of the interaction or action?
- c) What or who is the object of the interaction?
- d) How is the interaction or action being performed?
- e) What is the intended result of the interaction or action?
- f) What other information about the interaction or action is important for users to know?

5.2.8 Elaborating on locations/places

While locations are also dealt with under “Where”, there are situations in which a location is a significant component of an image. In these situations, a location also becomes a “What”.

NOTE It is better to identify redundant information than to miss identifying important information. Redundancies can be eliminated when the actual text alternatives are written.

The following questions should be considered in creating text alternatives for images (image components) involving locations or places:

- a) What is the setting, place, or location depicted in the image (or image component)?
- b) What specific landmarks are visible in the image (or image component)?
- c) What other information about the location is important for users to know?

5.3 Detailed questions relating to temporal elaboration (“when”)

5.3.1 Introduction to temporal properties

There are two types of temporal properties to consider

- a) Temporal properties that are part of the information that is presented by an image (or image component), including:
 - 1) time periods;
 - 2) events;
 - 3) sequential relationships.