# Logical Document Structure Handbook: Word 2003

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# Contents

# Introduction

This document is put forth as an answer to the question of what is a logical document structure and why do you need to provide one in the documents you create? Once these questions are answered, the next step is to attempt to provide some guidelines for ensuring that documents have a logical document structure.

This document looks globally at digital, web-based, and print documents to find a common "structure" that will mean less repair when information is repurposed. This is not meant to be a style guide, but something more basic. Once we understand that documents require a structure and that structure needs to have some sense of logic and flow to it, we can create and apply the necessary styles identified by organizations.

## What is a Logical Document Structure?

If we consider print documents, we can generally identify a logical document structure visually. We can identify headings, sub-headings, paragraphs, tables, lists of information, page numbers and headers or footers. These are structural elements of a document. They help us read documents and identify what we are reading. The structure has some logic to it in that each page doesn't apply a different structure to the content. Over the years, structural elements for print documents have been catalogued, identified and used to establish standards of presentation.

For example, if you tell someone that a book is in hardcover, you know what the contents of the book should look like. Your expectations for the structure of a paperback may be different. If you are told that something is a magazine or newspaper article, you have expectations as to the structure of what you will find when you open the cover.

What types of structure do you see in your mind's eye when you think of a digital or web-based document? We seem to have lost this in our transition from print to electronic documents. It is very easy to mimic a structure by throwing formatting at content, but when we attempt to repurpose content to other formats such as PDF, DAISY or Braille, we find that we have no structure, logical or otherwise, to our documents.

## Why do I Need to Have a Logical Document Structure?

The strength of electronic documents is our ability to repurpose them without a lot of repair and reworking of the content. If we produce a document in our word processor, the underlying structure of

the document should exist so that we don't have to re-write the entire document for another document format.

In countries where there is legislation around the accessibility and usability of electronic documents, we are finding that we are unable to meet legislative criteria for accessibility if there is no underlying structure to the original document template or document. The ability of people who are reading our documents, whether they have a disability and are using adaptive technology or not, is seriously compromised without consistent and logical structure and formatting

In short, we are finding out that we've been creating really bad documents since we moved to electronic document production.

As technology advances and we can separate content from formatting and structure, we can use the content we create in different formats. We can display it on different devices and allow people to view and interact with content as they choose to. It is easy to choosing 'File > Save As.. HTML' for example. Even when we do this, we need to ensure that our documents have a logical structure so that the tool creating the HTML identifies structural elements such as headings, lists, tables, and paragraphs.

Somehow, along the way in the transition from printed to electronic information we've made the decision that the thoughtful creation and design of documents is not important. We are now beginning to see the folly of our short sightedness. We need to think about information, how it is going to be used, who will be accessing it, what kind of technology it will be displayed on, and how it should be structured before we start writing.

We will look at document structures that are used on a daily basis. Each piece of a document has a corresponding structural element. You can find out how to create that structure in the Help documentation of your word processor or application.

Although this handbook uses Microsoft Word 2003 to create a logical document structure, similar tools are available in your version of Word or in your native application.


## Before We Begin…

If you are not familiar with keyboard commands, focus and selection, the following is an overview of the tools people using adaptive technology are familiar with. The AppKey is the equivalent of the right mouse click. Focus happens when am item is surrounded by a dotted line and when it is highlighted it is selected.

## The AppKey

The keyboard equivalent of a Right Mouse Click is the Application Key commonly referred to as the "AppKey." The AppKey is located on the lower right side of the main keys on your keyboard. It is just to the left of the Ctrl or Control key, and to the left of the left Windows Key [the key with the Windows logo on it]. The image on it looks like a little application Window.

Figure 1: An on-screen keyboard showing the location of the AppKey.

If your keyboard doesn't have an AppKey, you can also use Shift + F10. Some applications don't support the shift + F10 keyboard command but do support the use of the AppKey. For this reason, this document refers to using the AppKey.

## Focus and Selection

Sometimes when focus is moved to the Desktop or on a list of files or options, if you are using adaptive technology, you may hear the words "not selected" after the name of the item. Visually, there is a dotted line around the item. This means you are looking at the item but it is not selected. Your attention has been moved to it, but you can't do anything until you tell the computer to select it.

A good example of this is entering the My Documents folder. As you move to the My Documents folder, you might hear "folder view, list view, My Pictures, not selected." You are in the list of folders and files for My Documents; however, the computer doesn't have anything selected for you to work with. To select an item with focus, or any item that is not selected, press the Spacebar.

An example of this on the Desktop might be when you press Windows key + M or Windows key + D and hear "Microsoft Word 2003, not selected. This means that you "are looking at" Microsoft Word 2003, but you can't open it because it is not selected. When something is selected, it is visually highlighted in dark blue. It is then in focus and has selection.

In the images below, the first image has focus but is not selected. The second image is selected.
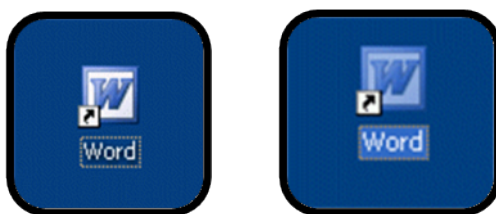


Figure 2: Word Desktop icon with focus shown above, and selected shown below.

# Custom Styles

The first place to start in looking at how to structure a document is the styles used by the native application. Each application has "specifications" as to what a standard paragraph or body text is. Each piece of body text or paragraph that you create looks the same and has the same elements. This is how the application knows how to present and display it to you and this also determines how the body text or paragraph should appear when printed. This is all done behind the scene as you type or dictate content.

You can modify the "normal" body text or paragraph attributes, however in some applications, it is difficult to reset them if your plans go awry and you end up with a style that is unusable. It is preferable to take the existing style and create a new one based on it.

There is a benefit to creating custom styles that your readers will appreciate. Other document elements depend on styles to display correctly or even to display at all. If you don't create custom styles, you won't be able to generate an index or a table of contents, or add bookmarks to your tagged PDF document [if you create PDF]. It will also be difficult to repurpose your documents to make them device independent and more usable.

Imagine a newspaper, magazine, school textbook, or even a novel that was one long series of paragraphs with no visual cues for a change in content, important information to remember, or even page numbers or a Table of Contents. This would be a document without a logical document structure and clearly, it would would be very difficult to read.

## Creating Custom Styles

Let's create a custom style for a heading.

1. Launch Microsoft Word 2003.

2. With a new/blank document open, type your name.

3. Select your name and press Ctrl + Alt + the number 1 to apply the Heading 1 style.

4. You can apply other levels of headings by pressing Ctrl + Alt + 2 for a level 2 heading or Ctrl + Alt + 3 for a level 3 heading.

5. Choose Format > S for Styles and Formatting.

You don't have to have a document open or text selected to do this. If you do use this process, it helps you visually confirm that the style you've created looks the way it should.
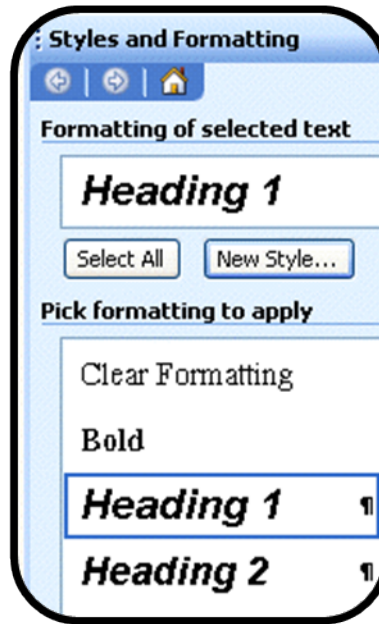
This opens a task pane on the right of your screen and your focus should be in it. To toggle between the task pane and your document, press F6.

By default, Heading 1 is the style "in focus." This is because it is applied to the selected text in the document. By selecting text and applying a style you want to customize, you don't have to go through the list of styles to find the one you want.

1. Tab to the New Style button and press Enter.

2. This opens a dialog box with all the formatting currently applied to a level 1 heading. The image below shows the "Style based on" selected. The style listed in this list box is what the new style will be based on. Notice that under Formatting in this dialog box, you can see the formatting applied to this style.
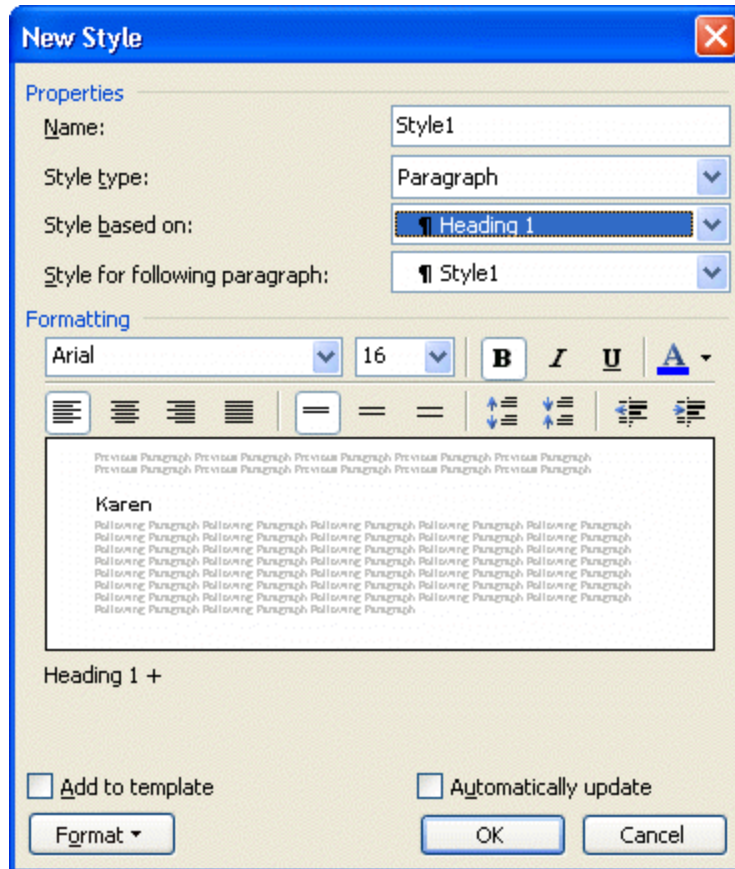
Figure 4: New Style dialog box in Microsoft Word 2003.

3. Your focus is in the name edit box and "style1" is selected. Type in the name of your new style. In the case of documents created for Karlen Communications, I've called the style based on Heading 1 "Karlen 1."

4. Tab to the next edit box. In our example, the key is to leave the style based on Heading 1. This style is what automated tools will be looking for when generating a table of contents, index, or creating bookmarks for your tagged PDF documents.

5. Press Tab again and you can modify the style that comes immediately after a level 1 heading. It is recommended that you leave this as it is.

6. Pressing Tab again takes you into the attributes or "specifications" of a level 1 heading where you can modify things like font colour, size, style, alignment and so forth. Continue using Tab to move from attribute to attribute. Standard dialog box keyboard commands will work in this dialog.

7. You can also choose Alt + the letter O to activate the Format button which will let you add borders, shading, widows and orphans and block protect to your style.

a. Widows and orphans are important to eliminate those one lines of paragraphs that appear on the next page making your documents look a bit lop sided. Widows, are the single lines of text at the bottom of the page while the rest of the paragraph is on the next page. Orphans are those single lines of text at the top of a page while the rest of the paragraph is on the proceeding page.

b. Block protect lets you keep text together by telling Word that the paragraphs or list items or other content is not to be separated. This can present document formatting issues when editing and adding content to a document. In some cases blocks of text are forced to the next page in order to keep them together which creates large white spaces on pages, or a paragraph on one page and the block protected content on the next page. At times the only way to repair this is to turn off the block protect for the affected content.

8. There is one other critical piece to creating your custom style. You must check the check box to add this style to the template.

9. Do not check the check box to automatically update. This will automatically update the styles and formatting with any formatting done to individual pieces of text. This can get quite messy in a list of styles.

10. Activate the OK button to confirm your new style.

You now have a style you can use in any document you want.

The last step in the process is to delete any text so that you have a blank document again. You can either close the document and start with a new document; or begin creating content.

> *Note: If you are creating a series of styles, you might want to save the empty document as a Word template. To do this choose Word template as the file type when you finish creating your styles. Your template will be automatically put in the Templates folder on your hard drive.*

## Paragraph Frames

Until recently I was oblivious to paragraph frames. I came across one in a document and thought it was a text box. We'll look at the inaccessibility of text boxes in a later topic.

Paragraph frames are used in much the same way that single cell tables or text boxes are used in that they isolate items the document author wants the reader to pay attention to. In the note above, I've used paragraph formatting to achieve this; however, some document authors use single cell tables, text boxes or paragraph frames to do the same thing. Just as with text boxes, paragraph frames are inaccessible elements of a document.

Paragraph frames can be found while in the New or Modify Styles dialog box. If you want to take a look at them, choose Format > Frames which opens a dialog box to attach a frame to the style you are working on.

Paragraph frames are objects that are not recognized by adaptive technology. If you encounter one in a document, it resembles a text box. The difference is that it is part of a text style. It is still an object "floating" over the document page rather than a part of the document structure itself.

Avoid the use of paragraph frames in documents and instead, use paragraph formatting to isolate important text for the reader.

# Document Templates

Once comfortable working with styles, the next step is to begin developing templates for the types of publications to be produced. Some examples might be newsletter, letterhead, books, brochures, or memos. When working in a template, as long as the space you are working in has been saved as a template, the heading styles can be modified.  This will not affect the normal.dat or new blank documents created, just documents the current template is used for.

To create a template, open a new blank document.

Choose File > Save As… and give the template a name.

Press the Tab key to move to the "files of type" list and choose Word Template. Once you do this, the target folder changes and this new template will be stored with other templates such as the Normal, Modern Memo, Traditional Memo, and FAX.

Press Alt + S to save the template. The name of the template will be reflected in the title bar which lets you verify that the template has been saved. If you create a book template, "book.dat" should appear in the title bar.

Once the template is saved, modifications can be done to the styles. The modifications will only affect this template and documents created from it.

One of the distinct advantages to a template with styles is the ability to use Ctrl + Alt + 1 to apply a heading 1 style. In a document with a custom heading 1 style, pressing this keyboard command would apply the inherent heading 1, not a custom heading. The keyboard commands for applying headings 2 and 3 are Ctrl + Shift + 2, and Ctrl + Shift + 3 respectively. These three keyboard commands save a lot of time!

## Tips

To change templates [attach another template to the existing document] choose Tools > Templates and Add-ins. The attached template will be secondary to the original template used for the document.

Whenever possible, start a document with the template most appropriate for the document.

Always create a custom style instead of modifying existing ones in the Normal.dot…you might not remember the default settings of the style you've modified.

Modify a custom style by locating it in the list of styles, pressing the AppKey and choosing Modify.

Delete a style by choosing Format > Styles and Formatting, Tabbing to the list of styles, pressing the AppKey and choosing Delete. Do not do this with the default styles!

When you change the template of a document, you only attach the ability to use the AutoText, macros, toolbars, and keyboard shortcuts associated with that template. You do not change the document. It is still associated with its original template.

# Index and Table of Contents

We briefly talked about how using a custom style helps when you want to create a table of contents, index, table or table of figures; or when you want to repurpose your word processed document as a tagged PDF document with bookmarks.

When creating a table of contents, table of figures, or index, it's a good idea to build the structure of the page before you actually create the table or index. This means choosing the location for the table of contents for example and inserting a couple of blank lines for visual spacing under the title "Table of Contents." With indexes and a table of contents, if you don't create the framework, you will run into formatting issues once the index or table of contents is generated.

## Building a Table of Contents

It is relatively easy to create a table of contents or a TOC. A table of contents is based on the use of the heading styles in Word 2003. If you create a custom heading based on an existing heading, it will appear in the table of contents tab in the References dialog box.

To create a table of contents, choose Insert > References > Index and Tables. This opens a dialog box with tags for creating an Index [the tab that has focus], a table of contents, a table of figures, or a table of authorities. A table of authorities is a list of references in a legal document.

Use Ctrl + Tab to move to the table of contents tab.

You can choose some options for a table of contents. Generally, for readability, you want the dotted lines from the text to the page number. Putting page numbers right after the text can be visually confusing for people with visual disabilities or learning disabilities.  It is equally confusing when page numbers are on the other side of the page with no visual connection to their topic.

When a TOC is in all capital letters, it can be difficult to read. Uppercase fonts are the most difficult to read because it removes our ability to use letter shape for word prediction. This affects everyone's ability to navigate a document, not just the ability of people with disabilities.

Italics can also be visually difficult and distracting. Italics, by their very nature, are thinner font formats that may not be readable depending on the device used to view the document.

Since you are working with a digital document, it is also important that your table of contents has links that will let readers move quickly to the topic they want. If you are repurposing your document to

tagged PDF or HTML, this navigational tool will be carried through to those formats. Generally, a web page doesn't have a table of contents. A study by Sun Microsystems in the mid 1990's showed that if someone has to use the page down key more than three times on a web page, they will not read further. Yet we ignore this information about our readers and create lengthy web pages with no ability to navigate through them from heading to heading, if we even properly use headings in web pages. The web-based logical structure that is similar to a TOC is the use of anchor tags on a page to let readers move from heading to heading.

If you are converting a Word document to Braille, the table of contents will let the reader know what the print page navigational structure is. Since Braille takes up more room than print, Braille is formatted, through a translation software, for Braille pages and print pages. If someone is supposed to go to page 6 and find information, they can use the TOC to know they are in the right area, and use the print page number to move directly to that information.

PDF documents have the same type of page numbering structure, particularly if the document has preface pages such as "iii" or "iv." The PDF reader displays page numbers starting at page 1 no matter what the document page number is. Therefore, on a document with ten prefix pages, if you use the Go To tool in your reader to get to information on page 6, you will actually be on page "vi" not page 6 of the document. A table of contents will help people move closer to the information they want and need in the document.

It is easy to see how all of the basic structural elements of a document are related to similar functionality in other document formats.

In the following figure, the Karlen 1 headings are identified as the basis for the table of contents for this document. They appear in the proper structural order for heading positions in a table of contents generated by Word.
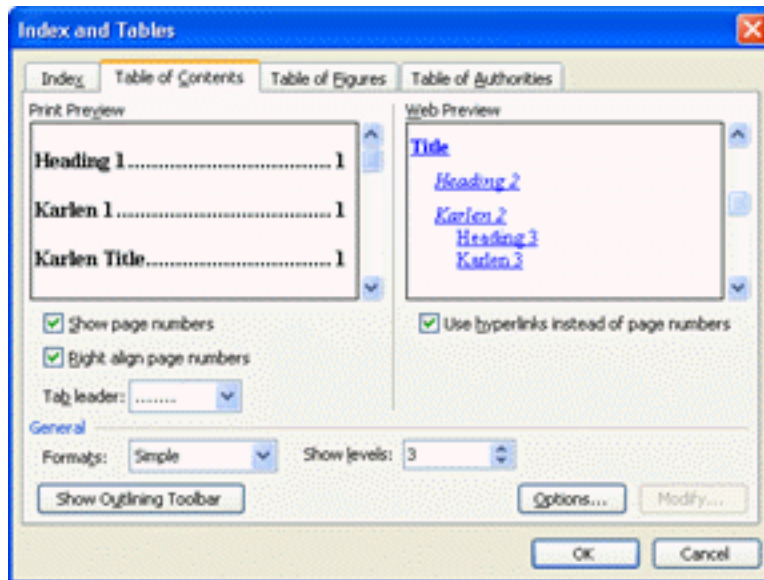
Figure 5: Image of the Index and Table of Contents dialog box.

Once you choose the look of the TOC you want, Tab to and activate the OK button. Word goes through the document and builds the TOC.

When you generate a TOC based on properly created custom styles, it will look like this:



## Table of Contents

Using Microsoft OneNote 2003 ............................................................... 1
Table of Contents ................................................................................. 2
   Introduction ...................................................................................... 4
      Additional costs ............................................................................ 5
   OneNote for People with Disabilities ................................................. 6
Input Methods .................................................................................... 6
   On-Screen Keyboard ........................................................................ 7
   External Keyboard ............................................................................ 7
   Handwriting ...................................................................................... 7
   Speech Tool ...................................................................................... 8
OneNote Organizational Structure ....................................................... 9
   Folders .............................................................................................. 9
      Deleting Folders, Side Note, Sections, Pages and Sub-Pages .......... 10
      Sharing Folders and Sections ......................................................... 11
   Sections ............................................................................................ 11
      Moving Folders and Sections .......................................................... 11
      Renaming Sections ......................................................................... 12

Figure 6: A table of contents generated using custom styles in Word 2003.

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If you don't base your custom styles on heading styles, they will not be captured by the TOC tool. You can modify custom styles by choosing Format > Styles and Formatting and modifying the style to be based on a heading style, then adding this to the template.

## Levels of Headings

If you are using the title style for chapter or section headings, there are two things you will need to do in order for them to appear in a table of contents and appear in the right hierarchical place as a level 1 structural element.

First, the Title style needs to be added to the information that will appear in the table of contents.

To do this:

Press Alt + the letter I, then N for References and choose Index and Tables.

On the table of contents tabbed pane, choose Options. This opens a dialog box containing the list of document elements that can be identified in a table of contents. The default headings will be identified as levels one through three.

For those using adaptive technology, press the Tab key to move between the edit boxes. The edit boxes are where you can type in the number for the level you want an item to be positioned at in the table of contents.

The Title style isn't visible and is located at the end of the list. By default it has no level assigned to it. Move to the Title edit box and type in the number 1. You can't have a "zero" level heading.
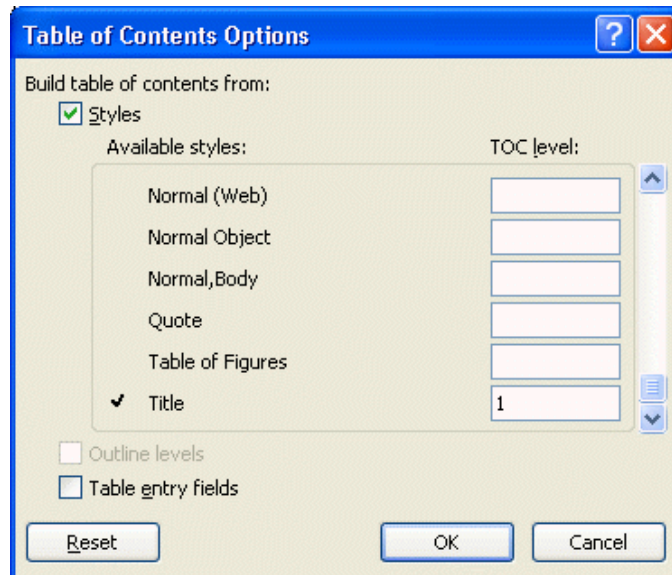


**Figure 7: Table of Contents options dialog box with Title level filled in.**

Move up to the heading levels one through three and reassign them to lower levels in the table of contents. For example, Heading 1 would now be a level two heading rather than a level one heading.
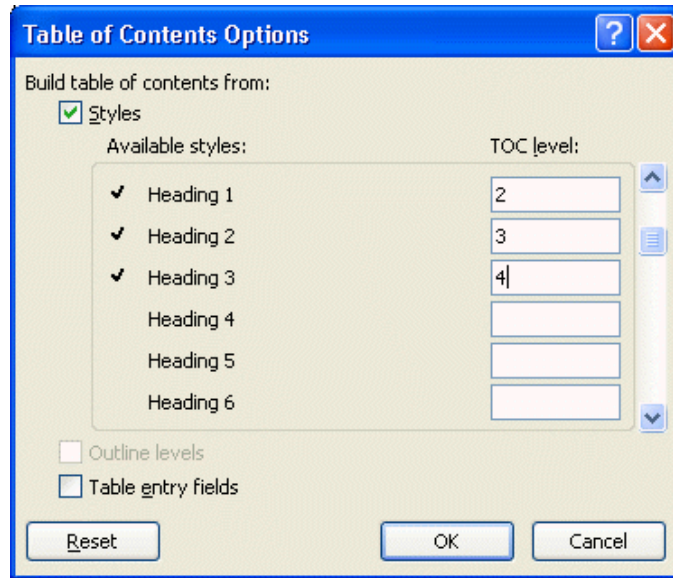
**Figure 8: Table of Contents options dialog box with the default heading levels reassigned.**

If you've created custom styles, you'll want to adjust the heading levels for those as well.

Once the heading levels have been adjusted, generate the table of contents or update an existing one.

# Table of Figures

You would create a table of figures in the same way. You will need to caption each figure [which we will do later in this document] and we will work with the table of figures tab in the References dialog box.

In most word processing applications, you only have a few choices of format. In the case of our TOC, we were able to find a format that separated levels of content and did not include all uppercase or italic formatting.

In Microsoft Word, when we look at the choices for formatting a table of Ffgures there isn't a readable format available. All bold can be as difficult to read as all italics. An uppercase and centred list of figures is not going to be usable either. However, if we could just take the italicized format and modify it, we would have a more accessible and usable format for our table of figures.

## Modifying the Table of Figures Formatting

With a table of figures, we also need to make sure that the check box to make the list of figures a series of active links is checked.

We can modify the format for a table of figures or table of contents for that matter. Here are the steps to do this.

1. Choose Insert > References > Index and Tables.

2. On the table of figures tabbed pane, press Alt + T for Formatting.

3. Choose "From Template."

4. This reveals a Modify button. This is the only formatting option that reveals the Modify button.
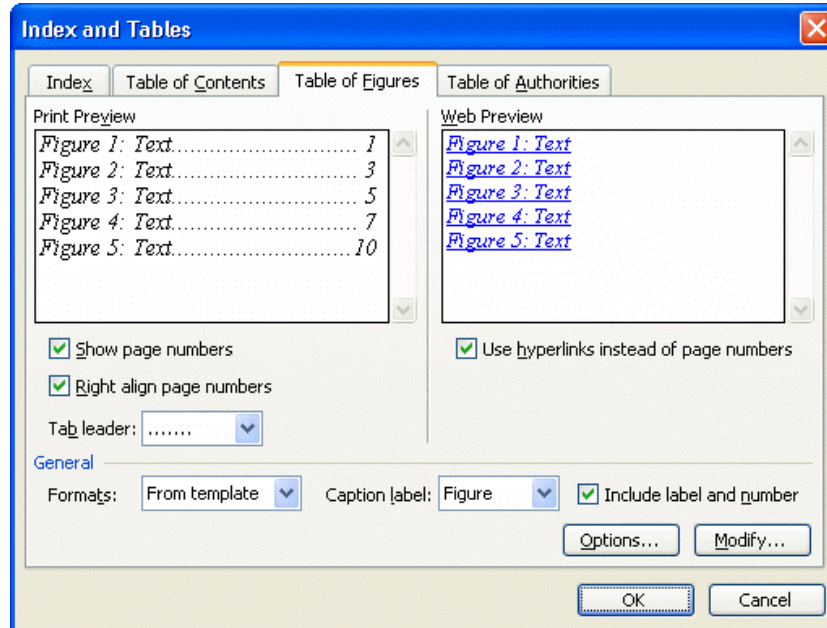


**Figure 9: Original "From Template" used for formatting of a table of figures.**

5. Press Alt + M to activate the Modify button. This opens a dialog box with the styles used in the table of figures formatting.
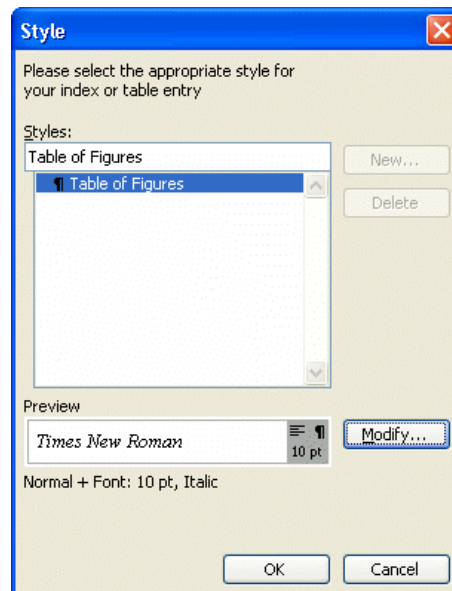


**Figure 10: Modify table of figures Style dialog box.**

Press Alt + M again to activate the Modify button in this dialog box. The Style dialog box you are familiar with appears.
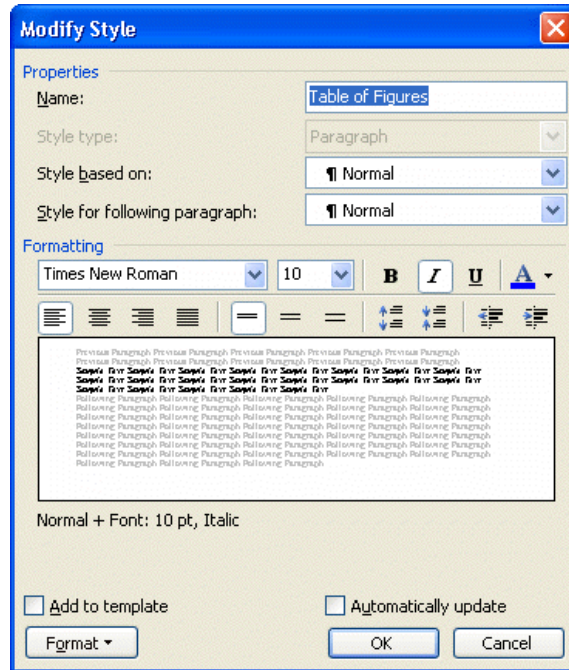


**Figure 11: Modify Style dialog box for a table of figures.**

In the case of the table of figures for this document, I increased the font size to improve readability and turned off the italics, again to improve readability. I then made sure to check the "add to template" check box, then tabbed to the OK button and pressed Enter. I tabbed to the OK button in the Style dialog box and pressed Enter which took me back to the table of figures tabbed pane in the Index and Tables dialog box.

The new "From Template" formatting was reflected in the display in the upper left side of the tabbed pane.
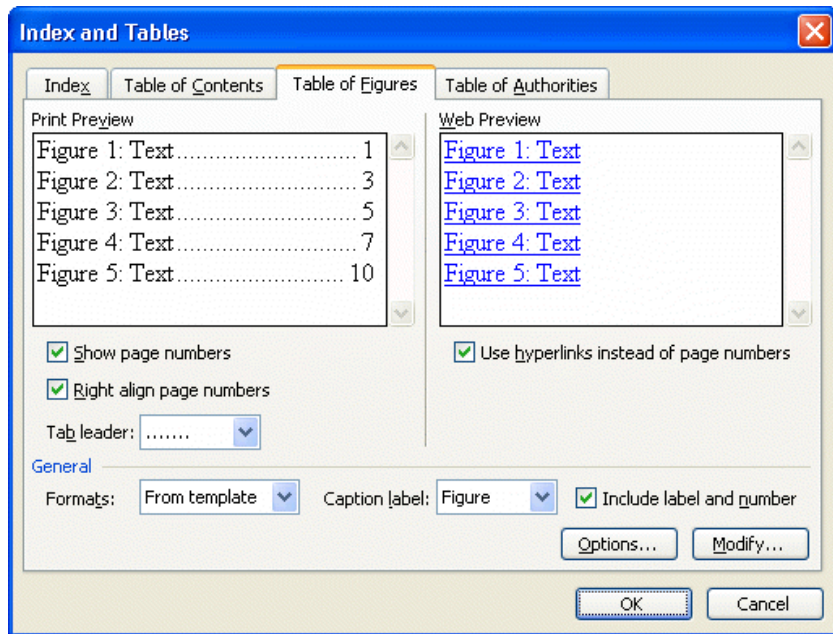
**Figure 12: Modified "From Template" formatting in table of figures tabbed pane.**

This is what the modified table of figures format looks like. You will see it at the end of this handbook.
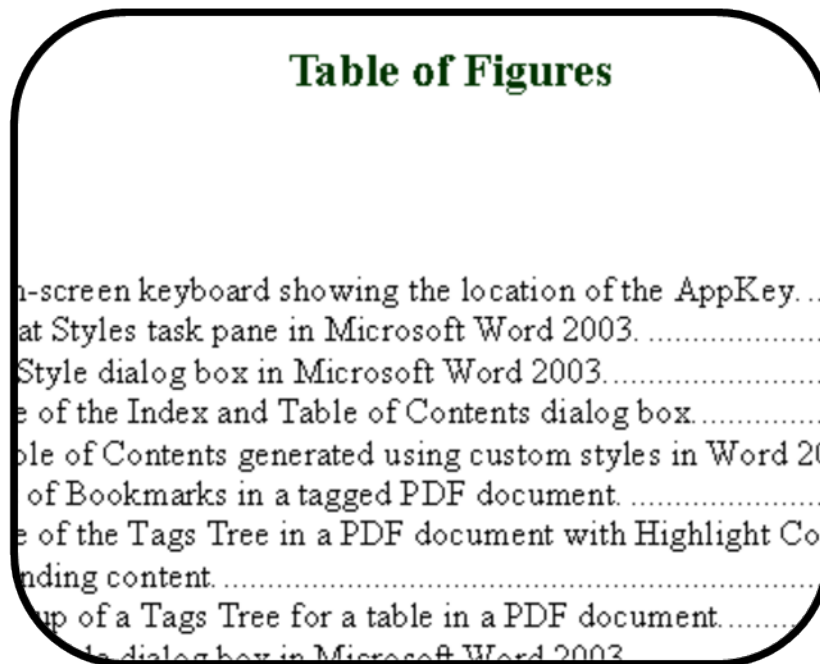


**Figure 13: Finished table of figures using the modified style/format.**

*Note: I did try to create a "Karlen Figure" style using Format > Styles and Formatting > New Style based on the table of figures item I'd selected, but the new style wasn't reflected in the list of available formatting in the table of figures tabbed pane. The template was updated and I could apply the style to any text except text in the table of figures. This may be a bug in the word processor.*

## Updating the Table of Contents or Table of Figures

You can update a table of contents or table of figures if you are editing a document or adding information to it. Move your cursor into the TOC fields at the beginning of your document. Press the AppKey and choose Update Fields from the context menu. If you get a message box, choose to update entire table.

## Creating an Index

There might be times when you are working on a document that requires an index. Creating an index requires a bit more planning and concentration when writing a document. Words and phrases will be marked for an index and then the index will be generated. An index doesn't use headings or other styles, but rather uses author identified information.

### Marking Content for an Index

Before you build the index, you need to identify the pieces of text that will be part of the index.

1. Move to a word in the document text that you want to be in the index and select it.

2. Choose Insert > References > Index and Tables.

3. If this is the first time in this session you've come to this tool, Index is the tab where your focus is. If it isn't, use Ctrl + Page Up or Ctrl + Page Down to move to the Index tabbed pane.

4. Choose Mark Entry which opens another dialog box. You can press Alt + K to activate this button.

5. Enter main entry text if it is different than what you want.

6. Enter Subentry [Alt + S] text if you want.

7. Pres Alt + P for Current page.

8. Press Alt + B for Bold.

9. Press Alt + K for Mark individual occurrence.

10. Pres Alt + L for Mark all occurrences of the text.

11. Close this dialog box which will close the Index and Tables dialog box.

Repeat this process for each item you want to appear in the index.

## Generating the Index

You are now ready to generate the index. It is a good idea to always have your cursor where you want something to be generated. This prevents frustration and redoing your work.

1. Choose Insert > References > Index and Tables.

2. Press Alt + R to right align page numbers

3. Choose Classic as the style of index, this will give you the alphabetical letters under which you have the index topics. If you choose Classic, there are no dot leaders between the index text and page numbers.

4. You can choose to just right align the numbers which gives you the dot leaders, and the word "template" appears in the Formats list box [Alt + T].

5. Press the OK button and it will create your index.

You can update an index using the same process as we did with our TOC. This will update any change in page numbers due to additional content and any new index entries you've added.

## Bookmarks in Tagged PDF

We've now looked at two important structural elements, custom styles and a TOC. If this document were converted to tagged PDF, the headings would be used as bookmarks and the document TOC would help people reading the document to navigate to the information they want. Additionally, people using a screen reader would be able to get a list of headings in the document and move quickly to that information. By adding two simple structural elements, the usability and ability to navigate to information needed has vastly improved.

The following figure shows a list of bookmarks in a PDF document.

Figure 14: A list of bookmarks in a tagged PDF document.

In this document, I've further enhanced the usability of these bookmarks by making all level 1 headings blue. Readers can quickly identify main topics, sections and chapters using this strategy.

*Note: In Microsoft Word 2003, document authors and people reading your documents [if they aren't protected] can add their own bookmarks for important information.*

# Tables and Text Boxes

At first thought, this might seem an unlikely combination. What do tables and text boxes have in common? Tables are often used to isolate important thoughts rather than using paragraph borders. Text boxes are also often used to isolate ideas; however, many document authors don't realize that text boxes are inherently inaccessible. Both items are included in this discussion of tables and design layout for document content as they are both used ineffectively.

Some legislation states that data tables must be correctly identified and/or tagged. Tagging might refer to converting content created in a word processor to either HTML or PDF content. If the legislation intends that all tables used in word processed documents are data tables, a lot of document authors who use the table structure for design layout will face major problems in making their documents compliant. Tables used for design and presentation aren't data tables.

Being correctly identified or tagged is different than ensuring that all structural elements of a document are identified or have tags.  You can have a table identified or tagged, but you will be unable to apply "correct" identification or tagging to the table structure because of how the table has been used in a document.

## HTML Table Structure

What do we mean by proper or correct table structure?  The best way to see a correct or proper table structure is to look at the code or specifications for a table in HTML. The same structure is used in tagged PDF, Corel WordPerfect, and Microsoft Word to identify data tables.

A table has a heading row to let the reader associate data they are reading with the context of its importance. The code used for a table heading is <TH> for table heading. The cells containing data are tagged as <TD> for table data, or data cell. The HTML code would look like this:

```
<table width="83%" border="0" summary="Type a short summary of the table contents">
<caption>Provide a caption for the table</caption>
<tr>
<th id="header1" width="33%"> First heading</th>
<th id="header2" width="14%">Second heading</th>
<th id="header3" width="30%"> Third heading</th>
<th id="header4" width="23%"> Fourth heading</th>
</tr>
<tr>
<td headers="header1" width="33%">table data</td>
<td headers="header2" width="14%"> table data</td>
<td headers="header3" width="30%"> table data </td>
<td headers="header4" width="23%"> table data</td>
</tr>
<tr>
<td headers="header1" width="33%">table data</td>
<td headers="header2" width="14%"> table data</td>
<td headers="header3" width="30%"> table data</td>
<td headers="header4" width="23%"> table data</td>
</tr>
<tr>
<td headers="header1" width="33%">table data</td>
<td headers="header2" width="14%"> table data</td>
<td headers="header3" width="30%"> table data</td>
<td headers="header4" width="23%">table data</td>
</tr>
</table>
```

Using the <caption>...</caption> puts a caption above the table so that people with learning disabilities or people who are blind or visually disabled have an idea of what is coming. The summary attribute is also used to let people using screen readers know why the table is there.  These two elements meet W3C guidelines for accessibility of tables.

<th id="header1">...<th indicates a table header. This is used by screen readers to let the end user know what the cell information is related to. For example if you were down four rows and over two columns, you could ask the screen reader to read the title of the information so that you can associate the data better.

<tr>...</tr>indicates the table row, notice we have four of them here

<td headers="header1">…</td> indicates a table data cell and the header cell its information is related to. This is how screen readers and other adaptive technology help you keep track of where you are in a table.

You can see how a table is structured. If you are working in HTML, begin with the <table>…</table>. The next tag is the <tr>…</tr> to define the rows across the page. The <td>…</td> is for the "columns" or data cells in the table.

Of course, HTML editors such as macromedia Dreamweaver and Microsoft FrontPage have tools to let you automatically create tables. You can then look at the underlying code to ensure that the table is correctly tagged.

If you are confused about tables and how they are structured, you can copy the code from a source document and fill in your own information switching from NotePad/HTML editor view to the browser view until you get the structure and placement right. I've included a sample table as an illustration.

In HTML, a lot of learning is done through copy and paste of code! If you are trying to do something difficult or new, go and see how other people have done it. There's no sense in re-inventing the wheel. One caution is that your own creativity and individuality need to be present in a web page, just copying source code and filling in the blanks won't impress your customers who are also out there surfing and seeing what is new in web page design!

## Tagged PDF Table Structure

If we take the table in the previous section and convert it to a tagged PDF document, what would the tags or table structure look like?
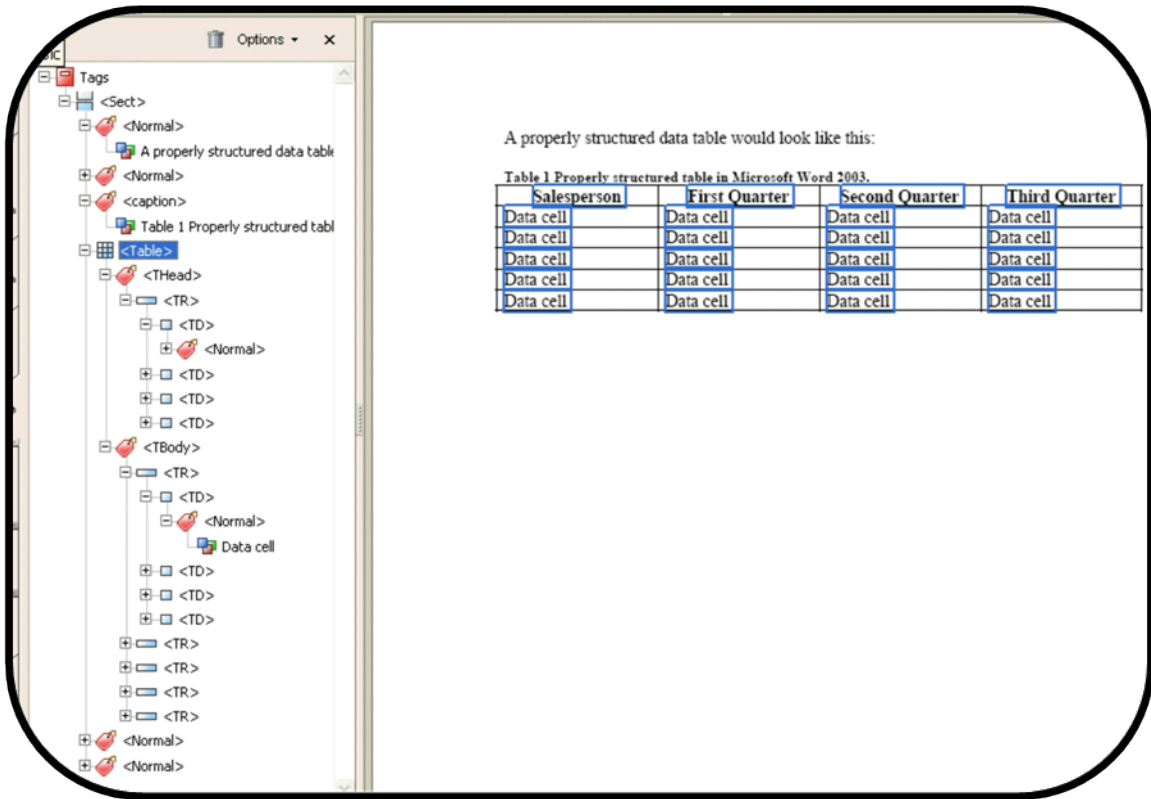
Tags
<Sect>
  <Normal>
    A properly structured data table
  <Normal>
  <caption>
    Table 1 Properly structured tabl
  <Table>
    <THead>
      <TR>
        <TD>
          <Normal>
        <TD>
        <TD>
        <TD>
    <TBody>
      <TR>
        <TD>
          <Normal>
            Data cell
        <TD>
        <TD>
        <TD>
      <TR>
      <TR>
      <TR>
      <TR>
  <Normal>
  <Normal>

Options ▾    ✕

A properly structured data table would look like this:

Table 1 Properly structured table in Microsoft Word 2003.

| Salesperson | First Quarter | Second Quarter | Third Quarter |
|---|---|---|---|
| Data cell | Data cell | Data cell | Data cell |
| Data cell | Data cell | Data cell | Data cell |
| Data cell | Data cell | Data cell | Data cell |
| Data cell | Data cell | Data cell | Data cell |
| Data cell | Data cell | Data cell | Data cell |

**Figure 15: Image of the Tags Tree in a PDF document with Highlight Content turned on to show corresponding content.**

The tool used to tag the table or convert it to tagged PDF was Adobe Acrobat Professional 7. Notice that the <Table> tag is selected in the Tags Tree and the corresponding content is highlighted. This is an Adobe acrobat tool called "Highlight Content" and it is one of the most valuable tools document technicians have for repairing PDF documents.

The Highlight Content is turned on so that the document content that corresponds to the tag in the Tags Tree is identifiable. The Tags Tree is the "logical document structure" that the conversion tool gleans from the document. If the document has no discoverable structure, the Tags Tree reflects this.

Notice that a <Thead>or table header row has been identified. The conversion tool used the "heading rows repeat" to create the table heading information. Also notice that there is a <Tbody>tag which indicates that the following table rows and cells are the body or data of the table.
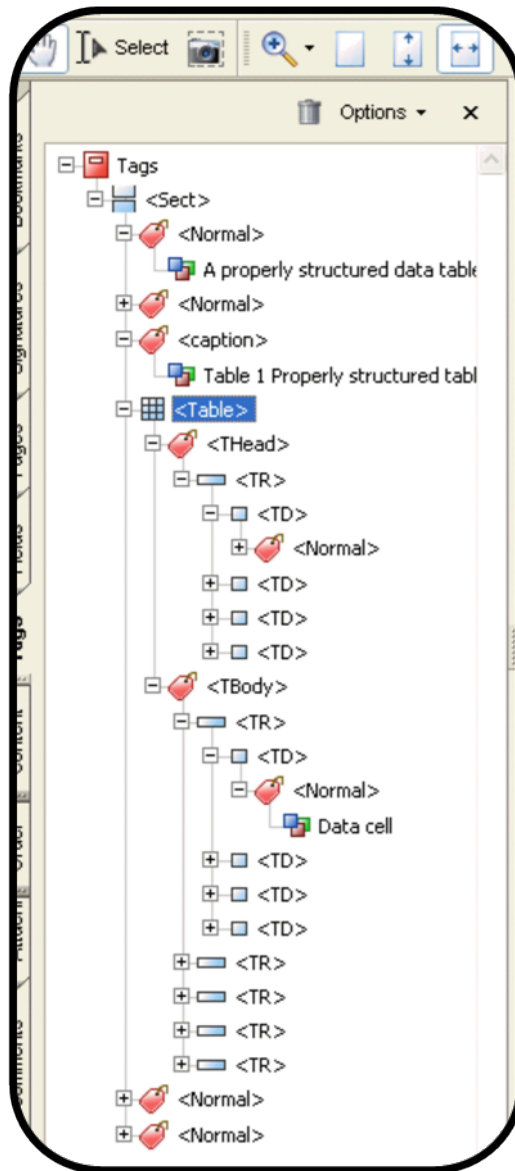
**Figure 16: Close-up of a Tags Tree for a table in a PDF document.**

If you look closely at the Tags Tree, you see that the caption inserted for the table was tagged properly as a <caption>. If we look at the concept of a properly identified and tagged table from HTML to word processing to PDF, the only element missing is a table summary. With each iteration of software, we are able to better identify document structure and provide as much information about our content as possible so that it can be effectively repurposed.

What can we do in Word to ensure that we meet legislative criteria for accessibility for repurposed content? How can we make our word processed documents more accessible to our readers? To answer this we need to look at table structure in Word.

## Table Structure in Word

Now that we have an idea of what the structure of a correct or proper data table is, let's look at what a proper or correct table structure consists of in a word processed document. Here we will find similar components for data tables.

Data tables are used for displaying brief pieces of data so that they are visually easy to compare and analyze. Data tables have a heading row and may have a column of headings depending on the data displayed.

A properly structured data table would look like this:

**Table 1: properly structured table in Microsoft Word 2003.**

| Salesperson | First Quarter | Second Quarter | Third Quarter |
|---|---|---|---|
| Data cell | Data cell | Data cell | Data cell |
| Data cell | Data cell | Data cell | Data cell |
| Data cell | Data cell | Data cell | Data cell |
| Data cell | Data cell | Data cell | Data cell |
| Data cell | Data cell | Data cell | Data cell |

In the above table, the heading row has been visually set apart by using bold and centring. The heading row has also been structurally identified by selecting the row, choosing Table > Heading Row Repeat from the Word Menu bar. This means that in the unlikely event that this data table is divided over two pages, the column headings will display on the second page.

The table has been further structured by selecting the table and choosing Table Properties > Rows, and un-checking "allow rows to break across pages." This keeps you honest as a document author. If the amount of information in a row breaks across a page, you need to redesign the way the information is displayed. Some people can't follow the text in a row if it breaks across a page. Even if a cell doesn't have a lot of information, not letting the row break across pages helps with the readability and usability of a document.

## Tables for Design or Presentation

As a demonstration of the impossible task of applying proper table structure to a table used for design or presentation in a document, I've created a sample presentation table document.

If we know that a proper table structure includes a heading row or column and a caption, how would you add these elements to a table that spans 20 pages, has multiple types of content, multiple headings, split and merged cells, and deleted cells for visual effect? A table can have only one heading row and one caption.

Simple formats are often the best. Just because we can put information in a table for presentation doesn't mean that this is the best way to present the information or to read it. Often we find that information plunked into a table is not readable in any logical manner.

Document design is important before you start formatting.

The following table is included in the support document. It spans four pages and changes formats at least five times. It begins as a six column, 20 row table.

This table has 6 columns and 20 rows. In describing the information, you can not randomly "start and stop" the table, you must present the information as one complete table of information. Describe which column and cell you are in and what the text is associated with.

| Logical Document Structure Techniques | |
|---|---|
| Item | Description |
| Creating Custom Styles | |
| Why use custom styles? | It is important to use custom styles for elements of the document you want or need to change the look of. |
| Type of custom style. | It is also important that your custom style be based on the structural element you are trying to affect. |

Figure 17: Table used as layout tool in a document.

As we see, the table quickly loses four of its columns and appears to have three "headings" before we get to the information in the table. If this table were to go on for pages and pages, which of these three heading rows would you use as the title or heading row of the table?

But wait, things quickly change on page two.

| Checklist for Logical Document Structure | | | | |
|---|---|---|---|---|
| Element | Doc 1 | Doc 2 | Doc 3 | Doc 4 |
| Check each structural element you've used appropriately in your documents. | | | | |
| Headings | | | | |
| Lists | | | | |
| Tables | | | | |
| Images | | | | |
| Equations | | | | |
| Universal Design | | | | |
| Web | Even on web pages, you need to use the tags or structural elements properly. For example, if you are creating a list, use the <br> tag to indicate a blank line between list items. If this doesn't work, then adhere to the HTML rules, don't break them. | | | |

(partial text at top: "...read through the table." / "Select the table, then press the AppKey and choose Caption. Table captions are automatically inserted just above the table.")

**Figure 18: The same table, on page two with two more "structures."**

We've now lost one column, but the table purpose/structure has changed to that of a data table displaying a check list for accessibility. Then, yet another format comes along. We have another heading, but the two columns we are presented with aren't the same two as in the beginning of the table and "column 1" is now smaller than column 2. I've left the grid lines on in this example to demonstrate the illogical structure of the document; however, typically, these would be turned off.

Looking at this one table, identify the ONE heading row and provide a caption for the table.

If you are looking at a table and can't identify a heading row and provide a caption for it, you need to look at using a different structure or presentation method. It is not acceptable to divide each change in table usage/structure into individual tables. Tables are intended to display brief pieces of comparative information. If we are not doing this, we should not be using a table.

Let's look at another example of bad table use. I recently heard someone say that putting information into table format for people who are using screen readers would make that information more readable. Given that people who are using screen readers have to use table navigation keyboard commands rather than general document navigation keyboard commands, this statement and belief demonstrate a lack of understanding.

Why would you force someone to use specialized keyboard commands to read your document when "plain old every day" keyboard commands let them read and navigate faster and more effectively?

The following example is of how we tend to format agendas for meetings. Once again, ask yourself what the heading row is and what the caption is for this table.

| | |
|---|---|
| 9:00 AM | Introduction and Outline |
| 9:15-10:30 \aM | Main topic discussion begins |
| 10:30-10:45 AM | Break |
| 10:45-100 Noon | Wrap up of the morning's discussions |

Proper use of the table:

**Table 2 Workshop schedule for November 30, 2005.**

| Time | Topic |
|---|---|
| 9:00 AM | Introduction and Outline |
| 9:15-10:30 \aM | Main topic discussion begins |
| 10:30-10:45 AM | Break |
| 10:45-100 Noon | Wrap up of the morning's discussions |

**Figure 19: Two ways of presenting an agenda using a table.**

Looking at the "corrected" table, would you do this in a document? Using Tabs would give you the same effect and be more readable and navigable.

There is another misuse of a table structure, or rather bad design. Consider the following table:

**Table 2: Table with two heading rows, split cells and one column with no heading.**

| | Toronto | | Calgary | |
|---|---|---|---|---|
| | Winter | Summer | 2Winter | Summer |
| Sunday | 5 | 25 | 1 | 22 |
| Monday | 3 | 31 | 2 | 25 |
| Tuesday | 4 | 30 | 2 | 27 |
| Wednesday | 4 | 24 | 4 | 23 |
| Thursday | 3 | 25 | 5 | 24 |
| Friday | 2 | 23 | 2 | 25 |
| Saturday | 5 | 25 | 0 | 25 |

Which of the first two rows would you designate as the heading row? What would you do with the two blank cells that were merged for visual effect in the upper left hand corner?

**Table 3: Average daily temperature in degrees Celsius.**

| Days of the Week | Toronto - Winter | Toronto- Summer | Calgary - Winter | Calgary - Summer |
|---|---|---|---|---|
| Sunday | 5 | 25 | 1 | 22 |
| Monday | 3 | 31 | 2 | 25 |
| Tuesday | 4 | 30 | 2 | 27 |
| Wednesday | 4 | 24 | 4 | 23 |
| Thursday | 3 | 25 | 5 | 24 |
| Friday | 2 | 23 | 2 | 25 |
| Saturday | 5 | 25 | 0 | 25 |

With the table above, a person using a screen reader will be able to designate both column and row titles/headings and ask the screen reader for the relationship of the information in cell C5. It would tell you that the average temperature on Wednesday in winter in Calgary; or four degrees Celsius.

If the only information someone using a screen reader can get is the number four without being able to know what day or what city, or what time of the year it relates to; or even that these are average daily temperatures, how usable "and" accessible was the original table?

Also remember to support the information contained in a table in the surrounding text of the document. Don't use tables or images out of context or gratuitously.

The next demonstration of a misuse of tables is prevalent in both word processing and HTML. It is the use of a one cell table to isolate an important piece of information.

The next image shows a single cell table used to display something the author has identified as important  and worthy of note. The single cell has been decorated with a blue border to make it stand out.

The lower part of the image shows the same text but instead of using a table to present this as important, borders and shading in Word was used for the same effect. By using borders and ahading, I also had access to the shadow effect which is not available when using the borders and shading for table cells.

**Figure 20: Single cell table used for presentation and a paragraph with borders.**

If we were to provide a heading row and caption for the single cell table, the result would be something like this:

**Table 1** This is a table used to display an important piece of information.

| What would you put as the title for this table? |
| --- |
| This is an important point you are to remember! This was created using the Table > Insert tool in Microsoft Word. This is not good use of a table. |

Once we can visualize or even listen to this type of table with a screen reader, we can quickly see that using a paragraph with a border is more efficient and effective. In HTML you can achieve the same effect using an external style sheet [CSS]. With both word processing and HTML, you can create a custom style that will also include different fonts, font sizes, margins and indents.

I know what some of you are thinking about the next heading…text boxes! Just say no!

## Text Boxes

Some document authors use text boxes instead of single cell tables to isolate information or to create an effect for text. Text boxes are very difficult to navigate if you are using adaptive technology and they do not convert well into other formats. This may not be true in the future; however, we are creating documents now and this is one structure that should be used judiciously and purposely if there is no other alternative.

The following text box is completely inaccessible if you do not have access to a mouse to physically put focus into the text box. Screen reading software doesn't see it on a page because text boxes float over the page – they are objects not document structures.

> *Text boxes are often used for quotations and other text that document authors want people to really notice and read.*

Even thought this text box has Alt Text, because adaptive technology can't see it, adaptive technology can't see the Alt Text either.

> *Text boxes are often used for quotations and other text that document authors want people to really notice and read.*

The text above was formatted using paragraph shading and borders. It can be positioned anywhere within the space it occupies by using left and right margin settings. You can also adjust the space above and below lines to give it a more airy effect…and it is completely accessible.

Paragraph formatting is simple and easy, yet we often use the tools someone showed us during a "marketing of the software seminar" or a tool we found that "did the trick" when we needed a fabulous document done in five minutes. Once you understand the formatting you can do using the basic tools in Word, you'll find that these are easy to use…and you can create custom styles for formatting you do frequently. For example, the shaded and bordered paragraph shown above could be a style we apply to text as we need it which makes it even easier to use than a text box…or a single cell table!

## Creating Tables in Word 2003

It is important to create proper tables in Microsoft Word or any other application. This will let you take advantage of the automated tools you or your readers use daily. For example, if someone reading your document requires a Braille version, your table will format properly in the Duxbury Braille Translation software. When you convert to HTML or tagged PDF, people using TTS [Text-to-Speech] or screen readers can navigate information in a table more easily.

Note: Tables should not be used for formatting; they should be used to display brief pieces of comparative information.  If you want to create columns, use Format > Columns in Word, or the structural element for creating columns in the application you're working in.

There are some elements of creating a table you need to include.

Create your table using "Table > Insert" rather than "Table > Draw Table". Using Insert initially creates a uniform table which is more recognizable by automated tools like Duxbury, DAISY book authoring tools, HTML and PDF converters. It will also make navigating tables in Word a lot easier.

Once you've created your table, there are two settings you need to modify.

1. First, select the title or first row of your table.

2. Choose Table > Heading Rows Repeat.

3. This not only helps people using adaptive technology, it also helps everyone keep track of the relationships between information if your table spans two pages.

4. The second thing you need to do is to not let the rows break across pages.

5. Put your focus in the table and choose Table > Select > Table.

6. With the table selected, press the AppKey.

7. From the context list, choose Table Properties.

8. On the table tab, make sure the check box allowing rows to break across pages is unchecked.

9. This does two things: first it keeps you honest in only having short pieces of information in a table cell; and second, it makes it easier for your readers using adaptive technology when you keep all information in one cell together.

10. If your document is printed, it is easier for people with visual or learning disabilities to read the content of a cell if it isn't broken over pages.

You should not have a lot of blank cells in your table. If you have a blank cell because there is no information, use a – [dash] which will help automated processes understand that this is a blank cell. If someone is using a screen reader to read a table and empty cells have been used for "spacing" or visual effect, the person using the screen reader hears "blank" for each empty cell. If someone hears too many "blanks" in a row, they will stop reading the table information thinking that either their screen reader is stuck, or that the document author simply put lots of empty cells in a table for visual effect. Either way, the person reading your document is frustrated and loses mental focus and concentration on what they are reading.

Tables used in HTML for design layout often have 10, 15, or more empty cells in a row or column because the document author is misusing the table structure for a visual effect. People using adaptive technology such as screen readers have been conditioned to believe that any series of blank or empty cells are just another example of improper use of tables and that it is a waste of time and energy to try to figure out where the content is.

Use the Cell Margins option to create space around cell content, not blank lines. If someone using a screen reader hears "blank" when they enter each cell, they might not listen to hear that content follows. It is also quite annoying to hear "blank" before and/or every piece of content in a table.

The Cell Margin tool is accessed through Table Properties > Cell

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Figure 24: Table Properties dialog box in Microsoft Word 2003 showing the Cell tab.

Tab to and press Enter on the Options button. The first topic in this dialog box is Cell margins. You can adjust all four margins in a single cell or series of selected cells. Make sure to un-check the "Same as the whole table" check box. Your focus is on this check box when you enter the Cell Options dialog box. You can then tab to each side of a cell: top, bottom, left and right. Make the changes you need to in order to get the spacing effect you want. Make any other changes you want, Tab to the OK button and press Enter.



Figure 25: Cell Options dialog box from Table Properties Cell tab in Microsoft Word 2003.

You are returned to the Table Properties dialog box. Tab to the Ok button and press Enter.

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The cells you've assigned new margins to are now showing these new margin settings.

Try to maintain a uniform table structure as much as possible. Do not have a blank row with another table or set of information in one table – make it two tables. Design your table with care before you begin constructing it.

Nesting tables is not good form or document structure. If you find yourself thinking of nesting information, perhaps a table isn't the right structure for your content!

## Captions for Tables

Just as you should add a caption for an image or equation, you should add a caption for tables used in your documents. This will also help you remain honest in the use of tables within a document. Many people won't want to put a caption on a table used for design layout.

To provide a caption for a table, select the table and then press the AppKey. The caption dialog box appears. The Caption should begin with "Table #" and your cursor should be just past this text at the point where you can type the caption. As with the image and equation captions, I generally insert a space before I begin typing just to provide some separation between the table identifier and the caption text.



**Figure 26: Table Caption dialog box in Microsoft Word 2003.**

When you convert the document to tagged PDF using the Adobe PDF menu bar item, the caption will be tagged as a caption to the table.

# Parallel Columns

Document authors can also alter the reading order of information once it's tagged. For example, if you have parallel columns with the document text on the right and a quote from that text highlighted on the left, it all gets tagged in order which may put the quote in the middle of the text. It changes the reading order of the document for those using adaptive technology. Whereas our eyes will pick up the quote first and then move to the text, someone using Read-Out-Loud [comes with Adobe Reader 6.x or later] or a screen reader will have the text and quote jumbled together. As a document author, you can find the paragraph or quote and move it in the logical document structure so it makes sense to the reader. The visual appearance of your document isn't altered, but people accessing the content in a non-visual way will be able to better understand what they are reading.

Consider this example:

"You might have a very insightful quote here. The quote may or may not be included in the text on the right."

Document authors can also alter the reading order of information once it's tagged. For example, if you have parallel columns with the document text on the right and a quote from that text highlighted on the left, it all gets tagged in order which puts the quote in the middle of the text. It changes the reading order of the document for those using adaptive technology.

Whereas our eyes will pick up the quote first and then move to the text, someone using Read-Out-Loud [comes with Adobe Reader 6.x or later] or a screen reader will have the text and quote jumbled together. As an author, you can find the paragraph or quote and move it in the logical document structure so it makes sense to the reader. The visual appearance of your document isn't altered, but those accessing the content in a non-visual way will be able to better understand what they are reading

In the sample above, because we used the column tool in Microsoft Word, the columns were tagged properly when the document was converted to PDF. This is not likely to be the case if we draw the

parallel columns, use objects or other non-standard methods of visually displaying this same information.

The Borders and Shading tool can be used to further isolate a quote when using this format. This is the technique used in the example above.

Parallel columns do not have an inherent "structure" and are considered formatting rather than structure. Whether parallel or newspaper columns are used, their purpose is to reflow the content not to provide any associative structure. Repairs will need to be done on repurposed documents where parallel columns have been used to show a heading in one column and the associated text in the other.

You can also create newspaper columns from selected text and have each column equal so that information doesn't stray and look out of place.

Using the dividing line, which is a check box in the Columns dialog box, people reading information in columns can better separate information. This is especially useful if you use three or more columns and text appears to visually blur into one line.

| | | |
|---|---|---|
| I can also use the Borders and Shading tool to further isolate a quote when using this format. This is the technique used in the example above.<br><br>You can also create newspaper columns from selected text and have each | column equal so that information doesn't stray and look out of place.<br><br>Using the dividing line, which is a check box in the Columns dialog box, people reading information in columns can better separate information. This is especially useful if you | use three or more columns and text appears to visually blur into one line. |

The columns above have wide gutters, or spaces between them. Again, I've used the dividing line to visually separate information.

## Text Alignment and Justification

Text in columns or text in general should not be fully justified because when text is justified it becomes harder to read and this limits the readability and usability of the information. Fully justified text creates a lot of white space between words especially when only one or two words will fit in a column. Think of newspaper or magazine articles you've read where in four or five columns, two words are on a line, or worse, the letters in a word are spread out to span the line making it even harder to read and continue the thought or the article.

Fully justifying text, whether it is in a single column or multiple columns creates distracting rivers of white throughout your text. Even for people without visual or print disabilities, it is often difficult to follow the context of what they are reading. Because digital documents use proportional fonts, there is

no need for full justification; it is a holdover from old typewriter days when the fonts were fixed [which meant that the letter "o" took up the same space as the letter "i"]. Body text should be left justified.

## Creating Columns in Microsoft Word 2003

To create columns in Microsoft Word, type the text that you want to be displayed in parallel or newspaper columns then perform a spell check on your work and make sure it is left aligned.

Select the text you want to be a parallel or newspaper column. Choose Format > Column



Figure 27: Columns dialog box in Microsoft Word 2003.

Your focus is in the number of columns in the columns dialog box. If you are creating newspaper columns, you can choose the number of columns here. Remember that when you create a lot of columns, more text gets squeezed onto the page and this makes it more difficult to hold the reader's interest. A good rule to follow is to limit your columns to three, preferably two.

If you want parallel columns, press Shift + Tab and then use the arrow keys to choose either Left or Right to indicate where you want the smaller column, on the left or the right of the page.

Press Alt + B to insert a line between your columns whether they are newspaper or parallel. This will assist the reader in defining the column boundaries across the page.

Tab to and activate the OK button. The selected text is now displayed in columns on your page.

You can use column breaks to force the columns to look the way you want [Choose Insert > Break > Column Break].

Creating columns by selecting text will ensure that your columns are balanced. This means that within one or two lines, both columns will end on the same visual line on the screen. You won't end up with one column filling a page from top to bottom and the overflow text being displayed at the top of the next page. It will also ensure that the text that you don't want in columns will remain outside of the column structure.

# Graphics, Images and Charts

If you use an image in a document, it should have Alt Text and a caption. Providing Alt Text or "alternative text" will let people who are reading the document in digital format and people with learning disabilities know why you used the image and what it is if they find it visually confusing. Providing a caption for an image will people who prefer to print the document know why you used the image . This is especially important if that person is using a printer that will not let them print in colour or a sufficient resolution to make the image clear in print.

We create information for people to read and the more accessible, readable, and usable information is; the more people will gain from what we create.

It is also important that images a document author uses support surrounding content and are not "the entire content" themselves. The following is an example from a handout I created for web- based content, but I think the general concept transfers nicely to other document formats.

If we are creating content for e-learning opportunities, we need to look at the context of the images used and the Alt Text or support information we provide. It is always best that the document author provide the Alt Text or a long description or descriptive text file for an image.

For example if I as the instructional designer, independent of the document author, saw this image in this document, I would set the Alt Text as "Photo of a dinosaur skeleton." That is, after all, what it is.



**Figure 28: Photo of a dinosaur skeleton.**

But Would I really want to leave the interpretation of this image to someone who may not understand my intent in using it? It does look out of place within this document.

As the document author, what I would want you to take away from this image was that it is a metaphor for universal instructional design and accessible and usable digital environments and information.

Figure 29: Photo to a dinosaur skeleton used as a metaphor for the accessibility and usability of eLearning.

This is an image of a dinosaur skeleton in the foyer of the Geology Department building at the University of Saskatoon in Saskatchewan Canada. It has all the elements of the struggle for understanding the role of accessibility and usability in digital environments and information.

The skeleton of this prehistoric creature represents the way we've thought of classroom learning for the past hundreds of years. The fact that the creature has died, yet this environment doesn't seem to know it, only adds to the richness of the metaphor.

If you consider the fact that these remains of the past are further encased in a building that provides some light and "creature comforts" we can pose the hypothesis that the traditional way of teaching and our expectations of learning are encased in our own architectural framework. Yet, through the remains of this long dead creature, through every inch of its skeleton, we see new growth, new ideas, and new realizations of what learning can be for instructors and learners if we take the technology available to us and use it to our advantage rather than trying to make it fit this skeleton.

The fact that I set the Alt Text as "Photo of a dinosaur skeleton as a metaphor for the progress toward accessible information" gave the reader a direction and path to think about this image related to the topic at hand--the accessibility and usability of digital environments and information.

How different would your mind's "recognition" of this image be if the Alt Text simply said "Photo of a dinosaur skeleton"? I also supported the image in subsequent text by drawing your thoughts to how we might see this as a metaphor. Even if you had read the subsequent text, would you have chosen the Alt Text I provided for the second image? What would you have said about the image?

## Context is Key

Clearly, it is essential that document authors define and describe the images used in content for the sake of context and the support of surrounding information. This is also the reason that Alt Text needs to be concise and meaningful to the reader.

In a non-web based version of this document, you would add the caption as I've done when transferring this image from HTML to word processor format.

# Alt Text for Images in Microsoft Word 2003

Here is how you add Alt Text to images while creating documents in Microsoft Word 2003. The process should be similar in less recent versions of Word.

1. Select the image you want to add Alt Text to.

2. If you are using JAWS, you can press Ctrl + Shift + the letter O for a list of inline objects and move directly to the image or object.  Inline objects are objects inserted into documents. These can be part of an Excel worksheet, a PowerPoint slide, linked OLE [object linking and embedding] objects that update when the original text is modified, or icons linking to other content.

3. Press the AppKey.

4. Choose Format Picture.

5. Press Ctrl + Tab to move to the Web tabbed pane.

6. Place your cursor in the alternate text edit box and type in your Alt Text. This should take one Tab press. This is the only thing you can do on this tabbed pane.

7. Tab to the OK button and press Enter.

8. If you press Enter while in the alternate text edit box, you will move to the next line.

Your image now has Alt Text that will be associated with this image when you convert the document to a PDF document using the conversion tool on the Menu bar.  The Alt Text will not be captured if you use Print > Adobe PDF to create the PDF document.

## Captions for Images

Document authors should also provide captions for images. This helps people with learning disabilities as well as other readers in general to figure out the context for the image within the document.

A caption can be placed above or below an image. Generally captions are identified as "Figure #" and can also appear as a table of Figures at the beginning or end of a document as with this document.

To add a caption to an image, select the image and press the AppKey. Choose Caption which will open a dialog box. By default the caption will be at the bottom of the image; however, you can choose to put it at the top.

Your cursor is flush against the colon after the number one. I generally press the Spacebar before typing just to provide some distance between the "figure #" and the caption itself.

**Figure 31: Caption dialog box in Microsoft Word 2003 showing an image caption.**

This is a good place to discuss a related topic, the "cost of accessibility."

It has long been my view that building accessibility and usability into the documents we produce "costs the same" as producing documents with good design and structure.

When we first got our word processors, we were thrilled the first time we saved a file and it actually appeared in the location we intended it to go to. When we had to spell check documents, we learned how to do this. It is the same for adding page numbers, footers, headers, styles, lists and other parts of documents we use on a daily basis.

Yet, we don't seem to view the accessibility of digital, specifically HTML or PDF documents in the same way. We find reasons not to learn about how to create better documents in these formats.

Do we look at word processed documents we produce and say that doing a spell check will take too much time and cost too much so we won't do this?

The other argument I hear is that creating accessible and usable content will detract from the author's ability to be creative. Again, can I choose not to spell check a document based on the premise that it interferes with my "creative license?"

Learning to create accessible digital content is simply evolving with the technology. The process of creating accessible and usable content is also evolving as we understand how people are accessing digital information and the need for device independent information. Learning how to create information that is more accessible and usable for everyone should be part of our global learning and production plans in creating documents.

We are at the point in our ability to create accessible and usable information where we should no longer be trying to justify why we should create accessible content; but rather we need to justify why we are not creating accessible and usable digital environments and information.

How does this informative ramble relate to the issue of documents structure?

I knew about captions years ago but somehow put it on a shelf for later investigation. What I've realized in the past few weeks is that Alt Text helps identify images if you are reading the document electronically. How does the reader relate the image to the surrounding content if they print a word processed or PDF document? The Alt Text which is used digitally is not available if you move a mouse over a printed image. Captions provide the print equivalent of Alt Text and we need to begin including them for images, tables and equations as well as providing Alt Text for these types of content, especially if we intend on repurposing information.

## Captions for Equations

Until we have the ability to have a MathML/XML type tag for mathematical and scientific equations, we will need to provide Alt Text that describes the formula in long hand. Most equation editors provide an image of the equation within a document. This information can't be extracted by adaptive technology. Depending on the device the equation is being read on, it may not be readable or understandable.

Providing a caption along with Alt Text for equations, which will likely be <Shape> tags in the Tags Tree, will help readers understand equations.

To add a caption to an equation in Microsoft Word 2003, select the equation object, and press the AppKey. The Caption dialog box appears.  Press the Tab key once to move to the Label list box and choose Equation. Press shift + Tab to move back up to the Caption edit box and type the caption for the equation.



**Figure 32: Equation caption dialog box in Microsoft Word 2003.**

## Drop Caps and WordArt

One of the components to documents might be the addition of a "drop cap" to begin a chapter or section heading. This technique is most often found in books or textbooks.

n this paragraph, the letter "I" for the word "in" has been made a drop cap, or dropped capital letter. By using a drop cap, the paragraph is emphasized and stands out visually on a page. How does this affect the accessibility and usability of the document? Technically drop caps are "images" and "formatting." They are a type of hybrid document element. One of the nice features is that Alt Text is automatically added to them as it is created which helps when converting to tagged PDF. The down side to using them is that adaptive technology interprets them as graphics and puts a pause between the drop cap and the rest of the word. If you are repurposing text to Braille, the Braille document will require repairs where drop caps are used.

As seen in the image below, the letter "I" has its own "box" or container.



Figure 33 Image of the drop cap after inserted into text.

When a screen reader encounters this, the paragraph begins "n this paragraph…" and the letter "I" is ignored. This might not seem critical for the word "in;" however, with the word "the" the person using the screen reader would hear "he this paragraph…." And with the word "this" would hear "his this paragraph…" which disrupts readability and comprehension.

The drop cap used above is set to display in the margin. The same results occur when the drop cap is placed on the first line or designated to take up a specific number of lines as shown in the image below of the drop cap options dialog.



Figure 34 Image of the drop caps dialog.

Some of the PDF tagging tools are becoming sophisticated enough to know that a drop cap is part of a word and will render proper pronunciation; however, repairs will need to be made for other formats. Even with a tagged PDF document, this type of document element needs to be verified as being accessible.

## WordArt

The ability to add WordArt to documents is another way of formatting text. WordArt is not a document structure; it is a partially accessible document format. When you create WordArt, as with a drop cap, the Alt Text is created which helps when tagging PDF. For Word documents and other formats such as Braille, WordArt is an object in the document and is not accessible.

If you move the cursor through the text, it will disappear momentarily and reappear under the WordArt. This is another document format that is not accessible. Alt Text is created for WordArt and this is captured when the document is tagged to PDF. For other document formats such as Braille; however, repairs will be needed to include any information in WordArt. WordArt should also have information about it in the text of the document for anyone accessing the document who can't read the WordArt visually or with adaptive technology. You cannot provide a caption for WordArt.

# Links in Documents

Creating accessible links and hyperlinks in word processed documents follows the same rules as in web-based documents. The links should be contextual and concise and not be the entire URL plunked in the middle of the text. Instead they should take the form of a key word that a person can click on to take them to that link. People using adaptive technology can get a list of links in a word document in the same way they can get a list of links in a web-based document. The lines are rapidly blurring and the "genre" of documents is moving to a more global XML structure and format.

The following image shows a list of links that have been created using the URL's for the target documents. Imagine having to listen to all of these and try to identify the link you want to go to.

The following image, although web-based, demonstrates the ease of finding the target document if the links have clear and concise text.



**Figure 35: Image showing a list of contextual links using the JAWS screen reader.**

As you create documents using contextual links, two issues are raised:

> What if I am working on a document that people might print?

> What if the link doesn't work? How can people know the entire URL to get to?

The answer to both of these questions is one simple solution. Use the context links within the document and provide a list of resources at the end of the document that identifies the full name of the web page followed by the URL. This technique also provides easier access to people without disabilities.

If you are considering that the document will be printed, it is reasonable to expect that people can't point their finger at a link and go to another document. So, as they read, the flow of content isn't disrupted by visually skipping over long URL's; yet, if they are taking the document with them and are at another computer, they can type in the URL from the list of resources.

## Text for Links

One of the other questions most often asked is if context links will change the way we write. Yes. We will automatically begin to think of a clear and concise way of providing the link information. This is not necessarily a bad thing for document authors. While the process might seem awkward at first, we'll get better with practice.

Here are a few other things to keep in mind when creating contextual links.

Don't start every link with "select this link to go to…" People using adaptive technology can use first character navigation to move through lists of links and headings. If every link begins with the same character, this can't be done and every link in a document has to be listened to for that last crumb of vital information that tells us where the link will take us.

Other contextual issues are using "click" or "click here" as links. If I get a list of links in a document, why would I want to "click" or where will "click here" take me?

Consider the following list of links. Would you know where you are going? Would you have the patience to read through all of this to find that one piece of information that might tell you what the link is for? How would you feel after listening to an entire URL only to find that the target page is named "file01.html" or "image42158.gif?" Would you find this information useful?



Figure 36: List of full URL links from the JAWS screen reader.

Now let's look at a list of contextual links. In the image below do you get a clear idea of what you might find if you follow a link?

Figure 37: List of contextual links that all say "click here."

When we create contextual links, we need to think of someone accessing the links independent of any surrounding text. What is the most concise text I can use to provide information on where the link will take someone?

The following example, although from a web-based document, gives us an idea of the difference in speed and confidence we can have in accessing links.
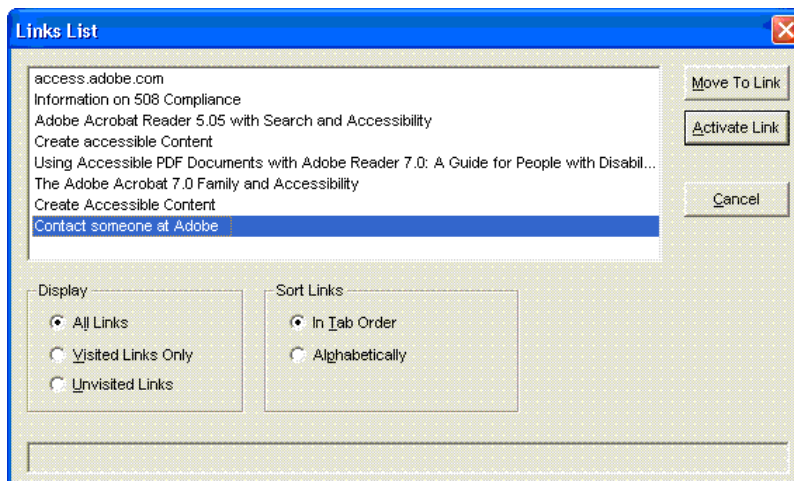


Figure 38: Properly created contextual links in a document.

The other mistake document authors make is when there are several flavours for formats of a document. This is usually done with web-based content, but since the line is blurring between what we would consider "regular" documents and web-based ones, it is worth mentioning here.

Often you will have a document available in tagged PDF or Microsoft Word. Typically a document author will identify the different formats thusly:

Chapter One: Introduction [PDF] [Word]

Again, think of a series of chapters or lectures where the only information you have is:

PDF
Word
PDF
Word
PDF
Word
PDF
Word

Would you be able to find the Word document for chapter five or lecture 13?

We need to be aware of more than the visual when creating documents. With smaller devices, the need for auditory access for input and output will increase. What will be the fastest most efficient way to get information when you need it?

# Legacy Documents

In this book we've looked at what document structures and elements create both barriers and paths to accessibility when creating Word documents. What do you do if you have a legacy document – a document that is in its third, fourth or twentieth revision cycle and you need to make it accessible? Of course the other question I get is "why aren't my PDF tags right?"

The first item to consider is developing a basic style guide for a document or documents you are going to produce. This would be available to anyone who works on the document and it needs to be followed. Often people aren't aware of what was done in the document previously and after quickly searching for styles that are not there, make things up as they go. Then there are people who are truly creative and give the document a new look and feel without removing old formatting.

When you have inconsistent formatting, even in documents where you've been careful to create styles and structures, you are building barriers to accessibility and repurposing.

The second step in working with legacy documents is to review any macros used to populate the document with reused content. Let's look at an example. Macros, in this sense, are automated components of a document that would let you enter text in one place in a document and have it immediately "fill in a blank" at another place in the document. For example, if I were to type my name at the top of page two, every other place in the document that would require my name to appear would be filled in automatically.

If I have a list of three general topics that are to appear in an executive summary or introduction, and then are used later in the document, a macro might automatically copy them to the appropriate place later in the document. Don't do this at home kids!

Tables

Text Boxes

Parallel columns

As I type these topics into the document, they will also appear on a later page:

## Tables

Type information here.

### Text Boxes

Type information here.

## Parallel columns

Type information here.

In the example above, the text was copied from the bulleted list but the bulleted formatting wasn't removed before the heading style was applied. When a conversion tool or anyone reading this document in Word, comes across this, they won't be sure of what it is. Typically a list has more than one item and typically a heading isn't a list item…what should I do with this? Conversion tools just pick one and in the case of the items above, the tool may see the first one as a bulleted list item, the second one as a heading and give up on the third one and say it is a paragraph. This means you have to repair the converted document.

When you use a macro to populate a document with text or information that's already been entered, you must remember to include the step of removing the original formatting and then applying the new formatting as it is placed in the document structure.

This brings us to the key of working with legacy documents. Always start with a document that has been cleared of formatting! Select the document using Ctrl + A, then choose Edit > Clear > Formatting. With some legacy documents, so much damage has been done in terms of formatting and structure being layered on top of one another, that taking the document into something like NotePad is the only way to give you a clean copy to work with. If you need to do this, remove table structures before doing so. Choose Table > Convert Table to text and use tab stops in the document. This will let you select the unformatted text again and apply the table structure.

> *Note that if the table is poorly designed, you will have to do some repairs on it,*
> *but this will take less time than trying to fix it with conflicting formatting.*

It will take you less time to start with a clean, unformatted document and make the necessary edits then format it again than it will to try and solve all of the formatting and style conflicts. It will also save financial resources if you need to perform accessibility audits on documents…some conflicts are just cost prohibitive or can't be "fixed" once the document is converted.

As with any "inheritance", things can go either way. You may have to pay off substantial debts accrued through documents without structure that have been worked on over years; or you can "get the bonus" of receiving documents that have been created in a clean and logical manner.

The latter requires little or no investment of time and financial resources to make them accessible and repurpose them.

We've learned that creating web-based content that has good design and structure helps everyone, not only people with disabilities. It is the same when we create logical document structures. It makes document access easier for everyone with the bonus of saving financial resources on repairs. No one wants to inherit a "money pit!"

# References and Resources

[Text/Typographical Layout Tutorial by WebAIM](#) this resource provides information on structuring and formatting web-based documents. Some of the concepts can be transferred to other digital formats. Readability and usability are format independent issues.

[Re-visioning Document Structure from All things Web](#)

## HTML
[Chapter 2: Understanding HTML, HTML Document Structure](#).

## Resources for Programmers, But Worthy of Note

[DSD – Document Structure Description](#). This demonstrates the move toward, and need of, document structure for repurposing content. Given that next generation word processors such as [Microsoft Office 12 will be XML based](#), document structure will become an integral part of how we create information.

# Table of Figures

End of book!