

METHOD FOR PREPARING A DOCUMENT FOR ELECTRONIC PUBLICATION

Field of the Invention

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The present invention relates to preparing information by an author for communication and presentation on displays of electronic apparatus, and more particularly to preparing the information for presentation using hypertext markup language (HTML), the presentation having a consistent author defined appearance across a variety of electronic apparatus using a variety of Browser applications.

Background of the Invention

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HTML is known, and together with hypertext transfer protocol (HTTP), form basic enablers upon which the Internet operates. HTML has been referred to as the language of the World Wide Web (WWW) on the Internet, and while HTML may sometimes be called a programming language, HTML as the name implies, is a markup language that determines the appearance of pages of a document. Most pages on the WWW are prepared or authored as HTML documents or files. In a HTML document, a variety of HTML tags are used to markup text and non-text information. HTML tags are like display instructions that provide an author with the means to control the layout or formatting of pages of the document, and include clickable hyperlinks, graphical images, Java applets, fill-in forms, and the like. When a HTML document is viewed using an application software, commonly known as a Browser, the Browser interprets or renders the pages of the document to be displayed in accordance with the HTML tags.

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A HTML document can be prepared, or authored, directly using HTML where the author inserts the tags manually. Alternatively, application software known as HTML editors may be used. A HTML

editor provides a user-friendly interface through which an author enters information and layout selections, and the HTML editor generates the HTML document in accordance with the author's inputs. The HTML document is then typically stored on a Server on the Internet, and can
5 be viewed on a display of an Internet enabled computer, using any one of a variety of Browsers. The document is then said to be published. Two popular Browsers that can be used to view the HTML document are Internet Explorer by Microsoft Corporation and Netscape Navigator by Netscape Communications Corporation.

10 It will be appreciated that, in order for a Browser to present or display pages of a HTML document such that the pages appear consistent with the pages as prepared by the author, i.e. WYSIWYG, the HTML that is used by the author and the Browser must interpret, or render the pages of the HTML document in the same way.

15 Unfortunately, it has been found that the appearance of pages of a particular HTML document varies when viewed by different Browsers, and indeed even by different versions of the same type of Browser. Variations in appearance also occur when a particular Browser is used on different platforms, i.e. an IBM PC compatible and an Apple
20 Macintosh, for example. Typically, such variations are more apparent when the pages of a HTML document include text, and the variations appear to be further aggravated when the pages include text arranged in columns. In general, the variations are a result of different arrangements of text and non-text information.

25 Presently, publications on the WWW are common. Many publications that are available in printed form, such as newspapers and magazines, are now also available in electronic form on the WWW. And, as detailed above, such publications typically comprise pages of HTML documents. However, the reading experience between the two media,
30 i.e. electronic and print, is considerably different. As will be appreciated some factors that contribute to the differences are the variations related to HTML, as described earlier. In addition, there are differences which

relate to the way in which information is presented on a viewable page, and the manner in which a reader navigates through the information on a page.

On printed media, a page size is predefined and the
5 information on each page is limited. The reader is presented with a complete page, and is at liberty to preview an entire page. In addition, as in newspapers and magazines, text is arranged in columns, which shortens sentences, making reading easier.

In conventional electronic media, such as on pages of a HTML
10 document published on the WWW, the size of a page is typically not limited. Consequently text flows continuously through a page.

Although, some pages of HTML documents present text arranged in columns, it will be appreciated that due to the variations associated with HTML, which were alluded to earlier, the appearance of pages of a
15 HTML document will vary and is not likely to appear as prepared by the author. This is significantly different from the print media where all copies of a page are identical and true to the author's preparation of the document. This difference adversely affects the reading experience of a page on the electronic media as opposed to a printed page.

20 In addition, with the electronic media, a reader is compelled to use scrolling controls to view a page. Hence, the electronic display may be likened to a small maneuverable window over a large page, and scrolling allows a reader to move the window over the page and view a portion of the page at a time. Again, the reading experience here is
25 different from the more accustomed reading experience of printed media where such a limited view of a printed page is unfamiliar to a reader. This further compounds the difference in the reading experience between the two media.

Hence, what is needed is a method for electronic publication
30 that reduces the variations in the appearance of a document, and preserves at least some of the characteristics of printed publications,

thereby substantially alleviating the difference in reading experience between the electronic and print media.

Brief Summary of the Invention

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The present invention seeks to provide a method for electronic publication which overcomes, or at least reduces the abovementioned problems of the prior art.

Accordingly, in one aspect, the present invention provides a
10 method for preparing a document for electronic publication, the method comprising the steps of:

- a) defining a predetermined display area for displaying the document;
- b) receiving a plurality of displayable items;
- 15 c) for each of the plurality of displayable items,
 - defining at least one corresponding navigable display area on the display, wherein the navigable display area is sized in proportion to the size of the displayable item;
 - placing the displayable item in the at least one
- 20 corresponding navigable display area for display thereon; and
- d) arranging the plurality of navigable display areas on the predetermined display area, thereby arranging the plurality of displayable items on the predetermined display area and producing display instructions; and
- 25 e) providing the plurality of displayable items and the display instructions, wherein the display instructions indicate the arrangement of the plurality of navigable display areas on the predetermined display area.

In another aspect, the present invention provides a method for
30 preparing a document for electronic publication, wherein the document is for display within a predetermined display area on a variety displays, the method comprising the steps of:

- a) receiving non-text information and text information;
- b) receiving layout specifications associated with the non-text information and the text information;
- c) determining a first display area for displaying the non-text information;
- d) determining a second display area for displaying the text information;
- e) determining whether the sum of the first display area and the second display area is less than or equal to the predetermined display area;
- f) preparing the document in accordance with the layout specifications when the sum of the first display area and the second display area is less than or equal to the predetermined display area, thereby producing display instructions; and
- g) providing the display instructions, the text and non-text information, wherein the display instructions indicate the arrangement of the text and non-text information on the predetermined display area.

In yet another aspect, the present invention provides a method for preparing a document for electronic publication within a predetermined display area on a variety displays, the method comprising the steps of:

- a) determining location of columns on the predetermined display area;
- b) determining the number of lines of text within the columns;
- c) positioning non-text information on the predetermined display area;
- d) calculating a first display area for displaying the non-text information;
- e) positioning text information on the predetermined display area, wherein the text information is arranged not to overlap the non-text information;
- f) calculating a second display area for displaying the text information; and

- g) providing the first display area and the second display area.

Brief Description of the Drawings

5 An embodiment of the present invention will now be more fully described, by way of example, with reference to the drawings of which:
FIG. 1 shows a document prepared using the prior art;
FIG. 2 shows a flow chart detailing the preparation of a document in accordance with the present invention; and
10 FIG. 3 shows a flow chart detailing the layout process in FIG. 2;
FIG. 4 shows a flowchart detailing the text positioning process in FIG. 3; and
FIG. 5 shows a document prepared in accordance with the
15 present invention.

Detailed Description of the Drawings

 The present invention, as will be described below,
20 advantageously defines a predetermined display area which is viewable on a display. One page of an electronic document is presented in the predetermined display area at a time, and a user can select the page of the document to be viewed in the display area. Text and non-text information are arranged on each page of the document, and the
25 appearance of the pages of the document is preserved in accordance with the author's preparation of the document. i.e. what the author sees is what the readers gets.

 In order for the benefits of the present invention to be more easily appreciated, FIG. 1 shows a page 5 of a HTML document
30 prepared and presented on a display 10 in the accordance with the prior art. The author has produced a page with three columns of text, however, HTML does not support columns for text. Instead, a commonly

used method was adopted. The method, as will be known to one skilled in the art, uses the HTML <TABLE> markup tag along with <TR>, table row tags, <TD>, table data tags, and various other associated tags. The result is table 12 with three cells or columns 15, 20 and 25, which are filled with corresponding text strings 30, 35 and 40. HTML supports some tags for controlling the layout of each of the text strings 30, 35 and 40 in each of the corresponding columns 15, 20 and 25, but these tags allow an author limited control of the arrangement of the text strings 30, 35 and 40. For example, the ALIGN attribute allows a text string to be aligned to the left, center, or to the right within a column, and the CELL PADDING attribute can be used to control the space around the text within the columns 15, 20 and 25.

Conventional use of HTML, however, does not provide an author with a means for arranging individual characters or words on a page. The author does not determine and cannot control the position or layout of characters and words on a page authored in the conventional way in HTML. Consequently, as will be appreciated by those skilled in the art, the appearance of the page 5, when viewed using different Browsers across different computing platforms, will vary; in some cases dramatically, from the page as prepared by the author, using HTML in the conventional way. Typically variations in appearance occur where there are blank spaces, for example, where a space 42 is left to effect an indent. In some instances, when the document is viewed in a Browser an indent may appear, but even then the width of the indent may vary between Browsers and computing platforms.

Another variation is in the poor right justification 44 of the text within a column. Indeed, characters overlapping adjacent characters has been observed, and when text and multimedia elements, such as pictures and video clips are included on a page, overlapping between text and multimedia elements occurs. The lack of control when using HTML in the conventional way includes the inability to accurately set the space between text within a column and a left border of the column

and the lack of support for hyphenation of words, which uses the available space efficiently.

In FIG. 2, a flow chart for a document preparation process 200 in accordance with the present invention is provided. An author uses the process 200 to produce one or more pages of a document in accordance with the present invention. During the authoring process 200, the author provides various inputs, and these inputs are used to produce the page(s) of a document. The page(s) can be produced as a HTML document for electronic publication. In the present embodiment HTML 4 was used to produce the HTML document and Internet Explorer 5 was used to view the HTML document.

Returning to FIG. 2, the authoring process 200 starts 205 with the author setting 210 a display size by providing a display area specification. This can be accomplished by specifying pixels or conventional measurements in centimeters or inches. Throughout this description, the size of a page of the HTML document when displayed on a computer monitor is set to a preselected display size 800X600 pixels. Several different display sizes of the display area can be selected by the author, or the author can prescribe a unique display size that may suit his particular document. The 800X600 pixels or picture elements, define a predetermined display area in which a page is displayed on the monitor of most computing platform/browser combinations. Alternatively, the display area may be fixed at 800X600 pixels by the process 200, and thus is not then author selectable.

Setting the display area to a fixed size or default display area by a default display specification, either by the author or otherwise, advantageously provides a reference display area within which an author can determine and control the location of both text and non-text information on a page more accurately, as will be described later. In addition, a predefined page size provides a consistent view of pages of a document, which is a similar and desirable characteristic as in print

media. Thus, advantageously alleviating some of the differences in reader experience between the two media.

The author then provides 215 non-text information, text information, and layout specifications. The text and non-text
 5 information are displayable items that the author wants displayed, while the layout specifications indicate how the author wants the text and non-text information arranged. Non-text information includes multimedia elements that are to be included in the document, such as photographs, video clips, audio clips, and the like. The author identifies
 10 the multimedia elements by providing a link pointing to an appropriate file or by simply providing a file name. The layout specifications for the non-text information include the pages and the display locations on those pages where the multimedia element(s) is/are to appear in the document.

15 The author indicates the display location of a multimedia element by specifying the column(s) and line(s) across which the multimedia element is to be displayed on a page. The columns and lines refer to the columns and lines of text which are used like coordinates in locating both text and non-text elements on the page. When locating
 20 text information the column and line numbers provide text location information, and when locating non-text information, the column and line numbers provide non-text location information

It will be appreciated that a multimedia element, as provided, may not be the right size to fit a targeted display location between
 25 columns and lines of text on page. A proportional re-sizing process reduces or enlarges the multimedia element, as provided, to fit the size of the target location on a page of the document. Typically, during proportional resizing, the horizontal dimension of a multimedia element is given a higher priority. This means that when the multimedia element
 30 is being resized, when the width of the resized element matches the width of the target location in the document, and the height of the resized element is equal to or less than the height of the target location,

then the resizing is stopped and the resized element is included for display at the target location on the specified page(s). The display area taken up by multimedia elements must be calculated and noted.

Other layout specifications associated with the multimedia elements can include whether a caption is to be included, and if so, the display location of the caption on a page is provided. For example, there may be options to have the caption displayed on the right, left, top or bottom of the multimedia element. Also, multimedia elements typically require controls which are displayed proximal to the element, and this information must be specified by the author. For a video clip, the controls would include at least start and stop controls. Captions and controls may need to be resized, and the captions and controls will take up part of the display area and such area must be calculated and noted. Captions, controls and any other elements that take up some amount of the display area are treated by the process 200 as non-text information.

The author then identifies a source of the text information that is to be included by identifying a file containing the text or a link to such a file. Typically, the text is taken from the source in the reading sequence i.e. the sequence in which the text is read. In some instances characters are provided from one or more sentences. A text preparation process calculates the portion of the display area or text display area for displaying the text in the text file taking into consideration the author specified font and font size, which are provided with the layout specifications.

In addition, the layout specifications indicate the number of columns that are required on the pages of the document, and this information is used to determine the layout of the pages having the inputted number of columns in the 800X600 display area. The author also indicates the number of pages in a document, theme information indicating a selection of a variety of pre-prepared theme layouts,

background related selections, navigation controls, etc. in the document.

As mentioned earlier, the columns and the lines of text on the page provide a coordinate reference system within which the display locations of all the text and non-text information on a page can be specified and located conveniently. While columns of equal width would be preferred as such an arrangement would more closely resemble columns in printed media; it will be appreciated that columns of unequal width can also be provided. To produce columns of unequal widths the author would need to provide additional information specifying column positions and corresponding column widths. Of course, the coordinate system is preserved even when columns of unequal widths are specified.

After step 215, the layout 220 of the pages of the document is determined by a layout process which involves several distinct steps, and which will be described in more detail later. Broadly, the layout process calculates and produces an indication of the amount of the display area that is required to display the non-text information, and the amount of the display area that is required to display the text information. All calculations relating to the display area are computed in pixels.

A determination 225 is then made, for each page, as to whether the total display area required to display the text and non-text information on that page exceeds the author selected display area. This determination indicates whether the information will fit into the display area. In making this determination, each page is considered separately, as each page of the document will be displayed in the display area.

If the total display area required to display the text and non-text information on a particular page does not exceed the author selected display area, then that particular page can be generated, and if all the pages of the document fit the display area, a document is generated 230 with the text and non-text information and the

associated display instructions for all the pages. HTML 4 can be used to generate the pages of the document. This means that based on the layout process for each page, a HTML page will be generated with the text and non-text information and the necessary HTML tags, or display instructions, to display the page in accordance with the authors layout specifications. The HTML tags perform the function of display instructions, causing the text and non-text information to be displayed in accordance with the display instructions.

However, when the total display area required to display the text and non-text information on a particular page exceeds the author selected display area, then the layout process, mentioned earlier, generates several recommendations for fitting the text and non-text information into the author selected display area. These recommendations will necessarily relate to some reduction or change in presentation of text and/or the non-text information of that particular page. Recommendations can include changing the display size, reducing the size of target location(s) of multimedia element(s), reducing the amount of text, changing the font and/or font size; and even removing whole portions of text or non-text information.

The recommendations are then provided to the author, and based on the author's selection, the author then returns to step 210 repeating the process in steps 210 and 215 and to make one or more of the selected changes. At step 220 the layout process recalculates and produces a new indication of the amount of the display area that is required to display the non-text information, and the amount of the display area that is required to display the text information. With the selected changes the determination at step 225 will now be favorable, and step 230 will proceed to generate the document with the text and non-text information and the display instructions, which incorporates the selected changes for the affected page(s).

In FIG. 3, the layout process 300 starts 305 by determining 310 the location of the columns. Note that on an 800X600 pixel display area, each pixel location can be denoted by coordinates. For example, the co-ordinates of the bottom-left pixel location is (0,0) and that of the top-right pixel location is (800,600). Now, when 4 columns of equal width are specified, a calculation is done to divide the width of the display area i.e. 800 pixels, into 4. The vertical lines that demark the 4 columns are determined by the pixel locations (0,0)-(0,600); (200,0)-(200,600); (400,0)-(400,600); (600,0)-(600,600); and (800,0)-(800,600).

Next, the number of lines of text is determined 315. This is derived from the text related layout specifications like font and font size. Both the font and font size can be preset, along with the display area to reduce the number of specifications that are required from the author. This would result in a more user friendly interface, which, if the font is set to Arial, 12 point, would allow an author to produce a page having 300-400 words and sufficient display area to include one or two multimedia elements.

With the columns and the lines defined on the display area, the non-text information, i.e. the multimedia elements along with associated controls and captions, which where necessary have been resized, can be positioned 320 on the display area. A calculation 325 is then made to determine the display area that would be required to display the non-text information on the display.

The text information is then positioned 330 in accordance with a text positioning or arranging process which will be described in more detail later. A calculation 335 is then made to determine the display area that would be required to display the text information on the display area. As described earlier, the results of the calculations in step 325 and 335 are used to determine whether text and non-text information will fit on a particular page of a document, and the layout process ends 345 after the results of the calculation have been provided 340.

In FIG. 4 the text positioning or arranging process 400 starts 405 by creating 410 a table in the first line in the first column of the first page of the document, and progresses line by line. Then column by column until a page is completed. The process 400 then moves on to the next page. A table is a means of creating smaller, controllable display areas in the display area. A table has cells within it, which provide even smaller display areas within which characters, words, images, and virtually any text or non-text information can be displayed. Tables and cells are navigable display areas on the predetermined display area. HTML supports the creation of tables and cells, and in addition, the positioning of tables and cells can be determined, controlled more accurately. Thus providing a greater degree of control in respect of the positioning of tables and cells on the display area across a variety of computing platforms and browsers, as tables and cells are better defined across HTML Browsers. The present invention, as described, advantageously places text and non-text information in cells, thus providing a means of electronically publishing documents which exhibit substantially less variation between computing platforms and Browsers.

With additional reference to FIG. 5, in step 410, the table is created having the width of the column 500A, where columns 500B and 500C are identical but shown without any text or non-text information. A first word is then obtained 415 from the specified text source, and a first cell 501 is created 420. It will be observed that the first cell 501 is an indent, and the content of the first cell 501 is the number of blank spaces specified for an indent. The first cell 501 is created having a size in accordance with the contents that will be placed there. Consequently, the first cell 501 is created large enough to accommodate the number of blank spaces that are specified, and the blank spaces are placed 425 in the cell 501. As a result of this arrangement, the indent appears more consistently on a page on a variety of Browsers across computing platforms when HTML is used to create the indent using table and cells

in accordance with the present invention. Further, using cells with blanks spaces can be used to provide a margin for the text in a column. Where for example a left margin is desired, a cell having the required number of blanks for the required margin width can be created at the
5 start of every line.

A determination 430 is then made as to whether the word, in this case blank spaces, placed in step 425 is the first word in the line. If it is, then the blank spaces are left justified 435. However, if it is not, then another determination 440 is made as to whether the word placed
10 in step 425 is the last word in the line. If it is not the last word, then the process returns to step 515 of getting the next word, which is "This" and goes on to place "This" in cell 502.

In the same way as described above the next two words "is" and "the" are placed in cells 502 and 503, respectively, adjacent to each
15 other as steps 415 to 440 are repeated. When the next word "first" is the last word in the text line, the last word determination 440 is true, and a further determination 445 is made as to whether the last word "first" can fit into the text line. In this case, it fits, and the process 400 moves on to right justify 450 the word "first" in the cell 505, before the
20 process 400 moves on to the next line 460, and returns to step 410 of creating a table for the next line.

Again, the process from 410-440 are repeated with the words "column", "of" and "this" being placed in cells in the second line 509. Note that the word "column" is now the first word in the second line 509
25 and is left justified in step 435. When the next word "document" is determined 440 to be the last word in the second line 509, a further determination 445 is made as to whether the word "document" will fit into the second line 509. Assuming the word "document" will fit, then the word "document" is placed in cell 507, and right justified 450, and
30 the process 400 moves on to the next line 460. Determination as to whether a word will fit into a line is accomplished by creating cell for

the word and comparing the width of the cell with the available width in a table less any other cells in the table.

However, when it is determined 445 that the word "document" will not fit into the second line 509, then a further determination 465 is made as to whether the word "document" can be hyphenated. Such a determination can be accomplished in a variety of ways, the simplest being to have a look-up table arrangement. If the word "document" cannot be hyphenated, then a new table is created 470 in a new line, and the word "document" provided 475. The process 400 takes the word "document" and jumps to step 420, creating a cell for the word "document" and proceeding as described earlier to step 425 and so on.

When the word "document" can be hyphenated, then the first and second part of the hyphenated word are identified 480 i.e. "doc-" and "ument". For example, this can be obtained from the look-up table mentioned earlier. The first part of the hyphenated word "doc-" is then provided 485 to be right justified 450 and appears in the last cell 507 on the second line 509. With regard to the second part of the hyphenated word "ument", a new table is created 490 in a new line, and the second part of the hyphenated word "ument" is provided 495 to step 420 which creates a cell 508 for the word "ument" and proceeds to step 425 as described earlier.

The text positioning or arranging process 400 continues positioning the text until all the text has been placed in cells. This results in a table in each line in each column, and cells with words in each table. To effect inter-word spacing, two methods can be used. When using HTML, the CELL PADDING attribute can be adjusted for the words in each adjacent cell to space the words in a line to appear even. If the amount of space is larger than say two blank spaces, then an alternative method is to create a cell and place the required number of blank spaces in the cell. An alternative method of arranging the cells in a line could involve an iterative process of adjusting blank spaces between word and even characters in a line to produce a best fit based

on predetermined best fit criteria. Such a criteria can include that no more than 2 blank spaces are to be inserted between words, and that the inter-character space may be varied to accomplish this. To support control of inter-word spaces, the same method placing creating a table
5 can be used but now that table is nested in a cell in a table. Each character of a word can then be placed in cells in the nested table. Indeed with characters arranged in cells, some degree of character manipulation to effect kerning can be realized.

Using these cell spacing arrangements in conjunction with a
10 comprehensive hyphenation process, text in columns can be arranged with good right justification, and even inter-word spacing. Thus, further reducing the differences between the electronic and print media.

The present invention, as described, provides a method for producing a document for electronic publication, which has pages that
15 can be viewed in a variety of Browsers across computing platforms while preserving the appearance of the pages to be as prepared by the author of the document; and which provides a reading experience which more closely resembles that with printed media.

This is accomplished by reducing variations in the appearance
20 of the document by creating cells on a display area, and placing text and non-text information in each cell for display. The cells are created and manipulated in a table arrangement, and the table arrangement can be used to create a page which has a consistent appearance across computing platforms and Browsers. In addition, the pages are created
25 with a predetermined page size, and this together with the consistent appearance of the pages, alleviates the differences in the reading experience between the print and electronic media.

The present invention therefore provides a method for electronic publication which overcomes, or at least reduces the abovementioned
30 problems of the prior art.

It will be appreciated that although only one particular embodiment of the invention has been described in detail, various

modifications and improvements can be made by a person skilled in the art without departing from the scope of the present invention.



Claims

1. A method for preparing a document for electronic publication, the method comprising the steps of:
 - 5 a) defining a predetermined display area for displaying the document;
 - b) receiving a plurality of displayable items;
 - c) for each of the plurality of displayable items,
defining at least one corresponding navigable display area
10 on the display, wherein the navigable display area is sized in proportion to the size of the displayable item;
placing the displayable item in the at least one
corresponding navigable display area for display thereon; and
 - d) arranging the plurality of navigable display areas on the
15 predetermined display area, thereby arranging the plurality of displayable items on the predetermined display area and producing display instructions; and
 - e) providing the plurality of displayable items and the display instructions, wherein the display instructions indicate the arrangement
20 of the plurality of navigable display areas on the predetermined display area.
2. A method in accordance with claim 1, prior to step (a) comprises the
25 step of receiving a display area specification from an author indicating the predetermined display area.
3. A method in accordance with claim 1, wherein step (a) comprises
the step of using a default display area specification indicating the
predetermined display area.
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4. A method in accordance with claim 1 wherein step (b) comprises the
step of receiving a plurality of non-text information; and receiving layout



specifications indicating arrangement of the non-text information on the predetermined display area.

5 5. A method in accordance with claim 1 wherein step (b) comprises the step of receiving a plurality text information in a reading sequence.

6. A method in accordance with claim 1 wherein step (b) comprises the step of receiving characters which form one or more sentences.

10 7. A method in accordance with claim 1 wherein step (c) comprises the steps of creating at least one table display area on the predetermined display area; and displaying at least one of the plurality of displayable items in the at least one table display area.

15 8. A method in accordance with claim 7 wherein step (c) comprises the steps of creating at least one cell display area in the table display area; and displaying at least one of the plurality of displayable items in the at least one cell display area.

20 9. A method for preparing a document for electronic publication, wherein the document is for display within a predetermined display area on a variety displays, the method comprising the steps of:

- a) receiving non-text information and text information;
- b) receiving layout specifications associated with the non-text
- 25 information and the text information;
- c) determining a first display area for displaying the non-text information;
- d) determining a second display area for displaying the text information;
- 30 e) determining whether the sum of the first display area and the second display area is less than or equal to the predetermined display area;



f) preparing the document in accordance with the layout specifications when the sum of the first display area and the second display area is less than or equal to the predetermined display area, thereby producing display instructions; and

5 g) providing the display instructions, the text and non-text information, wherein the display instructions indicate the arrangement of the text and non-text information on the predetermined display area.

10 10. A method in accordance with claim 9 wherein step (c), comprises the step of using the layout specifications to layout the non-text information on the predetermined display area.

15 11. A method in accordance with claim 9 wherein step (d), comprises the step of using the layout specifications to layout the text information on the predetermined display area.

20 12. A method in accordance with claim 9 wherein step (f), comprises the step of arranging the text and non-text information in the predetermined display area according to the layout specifications.

25 13. A method in accordance with claim 9 further comprising the step of generating alternative layout specifications when the sum of the first area and the second area is greater than the predetermined display area.

30 14. A method in accordance with claim 13 wherein generating alternative layout specifications comprises the step of generating alternative layout specifications for the text information and/or the non-text information.



15. A method for preparing a document for electronic publication within a predetermined display area on a variety displays, the method comprising the steps of:

- 5 a) determining location of columns on the predetermined display area;
- b) determining the number of lines of text within the columns;
- c) positioning non-text information on the predetermined display area;
- 10 d) calculating a first display area for displaying the non-text information;
- e) positioning text information on the predetermined display area, wherein the text information is arranged not to overlap the non-text information;
- f) calculating a second display area for displaying the text
- 15 information; and
- g) providing the first display area and the second display area.

16. A method in accordance with claim 15 wherein step (c) comprises the steps of receiving non-text location information for the non-text

20 information in column numbers and text line numbers; and positioning the non-text information in accordance with the non-text location information.

17. A method in accordance with claim 15 wherein step (e) comprises

25 the steps receiving text location information for the text information in column numbers and text line numbers, and positioning the text information in accordance with the text location information.