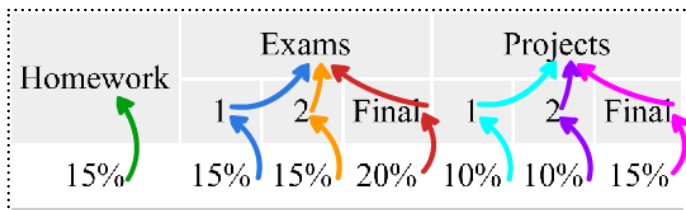# Associating table body cells and table header cells

Antenna House Formatter provides two extension properties that you can use to provide information about the structure of a table: 'axf:headers' and 'axf:scope'. 'axf:header' associates a table body cell with its appropriate table header cell or cells. Conversely, 'axf:scope' provides the association from a table header cell to the cells to which it applies. 'axf:headers' and 'axf:scope' can be used with PDF/UA or Tagged PDF output (PDF 1.5 or later). See 'axf:headers' and 'axf:scope' in the Online Manual for more information.

Associating a table cell with its header cells

The following table uses 'axf:headers' to associate table cells with their header cells. You will not see any effect on the formatted table, but when you generate the PDF, a screen reader will be able to use the 'axf:headers' information.

Homework	Exams			Projects		
	1	2	Final	1	2	Final
15%	15%	15%	20%	10%	10%	15%

The following figure uses arrows to show the 'axf:headers' associations in the table.

For example:

- The green arrow shows that the header for "15%" in the first column is "Homework".
- The blue arrow show that the header for "15%" in the second column is "1" and that the header for "1" is "Exams".

'axf:headers' contains the IDs of one or more header cells associated with the current table cell. Header cells can also have 'axf:headers' to refer to their associated header cells. The header cells associated with a table body cell are the header cells referred to in its 'axf:headers' plus those in the 'axf:headers' of those cells, and so on.

The following figure shows some of the markup for the preceding example:

```
<fo:table text-align="center">
 <fo:table-header background-color="#EEE">
  <fo:table-row border-bottom="thin solid white">
   <fo:table-cell number-rows-spanned="2" id="h">
     <fo:block>Homework</fo:block>
   </fo:table-cell>
   <fo:table-cell number-columns-spanned="3" id="e">
     <fo:block>Exams</fo:block>
   </fo:table-cell>
   <fo:table-cell number-columns-spanned="3" id="p">
     <fo:block>Projects</fo:block>
   </fo:table-cell>
  </fo:table-row>
  <fo:table-row>
   <fo:table-cell id="e1" axf:headers="e">
     <fo:block>1</fo:block>
   </fo:table-cell>
   ...
  </fo:table-row>
 </fo:table-header>
 <fo:table-body>
  <fo:table-row border-bottom="thin solid #CCC">
   <fo:table-cell axf:headers="h">
     <fo:block>15%</fo:block>
   </fo:table-cell>
   <fo:table-cell axf:headers="e1">
     <fo:block>15%</fo:block>
   </fo:table-cell>
   ...
  </fo:table-row>
 </fo:table-body>
</fo:table>
```

- The green arrow shows that axf:headers="h" on the <fo:table-cell> for "15%" in the first column refers to the ID of the <fo:table-cell> for "Homework".
- The blue arrows show that axf:headers="e1" on the <fo:table-cell> for "15%" in the second column refers to the ID of the <fo:table-cell> for "1" and that axf:headers="e" on that <fo:table-cell> refers to the ID of the <fo:table-cell> for "Exams".

Associating a header cell with its table cells

The following table uses 'axf:scope' to associate table header cells with the table cells to which they apply. You also won't see any effect on the formatted table, but when you generate PDF/UA, a screen reader will be able to use the 'axf:scope' information. Note that the only table header cells defined in XSL-FO are the <fo:table-cell> within the <fo:table-header>. This table uses axf:pdftag="TH" on some of the table body cells so that they are treated as table header cells in Tagged PDF and PDF/UA output.

Name		Mark	Peter	Cindy
Points	Expected	10,000	9,000	10,000
	Actual	11,123.45	11,012.34	10,987.64

The following figure uses shading to show the scope of the table header cells.

Name		Mark	Peter	Cindy
Points	Expected	10,000	9,000	10,000
	Actual	11,123.45	11,012.34	10,987.64

- "Name" is the header for the other cells in the same row. This is shown by the green background.
- "Expected" is the header for the other cells on its right in the same row. This is shown by the orange background.
- "Actual" is the header for the other cells on its right in the same row. This is shown by the pink background.

- "Points" is the header for "Expected" and "Actual" and, therefore, also for the cells for which they are the header. This is shown by the blue background.

'axf:scope' indicates whether the current header cell applies to other table cells in the same row, the same column, or both the same column and row. The following figure uses shading to show how 'axf:scope' indicates the scope of the table header cells.

```
<fo:table>
 <fo:table-header>
  <fo:table-row>
   <fo:table-cell axf:scope="row" number-columns-spanned="2"><fo:block>Name</fo:block></fo:table-cell>
   <fo:table-cell><fo:block>Mark</fo:block></fo:table-cell>
   <fo:table-cell><fo:block>Peter</fo:block></fo:table-cell>
   <fo:table-cell><fo:block>Cindy</fo:block></fo:table-cell>
  </fo:table-row>
 </fo:table-header>
 <fo:table-body>
  <fo:table-row>
   <fo:table-cell axf:pdftag="TH" number-rows-spanned="2" axf:scope="rowgroup"><fo:block>Points</fo:block></fo:table-cell>
   <fo:table-cell axf:pdftag="TH" axf:scope="row"><fo:block>Expected</fo:block></fo:table-cell>
   <fo:table-cell><fo:block>10,000</fo:block></fo:table-cell>
   <fo:table-cell><fo:block>9,000</fo:block></fo:table-cell>
   <fo:table-cell><fo:block>10,000</fo:block></fo:table-cell>
  </fo:table-row>
  <fo:table-row>
   <fo:table-cell axf:pdftag="TH" axf:scope="row"><fo:block>Actual</fo:block></fo:table-cell>
   <fo:table-cell><fo:block>11,123.45</fo:block></fo:table-cell>
   <fo:table-cell><fo:block>11,012.34</fo:block></fo:table-cell>
   <fo:table-cell><fo:block>10,987.64</fo:block></fo:table-cell>
  </fo:table-row>
 </fo:table-body>
</fo:table>
```

- The green, orange and pink backgrounds show how to use 'axf:scope' to associate a header with the cells in the following columns in the same row.
- The blue background shows how to use axf:scope="rowgroup" to associate "Points" with the cells in the following columns of all of the rows that it spans.

If you have the option, it can be preferable to rearrange a table so that the structure is obvious without needing 'axf:scope'. The following table has the same information as the preceding table but with the header cells at the top of the column or columns to which they apply:

Name	Points	
	Expected	Actual
Mark	10,000	11,123.45
Peter	9,000	11,012.34
Cindy	10,000	10,987.64