

Keep and break conditions apply to a class of areas, which are typically page-reference-areas, column-areas, and line-areas. The appropriate class for a given condition is referred to as a context and an area in this class is a context-area. As defined in Section 6.4.1, page-reference-areas are areas generated by an fo:page-sequence using the specifications in a fo:page-master, and column-areas are normal-flow-reference-areas generated from a region-body, or region-reference-areas generated from other types of region-master.

A keep or break condition is an open statement about a formatting object and the tree relationships of the areas it generates with the relevant context-areas. These tree relationships are defined mainly in terms of leading or trailing areas. If A is a descendant of P, then A is defined to be leading in P if A has no preceding sibling which is a normal area, nor does any of its ancestor areas up to but not including P. Similarly, A is defined to be trailing in P if A has no following sibling which is a normal

area, nor does any of its ancestor areas up to but not including P. For any given formatting object, the next formatting object in the flow is the first formatting object following (in the pre-order traversal order) which generates and returns normal areas.

Break conditions are either break-before or break-after conditions. A break-before condition is satisfied if the first area generated and returned by the formatting object is leading within a context-area. A break-after condition depends on the next formatting object in the flow; it is satisfied if either there is no such next formatting object, or if the first normal area generated and returned by that formatting object is leading in a context-area.

This is a block with a *break-before="column"* break condition. This condition is satisfied if the first normal area generated by this FO is leading in a column context.

Break conditions are imposed by the break-before and break-before properties. A refined value of page for these traits imposes a break condition with a context consisting of the page-reference-areas; a value of even-page or odd-page imposes a break condition with a context of even-numbered page-reference-areas or odd-numbered page reference-areas, respectively; a value of column imposes a break condition with a context of column-areas. A value of auto in a break-before or break-before trait imposes no break condition.

Keep conditions are either keep-with-previous, keep-with-next, or keep-together conditions. A keep-with-previous condition on an object is satisfied if the first area generated and returned by the formatting object is not leading within a context-area, or if there are no preceding areas in a post-order traversal of the area tree. A

keep-with-next condition is satisfied if the last area generated and returned by the formatting object is not trailing within a context-area, or if there are no following areas in a pre-order traversal of the area tree. A keep-together condition is satisfied if all areas generated and returned by the formatting object are descendants of a single context-area.

This is a block with a *break-before="column"* break condition. This condition is satisfied if the first normal area generated by this FO is leading in a column context.

Keep conditions are imposed by the "within-page", "within-column", and "within-line" components of the "keep-with-previous", "keep-with-next", and "keep-together" properties. The refined value of each component specifies the strength of the keep condition imposed, with higher numbers being stronger than lower numbers and the value always being stronger than all numeric values. A component with value auto does not impose a keep condition. A "within-page" component imposes a keep-condition with context consisting of the page-reference-areas; "within-column", with context consisting of the column-areas; and "within-line" with context consisting of the line-areas.

The area tree is constrained to satisfy all break conditions imposed. Each keep condition must also be satisfied, except when this would cause a break

condition or a stronger keep condition to fail to be satisfied. If not all of a set of keep conditions of equal strength can be satisfied, then some maximal satisfiable subset of conditions of that strength must be satisfied (together with all break conditions and maximal subsets of stronger keep conditions, if any).

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A keep or break condition is an open statement about a formatting object and the tree relationships of the areas it

generates with the relevant context-areas. These tree relationships are defined mainly in terms of leading or trailing areas. If A is a descendant of P, then A is defined to be leading in P if A has no preceding sibling which is a normal area, nor does any of its ancestor areas up to but not including P. Similarly, A is defined to be trailing in P if A has no following sibling which is a normal area, nor does any of its ancestor areas up to but not including P. For any given formatting object, the next formatting object in the flow is the first formatting object following (in the pre-order traversal order) which generates and returns normal areas.

This is a block with a *break-after="column"* break condition. This condition is satisfied if there is no next formatting object, **or** the first normal area generated by the next FO is leading in a column context.

Break conditions are either break-before or break-after conditions. A break-after condition is satisfied if the first area generated and returned by the formatting object is leading within a context-area. A break-before condition depends on the next formatting object in the flow; it is satisfied if either there is no such next formatting object, or if the first normal area generated and returned by that formatting object is leading in a context-area.

Break conditions are imposed by the break-before and break-after properties. A refined value of page for these traits imposes a break condition with a context consisting of the page-reference-areas; a value of even-page or odd-page imposes a break condition with a context of even-numbered page-reference-areas or odd-numbered page reference-areas, respectively; a value of column imposes a break condition with a context of column-areas. A value of auto in a break-before or break-after trait imposes no break condition.

Keep conditions are either keep-with-previous, keep-with-next, or keep-together conditions. A keep-with-previous condition on an object is satisfied if the first area generated and returned by the formatting object is not leading within a context-area, or if there are no preceding areas in a post-order traversal of the area tree. A keep-with-next condition is satisfied if the last area generated and returned by the formatting object is not trailing within a context-area, or if there are no following areas in a pre-order traversal of the area tree. A keep-together condition is satisfied if all areas generated and returned by the formatting object are descendants of a single context-area.

Keep conditions are imposed by the "within-page", "within-column", and "within-line" components of the "keep-with-previous", "keep-with-next", and "keep-together" properties. The refined value of each component specifies the strength of the keep condition imposed, with higher numbers being stronger than lower numbers and the value

always being stronger than all numeric values. A component with value auto does not impose a keep condition. A "within-page" component imposes a keep-condition with context consisting of the page-reference-areas; "within-column", with context consisting of the column-areas; and "within-line" with context consisting of the line-areas.

This is a block with a *break-after="column"* break condition. This condition is satisfied if there is no next formatting object, **or** the first normal area generated by the next FO is leading in a column context.

The area tree is constrained to satisfy all break conditions imposed. Each keep condition must also be satisfied, except when this would cause a break condition or a stronger keep condition to fail to be satisfied. If not all of a set of keep conditions of equal strength can be satisfied, then some maximal satisfiable subset of conditions of that strength must be satisfied (together with all break conditions and maximal subsets of stronger keep conditions, if any).