

# Multi-page floating tables in Writer

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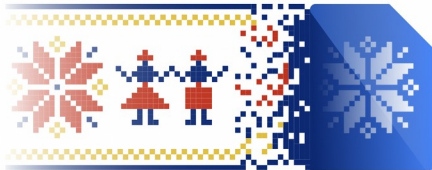
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Collabora  
Online



LibreOffice Conference  
Bucharest 2023





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# About Miklos

- From Hungary
- More details:
  - <https://www.collaboraoffice.com/about-us/>
- Google Summer of Code 2010 / 2011
  - Rewrite of the Writer RTF import/export
- Then a full-time LibreOffice developer for SUSE
- Now a contractor at Collabora



# Results so far



# Motivation

He heard quiet steps behind him. ¶	That didn't bode well. ¶	Who could be following him this late at night and in this deadbeat part of town? ¶	
And at this particular moment, just after he pulled off the big time and was making off with the greenbacks. ¶	Was there another crook who'd had the same idea, and was now watching him and waiting for a chance to grab the fruit of his labor? ¶	Or did the steps behind him mean that one of many law officers in town was on to	

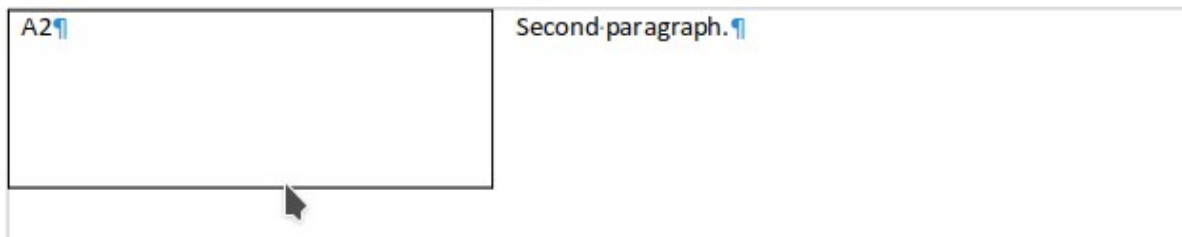
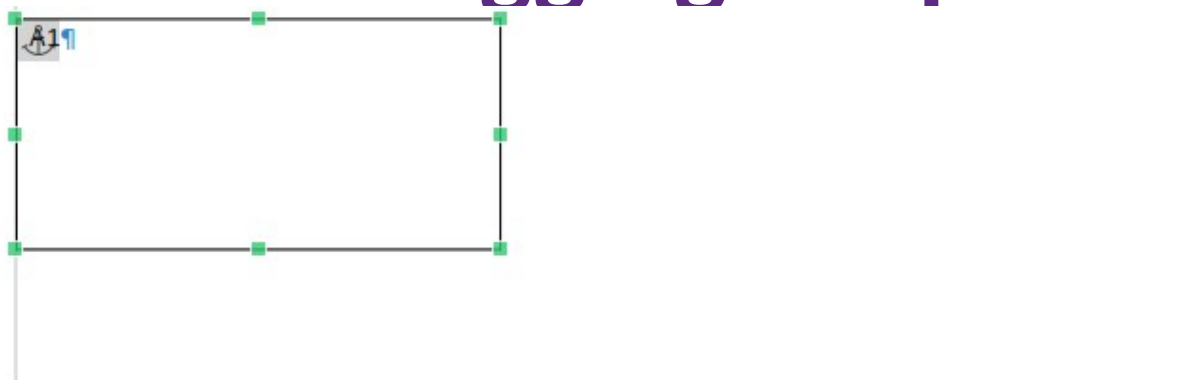
		him and just waiting to pounce and snap those? ¶	He tried to nervously tap his way along in the inky darkness
He nervously looked all around. ¶	Suddenly he saw the alley. ¶	Like lightning he darted off to the left. ¶	

and suddenly stiffened: it was a dead-end, he would have to go back the way he had come. The steps got louder and louder, he saw the black outline of a figure coming around the corner. Is this the end of the line? he thought pressing himself back against the wall trying to make himself invisible in the dark,



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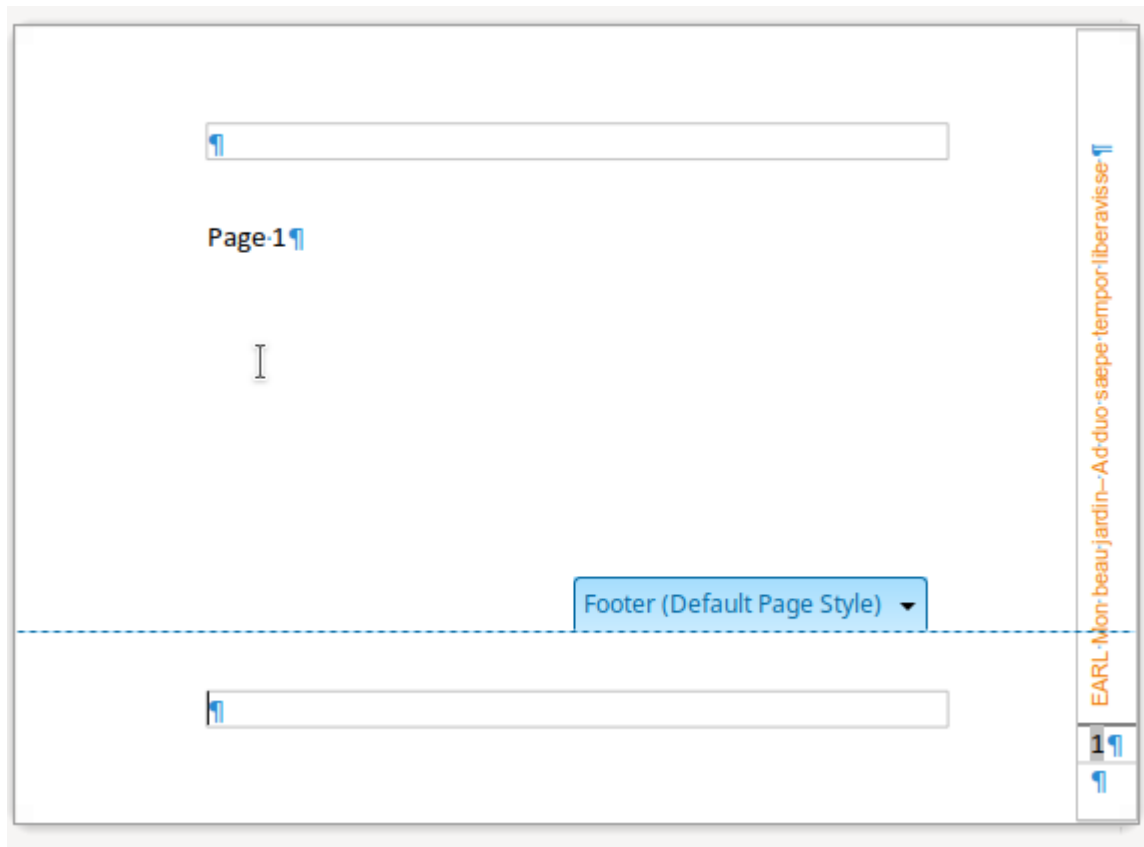
# Selection & dragging of split tables





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# In-footer floating table





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# Floating table in a section

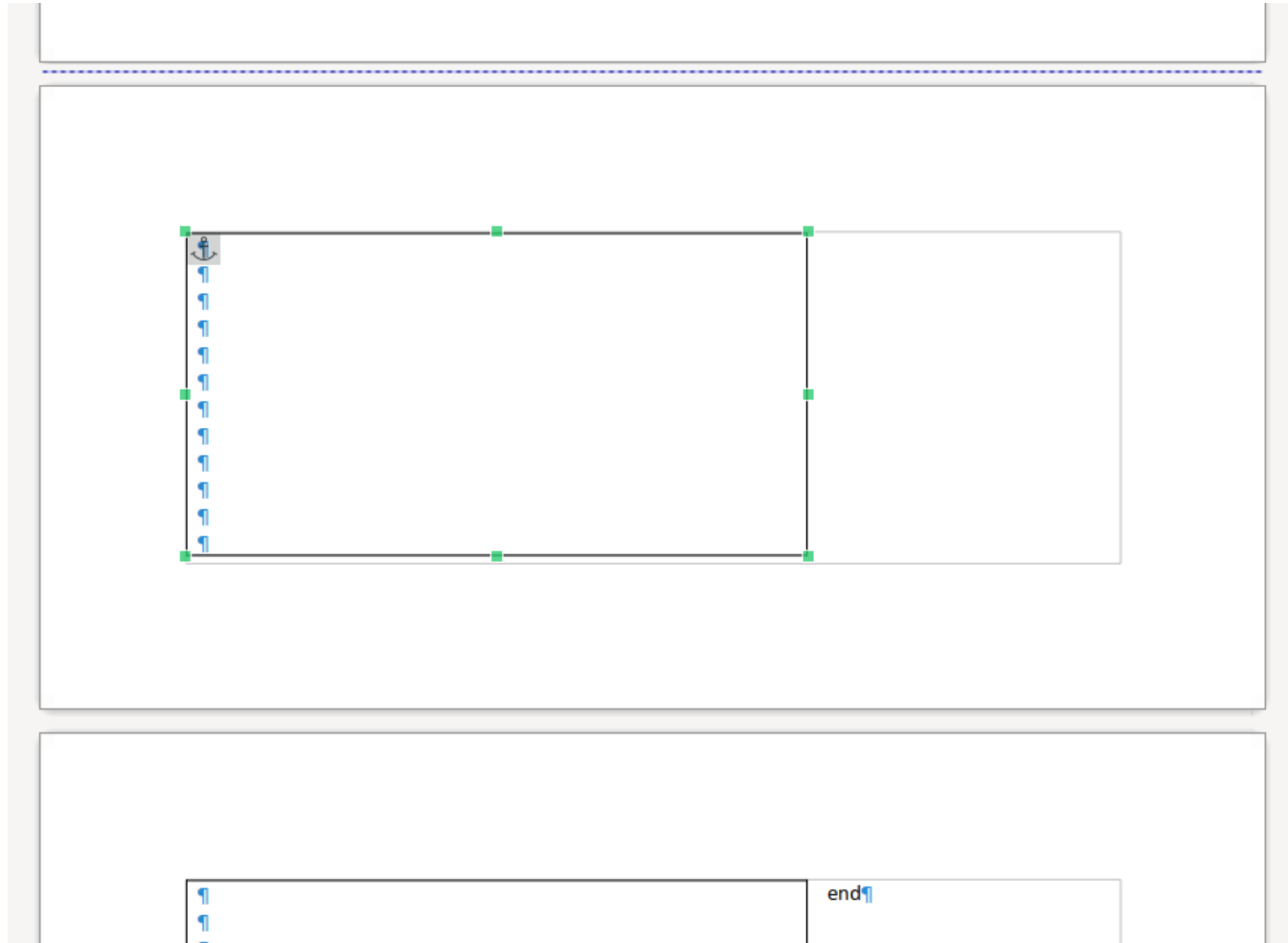
Start
A1

A2	End
----	-----



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# Page break before a floating table







# Table inside a multi-column section

Weapon	Range	Cost	Damage	Other
Power knife	N/a	10	STR-1	Energy damage
Power rapier	N/a	40	STR	Energy damage
Power longsword	N/a	90	STR+1	Energy damage
Power doublesword	N/a	150	STR+1	Energy damage/counts as two weapons, no off-hand penalties
Energy Whip	N/a	150	STR	Energy weapon/concealable
Claw sheaths	N/a	25	STR+1	Tosk only
Shurikan pistol	30m	20	3	Extra success count as extra hits
Shurikan rifle	120m	100	5	Extra success count as extra hits
Laser pistol	25m	10	3	Affected by EMP
Laser rifle	100m	80	5	Affected by EMP
EMP pistol	30m	150	4	EMP field for 1 min
EMP rifle	120m	600	7	EMP field for 5min
Pulse pistol	50m	200	4	Energy damage
Pulse rifle	200m	500	6	Energy damage
Monofilament gun	15m	1000	8	Highly illegal

Legality note: it is considered illegal on most Empire and Alliance worlds/stations to carry (but not own) a rifle or any melee weapon larger than a longsword. Pulse and EMP weapons are theoretically illegal but the Alliance does not strictly rein force this... the Empire does. Monofilament gun will earn you a prison sentence wherever you are should you be caught with one.

#### Armour add-ons

*Guns*- any type of pistol may be installed into one of the forearm slots however all attacks made are at -1 dice to hit. (cost: 50% of weapon's cost to install)

*Phase shield*: takes up a torso slot, see phase armour for details. (cost: 2500)

*Force shield*: adds on extra soak, works against energy weapons. (cost: 6000 per extra soak)

*Targeting system*: forearm slot, helps with weapon targeting, all shot difficulties at -2 to a minimum of 6. (cost: 400)

*Infra-red scanner*: head slot, allows infra-red vision. (cost: 40)



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# UI to disable split of a floating table

The screenshot shows the LibreOffice Writer interface with a floating table. The table has a title "1. → Tabel" and a section header "Deel VI : Technisch ged". The table content consists of several rows of Lorem Ipsum text. The "Frame" properties dialog is open, showing the following settings:

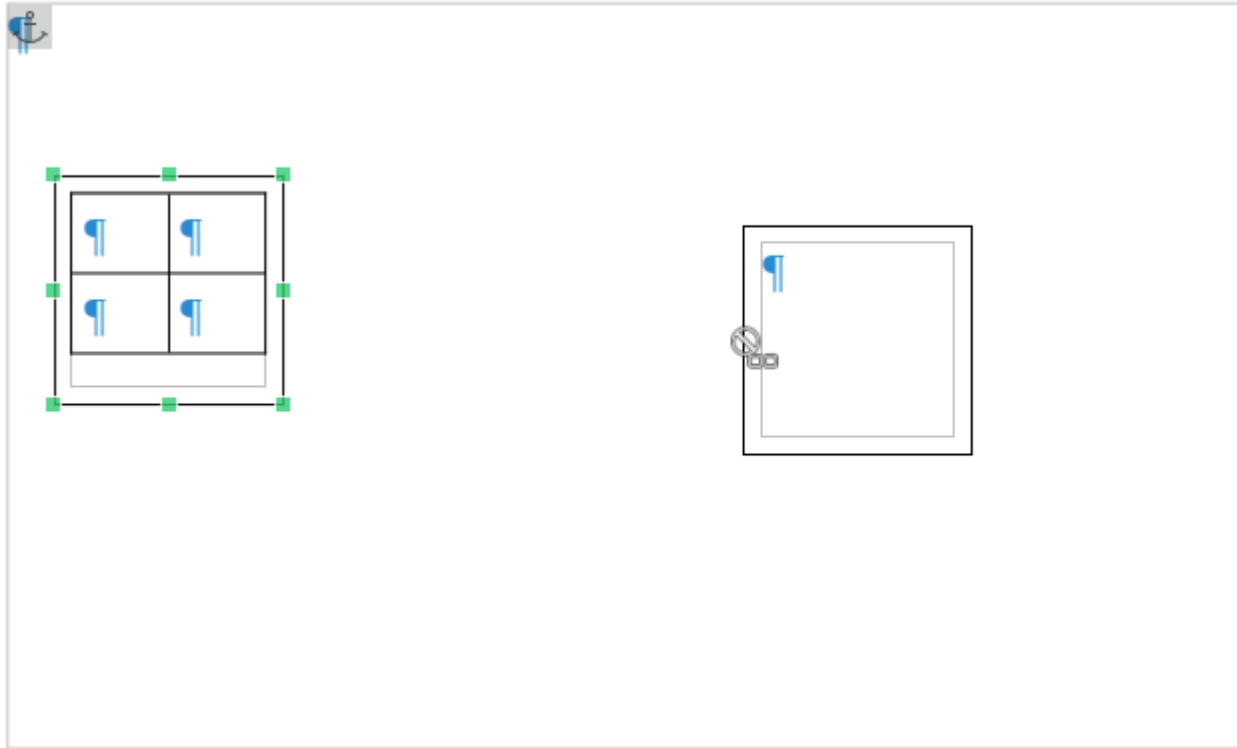
- Size:** Width: 17.44 cm, Height (at least): 0.04 cm. Relative to: Entire paragraph area. AutoSize: checked. Keep ratio: unchecked.
- Anchor:** To paragraph (selected). To page, To character, and As character are unselected.
- Position:** Horizontal: From left by -0.20 cm to Page text area. Vertical: From top by 5.80 cm to Entire page. Mirror on even pages: unchecked. Keep inside text boundaries: unchecked. Allow frame to split across pages: checked.

The status bar at the bottom shows "Page 1 of 5", "1,318 words, 8,509 characters", and "Default Page Style".



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# Chaining enabled, so no split frames





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# Disabling split of flys at a layout level

The screenshot shows a LibreOffice Writer window with a table selected. A 'Frame' dialog box is open, showing the 'Position and Size' tab. The dialog has the following settings:

- Size**
  - Width: 6.75 cm
  - Relative to: Entire paragraph area
  - AutoSize
  - Height (at least): 0.04 cm
  - Relative to: Entire paragraph area
  - AutoSize
  - Keep ratio
- Position**
  - Horizontal: From left by 0.03 cm
  - Mirror on even pages
  - Vertical: From top by 0.02 cm
  - Keep inside text boundaries
  - Allow frame to split across pages



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# Section break directly between tables

The image displays two side-by-side screenshots of a spreadsheet application. The left screenshot shows a table with four columns and 20 rows. The first row contains the text 'AAAAA'. The second row contains 'BBBBB CCCCC'. The third row contains 'BBBBB CCCCC' with a small blue icon to its right. The fourth row contains 'DDDDD'. The fifth row contains 'eeeeee'. The remaining 15 rows are empty. The right screenshot shows a table with four columns and 15 rows, all of which are empty. A dashed blue line is visible above the table in the right screenshot, indicating a section break.



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# Nested tables: the split outer only

Diagram illustrating a nested table structure. The outer table is split into two columns. The left column contains a large image of a purple diamond with a white arrow pointing right. The right column contains an inner floating table with the text "Inner floating table.".

Diagram illustrating a nested table structure. The outer table is split into two columns. The left column contains a large image of a purple diamond with a white arrow pointing right. The right column contains an inner floating table with the text "Inner floating table.".



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# Negative vertical offsets

The diagram illustrates the concept of negative vertical offsets for tables in a document. It shows three tables stacked vertically, each with a caption below it. The caption for the second table is positioned below the first table, and the caption for the third table is positioned below the second table. This demonstrates how negative vertical offsets are used to position captions relative to the tables they describe.

Table 1

after Table 1

Table 2

after Table 2, first

Table 3

after Table 2, second

after Table 3



# Anhcor text starts with a newline

	<p>xxxxxx · xx · xxxxxxxx · xxx · xxxxxx · xx · xxxxxxxxxx · xxxx · xxx  xxxxxxx xxxxxxxxxxxx xx xxx xx xxx xx ¶</p> <p>Page 6: xxxxxxxx). Xxxxxx xxx Xx Xxxx Xxxxxx, xxxxxxxx xxx  Xxxxxx · xxx · xxxxxx · xx · xxxxxx · xxxxxxxx · xx · xxx · Xxxxxx'x  xxxxxx xxxx xxxx · xxx · xxxxxx · xxxx xxxxx xxxxxxxxxxxx xxx xx xxxx  xx · xxxxxxxxxx xxxxxx · xxxxxxxxxxxx xxx xxxxx xxxxx. ¶</p> <p>¶</p>
<p>Xxxxxxxx Xxx;  XXXXXXXXXXXXX:¶</p>	<p>Xxxx · Xxxx · Xxxxx · (xx · xxxx · xx · xxx · xxxxxxxxxxxx · xxxxxxxxxxxx)  xxxx xx xxxxxxxx xx xxx xxxx xx xxx Xxxxxx xxx xxx xxxxxxx  xxxxxxxx xx xxxxxxxxxxxx xxxxxxxxxxxx xxxxx xx xxxxxxxxxxxx xx xxx  xxxx xx xxxxxxxxxxxx xxxxxxxxxxxxxx xx xxx xxxxxx xx XXXXXX,  Xxxxxx.¶</p> <p>¶</p>
<p>¶</p>	<p>¶</p>

Xx xxxxxxxxxxxxxx xx xxx xxx xxxxxxxx xxxxxx xxx xx xx xxxxxx xx xxx Xxxxxxxx  
xxx · xxxxxx · xx · xxx · xxxxxxxx, · xxx · "XXXXXXXXXXXXX", · "XXXXXXXX · Xxx;  
XXXXXXXXXXXXX" · xxx · "Xx Xxxx" · xxxxxxxxxx xx xxx · Xxxx · Xxxx · xxxx · xx · xxxxxx  
xxxxxxxxxxx · xx · xxx · Xxxxxx · xxx · xxx · Xxxxxxxx · xxxxxx · xx · xxx · xxx · xxxxxxxx · xx  
xxxxxxxxxxx · Xxxx · xxx · xx · xxx · xx · xxxxxx · xxxxxxxx · "XXXXXXXXXXXXX",  
"XXXXXXXX · Xxx; · XXXXXXXXXXXX" · xxx · "Xx Xxxx", · xxxxx · xxxxxxxx · xxxxxxxx · xxxxxx  
xxxxxxxxxxx · xx · xxx · Xxxxxx · xxx · xxx · Xxxxxxxx, · xxx · xxxxx · xxxxxxxx · xx · xxx · Xxxx  
Xxxx · xx · xxx · xxxxxxxx · x · xxxxxx · xxxxxxxx · xx · xxx · xxx · xx · xxxxx · xxx · Xxxxxx, · xxx  
XXXXXXXX · / · XXXXXXXX · XXXXXXXX · Xxx · Xxxx · XXXXXXXX } | x · xxx · Xxxxxxxx · ¶





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# Hidden anchors





# No overlap setting on floating tables

The image consists of three panels illustrating the 'No overlap' setting for floating tables. Each panel shows a document with two overlapping tables: 'Table1' and 'Table2'. The text 'After table1' is positioned to the right of 'Table1', and 'After table2' is positioned to the right of 'Table2'. The tables overlap, with 'Table1' partially covering 'Table2'. A cursor 'I' is present in the overlapping area in the first two panels, and a mouse cursor is present in the third panel.



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# Border rendering problems

The image displays three sequential screenshots of a document editor showing a floating table with a green border. The table contains the following content:

1	One
	Eins
	¶
	¶
	¶
2	Two
	Zwei
3	Three
	Drei
4	Four
	Vier
5	Five
	Fünf
6	Six
	Sechs
7	Seven
	Sieben

The second screenshot shows a cursor positioned to the right of the table. The third screenshot shows a mouse cursor hovering over the table, with a small red square appearing in the top right corner of the table's bounding box.



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# Footnote support

The image displays three sequential screenshots of a financial report document in LibreOffice Writer, demonstrating footnote support. Each screenshot shows a table with a footnote reference [1] and a corresponding footnote at the bottom of the page.

**First Screenshot:** Shows a table with a footnote reference [1] and a corresponding footnote at the bottom. The footnote is enclosed in a red box. The table has columns for 'Non affecté' and 'Affecté'.

**Second Screenshot:** Shows a table with a footnote reference [1] and a corresponding footnote at the bottom. The footnote is enclosed in a red box. The table has columns for 'Non affecté' and 'Affecté'.

**Third Screenshot:** Shows a table with a footnote reference [1] and a corresponding footnote at the bottom. The footnote is enclosed in a red box. The table has columns for 'Non affecté' and 'Affecté'.

**How is this implemented?**



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# Document model

## SwFlyFrameFormat

- Stored in SwDoc::mpSpzFrameFormatTable
- Has an SfxItemSet
- New pool item subclass: SwFormatFlySplit
- Look it up using RES\_FLY\_SPLIT



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# UNO API

## SwXTextFrame

- SwXTextDocument has a `getTextFrames()`
- The text frame supports `XPropertySet`
- A new `IsSplitAllowed` property there
- So a floating table is a fly frame that's allowed to split
  - And only contains exactly one inner table



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# Layout representation

3	He heard quiet steps behind him.¶	That didn't bode well.¶	5	Who could be following him this late at night and in this deadbeat part of town?¶	1
2					
And at this particular moment, just after he pulled off the big time and was making off with the greenbacks.¶         Was there another crook who'd had the same idea, and was now watching him and waiting for a chance to grab the fruit of his labor?¶         Or did the steps behind him mean that one of many law officers in town was on to					

3		Suddenly he saw the alley.¶	him and just waiting to pounce and snap those?¶ Like lightning he darted off to the left.¶	He tried to nervously tap his way along in the inky darkness
and suddenly stiffened: it was a dead-end, he would have to go back the way he had come. The steps got louder and louder, he saw the black outline of a figure coming around the corner. Is this the end of the line? he thought pressing himself back against the wall trying to make himself invisible in the dark.				

- 1 At-paragraph anchored text frame
- 2 Frame height is automatic
- 3 Top left of anchor frames
- 4 Content flows around the frame on the last page
- 5 Vertical offset is only rendered on the first page







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# Filters

## ODF + the Word formats

- ODT import + export: `<draw:frame loext:may-break-between-pages="true">`
- DOCX: `<w:tblpPr>`
- DOC: `sprmTPc`, and 6 others for positioning
- RTF: very similar to DOC, just not binary
- Separate markup for doc-level “no split” and frame-level “don’t overlap”



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# Testing

## Various testing types

- Load a Word document, assert layout result from cppunit
- Build an SwDoc from C++ code, assert the layout result
- UITest for the UI part
- Crashtesting
- Watching the sanitizers tinderbox



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# UI

Position and Size   Options   Wrap   Hyperlink   Borders   Area   Transparency   Columns   Macro

**Size**

Width  - +

Relative to  ▾

AutoSize

Height (at least)  - +

Relative to  ▾

AutoSize

Keep ratio

**Anchor**


To page

To paragraph

To character

As character

**Preview**



**Position**

Horizontal  ▾ by  - + to  ▾

Mirror on even pages

Vertical  ▾ by  - + to  ▾

Keep inside text boundaries

Allow frame to split across pages

Help   Reset   Cancel   OK



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# Specification

## Just an optional new boolean attribute

- Where to put it? Frame? Frame style?
- Should it be a property of the inner text box?
- Settled down on frame-as-direct-format, similar to ZOrder
- No-overlap for frames: reuse markup from shapes
- “Don’t split” per-document setting → settings.xml



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# Summary

**Originally requested in 2013, multi-page floating tables are coming to Writer**

- COOL 23.05 / LibreOffice (perhaps) 7.6
- Status: 50%+ done, but you can already try it out
- How it interacts with headers/footers, orphan/widow control, minimal row height, compatibility modes, change tracking, etc. – is complex, but we're working on it
- Defaulting to the way today's Word ( $\geq$  2013) does it, but also have a legacy mode for older documents