

# Footnotes in multi-column sections

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FOSDEM

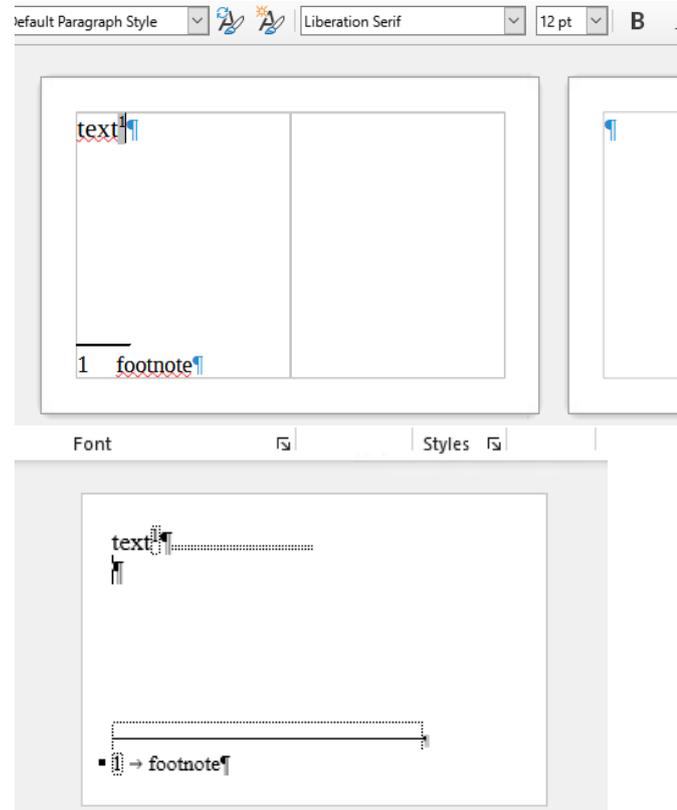




# The original bug

Seemed to be simple:

- 1 Line text
  - Continuous section break
  - 1 Footnote
  - 2 Columns
- 
- 2 page at writer
- 1 page at word



Maybe the continuous section break changed to page break?  
Why footnote, and columns are needed?



# Debugging the layout calculation

Found why the section Frame is maximized:

```
/// A follow or a ftncontainer at the end of the page causes a maximal Size of the sectionframe.
bool SwSectionFrame::ToMaximize( bool bCheckFollow ) const
{
    if( HasFollow() ) { ... }
    if( IsFootnoteAtEnd() )
        return false;
    const SwFootnoteContFrame* pCont = ContainsFootnoteCont();
    if( !IsEndnAtEnd() )
        return nullptr != pCont;
}
```

- IsFootnoteAtEnd() == false    on GUI: "Collect at end of text"
- IsEndnAtEnd() == false        "Collect at end of section" for endnotes
- ContainsFootnoteCont()        get SwFootnoteContFrame from the section  
check only if the section have a SwColumnFrame that have a  
SwFootnoteContFrame



## But Why?!

- Seems like it is Planned. (not just a random bug)  
even mentioned in comment
- Git → nobody changed it  
originates from initial import at 18-Sep-2000
- Why so many condition? Footnote,column,not Collected at End



# Frames related to footnote

SwFootnoteFrame:

1 footnote entity (can contain SwTextFrame)

SwFootnoteContFrame:

list of footnotes (can contain an array of SwFootnoteFrame)

SwPageFrame, and SwColumnFrame:

can contain a SwBodyFrame, and a SwFootnoteContFrame

SwFootnoteContFrame does not support columns

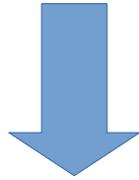
BUT we can put SwFootnoteContFrame in every SwColumnFrame that is why writer seems to support multi column footnotes, but it has limitations.

Note: all footnotes in a column was created in SwColumnFrame.



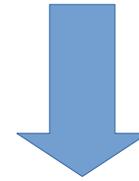
# The Limitation

We want footnote to look like multi-column

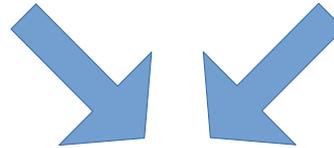


Footnotes at the column end

We want footnote at page end  
"Collect at end of text" not checked



Footnotes at the page end



column end == page end

that is why columns (section) maximized to page size



# Contradiction without the Limitation

Lorem ipsum consectetur<sup>2</sup>  
dolor<sup>1</sup> sit amet adipiscing elit  
1 footnote1 2 footnote2  
sed do incididunt<sup>4</sup> magna  
eiusmod ut labore et aliqua<sup>5</sup>  
tempor<sup>3</sup> dolore  
3 footn1 4 foot2 5 foot3

How many columns of footnotes we would want at page end?  
2? 3? 1?

Note: With "Collect at end of text" checked, we can put footnotes even at the middle of a page, between 2 sections.



# What we would need

SwFootnoteContFrame should be able to have column children.

Users should be able to choose how many footnote columns they want at page end, independently from text columns at the page, as in MS Word.

But keep the ability be to have footnotes in the middle of the page (MS Word not able to do that)

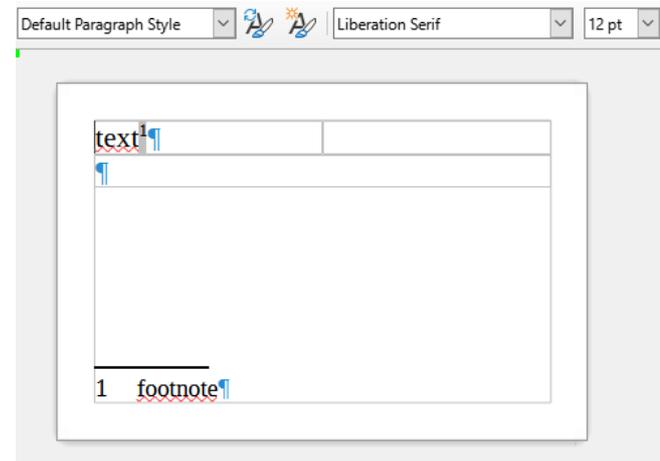
This would be a lot of work, there is a lot of code that directly use SwFootnoteFrame from outside. For example to exchange footnotes between neighbour columns.



# What I could do

Give a chance to put SwFootnoteContFrame into SwPageFrame even if its footnote is in a column.

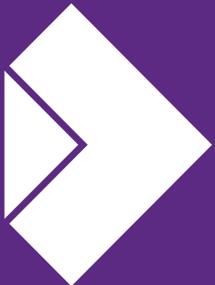
At page end, we can have only 1 column of footnotes, so I had to limit its usage



```
// tdf139336: put the footnotes into the page frame (instead of a column frame)
// to avoid maximizing the section to the full page... if:
// - it is in a section
// - collect footnotes at section end (FootnoteAtEnd) is not set
// - columns are evenly distributed (=balanced) is not set
// Note 1: at page end, the footnotes have no multi-column-capability,
//         so this fix is used only where there is better chance to help
// Note 2: If balanced is not set, there is a higher chance that the 1. column will reach
//         the end of the page... if that happens the section will be maximized anyway.
// Note 3: The user will be able to easily choose the old layout (with multi-column footnotes)
//         with this setting.
//         similar case can be reached with a page break + FootnoteAtEnd setting
```



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**Thank you!**

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