# Avoiding regressions by hunting in QA unit tests
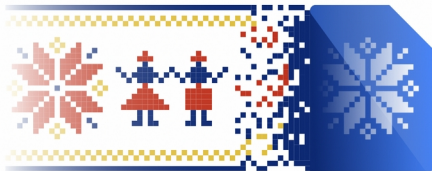
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# Standard bug fixing steps

- Research the problem

- Write a patch

- Ensure "make check" finds no errors

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# Fix the problem, not the document

- Add debug output

- assert() to find examples of documents that will be affected by your change.

- make sw.check

MSO 2010

| 1. | • **Hello**<br>• World |
| --- | --- |

*SubTitle*

LO 24.2

| 1. | • **Hello**<br>• World |
| --- | --- |

*SubTitle*

# Assert the change

```
1883        if (_pAttrs)
1884        {
1885 SAL_WARN("DEBUG","nAdditionalLowerSpace["<<nAdditionalLowerSpace<<"] adding lower["<<_pAttrs->GetULS
     pace().GetLower()<<"] if not context["<<_pAttrs->GetULSpace().GetContext()<<"]");
1886            bool bIsDOCX = rIDSA.get(DocumentSettingId::TAB_OVER_MARGIN);
1887            if (bIsDOCX && _pAttrs->GetULSpace().GetContext())
1888                assert (!_pAttrs->GetULSpace().GetLower());
1889            else
1890                nAdditionalLowerSpace += _pAttrs->GetULSpace().GetLower();
1891
```
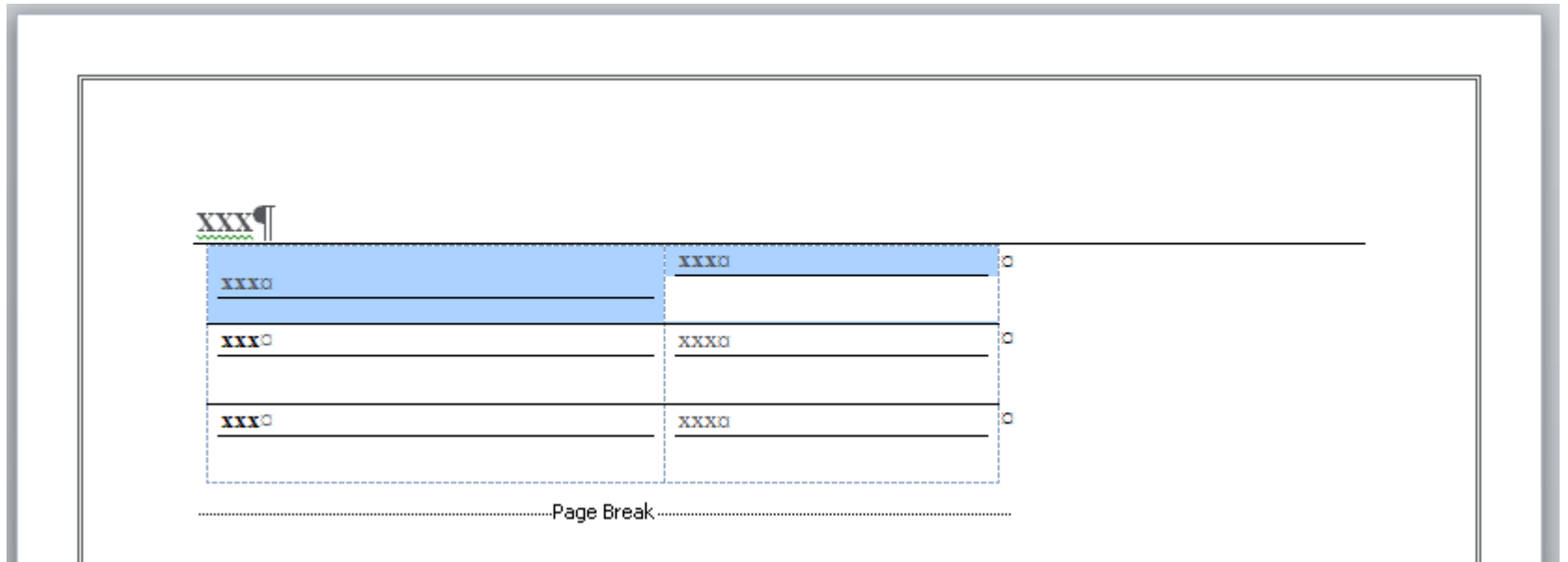
# tdf150443.docx from writer_tests7

- MSO shows that spacing below is needed this time, proving that our theory is incomplete.

# MSO·2010¶

Paragraph·style:·context-spacing¶

Paragraph·style:·Contextual-spacing¶

| Still·contextual·spacing·style¤ | Still·contextual·spacing·style¤ | ¤ |
|---|---|---|
| Still·contextual·spacing·style¤ | Normal·style¤ | ¤ |
| Normal·style¤ | Normal·style¤ | ¤ |

Normal·style¶

| | Normal·style¤ | ¤ |
|---|---|---|
| Normal·style¤ | | |
| Normal·style¤ | | ¤ |
| | context·spacing·style¤ | |
| | context·spacing·style¤ | ¤ |
| context·spacing·style¤ | | |

context·spacing·style¶

·················· Column Break ··················

# Lessons Learned

- first verify that your assert works on the bug report example
    - at least for me, I easily get my assert logic wrong, and test for the wrong criteria, wasting lots of time running sw.check with a broken assert().

- add debug output before the assert
    - it can help identify the location in a large document, hint about the need for a better assert, or determine whether the document is worth investigating.

```
SAL_DEBUG("nAdditionalLowerSpace["<<nAdditionalLowerSpace<<"]
adding lower["<<_pAttrs->GetULSpace().GetLower()<<"] if not
context["<<_pAttrs->GetULSpace().GetContext()<<"]");
        bool bIsDOCX =
rIDSA.get(DocumentSettingId::TAB_OVER_MARGIN);
        if (bIsDOCX && _pAttrs->GetULSpace().GetContext())
            assert (!_pAttrs->GetULSpace().GetLower());
```

# Lessons Learned

- If there are no matching examples, I probably have the assert wrong (and forgot step 1)
  - There are now lots of unit test docs, so finding a match is expected.
- If there are too many examples, try to assert only interesting/highly visible examples
  - If you find an example that nicely exhibits your bug, perhaps use that as your unit test - and avoid another load/save operation.

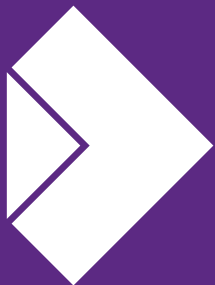  assert (_pAttrs→GetULSpace().GetLower() > 100);

# Lessons Learned

- delete the unit test, so you can run an assert check again

- run the tests one at a time (not in parallel) in a matched test area

  - make CppunitTest_sw_ooxmlexport{,2,3,4,5,6,7,8,9}

- upload patch with assert and deleted unit tests as "Work in progress" for the purpose of documentation

  - ./logerrit submit master%wip

    - TDF's Jenkins doesn't run tests on WIP patches

  - add a reply to the commit indicating this patchset contains documentation, otherwise you will probably not find it back...

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This presentation is based on
https://gerrit.libreoffice.org/c/core/+/153623

and was originally inspired by the more
complicated example in
https://gerrit.libreoffice.org/c/core/+/153033

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# Thank you!

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