Crash when loading project with custom renderer for vector layers

I have custom renderer for vector layers, and can save project including information about this custom renderer. But when I try to open saved project QGIS crashes. Here is backtrace

```
#0 0x000000000fffffff in ?? ()
#1 0x00000000ffffffff in QgsSymbolV2::mapUnitScale (this=0x7fff5c019040) at /home/alex/devel/cpp/qgis/src/core/symbology-ng/qgssymbolv2.cpp:274
#2 0x00000000ffffffff in QgsMarkerSymbolV2::renderPoint (this=0x7fff50c019040, point=..., f=0x7fff63dfdbc0, context=..., layerIdx=-1, selected=false) at /home/alex/devel/cpp/qgis/src/core/symbology-ng/qgssymbolv2.cpp:1251
#3 0x00000000ffffffff in QgsSymbolV2::renderFeature (this=0x7fff5c019040, feature=..., context=..., layer=-1, selected=false, drawVertexMarker=false, currentVertexMarkerType=1, currentVertexMarkerSize=3) at /home/alex/devel/cpp/qgis/src/core/symbology-ng/qgssymbolv2.cpp:718
#4 0x00000000ffffffff in QgsFeatureRendererV2::renderFeatureWithSymbol (this=0xa8bab0, feature=..., symbol=0x7fff5c019040, context=..., layer=-1, selected=false, drawVertexMarker=false) at /home/alex/devel/cpp/qgis/src/core/symbology-ng/qgsrendererv2.cpp:283
#5 0x00000000ffffffff in QgsFeatureRendererV2::renderFeature (this=0xa8bab0, feature=..., context=..., layer=-1, selected=false, drawVertexMarker=false) at /home/alex/devel/cpp/qgis/src/core/symbology-ng/qgsrendererv2.cpp:277
#6 0x00000000ffffffff in sipQgsFeatureRendererV2::renderFeature (this=0xa8bab0, a0=..., a1=..., a2=-1, a3=false, a4=false) at /home/alex/devel/cpp/qgis/build/python/core/sip_corepart1.cpp:37671
#7 0x00000000ffffffff in QgsVectorLayerRenderer::drawRendererV2 (this=0x2fd9780, fit=...) at /home/alex/devel/cpp/qgis/src/core/qgsvectorlayerrenderer.cpp:312
#8 0x00000000ffffffff in QgsVectorLayerRenderer::render (this=0x2fd9780) at /home/alex/devel/cpp/qgis/src/core/qgsvectorlayerrenderer.cpp:249
#9 0x00000000ffffffff in QgsMapRendererCustomPainterJob::doRender (this=0x13e6bd0) at /home/alex/devel/cpp/qgis/src/core/qgsmapprendercustompainterjob.cpp:251
#10 0x00000000ffffffff in QgsMapRendererCustomPainterJob::staticRender (self=0x13e6bd0) at /home/alex/devel/cpp/qgis/src/core/qgsmapprendercustompainterjob.cpp:214
#11 0x00000000ffffffff in QtConcurrent::StoredFunctorCall1<void, void (*)(QgsMapRendererCustomPainterJob*)>::runFunctor (this=0x2fd320) at /usr/include/qt4/QtCore/qtconcurrentstoredfunctioncall.h:277
#12 0x00000000ffffffff in QtConcurrent::RunFunctionTask<>::run (this=0x2fd320) at /usr/include/qt4/QtCore/qtconcurrentrunbase.h:134
#13 0x00000000ffffffff in QThreadPoolThread::run (this=0x346cca0) at concurrent/qthreadpool.cpp:108
#14 0x00000000ffffffff in QThreadPrivate::start (arg=0x346cca0) at thread/qthread_unix.cpp:349
#15 0x00000000ffffffff in start_thread (arg=0x7fff63df700) at pthread_create.c:309
#16 0x00000000ffffffff in clone () at /sysdeps/unix/linux/x86_64/clone.S:111
```

Description

I have custom renderer for vector layers, and can save project including information about this custom renderer. But when I try to open saved project QGIS crashes. Here is backtrace
Test plugin with custom renderer for point layers attached.

Seems there are some issues with interaction between Python bindings and C++ core code.

### Related issues:
Related to QGIS Application - Bug report #13973: Crash when switching from c... Closed 2015-12-10

### Associated revisions
Revision 83eed110 - 2016-01-25 06:16 PM - Martin Dobias

Improve renderer class documentation (refs #14025)

### History

#### #1 - 2015-12-22 07:03 AM - Alessandro Pasotti
- Assignee set to Martin Dobias

Not sure, but this could be the problem:

```cpp
src/core/symbology-ng/qgssinglesymbolrendererv2.cpp:458
QgsSymbolV2List symbols = const_cast<QgsFeatureRendererV2 *>( renderer )->symbols( context );
```

the about to be cloned object is a sip object.

#### #2 - 2016-01-25 08:28 AM - Martin Dobias
- Resolution set to invalid
- Status changed from Open to Closed
- File mytestrenderer.py added

The real issue was that symbols returned by the test renderer have not been initialized before being used in symbolForFeature().

Attached (fixed and simplified) version works fine for me - closing as invalid. I have some ideas how the situation could be improved in QGIS 3 so that custom renderer implementations are less crash-prone...

### Files

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<thead>
<tr>
<th>File</th>
<th>Size</th>
<th>Date</th>
<th>Author</th>
</tr>
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<td>4.12 KB</td>
<td>2015-12-22</td>
<td>Alexander Bruy</td>
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<td>mytestrenderer.py</td>
<td>3.22 KB</td>
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