

## Backport193 - Backport #6044

### Float#% bug in cornercases

02/18/2012 09:26 AM - marcandre (Marc-Andre Lafortune)

<b>Status:</b>	Closed
<b>Priority:</b>	Normal
<b>Assignee:</b>	naruse (Yui NARUSE)
<b>Description</b>	
On my platform, current behavior is:	
4.0 % Float::INFINITY # => NaN 4.0.send :%, Float::INFINITY # => 4.0	
-0.0 % 42 # => 0.0 -0.0.send(:%, 42) # => -0.0	
On some platforms, these might return NaN and 0.0 in all cases.	
My proposed behavior is to return 4.0 and -0.0 on all cases and on all platforms.	
I'm tempted to assume it is clear that this is bug and that my proposed behavior is the right solution, but let me use my guidelines:	
Proposed behavior passes my "strict superiority test" as it is clearly more consistent:	
<ul style="list-style-type: none"><li>• consistent for different calling methods</li><li>• consistent accross platforms</li><li>• consistent with 4 % Float::INFINITY</li><li>• consistent with the IEEE definition of fmod (see <a href="http://pubs.opengroup.org/onlinepubs/007904975/functions/fmod.html">http://pubs.opengroup.org/onlinepubs/007904975/functions/fmod.html</a> )</li></ul>	
It is also more intuitive and useful, since:	
any_small_number % any_big_number == any_small_number	
Current behavior passes the "clear defect test" as it is platform dependent (when it can reasonable be platfom independent). I'll add to the list of "clear defect" criteria the fact that calling an operator directly doesn't yield the same result as using #send.	
The proposed solution fails my "straightforward" test as the proposed behavior contradicts part of the documentation which states "x.modulo(y) means x-y*(x/y).floor".	
Any objection for me to commit this?	
<b>Thanks</b>	
Marc-André	

#### Associated revisions

Revision 4c2e2d8b - 03/14/2012 06:10 AM - marcandre (Marc-Andre Lafortune)

- numeric.c: fix flodivmod for cornercases [Bug #6044]  
add ruby\_float\_mod
- insns.def (opt\_mod): use ruby\_float\_mod
- internal.h: declare ruby\_float\_mod
- test/ruby/test\_float.rb: tests for above
- test/ruby/envutil.rb: create helper assert\_is\_minus\_zero

git-svn-id: svn+ssh://ci.ruby-lang.org/ruby/trunk@35013 b2dd03c8-39d4-4d8f-98ff-823fe69b080e

**Revision 35013 - 03/14/2012 06:10 AM - marcandre (Marc-Andre Lafortune)**

- numeric.c: fix flodivmod for cornercases [Bug #6044]  
add ruby\_float\_mod
- insns.def (opt\_mod): use ruby\_float\_mod
- internal.h: declare ruby\_float\_mod
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**Revision 9c0d9444 - 03/30/2012 05:13 AM - naruse (Yui NARUSE)**

merge revision(s) 35013:

- \* numeric.c: fix flodivmod for cornercases [Bug #6044]  
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- \* insns.def (opt\_mod): use ruby\_float\_mod
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git-svn-id: svn+ssh://ci.ruby-lang.org/ruby/branches/ruby\_1\_9\_3@35176 b2dd03c8-39d4-4d8f-98ff-823fe69b080e

**Revision 35176 - 03/30/2012 05:13 AM - naruse (Yui NARUSE)**

merge revision(s) 35013:

- \* numeric.c: fix flodivmod for cornercases [Bug #6044]  
add ruby\_float\_mod
- \* insns.def (opt\_mod): use ruby\_float\_mod
- \* internal.h: declare ruby\_float\_mod
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- \* test/ruby/envutil.rb: create helper assert\_is\_minus\_zero

**History**

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**#1 - 02/18/2012 02:19 PM - naruse (Yui NARUSE)**

I agree the point.

About the implementation, flodivmod() should be public but internal API and declare prototype in internal.h, and use it from insns.def.

After commit this, please transfer this ticket to Backport93.

**#2 - 03/07/2012 02:35 PM - marcandre (Marc-Andre Lafortune)**

Additional problem case:

```
4.2 % 0      # => ZeroDivisionError
4.2 % 0.0    # => NaN
4.2.send :%, 0.0 # => ZeroDivisionError
```

Because returning NaN is not a useful result and to be consistent with BigDecimal, all three will raise a ZeroDivisionError unless someone has arguments to the contrary.

Yui NARUSE wrote:

About the implementation, flodivmod() should be public but internal API and declare prototype in internal.h, and use it from insns.def.

Ok, thanks, I will do that.

**#3 - 03/15/2012 01:55 AM - marcandre (Marc-Andre Lafortune)**

- Tracker changed from Bug to Backport
- Project changed from Ruby master to Backport193
- Category deleted (core)
- Target version deleted (2.0.0)

Done in r35013.

Moving to backport

**#4 - 03/15/2012 04:48 AM - marcandre (Marc-Andre Lafortune)**

- Assignee changed from marcandre (Marc-Andre Lafortune) to naruse (Yui NARUSE)

**#5 - 03/30/2012 02:13 PM - naruse (Yui NARUSE)**

- Status changed from Open to Closed
- % Done changed from 0 to 100

This issue was solved with changeset [r35176](#).  
Marc-Andre, thank you for reporting this issue.  
Your contribution to Ruby is greatly appreciated.  
May Ruby be with you.

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merge revision(s) 35013:

```
* numeric.c: fix flodivmod for cornercases [Bug #6044]
  add ruby_float_mod

* insns.def (opt_mod): use ruby_float_mod

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* test/ruby/test_float.rb: tests for above

* test/ruby/envutil.rb: create helper assert_is_minus_zero
```

## Files

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fixmodulo.patch	2.7 KB	02/18/2012	marcandre (Marc-Andre Lafortune)
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