Ruby - Bug #6290

Matrix#hermitian? fails to check diagonal elements

04/14/2012 03:48 AM - kernigh (George Koehler)

Status:	Closed		
Priority:	Normal		
Assignee:	marcandre (Marc-Andre Lafortune)		
Target version:	2.0.0		
ruby -v:	ruby 2.0.0dev (2012-04-14 trunk 35320) [x86_64-openbsd5.0]	**Backport:**	

Description

=begin
A Hermitian matrix is equal to its own conjugate transpose.

matrix == matrix.conj.t

The bug is that Matrix#hermitian? fails to check the diagonal elements of the matrix. For example, the matrix in the next script is ((*not*)) Hermitian:

require 'matrix'
i = Complex::I
p Matrix[[-2,   -3-i,   3+i],
[-3+i, 3,   -5-7*i*),
[3-i, -5+7*i*, 9-4*i]].hermitian?

This script prints (({true})). I expected (({false})), because 9-4*i* != *9+4*i. Each diagonal element must equal its own conjugate (so, its imaginary part must be zero).

Matrix#symmetric? can skip the diagonal elements, because each number equals itself. Matrix#hermitian? must not skip the diagonal elements, because some number might not equal its own conjugate.

I attach a git diff with a simple fix to Matrix#hermitian?, and some test.
=end

Associated revisions

Revision b62792e54065cc2539985ccabc6426ec05dc60f2 - 04/16/2012 03:17 AM - Marc-Andre Lafortune

- lib/matrix.rb (hermitian?): Bug fix, patch by George Koehler
  [Bug #6290] [rubyspec:4b9573d7613]

git-svn-id: svn+ssh://ci.ruby-lang.org/ruby/trunk@35344 b2dd03c8-39d4-4d8f-98ff-823fe69b080e

Revision b62792e5 - 04/16/2012 03:17 AM - Marc-Andre Lafortune

- lib/matrix.rb (hermitian?): Bug fix, patch by George Koehler
  [Bug #6290] [rubyspec:4b9573d7613]

git-svn-id: svn+ssh://ci.ruby-lang.org/ruby/trunk@35344 b2dd03c8-39d4-4d8f-98ff-823fe69b080e

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History

#1 - 04/14/2012 03:53 AM - marcandre (Marc-Andre Lafortune)

- Category set to lib

- Status changed from Open to Assigned

- Assignee set to marcandre (Marc-Andre Lafortune)

- Target version set to 2.0.0

#2 - 04/16/2012 12:17 PM - marcandre (Marc-Andre Lafortune)

- Status changed from Assigned to Closed

- % Done changed from 0 to 100

This issue was solved with changeset r35344.
George, thank you for reporting this issue.
Your contribution to Ruby is greatly appreciated.
May Ruby be with you.

- lib/matrix.rb (hermitian?): Bug fix, patch by George Koehler
  [Bug #6290] [rubyspec:4b9573d7613]

Files

hermitian-fix.diff	1.24 KB	04/14/2012	kernigh (George Koehler)