Add FrozenError as a subclass of RuntimeError

Description
Currently, attempting to modify a frozen object leads to a RuntimeError exception. Unfortunately, this means it is not easy to
differentiate exceptions raised from attempting to modify frozen objects from generic exceptions such as calling Kernel#raise with no
exception class.

The attached patch adds FrozenError as a subclass of RuntimeError, and uses FrozenError instead of RuntimeError for exceptions
raised when there is an attempt to modify a frozen object. It should be backwards compatible in the sense that:

```ruby
begin
  "a".freeze << b
rescue RuntimeError
end
```

Will still function as before.

More people in the ruby community are starting to use frozen objects for the benefits of immutability (thread-safety, cache-ability,
referential transparency), and having an exception class dedicated to misuse of frozen objects will make it easier to handle those
exceptions.

The attached patch is a little long, mostly because ruby's test suite is currently brittle in regards to handling exception classes. For
example, assert_raise(RuntimeError) needs to be changed to assert_raise(FrozenError), because assert_raise uses instance_of?
instead of kind_of? if given an exception class and not a module. Both RSpec and recent versions of Minitest should automatically
handle this type of change without code modifications.

Associated revisions
Revision 61131 - 12/12/2017 12:46 AM - shyouhei (Shyouhei Urabe)
Add FrozenError as a subclass of RuntimeError
FrozenError will be used instead of RuntimeError for exceptions raised when there is an attempt to modify a frozen object. The
reason for this change is to differentiate exceptions related to frozen objects from generic exceptions such as those generated
by Kernel#raise without an exception class.

From: Jeremy Evans code@jeremyevans.net
Signed-off-by: Urabe Shyouhei shyouhei@ruby-lang.org

Revision 27c7d498 - 12/12/2017 11:33 AM - shyouhei (Shyouhei Urabe)
NEWS entry for FrozenError [Feature #13224]
git-svn-id: svn+ssh://ci.ruby-lang.org/ruby/trunk@61152 b2dd03c8-39d4-4d8f-98ff-823fe69b080e

Revision 61152 - 12/12/2017 11:33 AM - shyouhei (Shyouhei Urabe)
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History
Matz accepted this feature about 6 months ago, but it didn't make it into 2.5.0-preview1. Attached is an updated patch that applies to current trunk.

Out of topic, Kernel.raise in examples should be Kernel#raise, I think.

There's less than a month until the release of 2.5.0, and this hasn't been merged yet. I've rebased the patch to apply to current trunk and made sure the tests pass. Since this feature was already accepted back in April, I'm assigning 2.5 as the target version.

Only two weeks until the release of 2.5.0, and this hasn't been merged yet. I've tested and the patch still applies and the tests still pass.

Sorry, I missed this patch. Applied just now.

Applied in changeset trunk|r61152.

NEWS entry for FrozenError [Feature #13224]

Files

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