I don't think there's been a project I've used that hasn't made use of this pattern:

```ruby
if thing.nil? || thing.empty?
```

somewhere in its source. This is necessary because it is idiomatic to return nil where other languages might return a null object, and there is no universal test for nullity which a user-implemented class can provide without issues.

Facets (and ActiveSupport) define a `#blank?` protocol which allows for the above to be replaced with:

```ruby
if thing.blank?
```

Being able to type this on a first iteration saves forgetting one of the cases and having to come back to fix a bug later. For projects where I cannot directly use Facets or ActiveSupport, I always find that I rewrite a version for myself. It would be very convenient not to have to do this every time, and this is clearly a common case, so I propose that `#blank?` be implemented on the following classes:

- Object: to return false
- String: aliased to `#empty?`
- NilClass: to return true
- TrueClass: to return false
- FalseClass: to return true
- Array: aliased to `#empty?`
- Hash: aliased to `#empty?`
- Fiber: to return `!alive?`
- Numeric: aliased to `#zero?`
- IO: aliased to `#closed?`
- MatchData: to return `#to_s.blank?`
- Process::Status: aliased to `#exited?`
- Range: to return `self.include?(self.begin)`
- Struct: subclass instances to return values.blank?
- Thread: to return `!alive?`
- ThreadGroup: to return `list.blank?`

Some of these uses aren't described by the word "blank?" very well (and ActiveSupport's String#blank? is somewhat different), so as a sub-feature I'd like to suggest "null?" as an alternative method name.

Apologies if this has been proposed and rejected before, but a quick search of redmine didn't show anything relevant.
I don't think there's been a project I've used that hasn't made use of this pattern:

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- Hash: aliased to `#empty?`
- Fiber: to return `!alive?`
- Numeric: aliased to `#zero?`
- IO: aliased to `#closed?`
- MatchData: to return `!s.blank?`
- Range: to return `self.include?(begin)`
- Struct: subclass instances to return values.blank?
- Thread: to return `!alive?`
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Some of these uses aren't described by the word "blank?" very well (and ActiveSupport's String#blank? is somewhat different), so as a sub-feature I'd like to suggest "null?" as an alternative method name.

Apologies if this has been proposed and rejected before, but a quick search of redmine didn't show anything relevant.

"empty?" implies that you're performing the operation on a set. Why would you treat these other objects as sets? It doesn't make sense to me.

Not to mention defining the method on every possible object seems bad. What if my function shouldn't be dealing with Thread objects? I'd rather a NoMethodError be raised.

--

Aaron Patterson
http://tenderlovemaking.com/

#2 - 09/28/2011 07:27 AM - naruse (Yui NARUSE)
- File deleted (noname)

#3 - 09/28/2011 07:38 AM - naruse (Yui NARUSE)
This seems the long discussed question, what is a zero element. But I don't think this proposal is not worth breaking ActiveSupport's blank?.

Anyway what is the usecase of this? I doubt a closed io is a zero element. Do you have a case that you are happy if it is a zero element.

#4 - 09/28/2011 08:53 AM - regularfry (Alex Young)
On 27/09/2011 19:46, Aaron Patterson wrote:

On Tue, Sep 27, 2011 at 06:18:19PM +0900, Alex Young wrote:

Issue #5372 has been reported by Alex Young.
I don't think there's been a project I've used that hasn't made use of this pattern:

```ruby
if thing.nil? || thing.empty?
  # do something
end
```

somewhere in its source. This is necessary because it is idiomatic to return `nil` where other languages might return a null object, and there is no universal test for nullity which a user-implemented class can provide without issues.

Facets (and ActiveSupport) define a `#blank?` protocol which allows for the above to be replaced with:

```ruby
if thing.blank?
  # do something
end
```

Being able to type this on a first iteration saves forgetting one of the cases and having to come back to fix a bug later. For projects where I cannot directly use Facets or ActiveSupport, I always find that I rewrite a version for myself. It would be very convenient not to have to do this every time, and this is clearly a common case, so I propose that `#blank?` be implemented on the following classes:

- `Object`: to return `false`
- `String`: aliased to `#empty?`
- `NilClass`: to return `true`
- `TrueClass`: to return `false`
- `FalseClass`: to return `true`
- `Array`: aliased to `#empty?`
- `Hash`: aliased to `#empty?`
- `Fiber`: to return `!alive?`
- `Numeric`: aliased to `#zero?`
- `IO`: aliased to `#closed?`
- `MatchData`: to return `#to_s.blank?`
- `Process::Status`: aliased to `#exited?`
- `Range`: to return `self.include?(self.begin)`
- `Struct`: subclass instances to return `values.blank?`
- `Thread`: to return `!alive?`
- `ThreadGroup`: to return `list.blank?`

Some of these uses aren't described by the word "blank?" very well (and ActiveSupport's `String#blank?` is somewhat different), so as a sub-feature I'd like to suggest "null?" as an alternative method name.

Apologies if this has been proposed and rejected before, but a quick search of redmine didn't show anything relevant.

"empty?" implies that you're performing the operation on a set. Why would you treat these other objects as sets? It doesn't make sense to me.

That's the other way around. I'm not suggesting that the others are sets. I'm saying that for Arrays, Strings and Hashes, `#empty?` expresses the idea that these are null objects: they have no content, and operations on them are commonly no-ops. I'm then generalising that and saying that this idea of there being a null instance of a class is applicable to more cases than just those classes which can be treated as sets.

Not to mention defining the method on every possible object seems bad. What if my function shouldn't be dealing with Thread objects? I'd rather a `NoMethodError` be raised.

We already have `nil?`, `to_s` and so forth which are defined everywhere. I'm suggesting an new protocol on that level, one which a user-defined class can participate in.

Think of it like the Null Object pattern in reverse. Because the core API commonly returns `nil` in error cases rather than having methods with a single return type, we can't blindly use the returned instance without a couple of type checks. Instead, we need to ask each instance "are you null?" before operating on it. The `blank?` method contains the logic which would otherwise have been used when deciding to build a Null Object, if that was the idiom.
This becomes more useful when you have:

```ruby
module Blank
  def Blank.==(x)
    x.blank?
  end
end
```

Because then you can do this:

```ruby
case thingy
  when Blank
    # catch-all
  # other cases
end
```

which I quite like.

--
Alex

#5 - 09/28/2011 09:29 AM - regularfry (Alex Young)

On 27/09/2011 23:38, Yui NARUSE wrote:

```
Issue #5372 has been updated by Yui NARUSE.

This seems the long discussed question, what is a zero element.
But I don't think this proposal is not worth breaking ActiveSupport's blank?.
```

True, that would be unfortunate. For that reason I marginally prefer the null? name but thought blank? would be a more familiar concept.

Anyway what is the usecase of this?

In the short term, it saves accidentally missing bugs where I forget to complete the type check. It's an addition which is simple to implement (at least naively) and does not break existing code, and would make my projects a little bit simpler.

Longer-term, I think it's an interesting primitive. It gives an alternative approach to being able to subclass FalseClass or NilClass, which is also occasionally suggested. One use case for this is in implementing non-exception error classes, which would give you something a little like Haskell's Either.

```
I doubt a closed io is a zero element.
Do you have a case that you are happy if it is a zero element.
```

Yes, if it's set to autoclose. I'm not wedded to the definition on IO, though - if you think there's a more useful one then I'm all ears.

--
Alex

Feature #5372: Promote blank? to a core protocol
http://redmine.ruby-lang.org/issues/5372

Author: Alex Young
Status: Open
Priority: Normal
Assignee:
Category: core
Target version: 1.9.4

I don't think there's been a project I've used that hasn't made use of this pattern:

```
if thing.nil? || thing.empty?
```
Facets (and ActiveSupport) define a #blank? protocol which allows for the above to be replaced with:

if thing.blank?

Being able to type this on a first iteration saves forgetting one of the cases and having to come back to fix a bug later. For projects where I cannot directly use Facets or ActiveSupport, I always find that I rewrite a version for myself. It would be very convenient not to have to do this every time, and this is clearly a common case, so I propose that #blank? be implemented on the following classes:

- Object: to return false
- String: aliased to #empty?
- NilClass: to return true
- TrueClass: to return false
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- Array: aliased to #empty?
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- Numeric: aliased to #zero?
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- MatchData: to return #to_s.blank?
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Some of these uses aren't described by the word "blank?" very well (and ActiveSupport's String#blank? is somewhat different), so as a sub-feature I'd like to suggest "null?" as an alternative method name.

Apologies if this has been proposed and rejected before, but a quick search of redmine didn't show anything relevant.

---

**#6 - 10/01/2011 04:53 PM - drbrain (Eric Hodel)**

On Sep 27, 2011, at 6:52 PM, Alex Young wrote:

Think of it like the Null Object pattern in reverse.

The Null Object is described on the C2 wiki and its related pages:


It seems to be better than implementing Object#empty?

Can you show me a description of the opposite?

Because the core API commonly returns nil in error cases...

Can you show some examples? I don't seem to write nil checks very often when using core methods, but maybe I am forgetting. I would rather improve the API to have fewer nil return values than add #empty? everywhere.

```
case thingy
  when Blank
    # catch-all
  end
```

What about:

```
case thingy
  # other cases
  else
    # catch-all
end
```

---

**#7 - 10/03/2011 06:53 AM - regularfry (Alex Young)**

Eric Hodel wrote in post #1024462:

Think of it like the Null Object pattern in reverse.
The Null Object is described on the C2 wiki and its related pages:

http://c2.com/cgi/wiki?NullObject

It seems to be better than implementing Object#empty?

Where it's an option, yes, it's better, but in places where I call #null? or #empty? I don't necessarily have the flexibility to use it. Where I'm handed a return value by a method in some library, core, or a gem, or whatever, I've often got to make a type check of some sort before safely operating on it, and that check is frequently a check that the object is of a type that it makes sense to operate on.

Can you show me a description of the opposite?

What I mean by "in reverse" is that with the Null Object, we have an instance which silently does the right thing. We don't have to care that it's null, we just call methods on it like we would on a non-Null instance.

With a #null? or #blank? method, we instead have a way to ask each instance directly whether it's null, without having to care about its class. If it quacks like a null, then it's null.

Because the core API commonly returns nil in error cases..

Can you show some examples? I don't seem to write nil checks very often when using core methods, but maybe I am forgetting.

Having a quick look over the core docs, there's quite a few in File::Stat and Process::Status, all the try_convert() methods, Kernel.caller, Kernel.system, arguably String#slice and Regexp#match (although I can't see the latter being reasonably alterable), and Thread#status at least.

```
case thingy
  when Blank
    # catch-all
  # other cases
end
```

What about:

```
case thingy
  other cases
  else
    # catch-all
end
```

Yep, that's another way to do the same sort of thing, but with a Blank or Null it's more explicit and more flexible. With a bare "case...else..." you have to handle both correct nulls and erroneous values in the "else" clause. With Null, you can leave the "else" clause purely for handling the error case, where you've somehow got a response you weren't expecting. I think it's clearer.

--
Alex

--
Eric Hodel wrote in post #1024462:

On Sep 27, 2011, at 6:52 PM, Alex Young wrote:
Can you show me a description of the opposite?

What I mean by "in reverse" is that with the Null Object, we have an instance which silently does the right thing. We don't have to care that it's null, we just call methods on it like we would on a non-Null instance.

With a #null? or #blank? method, we instead have a way to ask each instance directly whether it's null, without having to care about its class. If it quacks like a null, then it's null.

I mean, on the C2 wiki or somewhere else on the internet. Can you show other languages that have benefited from a similar implementation? If there is such a document maybe it can help us understand.

Because the core API commonly returns nil in error cases..

Can you show some examples? I don't seem to write nil checks very often when using core methods, but maybe I am forgetting.

Having a quick look over the core docs, there's quite a few in File::Stat and Process::Status, all the try_convert() methods, Kernel.caller, Kernel.system, arguably String#slice and Regexp#match (although I can't see the latter being reasonably alterable), and Thread#status at least.

When does caller return a non-Array?

```ruby
  case thingy
    when Blank
      # catch-all
    # other cases
  end

  What about:

  case thingy
    other cases
    else
      # catch-all
  end
```

Yep, that's another way to do the same sort of thing, but with a Blank or Null it's more explicit and more flexible. With a bare "case...else..." you have to handle both correct nulls and erroneous values in the "else" clause. With Null, you can leave the "else" clause purely for handling the error case, where you've somehow got a response you weren't expecting. I think it's clearer.

The problem I see is that adding #empty? to every class is confusing.
Should File::Stat#empty? returning true to mean the file is empty? Or should it always return false to say "the file exists"

What would Process::Status#empty? mean? Would false mean that the program had exited non-zero or that the program had exited with any status?

Kernel#system and Thread#status return true, false, or nil, so combining "non-zero exit" and "command failed" into #empty? isn't clearer to read than 'if system(command) then &else abort "#(command) failed" end'

While it might make String#split or Regexp#match and try_convert usage clearer, it adds much confusion otherwise.

#9 - 10/04/2011 07:23 PM - regularfry (Alex Young)
On Oct 2, 2011, at 2:38 PM, Alex Young wrote:

Eric Hodel wrote in post #1024462:

On Sep 27, 2011, at 6:52 PM, Alex Young wrote:
Can you show me a description of the opposite?

What I mean by “in reverse” is that with the Null Object, we have an instance which silently does the right thing. We don't have to care that it's null, we just call methods on it like we would on a non-Null instance.

With a #null? or #blank? method, we instead have a way to ask each instance directly whether it's null, without having to care about its class. If it quacks like a null, then it's null.

I mean, on the C2 wiki or somewhere else on the internet. Can you show other languages that have benefited from a similar implementation? If there is such a document maybe it can help us understand.

To my knowledge it's most similar to Either in Haskell, but you have to squint a bit to see it:

If you renamed #empty? to #left? the similarity should be a little clearer.

If you look at Perl 6, there's also a stack of similar-looking functionality around Mu, Failure and Whatever - specifically the .defined method is close to what I'm thinking, but they've taken it a lot further.

Because the core API commonly returns nil in error cases...

Can you show some examples? I don't seem to write nil checks very often when using core methods, but maybe I am forgetting.

Having a quick look over the core docs, there's quite a few in File::Stat and Process::Status, all the try_convert() methods, Kernel.caller, Kernel.system, arguably String#slice and Regexp#match (although I can't see the latter being reasonably alterable), and Thread#status at least.

When does caller return a non-Array?

$ irb
ruby-1.9.2-p290 :001 > caller(22)
=> nil

It's when the depth parameter exceeds the current stack depth.

case thingy
  when Blank
    # catch-all
    # other cases
  end

What about:

case thingy
  other cases

else
  # catch-all
end
Yep, that's another way to do the same sort of thing, but with a Blank or Null it's more explicit and more flexible. With a bare "case...else..." you have to handle both correct nulls and erroneous values in the "else" clause. With Null, you can leave the "else" clause purely for handling the error case, where you've somehow got a response you weren't expecting. I think it's clearer.

The problem I see is that adding #empty? to every class is confusing.

Part of that is down to the name. #null? is better because it doesn't imply that the receiver is a container.

You'll notice that I didn't suggest an implementation for Symbol: sometimes it doesn't make sense for any instance of a class to be null. You could make the same argument about Numeric, but I've occasionally found treating #zero? as a null test to be useful in the past.

Should File::Stat#empty? returning true to mean the file is empty? Or should it always return false to say "the file exists"?

I'd go for the latter, personally.

What would Process::Status#empty? mean? Would false mean that the program had exited non-zero or that the program had exited with any status?

I mentioned upthread that it would be useful aliased to #exited?, but I'd really prefer it to test whether the process was actually running - from the documentation of #exited? it sounds like processes that segfault will cause #exited? to return false.

Kernel#system and Thread#status return true, false, or nil, so combining "non-zero exit" and "command failed" into #empty? isn't clearer to read than if system(command) then &else abort "#{command} failed" end

Sure. I'd say Kernel#system is an interesting example, though. Say I was being implementing it as a third-party library, but with a twist: instead of returning nil on command failure, I want to capture some details about the failure and wrap them up in a hypothetical ProcessFailure instance. Some of the time, I don't care about the details of the failure, and other times I do, but in no case do I think of this as warranting an Exception. Now, if I say:

class ProcessFailure
  def null?
    true
  end
end

then when I don't care which happened, either the command failing or it having a non-zero exit, I can just say:

unless mysystem(foo).null?
  # it worked!
end

and when I do care, it's:

unless (result = mysystem(foo)).null?
  # it worked!
else
  # It didn't, so try to do something useful with the error details
  $stderr.puts result.to_s if result
end

Note that while it might make the conditionals cleaner here, I can't do the obvious thing of:

class ProcessFailure < FalseClass; end

because that's just not how booleans work.
As I mentioned above, there are definitely cases where null? should never be true for a given class because if you have a value, it's not null by definition. It's simple enough to leave the default #null? -> false implementation in place for them.

--
Alex

#10 - 10/05/2011 12:59 AM - nobu (Nobuyoshi Nakada)
Hi,

(11/10/03 6:38), Alex Young wrote:

Yep, that's another way to do the same sort of thing, but with a Blank or Null it's more explicit and more flexible. With a bare "case...else..." you have to handle both correct nulls and erroneous values in the "else" clause. With Null, you can leave the "else" clause purely for handling the error case, where you've somehow got a response you weren't expecting. I think it's clearer.

The "flexibility" (or ambiguity) seems the sign that it should not be in core, to me.

Indeed ActiveSupport has many interesting features, however they are basically designed for Rails concerned applications and may not be suitable for the language core.

--
Nobu Nakada

#11 - 10/05/2011 02:23 AM - regularfry (Alex Young)
On 04/10/11 16:52, Nobuyoshi Nakada wrote:

Hi,

(11/10/03 6:38), Alex Young wrote:

Yep, that's another way to do the same sort of thing, but with a Blank or Null it's more explicit and more flexible. With a bare "case...else..." you have to handle both correct nulls and erroneous values in the "else" clause. With Null, you can leave the "else" clause purely for handling the error case, where you've somehow got a response you weren't expecting. I think it's clearer.

The "flexibility" (or ambiguity) seems the sign that it should not be in core, to me.

I'm not sure I understand. Where's the ambiguity?

Indeed ActiveSupport has many interesting features, however they are basically designed for Rails concerned applications and may not be suitable for the language core.

You could make the same argument about any library. If something is in ActiveSupport and not in any of the more specifically web-framework Rails libraries, it's also a sign that it's a feature that people find generally useful outside Rails.

Note that similar functionality is also in Facets, which aims for general applicability.

With respect, I don't find arguments on where a feature has come from to be particularly relevant.

--
Alex
Hi,

On 04/10/11 16:52, Nobuyoshi Nakada wrote:

The "flexibility" (or ambiguity) seems the sign that it should not be in core, to me.

I'm not sure I understand. Where's the ambiguity?

"Flexibility" can cause ambiguity, sometimes. Seems it depends on application contexts too much.

You could make the same argument about any library. If something is in ActiveSupport and not in any of the more specifically web-framework Rails libraries, it's also a sign that it's a feature that people find generally useful outside Rails.

Sounds like it's web-framework specific.

With respect, I don't find arguments on where a feature has come from to be particularly relevant.

Of course, not. In fact, I'm one of who proposed to introduce Symbol#toProc strongly. I just said that everything in ActiveSupport won't be suitable for the core always.

--
Nobu Nakada

On 05/10/11 05:59, Nobuyoshi Nakada wrote:

Hi,

On 04/10/11 16:52, Nobuyoshi Nakada wrote:

The "flexibility" (or ambiguity) seems the sign that it should not be in core, to me.

I'm not sure I understand. Where's the ambiguity?

"Flexibility" can cause ambiguity, sometimes. Seems it depends on application contexts too much.

I don't see that it's any more ambiguous than having Object#==. #===. #eql? and #equal?.

#nil? has the same relationship to #null? as #== has to #===. One is a strict equality comparison, the other is a loose match. It's context-dependent in the same way as #=== is: user classes can redefine it and participate in a global protocol.

You could make the same argument about any library. If something is in ActiveSupport and not in any of the more specifically web-framework Rails libraries, it's also a sign that it's a feature that people find generally useful outside Rails.

Sounds like it's web-framework specific.
I disagree. Why does it seem that way to you?

With respect, I don't find arguments on where a feature has come from to
be be particularly relevant.

Of course, not. In fact, I'm one of who proposed to introduce
Symbol#to_proc strongly. I just said that everything in ActiveSupport
won't be suitable for the core always.

I'm not suggesting it because it's in ActiveSupport. I'm suggesting it
because it's a generally useful concept.

--
Alex

#14 - 10/05/2011 06:59 PM - nobu (Nobuyoshi Nakada)

Hi,

(11/10/05 17:32), Alex Young wrote:

I'm suggesting it because it's a generally useful concept.

I'm suggesting some doubt on its generalness.

--
Nobu Nakada

#15 - 10/05/2011 11:59 PM - regularfry (Alex Young)

On 05/10/11 10:53, Nobuyoshi Nakada wrote:

Hi,

(11/10/05 17:32), Alex Young wrote:

I'm suggesting it because it's a generally useful concept.

I'm suggesting some doubt on its generalness.

It's as general an idea as #===, but #=== has syntactic support and gets
to participate in case expressions.

--
Alex

#16 - 10/07/2011 07:59 AM - Anonymous

Facets (and ActiveSupport) define a #blank? protocol which allows for the above to be replaced with:

if thing.blank?
  # ..
end

enthusiastic +1 ;)
-roger-

#17 - 03/27/2012 03:26 AM - mame (Yusuke Endoh)

- Status changed from Open to Assigned
- Assignee set to matz (Yukihiro Matsumoto)

03/18/2022 12/13
Let it stay in ActiveSupport. Generally, string is string, array is array, in Ruby.

Matz.