Python Peculiarities

Noam Tenne

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Hacking around for the past ~15 years

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Best company ever!

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Hacking around for the past ~15 years

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We're hiring!

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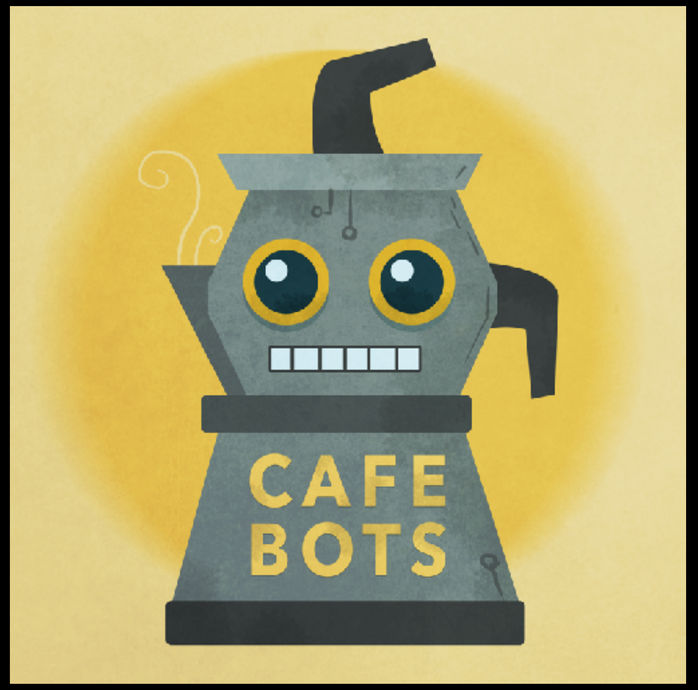
github.com/noamt

“Cafe Bots” podcast together with Yoav Luft and Tom Kaminski



How this works

How this works

- 1 entertaining dude at your service

How this works

- 1 entertaining dude at your service
- We review puzzles

How this works

- 1 entertaining dude at your service
- We review puzzles
- You vote for the correct answer

First Rule!

The Princess Py

```
name = "Inigo Montoya"
victim = "my father"
consequence = "die"
from os import *

print("Hello, my name is %s. You killed %s, prepare to %s" %
(name, victim, consequence))
```

https://codegolf.stackexchange.com/a/11467

The Princess Py

```
name = "Inigo Montoya"
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print("Hello, my name is %s. You killed %s, prepare to %s" %
(name, victim, consequence))
```

1. Hello, my name is posix. You killed my father, prepare to die

2. Hello, my name is Inigo Montoya. You killed my father, prepare to die

3. Hello, my name is <built-in function name>. You killed my father, prepare to die

4. SyntaxError: invalid syntax

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The Princess Py

```
name = "Inigo Montoya"
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1. Hello, my name is posix. You killed my father, prepare to die
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3. Hello, my name is <built-in function name>. You killed my father, prepare to die
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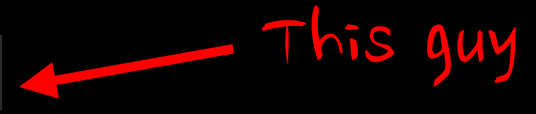
gifbin.com


gifbin.com

What's going on?

```
...
from os import *
...
```



What's going on?

```
...
from os import *
...
```

This guy

Imports this guy

`os.name`

The name of the operating system dependent module imported.

What's going on?

```
...
from os import *
...
```

This guy

Imports this guy

`os.name`

The name of the operating system dependent module imported.

```
name = "Inigo Montoya"
```

And overrides this guy

How do we fix it?

Don't use `import *`!

Floating Votes

```
>>> number_of_votes = 5
>>> number_of_votes.__str__()
'5'
>>> 5.__str__()
```

http://blog.brush.co.nz/2008/01/ten-python-quirkies/

Floating Votes

```
>>> number_of_votes = 5
>>> number_of_votes.__str__()
'5'
>>> 5.__str__()
```

1. 5
2. 5.0
3. <method-wrapper '__str__' of int object at 0x1054e5b50>
4. SyntaxError: invalid syntax

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Floating Votes

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>>> number_of_votes = 5
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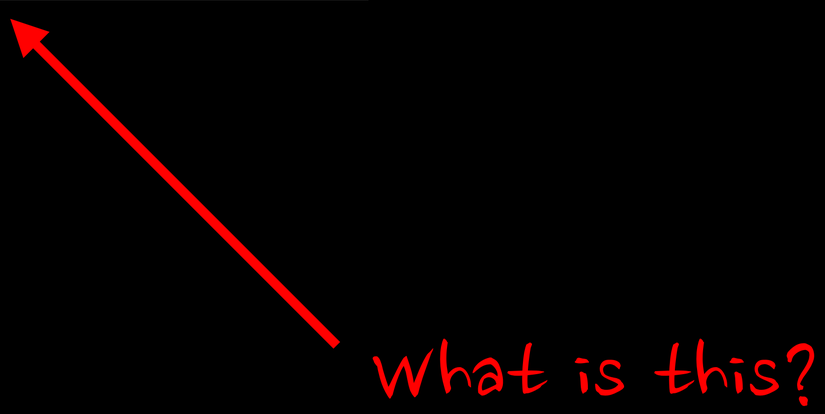


How do we fix it?

```
>>> (5).__str__()
```

Help the parser!

Use parentheses!

How do we fix it?

```
>>> str(5)
```

Prefer core methods over attributes

It's All Your Default

```
def func(A=[]): A.append(42); return A

print(func())
print(func())
```

http://blog.brush.co.nz/2008/01/ten-python-quirkies/

It's All Your Default

```
def func(A=[]): A.append(42); return A

print(func())
print(func())
```

1. `[]\n[]`
2. `[42]\n[42]`
3. `[42]\n[84]`
4. `[42]\n[42,42]`

http://blog.brush.co.nz/2008/01/ten-python-quirkies/

It's All Your Default

```
def func(A=[]): A.append(42); return A

print(func())
print(func())
```

1. `[]\n[]`
2. `[42]\n[42]`
3. `[42]\n[84]`
4. `[4 ,42]`

http://blog.brush.co.nz/2008/01/ten-python-quirkies/

What's going on?

```
def func(A=[]): A.append(42); return A
```

What's going on?

Default methods evaluated once at compile time

```
def func(A=[]): A.append(42); return A
```

Uncle Barry

```
from __future__ import barry_as_FLUFL

print(42 != 42)
```

https://stackoverflow.com/q/4007289/198825

Uncle Barry

```
from __future__ import barry_as_FLUFL

print(42 != 42)
```

1. SyntaxError: invalid syntax
2. True
3. False
4. 84

https://stackoverflow.com/q/4007289/198825

Uncle Barry

```
from __future__ import barry_as_FLUFL

print(42 != 42)
```

1. SyntaxErro alid syntax
2. True
3. False
4. 84

https://stackoverflow.com/q/4007289/198825

What's going on?

```
from __future__ import barry_as_FLUFL
```

PEP 401 -- BDFL Retirement

What's going on?

```
from __future__ import barry_as_FLUFL
```

Replaces

!=

with

<>

PEP 401 -- BDFL Retirement

How do we fix it?

Change

```
print(42 != 42)
```

To

```
print(42 <> 42)
```

How do we fix it?

Change

```
print(42 != 42)
```

To

```
print(42 <> 42)
```

-or-

Don't use silly modules!

The Future!

```
from __future__ import braces

exec("if (input() > 0) {\nprint 'it\'s the future!';\n}")
```

https://codegolf.stackexchange.com/a/11450

The Future!

```
from __future__ import braces

exec("if (input() > 0) {\nprint 'it\'s the future!';\n}")
```

1. Prints Nothing
2. Prints “it’s the future!”
3. SyntaxError: invalid syntax
4. SyntaxError: not a chance

https://codegolf.stackexchange.com/a/11450

The Future!

```
from __future__ import braces

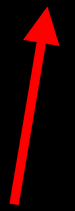
exec("if (input() > 0) {\nprint 'it\'s the future!';\n}")
```

1. Prints Nothing
2. Prints “it’s the future!”
3. SyntaxError: invalid syntax
4. SyntaxErr a chance

https://codegolf.stackexchange.com/a/11450

What's going on?

```
from __future__ import braces
```



An easter egg

Python has many fun easter eggs!

Python has many fun easter eggs!

```
import __hello__
```

Python has many fun easter eggs!

```
import __hello__
```

```
import this
```

Python has many fun easter eggs!

```
import __hello__
```

```
import this
```

```
import antigravity
```

Commaleon

```
list_a = [1, 3, 3, 7],
list_b = [1, 3, 3, 7]

list_a.extend(list_b)
print(list_a)
```

http://bit.ly/2r7yZwY

Commaleon

```
list_a = [1, 3, 3, 7],
list_b = [1, 3, 3, 7]

list_a.extend(list_b)
print(list_a)
```

1. `[[1, 3, 3, 7], 1, 3, 3, 7]`
2. `[1, 3, 3, 7, 1, 3, 3, 7]`
3. `[[1, 3, 3, 7], [1, 3, 3, 7]]`
4. `AttributeError`

http://bit.ly/2r7yZwY

Commaleon

```
list_a = [1, 3, 3, 7],
list_b = [1, 3, 3, 7]

list_a.extend(list_b)
print(list_a)
```

1. `[[1, 3, 3, 7], 1, 3, 3, 7]`
2. `[1, 3, 3, 7, 1, 3, 3, 7]`
3. `[[1, 3, 3, 7], [1, 3, 3, 7]]`
4. `Attr ror`

http://bit.ly/2r7yZwY


Is nothing sacred?


Is nothing sacred?

What's going on?

```
list_a = [1, 3, 3, 7],
list_b = [1, 3, 3, 7]

list_a.extend(list_b)
print(list_a)
```

What's going on?

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list_a = [1, 3, 3, 7],
list_b = [1, 3, 3, 7]

list_a.extend(list_b)
print(list_a)
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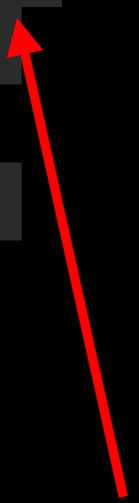


list_a is now a tuple

What's going on?

```
list_a = [1, 3, 3, 7],
list_b = [1, 3, 3, 7]

list_a.extend(list_b)
print(list_a)
```

Tupples have no extend attribute

list_a is now a tuple

How do we fix it?

Use static analysis rules

Johnny Cache

```
>>> 1*2
2
>>> _*3
6
>>> print(_*4)
24
>>> print(_*5)
```

http://bit.ly/2rfOMhe

Johnny Cache

```
>>> 1*2
2
>>> _*3
6
>>> print(_*4)
24
>>> print(_*5)
```

1. SyntaxError
2. AttributeError
3. 108
4. 30

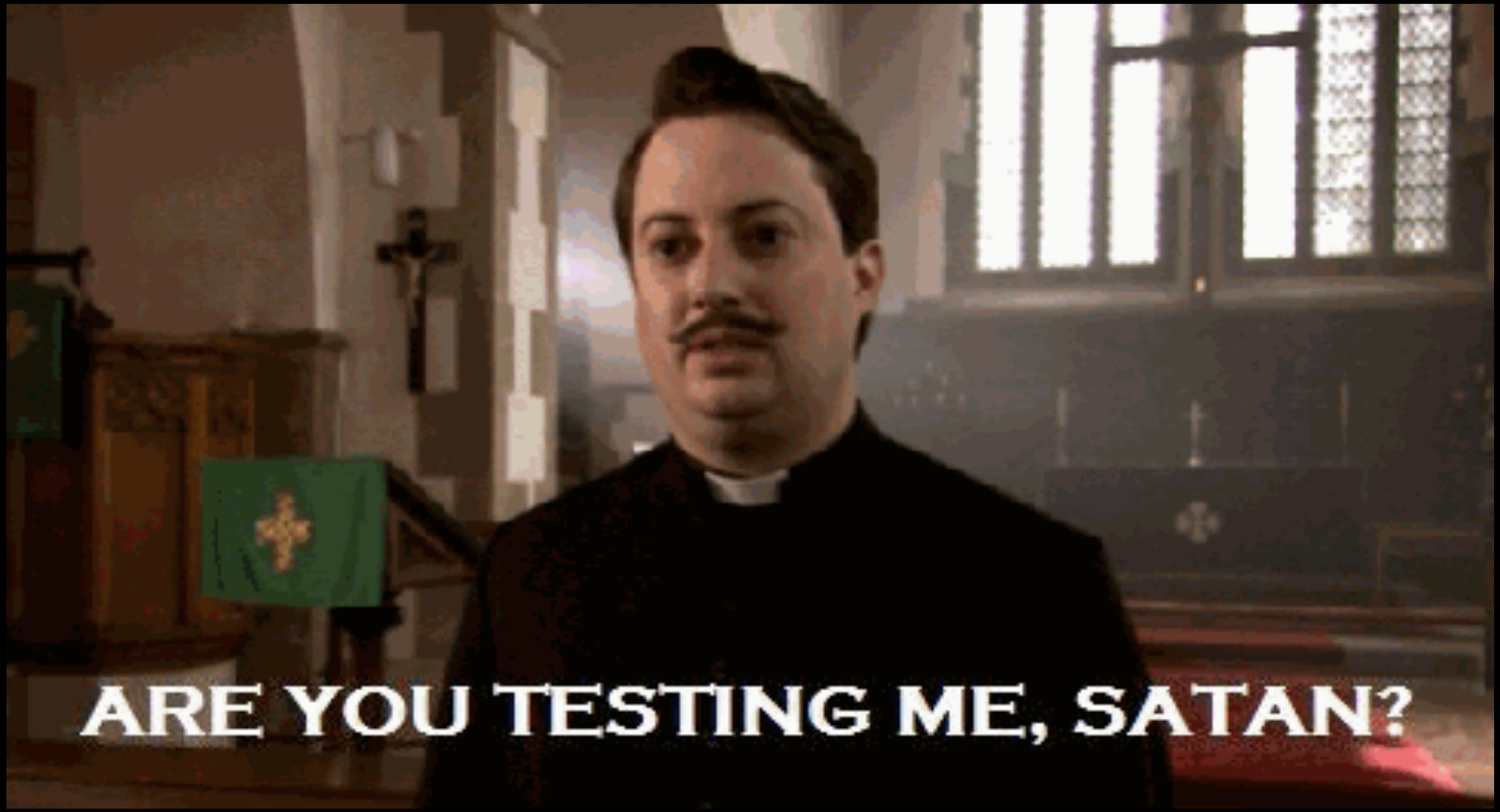
http://bit.ly/2rfOMhe

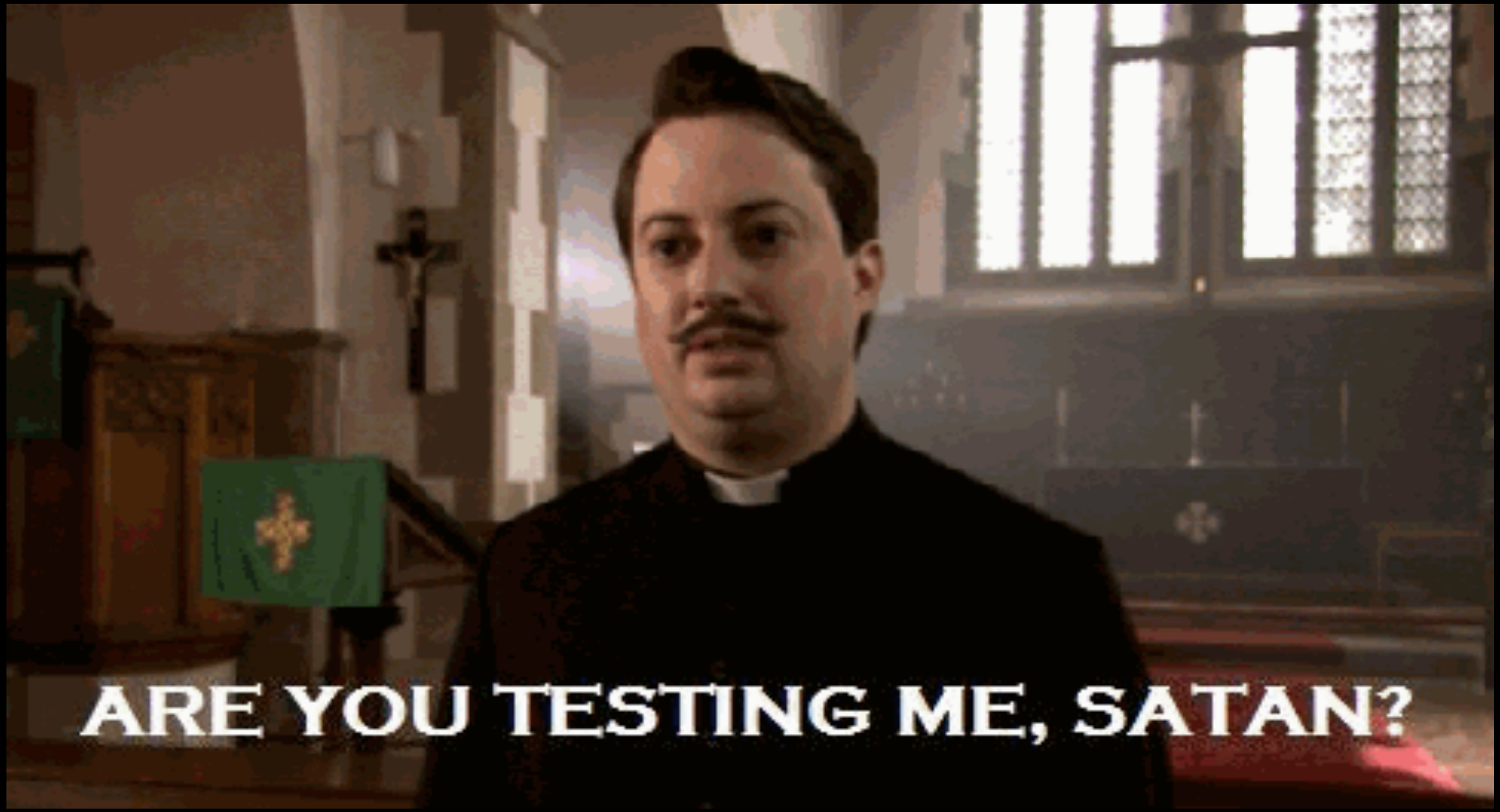
Johnny Cache

```
>>> 1*2
2
>>> _*3
6
>>> print(_*4)
24
>>> print(_*5)
```

1. SyntaxError
2. AttributeError
3. 108
4. 

http://bit.ly/2rfOMhe


ARE YOU TESTING ME, SATAN?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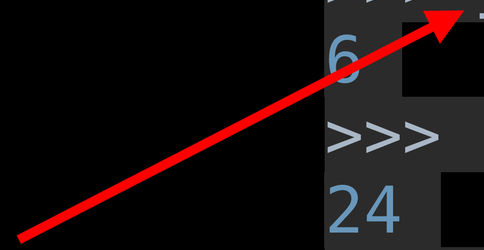

_ accesses last returned value

What's going on?

```
>>> 1*2
2
>>> _*3
6
>>> print(_*4)
24
>>> print(_*5)
```

_ accesses last returned value

Return value of print is None

Multiplication Complication

```
multiplication = []
for i in range(10):
    multiplication.append(i * ++i)

for multiplication[i] in multiplication:
    print(multiplication[i])
```

https://codegolf.stackexchange.com/a/11480

Multiplication Complication

```
multiplication = []
for i in range(10):
    multiplication.append(i * ++i)

for multiplication[i] in multiplication:
    print(multiplication[i])
```

1. `0, 1, 4, 9, 16, 25, 36, 49, 64, 81`
2. `0, 1, 4, 9, 16, 25, 36, 49, 64, 64`
3. `SyntaxError`
4. `0, 2, 6, 12, 20, 30, 42, 56, 72, 90`

https://codegolf.stackexchange.com/a/11480

Multiplication Complication

```
multiplication = []
for i in range(10):
    multiplication.append(i * ++i)

for multiplication[i] in multiplication:
    print(multiplication[i])
```

1. `0, 1, 4, 9, 16, 25, 36, 49, 64, 81`
2. `0, 1, 4, 9, 1`  `36, 49, 64, 64`
3. `SyntaxError`
4. `0, 2, 6, 12, 20, 30, 42, 56, 72, 90`

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for i in range(10):
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What's going on?

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multiplication = []
for i in range(10):
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Not a valid operation

```
[0, 1, 4, 9, 16, 25, 36, 49, 64, 81]
```

```
for multiplication[i] in multiplication:
```

Assigns each element to index 9

What's going on?

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Not a valid operation

```
[0, 1, 4, 9, 16, 25, 36, 49, 64, 81]
```

```
for multiplication[i] in multiplication:
```

Assigns each element to index 9

```
[0, 1, 4, 9, 16, 25, 36, 49, 64, 0]
```

What's going on?

```
multiplication = []
for i in range(10):
    multiplication.append(i * ++i)
```

Not a valid operation

```
[0, 1, 4, 9, 16, 25, 36, 49, 64, 81]
```

```
for multiplication[i] in multiplication:
```

Assigns each element to index 9

```
[0, 1, 4, 9, 16, 25, 36, 49, 64, 1]
```

What's going on?

```
multiplication = []
for i in range(10):
    multiplication.append(i * ++i)
```

Not a valid operation

```
[0, 1, 4, 9, 16, 25, 36, 49, 64, 81]
```

```
for multiplication[i] in multiplication:
```

Assigns each element to index 9

```
[0, 1, 4, 9, 16, 25, 36, 49, 64, 4]
```

What's going on?

```
multiplication = []
for i in range(10):
    multiplication.append(i * ++i)
```

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for multiplication[i] in multiplication:
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Assigns each element to index 9

Some take-aways

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1. Write readable code

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2. Document/Comment your tricks and hacks

Some take-aways

1. Write readable code
2. Document/Comment your tricks and hacks
3. Use static analysis and a good IDE

Some take-aways

1. Write readable code
2. Document/Comment your
3. Use static analysis and
4. RTFM!

Positive Feedback?

@NoamTenne
noam@10ne.org

Negative Feedback?

/dev/null

Queries?

Thanks!