

Multiple Context Managers



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Multiple Context Managers

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```
with cm1() as a, cm2() as b:  
    BODY
```

```
with cm1() as a:  
    with cm2() as b:  
        BODY
```

cm.py

```
1 import contextlib
2
3
4 @contextlib.contextmanager
5 def nest_test(name):
6     print('Entering', name)
7     yield name
8     print('Exiting', name)
9
```

nest_test()

Python Console

```
>>> from cm import *
>>> with nest_test('outer') as n1, nest_test('inner, nested in ' + n1):
...     print('BODY')
...
Entering outer
Entering inner, nested in outer
BODY
Exiting inner, nested in outer
Exiting outer

>>>
```

Special Variables

01 n1 = {str} 'outer'



Any exception propagated from inner context managers will be seen by outer context managers

If an inner context manager swallows an exception, it won't be seen by outer context managers

cm.py

```
1 import contextlib
2
3
4 @contextlib.contextmanager
5 def propagater(name, propagate):
6     try:
7         yield
8         print(name, 'exited normally.')
9     except Exception:
```

Python Console

```
... raise TypeError()
...
inner received an exception!
outer exited normally.
>>> with propagater('outer', False), propagater('inner', True):
...     raise TypeError()
...
inner received an exception!
outer received an exception!
>>>
```

Don't pass a sequence to a
with-statement.

This is an easy mistake to
make.

Sequences of Context Managers

```
...     pass
...
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
AttributeError: __enter__
>>> with nest_test('a'), nest_test('b'):
...     pass
...
Entering a
Entering b
Exiting b
Exiting a
>>> with nest_test('a'), \
...     nest_test('b'), \
...     nest_test('c'):
...     pass
...
Entering a
Entering b
Entering c
Exiting c
Exiting b
Exiting a
>>>
```


Summary



With-statements accept multiple comma-separated context managers

This is equivalent to nesting with-statements

Exception propagate from inner to outer context managers

Avoid passing lists or other sequences to with-statements