

PEP: 227 - Statically Nested Scopes

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What is the problem?

PEP: 227 -
Statically
Nested Scopes

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- Cannot reference a variable in a higher order function (nested).
- Static scoping does not work within nested functions.

Example - Without Statically Nested Scopes

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```
def bank_account(initial_balance):  
    balance = [initial_balance]  
    def deposit(amount):  
        balance[0] = balance[0] + amount  
        return balance  
    def withdraw(amount):  
        balance[0] = balance[0] - amount  
        return balance  
    return deposit, withdraw
```

Introduced changes in this PEP

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- Gives nested functions the scope of parent functions.
- This allows for variables within the parent function to be inherited by the nested function.

Example - With Statically Nested Scopes

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    balance = [initial_balance]  
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```

Namespaces

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- Local
- Global
- Builtin

Whenever you run a simple Python script, the interpreter treats it as a module called **main**, which gets its own namespace. Also, the builtin functions that you would use live in another module called **builtin** and they have their own namespace.

Problems this PEP addresses

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Problems - Backwards Compatibility

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- Two kinds of compatibility problems caused:
 - 1 Code behavior
 - 2 Syntax errors

Example

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```
x = 1
def f1():
    x = 2
    def inner():
        print x
    inner()
```

Discussion

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Errors/Closing Thoughts

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Example

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