

# Variables and References in Python

```
>>> s = "TAGAGAATTCTA"  
>>>
```

# Names



# References



# Objects

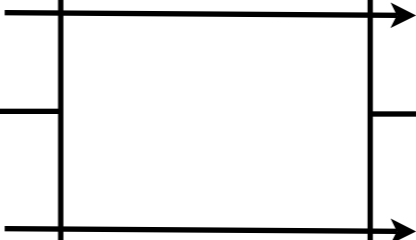


```
>>> s = "TAGAGAATTCTA"  
>>> t = "GAAT"  
>>>
```

# Names

s
t

# References



# Objects

"TAGAGAATTCTA"
"GAAT"

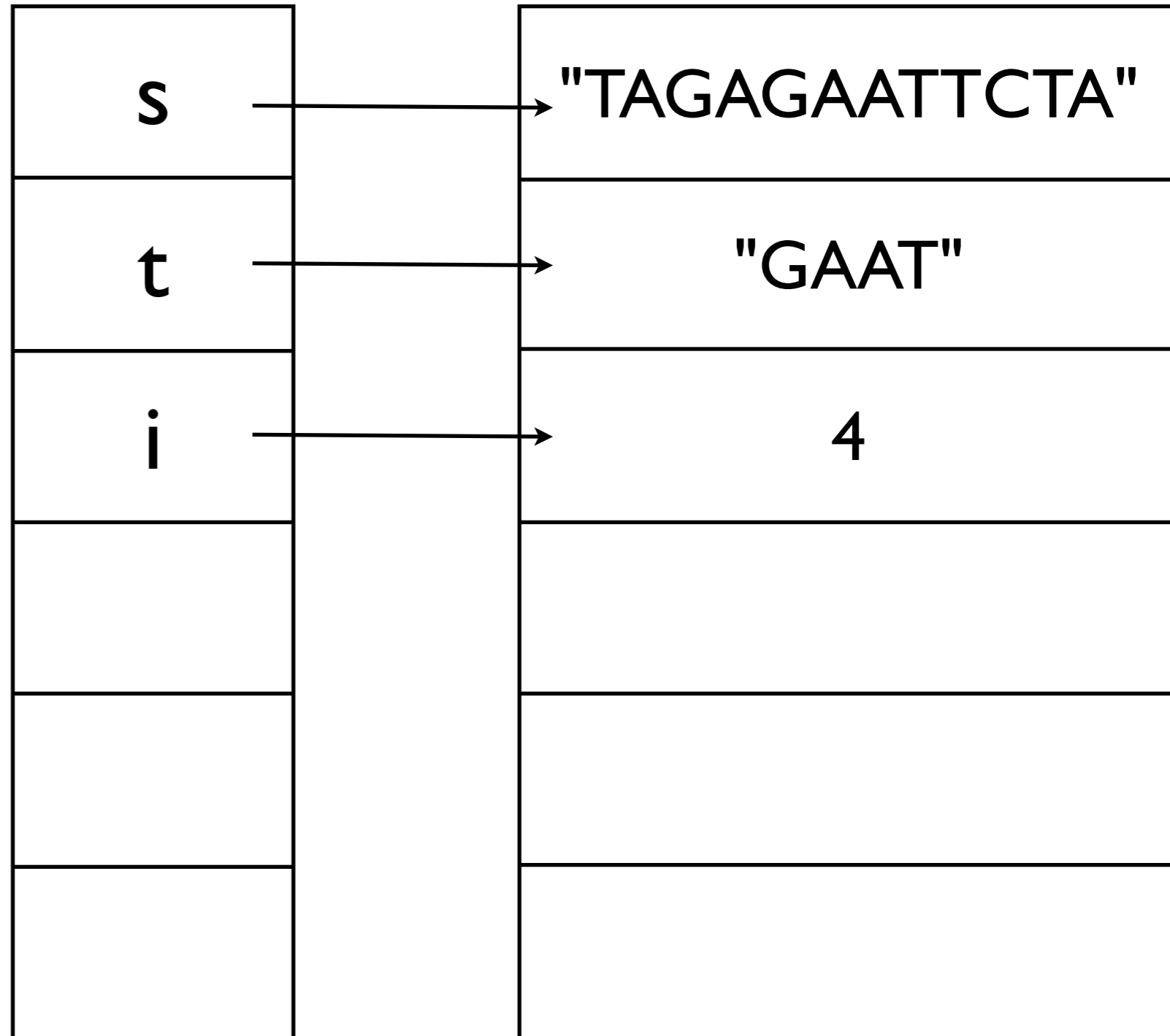
```
>>> s = "TAGAGAATTCTA"  
>>> t = "GAAT"  
>>> i = s.find(t)  
>>> print i  
4  
>>>
```

Strings have a  
"find" method

Names

References

Objects

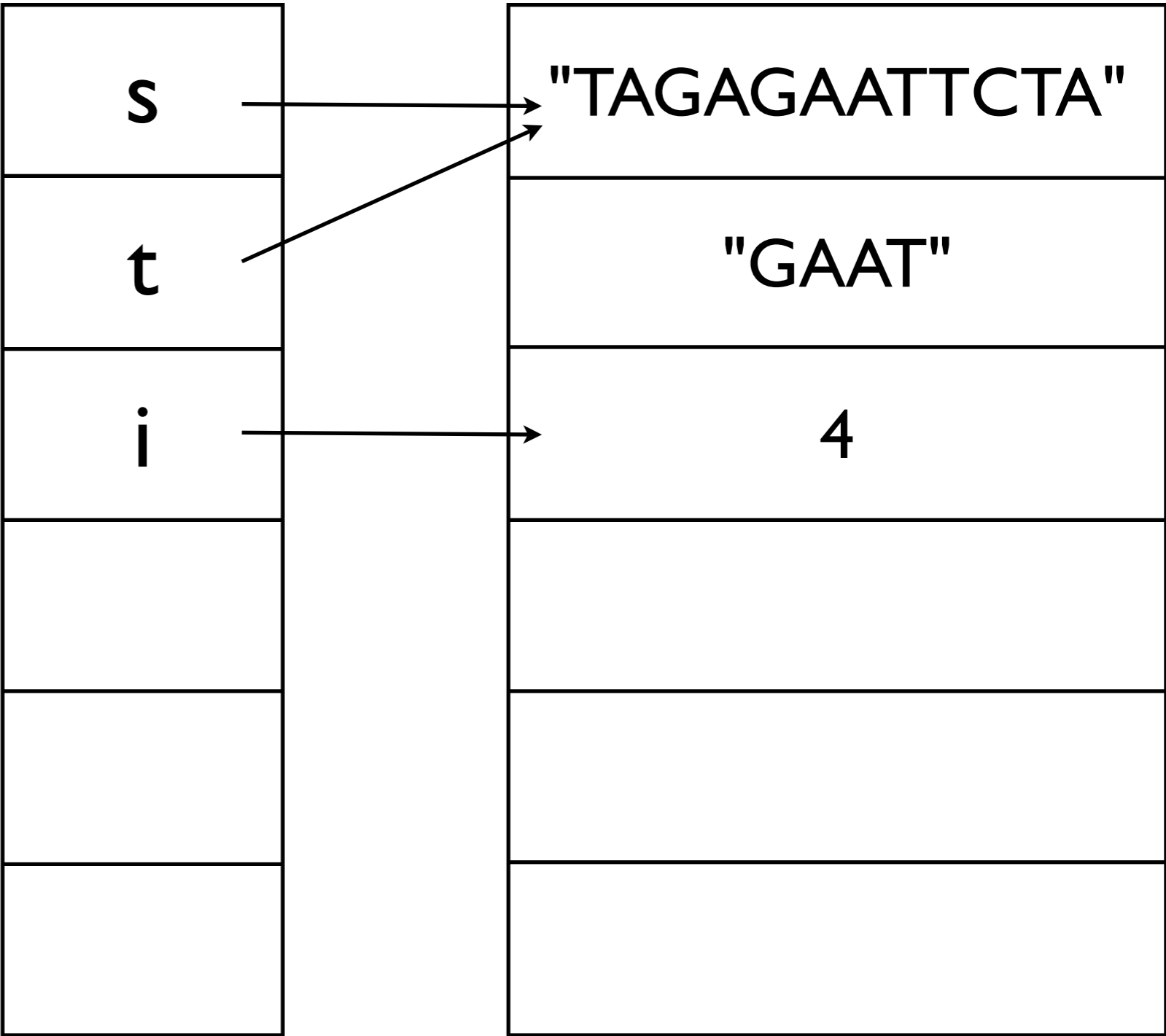


```
>>> s = "TAGAGAATTCTA"  
>>> t = "GAAT"  
>>> i = s.find(t)  
>>> print i  
4  
>>> t = s  
>>>
```

# Names

# Objects

## References

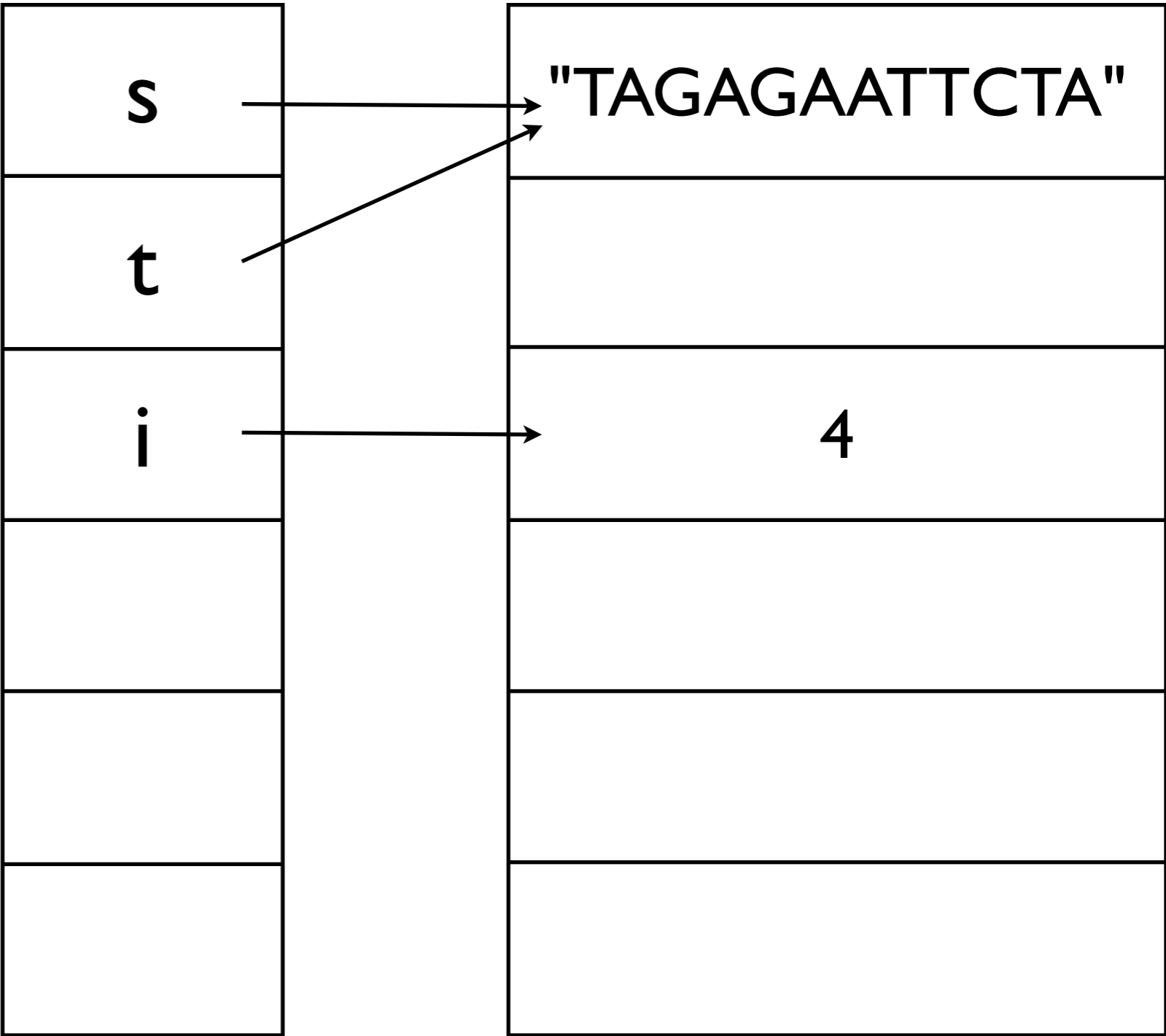


```
>>> s = "TAGAGAATTCTA"  
>>> t = "GAAT"  
>>> i = s.find(t)  
>>> print i  
4  
>>> t = s  
>>>
```

# Names

# References

# Objects

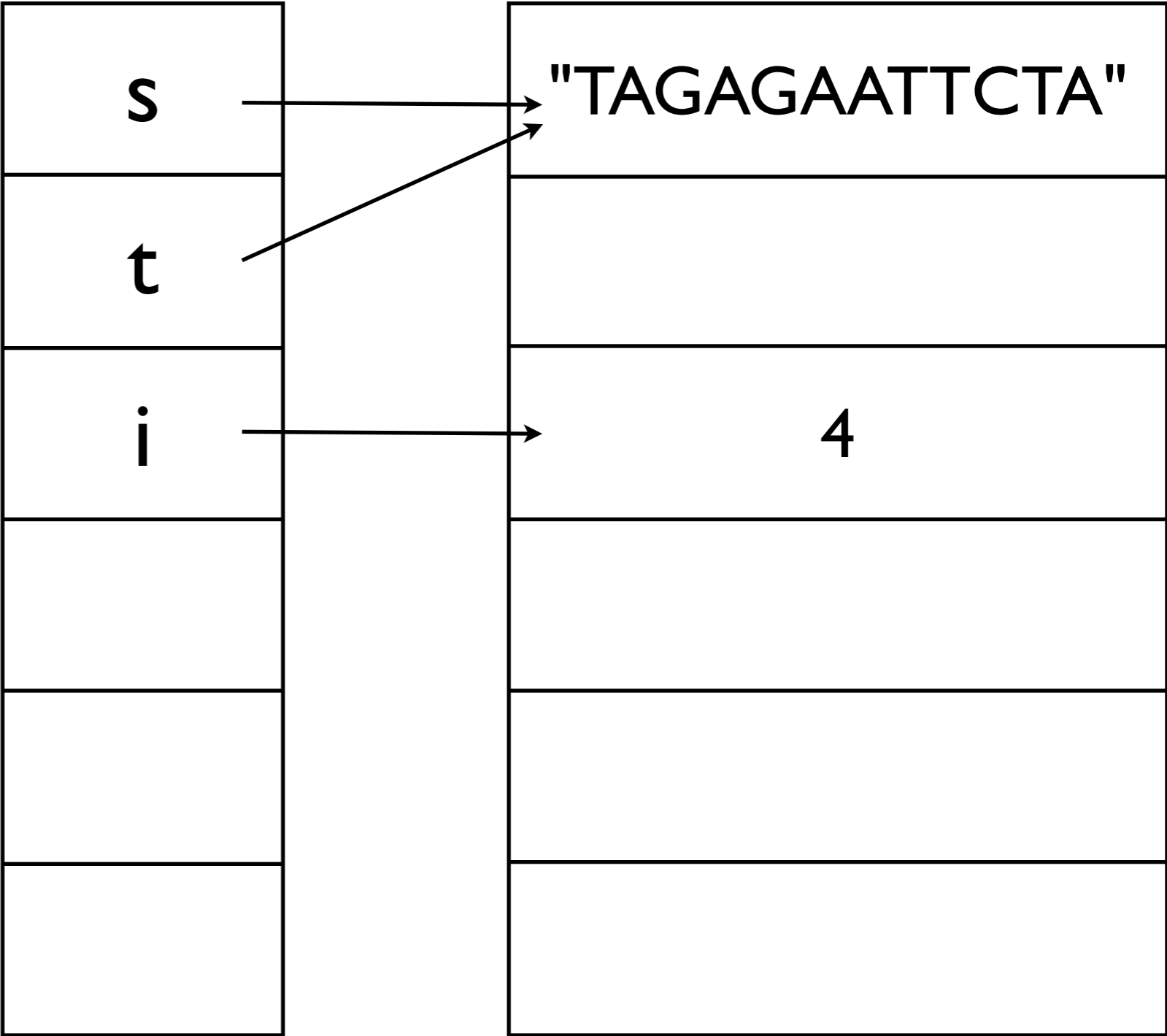


```
>>> s = "TAGAGAATTCTA"
>>> t = "GAAT"
>>> i = s.find(t)
>>> print i
4
>>> t = s
>>> a
Traceback (most recent call last):
  File "<stdin>", line 1, in ?
NameError: name 'a' is not defined
>>>
```

# Names

# Objects

## References

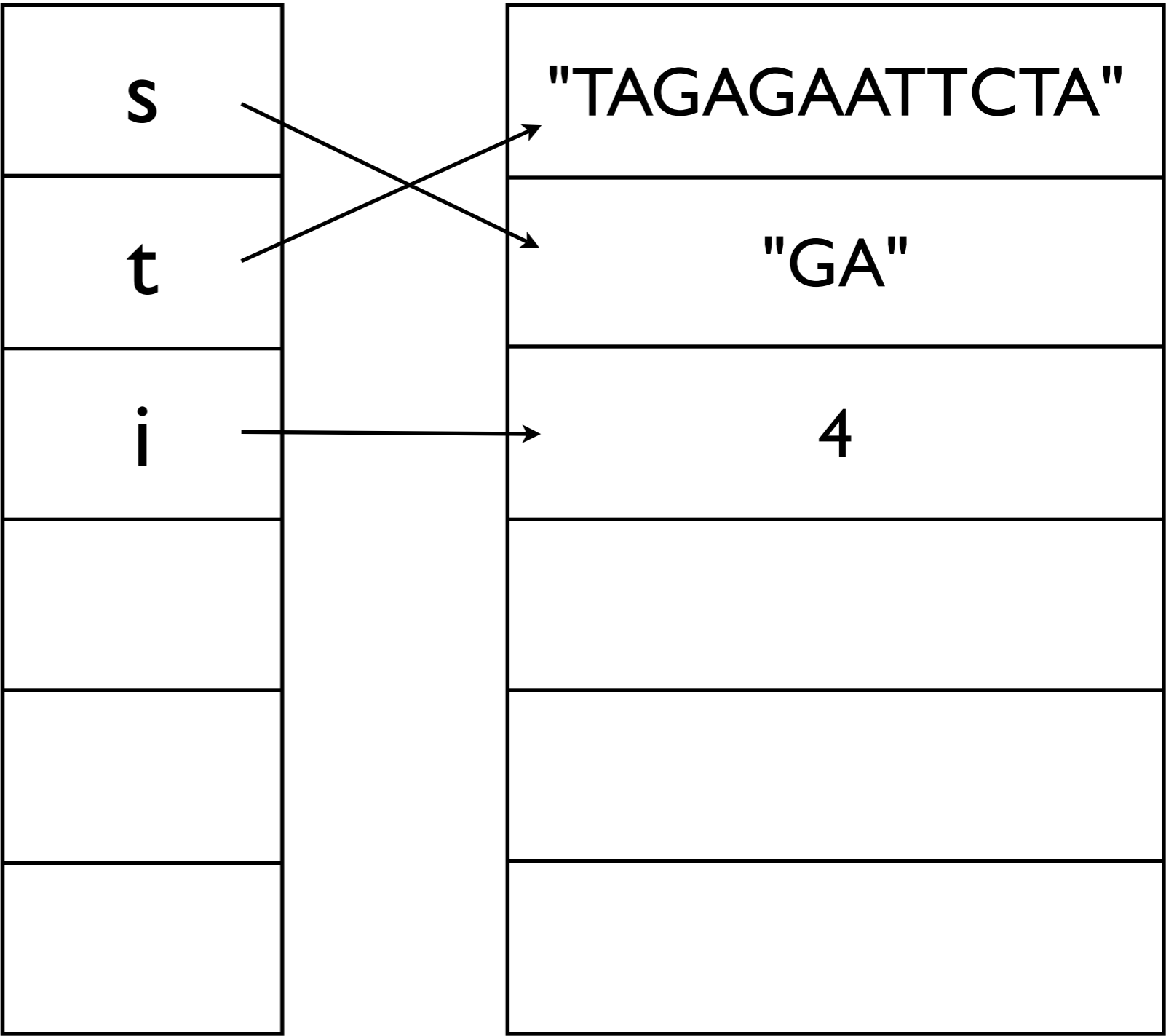


```
>>> s = "TAGAGAATTCTA"
>>> t = "GAAT"
>>> i = s.find(t)
>>> print i
4
>>> t = s
>>> a
Traceback (most recent call last):
  File "<stdin>", line 1, in ?
NameError: name 'a' is not defined
>>> s = "GA"
>>> print t
TAGAGAATTCTA
>>>
```

# Names

# Objects

## References





```
>>> s = "TAGAGAATTCTA"
>>> t = "GAAT"
>>> i = s.find(t)
>>> print i
4
>>> t = s
>>> a
Traceback (most recent call last):
  File "<stdin>", line 1, in ?
NameError: name 'a' is not defined
>>> s = "GA"
>>> print t
TAGAGAATTCTA
>>> del t
>>>
```

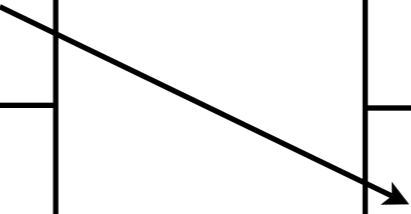
# Names

# Objects

## References

S
i

"GA"
4

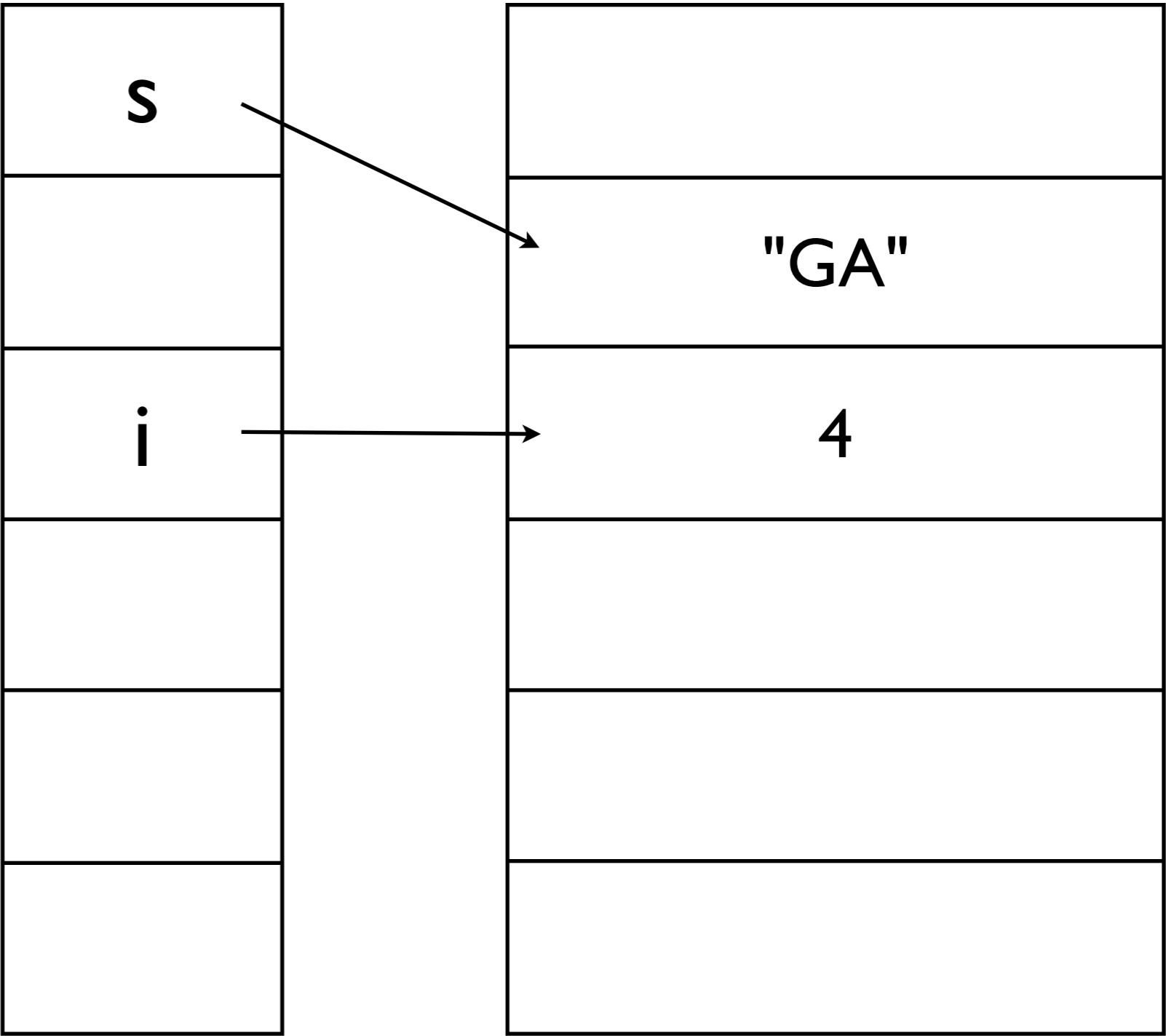


```
>>> s = "TAGAGAATTCTA"
>>> t = "GAAT"
>>> i = s.find(t)
>>> print i
4
>>> t = s
>>> print a
Traceback (most recent call last):
  File "<stdin>", line 1, in ?
NameError: name 'a' is not defined
>>> s = "GA"
>>> print t
TAGAGAATTCTA
>>> del t
>>> print t
Traceback (most recent call last):
  File "<stdin>", line 1, in ?
NameError: name 't' is not defined
>>>
```

# Names

# Objects

## References



```
>>> L1 = [2, 4]
>>>
```

# Names

L1

# References



# Objects

[2, 4]

```
>>> L1 = [2, 4]
>>> L1.append(5)
>>>
```

# Names

L1

# References



# Objects

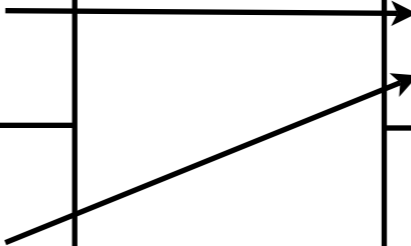
[2, 4, 5]

```
>>> L1 = [2, 4]
>>> L1.append(5)
>>> L2 = L1
>>>
```

# Names

L1
L2

# References



# Objects

[2, 4, 5]

```
>>> L1 = [2, 4]
>>> L1.append(5)
>>> L2 = L1
>>> L2.append(7)
>>> print L1
[2, 4, 5, 7]
>>> print L2
[2, 4, 5, 7]
>>>
```

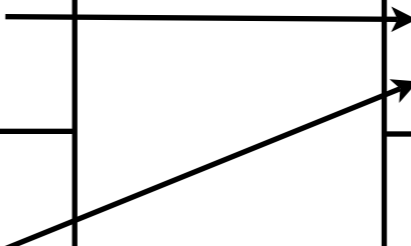
# Names

# Objects

## References

L1
L2

[2, 4, 5, 7]



```
>>> L1 = [2, 4]
>>> L1.append(5)
>>> L2 = L1
>>> L2.append(7)
>>> print L1
[2, 4, 5, 7]
>>> print L2
[2, 4, 5, 7]
>>> del L2[1]
>>>
```

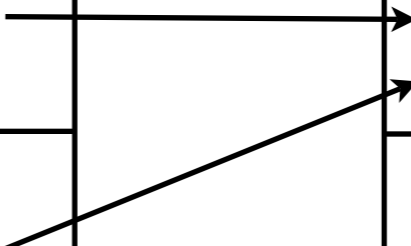
# Names

# Objects

## References

L1
L2

[2, 5, 7]

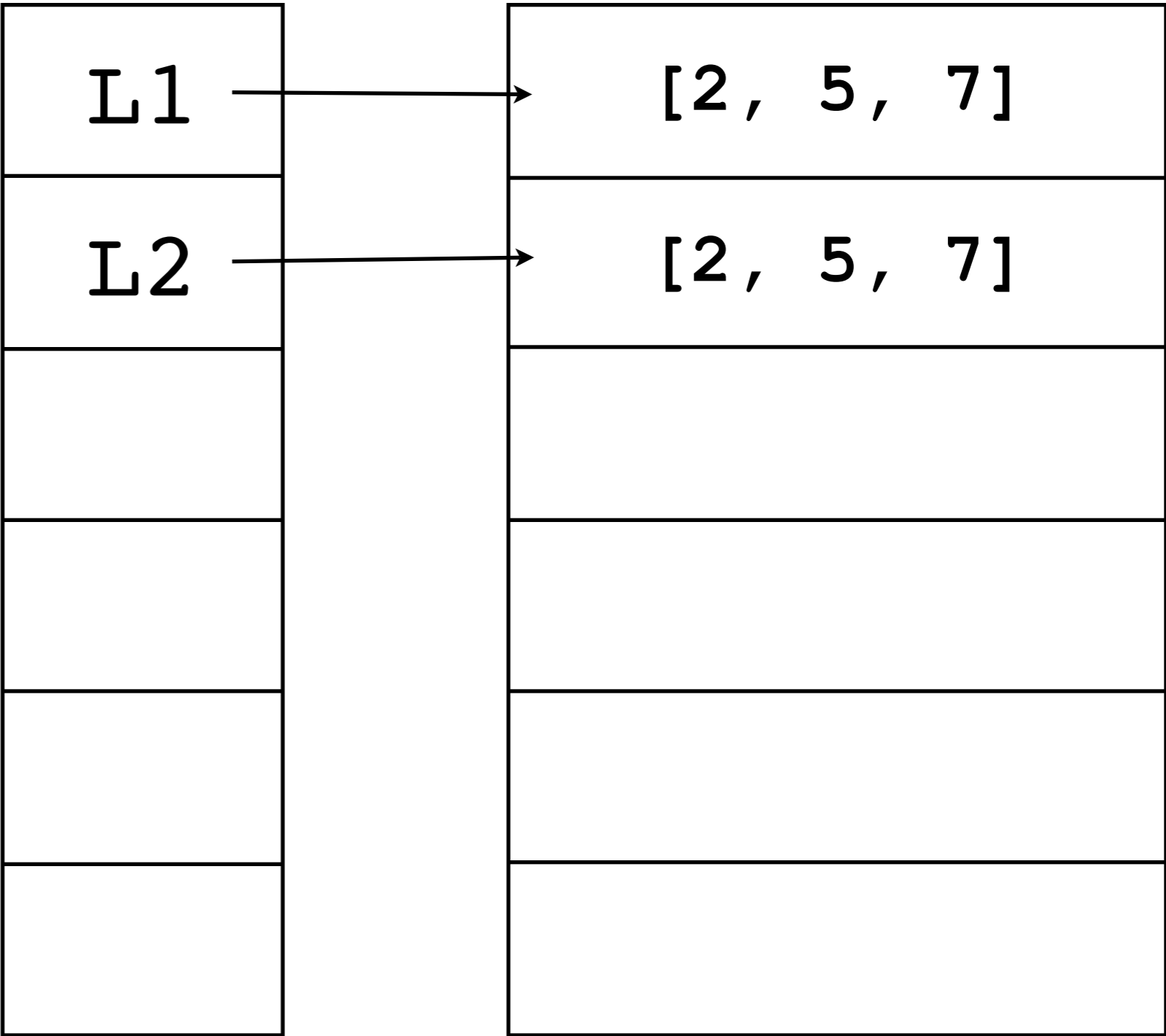


```
>>> L1 = [2, 4]
>>> L1.append(5)
>>> L2 = L1
>>> L2.append(7)
>>> print L1
[2, 4, 5, 7]
>>> print L2
[2, 4, 5, 7]
>>> del L2[1]
>>> L2 = L1[:]
>>> L1 == L2
True
>>>
```

# Names

# Objects

## References





```
>>> L1 = [2, 4]
>>> L1.append(5)
>>> L2 = L1
>>> L2.append(7)
>>> print L1
[2, 4, 5, 7]
>>> print L2
[2, 4, 5, 7]
>>> del L2[1]
>>> L2 = L1[:]
>>> L1 == L2
True
>>> L1.reverse()
>>> L1 == L2
False
>>>
```

