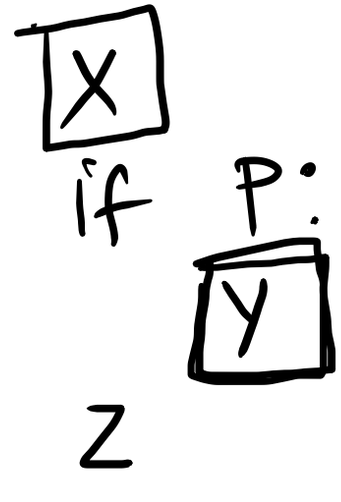
Straight-line code

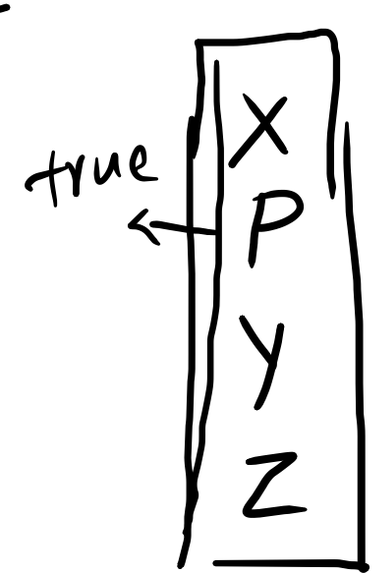
Why is this easy?

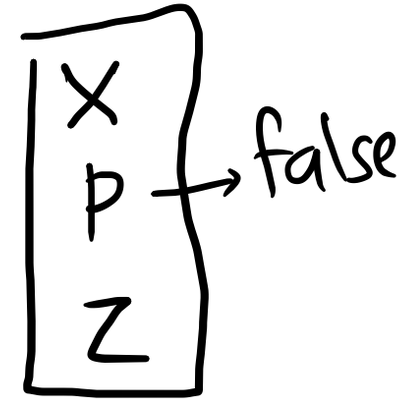
- nested loops
- break and continue
- nested if
- functions
- nested functions

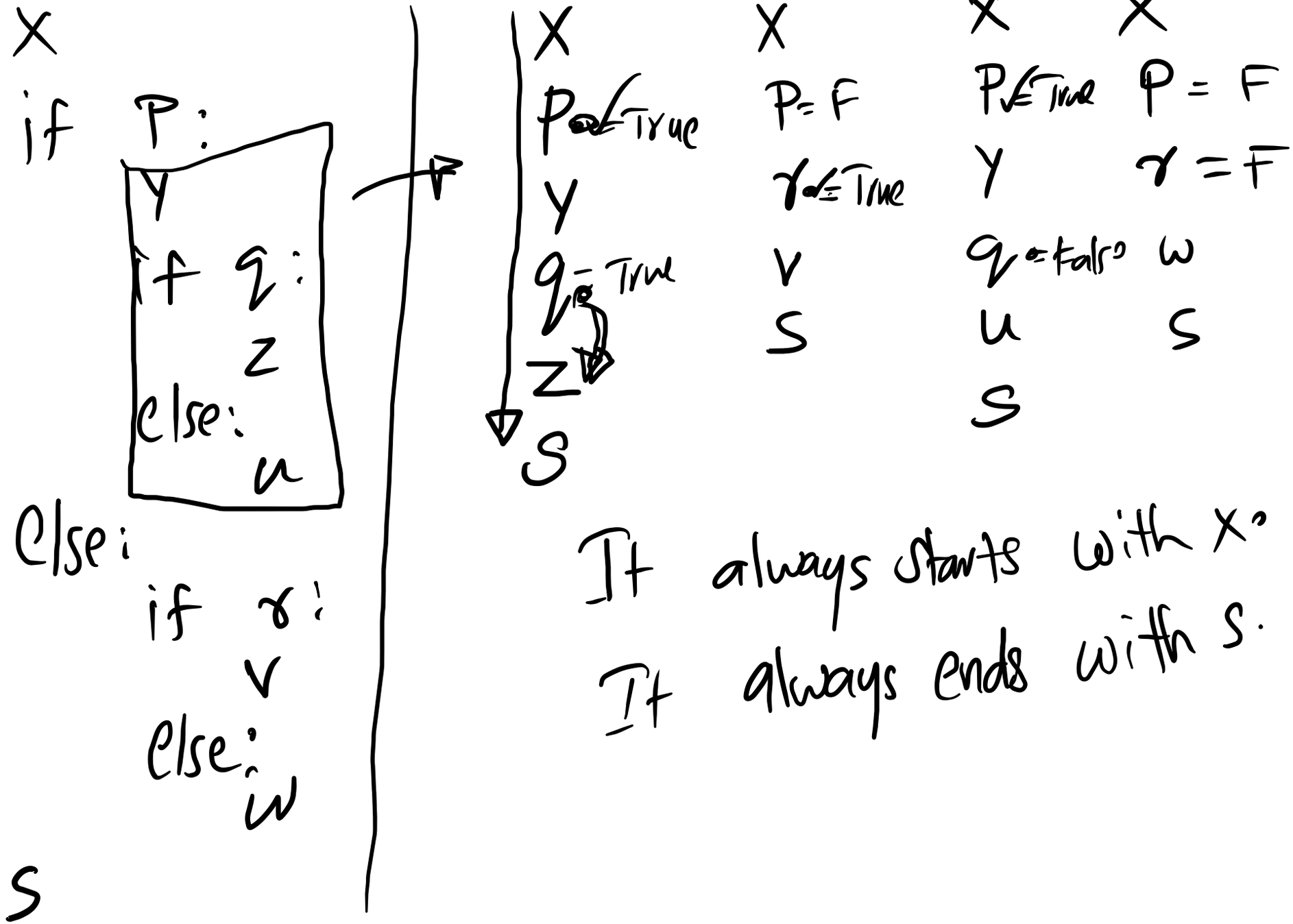
Nested if → Try and make it **linear.**

Normal if.



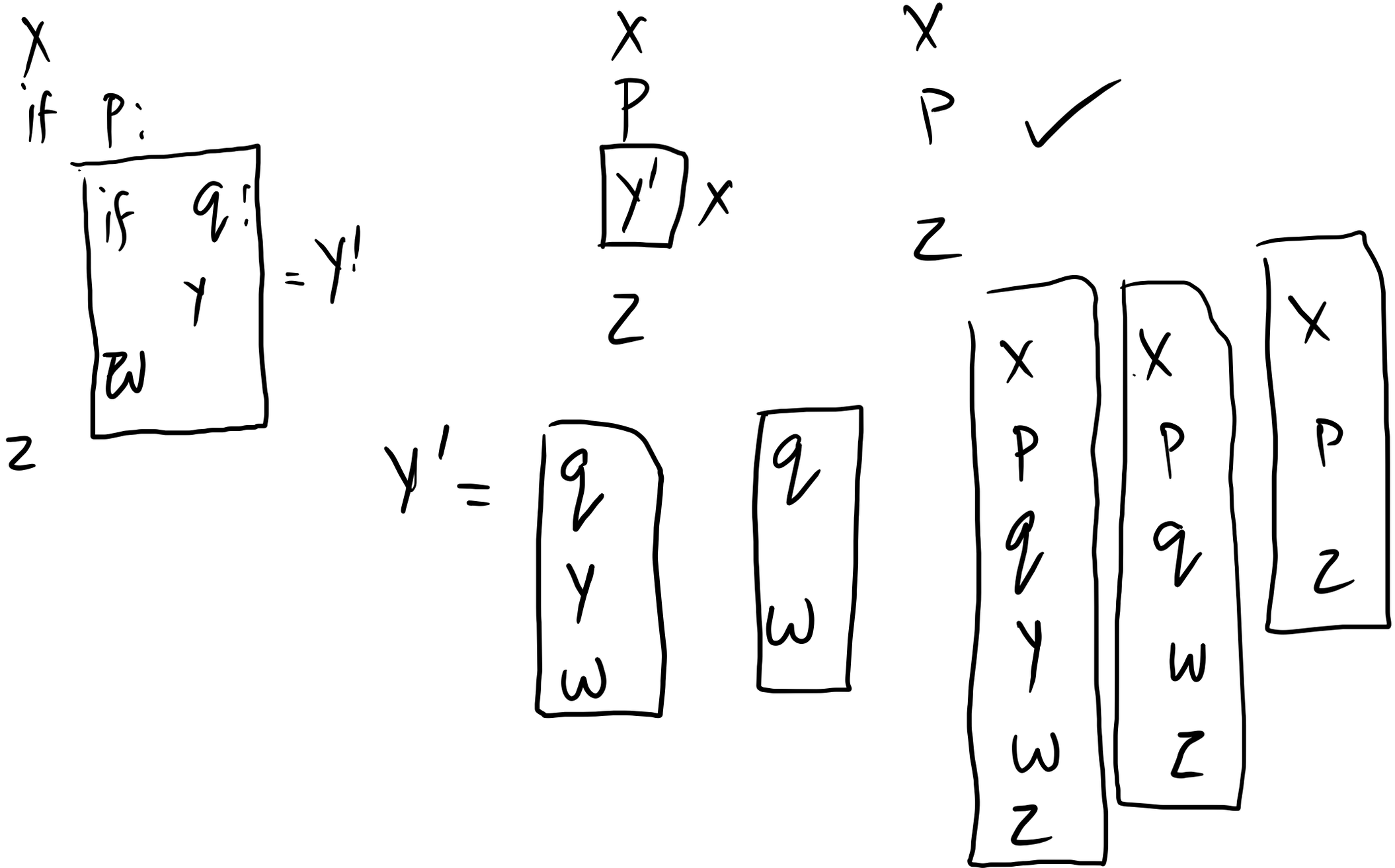






It always starts with X.

It always ends with S.


X
if P:
if q:
y
w
= y'
z
X
P
y'
x
z
X
P
✓
z
X
P
q
y
w
z
X
P
q
w
z
X
P
z
y' =
q
y
w
q
w

Loops

```
X
while P:
    Y
Z
```

Linear

```
X
P=F
Z
```

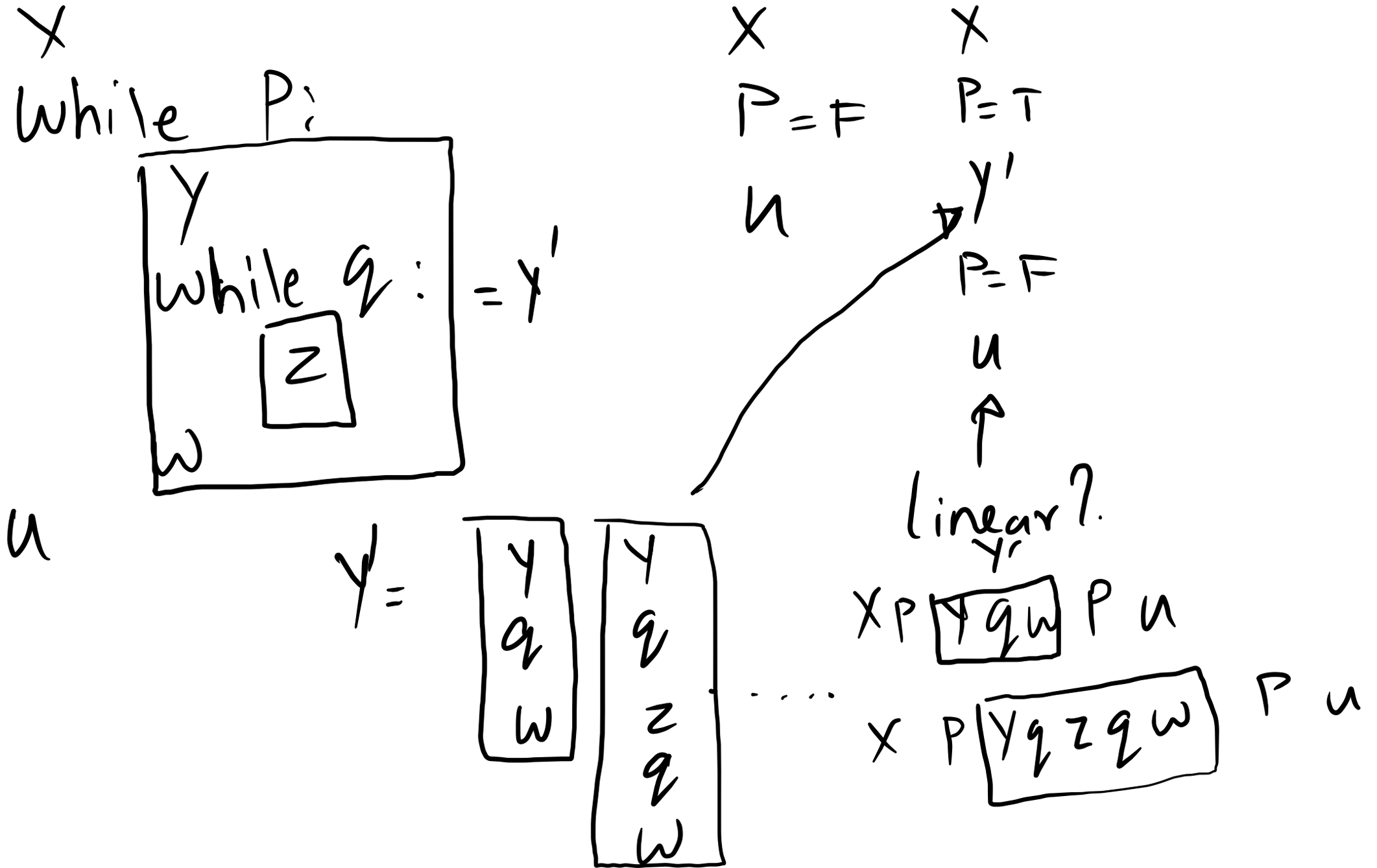
```
X
P=T
Y
P=F
Z
X
```

```
X
P=T
Y
P=T
Y
P=F
Z
```

. . . . .

Break & Continue

Why?


X
while P:
Y
while q:
z
w
:= Y'
X
P = F
u
X
P = T
Y'
P = F
u
linear?
u
Y =
Y
q
w
Y
q
z
q
w
Y'
X P Y q w P u
X P Y q z q w P u

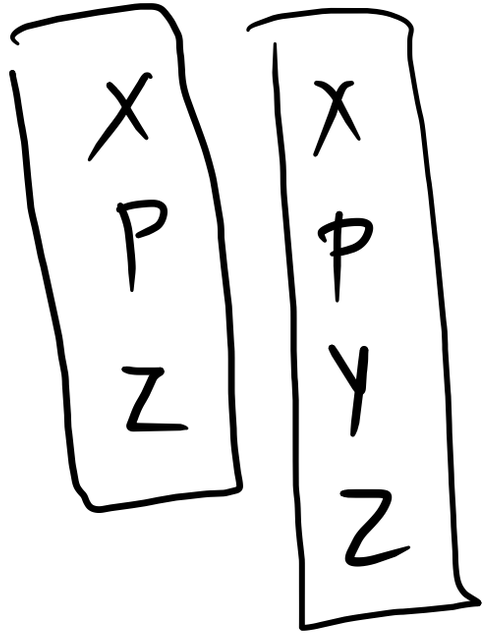
X

while P:

  break

Y

Z



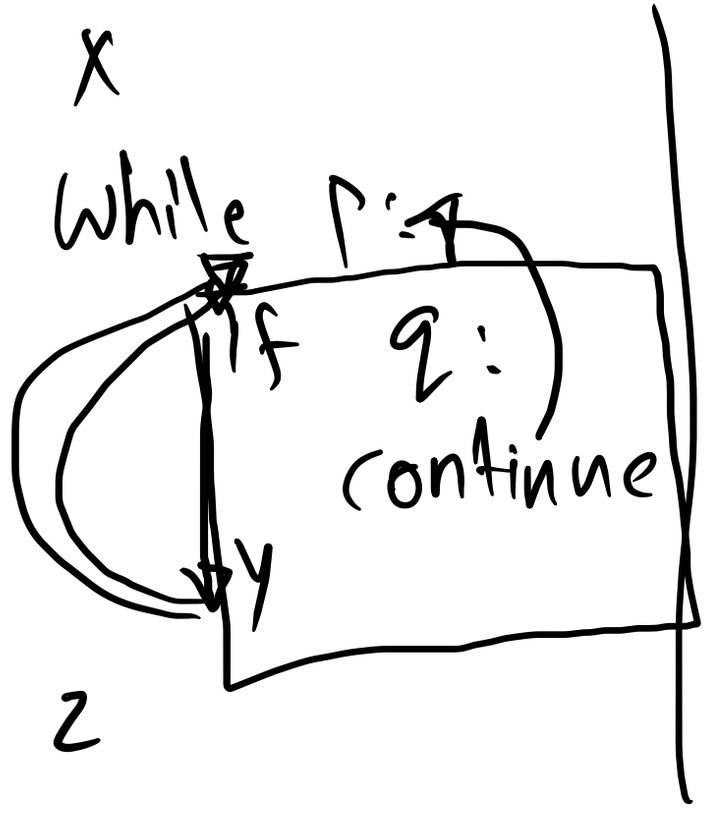
X P Z

X P Y P Z

X P Y P Y P Z

Can this happen?

No!



X

P=F

Z

X

P=T

Q=F

Y

P=F

Z

X

P=T

Q=T

P=F

Z

X

P=T

Q=T

P=T

Q=F

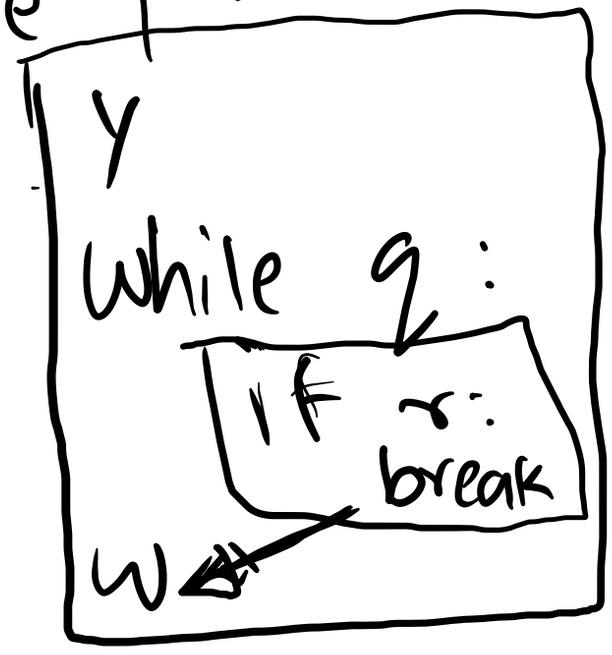
Y

P=F

Z

X

while p:



u

X

p = T

y

q = T

r = T

w

p = F

u