

MFP vs MOP Example

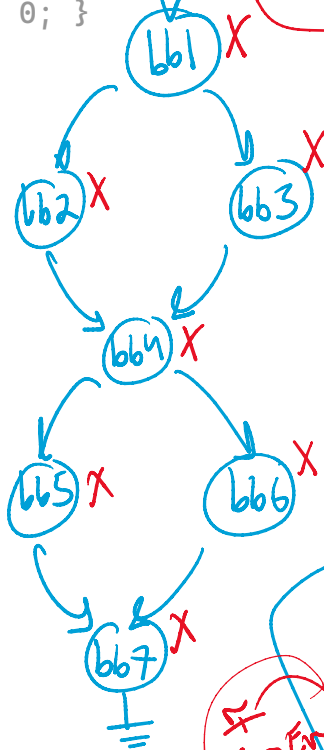
Tuesday, January 9, 2024 12:36 AM

```
let x:int = 0, y:int = input(),
    z:int = input();
```

```
if y != 0 { x = 1; }
else { x = 2; }
```

```
if z != 0 { x = x + x; }
else { x = 0; }
```

```
x = x + x;
return x;
```



```
bb1: x = $copy 0
      y = $call_ext input()
      z = $call_ext input()
      tmp1 = $cmp neq y 0
      $branch tmp1 bb2 bb3
```

```
bb2: x = $copy 1
      $jump bb4
```

```
bb3: x = $copy 2
      $jump bb4
```

```
bb4: tmp2 = $cmp neq z 0
      $branch tmp2 bb5 bb6
```

```
bb5: x = $arith add x x
      $jump bb7
```

```
bb6: x = $copy 0
      $jump bb7
```

```
bb7: x = $arith add x x
      $ret x
```

bb1

σ
$X \mapsto \text{zero}$
$y \mapsto T$
$z \mapsto T$
$\text{tmp1} \mapsto T$

σ

$X \mapsto \text{Even}$
$y \mapsto T$
$z \mapsto T$
$\text{tmp1} \mapsto T$

bb2

$X \mapsto \text{pos}$
$y \mapsto T$
$z \mapsto T$
$\text{tmp1} \mapsto T$

$X \mapsto \text{odd}$

bb3

$X \mapsto \text{pos}$
$y \mapsto T$
$z \mapsto T$
$\text{tmp1} \mapsto T$

$X \mapsto \text{Even}$

bb4

$X \mapsto \text{pos}$
$y \mapsto T$
$z \mapsto T$
$\text{tmp1} \mapsto T$
$\text{tmp2} \mapsto T$

σ_1

$X \mapsto \text{odd}$

σ_2

$X \mapsto \text{Even}$

$X \mapsto T$

bb5

$X \mapsto \text{pos}$
\vdots

σ_1

$X \mapsto \text{Even}$

σ_2

$X \mapsto \text{Even}$

bb7

$X \mapsto T$
\vdots

σ_1

$X \mapsto \text{Even}$

σ_2

$X \mapsto \text{Even}$

σ_3

$X \mapsto \text{Even}$

σ_4

$X \mapsto \text{Even}$

bb6

$X \mapsto \text{zero}$
\vdots

σ_1

$X \mapsto \text{Even}$

σ_2

$X \mapsto \text{Even}$
