

## Sign Analysis Example 2

Thursday, January 11, 2024 3:03 AM

```
let g1: int, g2:&int;
```

```
fn foo(p:int, q:&int) -> int {  
  let x:int = 0, y:int = -2;
```

```
  g1 = 4;  
  *q = 12;  
  y = *q;  
  q = &x;
```

```
  return x + y;  
}
```

```
g1:int  
g2:&int
```

```
fn foo(p:int, q:&int) -> int {  
  let _t1:int, _t2:int, _t3:&int,  
  _t4:int, x:int, y:int
```

$\sigma = [g1 \mapsto T, p \mapsto T]$

```
  entry:
```

```
  \ x = $copy 0
```

```
  \ _t1 = $arith sub 0 2
```

```
  \ y = $copy _t1
```

```
  \ g1 = $copy 4
```

```
  \ $store q 12
```

```
  \ _t2 = $load q
```

```
  \ y = $copy _t2
```

```
  \ _t3 = $addrof x
```

```
  \ q = $copy _t3
```

```
  \ _t4 = $arith add x y
```

```
  \ $ret _t4
```

```
}
```

$\text{addrof-ints} = \{g1, x\}$

$x \mapsto \text{zero}$

$_{t1} \mapsto \text{neg}$

$y \mapsto \text{neg}$

$g1 \mapsto \text{pos}$

$g1 \mapsto \text{pos}$

$x \mapsto T$

$_{t2} \mapsto T$

$y \mapsto T$

$_{t4} \mapsto T$