

22-1

```
#define FOO "Hello
printf(FOO world\n");
```

```
#define foo(x,y) x+y*2
foo(a+b,c+d)
```

$\Rightarrow a+b + c+d*2$
 $\Rightarrow (a+b) + (c+d)*2$

```
#define discriminate(a,b,c)
((b)*(b) - 4*(a)*(c))
```

```
discriminate(5,
make-beep(), 7)
```

```
{ int _tmp8472 = b;
(-tmp8472*tmp8472 - 4*(a)*(c)); }
```

```
discriminate(_tmp84, 4, 5)
```

```
(define-syntax-rule (disc a b c)
(let ([tmp b])
(- (* tmp tmp) (x 4 a c))))
```

```
(let ([tmp 8])
(disc tmp 4 2))
```

```
 $\Rightarrow$ 
(let ([tmpblue 8])
(let ([tmpred 4])
(- (* tmpred tmpred) (xblue 4 tmpblue 2))))
```

```
(macro
(let ([*blue launch-the-missiles-at-
gps-coord])
(discriminate 1 2 3)))
```

```
(let ([x 8])
(match (cons 1 2)
[(cons x y)  $\Rightarrow$  (+ x y)]))
```

"Hygiene Condition"

- It is impossible to write a macro that inserts a binding that can capture references other than those inserted by the macro.
- It is impossible to write a macro that inserts a reference to a binding ~~other~~ other than those inserted by macro.

Oleg Kiselyov - discovered violations

Date	Description
1/1/20	Initial deposit
1/2/20	Withdrawal
1/3/20	Interest
1/4/20	Transfer
1/5/20	Withdrawal
1/6/20	Interest
1/7/20	Transfer
1/8/20	Withdrawal
1/9/20	Interest
1/10/20	Transfer
1/11/20	Withdrawal
1/12/20	Interest
1/13/20	Transfer
1/14/20	Withdrawal
1/15/20	Interest
1/16/20	Transfer
1/17/20	Withdrawal