

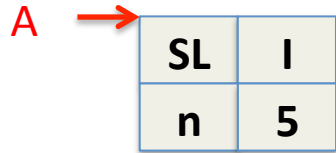
Ambiente

Run-time & Run-time Simulation

Un esempio

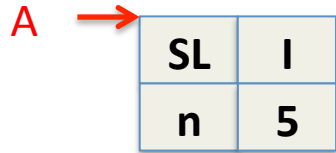
```
let n = 5;;  
let h = fun x -> n + x ;;  
let rec f g n = if n = 1 then g(n) else n * f g (n-1);;  
f h 2;;
```

Run-time Stack



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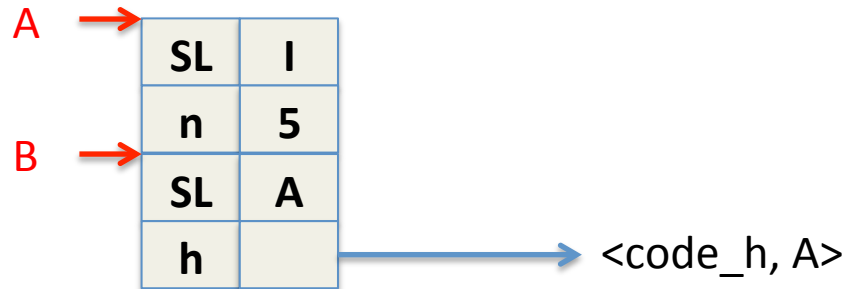
Run-time Stack: simulation



Env_A(n) = 5
Env_A(m) = unbond
for all m ≠ n

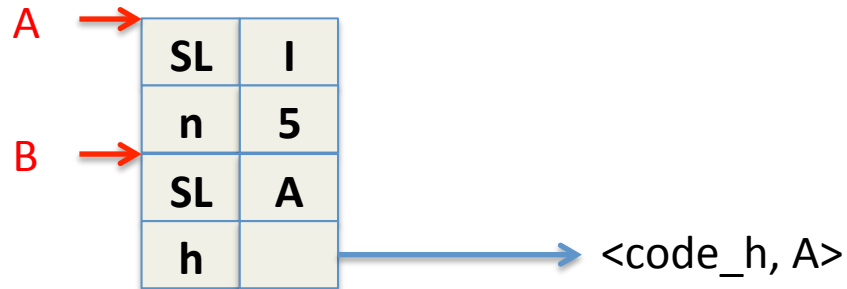
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Run-time Stack



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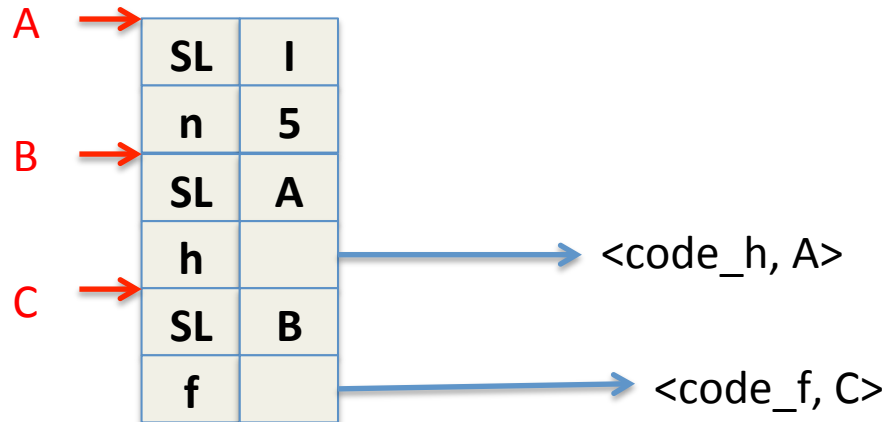
Run-time Stack: simulation



Env_A(n) = 5
Env_A(m) = unbond
for all m != n
Env_B (n) = 5
Env_B(h) = <code_h, Env_A>

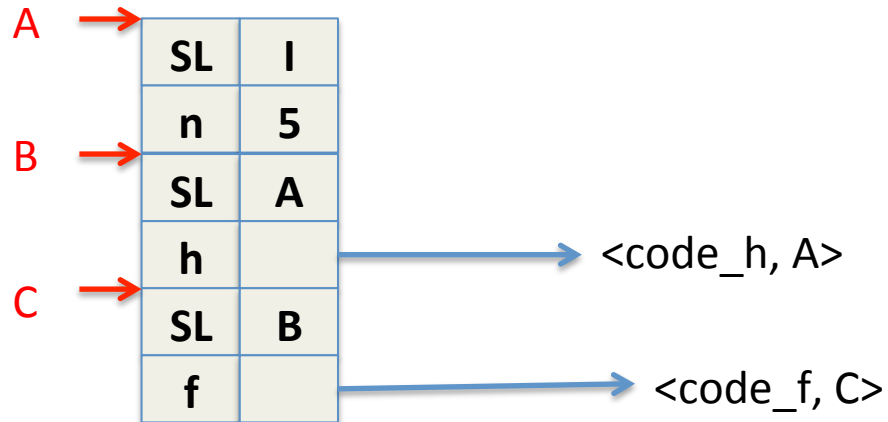
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Run-time Stack



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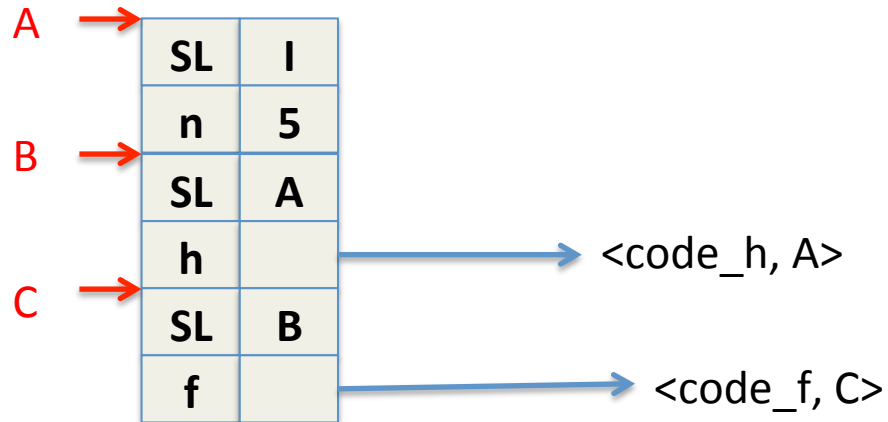
Run-time Stack: simulation



Env_A(n) = 5
Env_A(m) = unbond
for all m != n
Env_B (n) = 5
Env_B(h) = <code_h, Env_A>
Env_C(f) = <code_f, Env_C>
Env_C(h) = <code_h, Env_A>
Env_C(n) = 5

```
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Run-time Stack: simulation



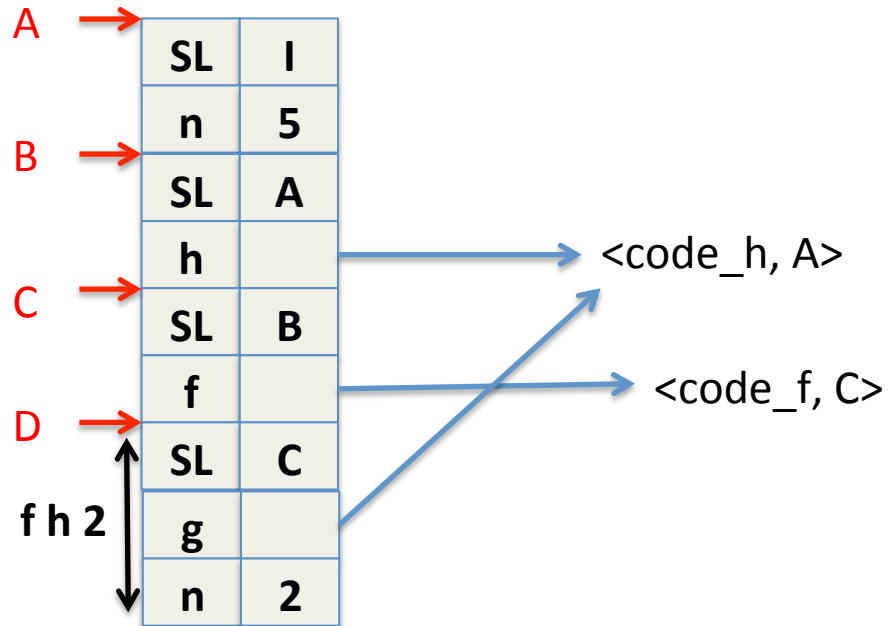
Env_A(n) = 5
Env_A(m) = unbond
for all m != n
Env_B (n) = 5
Env_B(h) = <code_h, Env_A>

Env_C(f) = <code_f, Env_C>
Env_C(h) = <code_h, Env_A>
Env_C(n) = 5

Definizione ricorsiva:

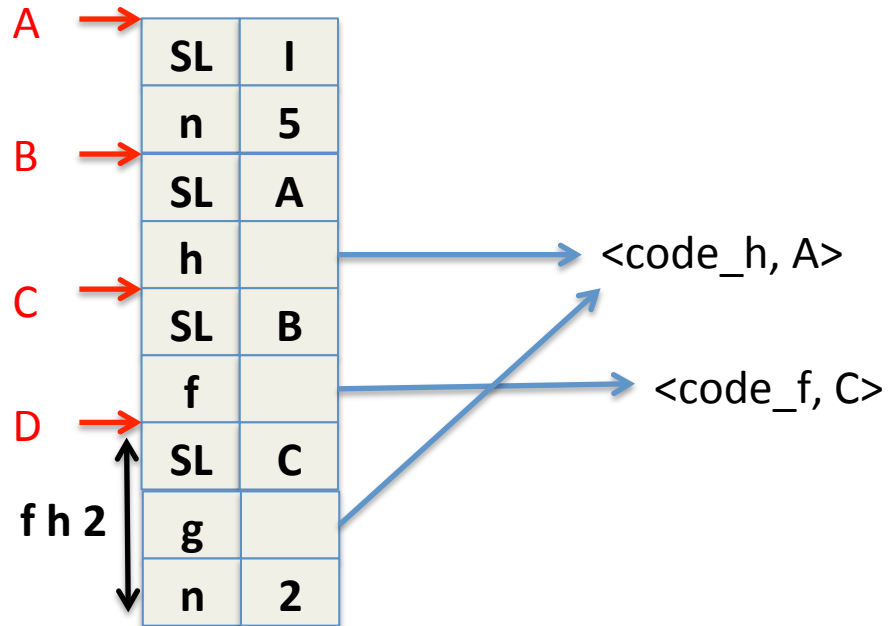
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Run-time Stack



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let n = 5;;  
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let rec f g n = if n = 1 then g(n) else n * f g (n-1);;  
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Run-time Stack: simulation

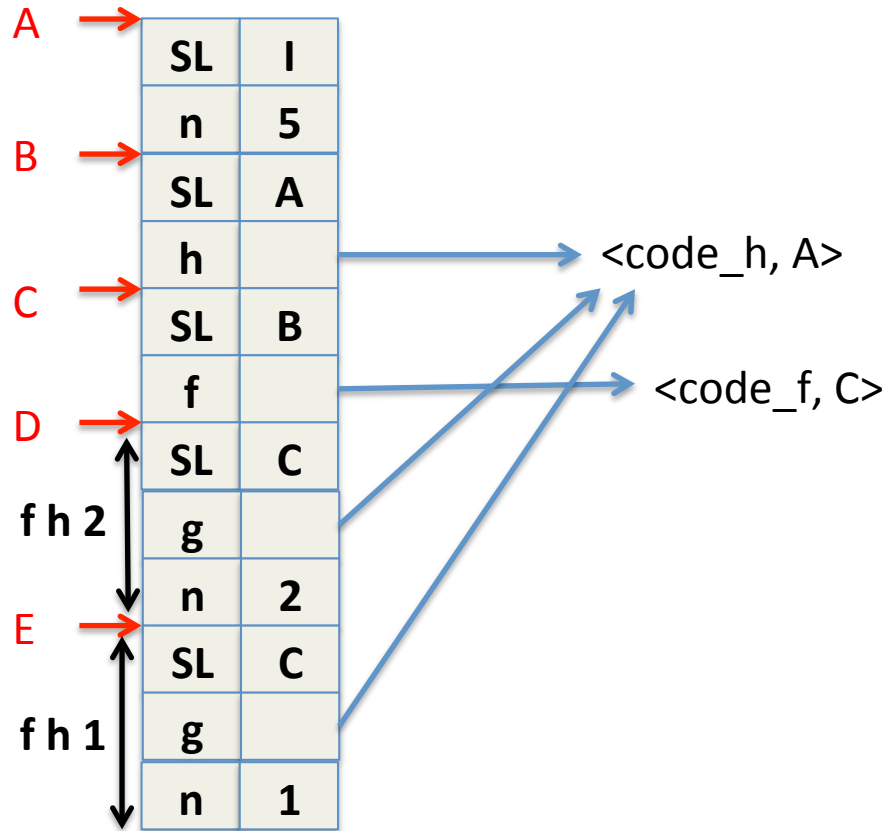


Env_A(n) = 5
 Env_A(m) = unbond
 for all m != n
 Env_B (n) = 5
 Env_B(h) = <code_h, Env_A>
 Env_C(f) = <code_f, Env_C>
 Env_C(h) <code_h, Env_A>
 Env_C(n) = 5
 Env_D(g) = <code_h, Env_A>
 Env_D(n) = 2
 Env_D(f) = <code_f, Env_C>
 Env_D(h) <code_h, Env_A>

```

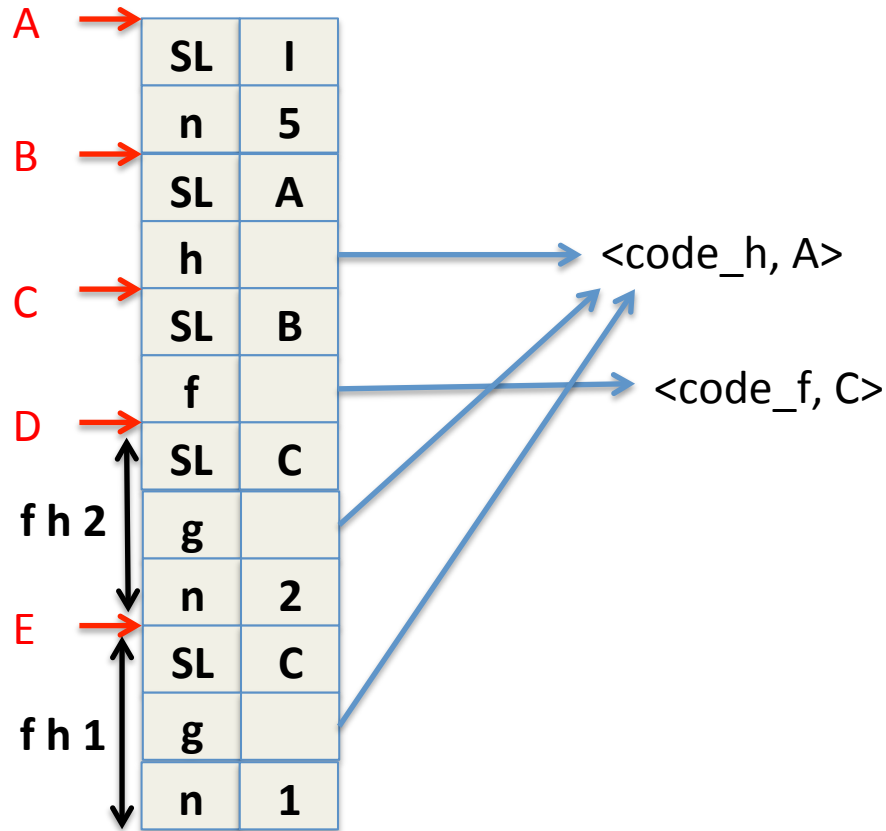
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Run-time Stack



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f h 2;;
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Run-time Stack: simulation



Env_A(n) = 5
 Env_A(m) = unbond
 for all m != n
 Env_B (n) = 5
 Env_B(h) = <code_h, Env_A>
 Env_C(f) = <code_f, Env_C>
 Env_C(h) <code_h, Env_A>
 Env_C(n) = 5
 Env_D(g) = <code_h, Env_A>
 Env_D(n) = 2
 Env_D(f) = <code_f, Env_C>
 Env_D(h) <code_h, Env_A>
 Env_E(g) = <code_h, Env_A>
 Env_E(n) = 1
 Env_E(f) = <code_f, Env_C>
 Env_E(h) <code_h, Env_A>

```

let n = 5;;
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f h 2;;
  
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