# FACTORIAL

n! = n*(n-1)*(n-2)*(n-3)* … * 1

- for what n do we know the factorial?

$n = 1 \rightarrow$ $if\ n == 1:$
$return\ 1$

Base case

- how to reduce problem? Rewrite in terms of something simpler to reach base case

$n * (n-1)! \rightarrow$ $else:$
$return\ n * factorial(n-1)$

Recursive step

# RECURSIVE FUNCTION SCOPE EXAMPLE

```
int fact(n):
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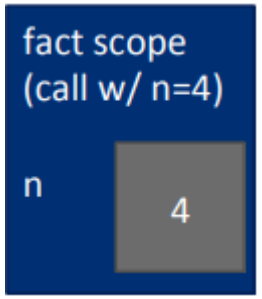

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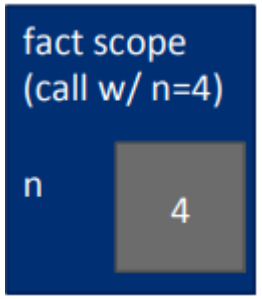


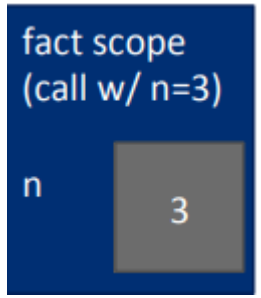

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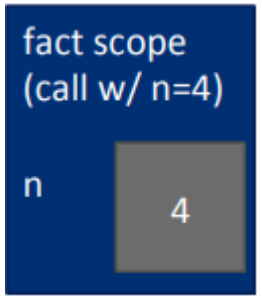


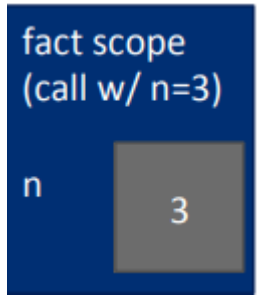


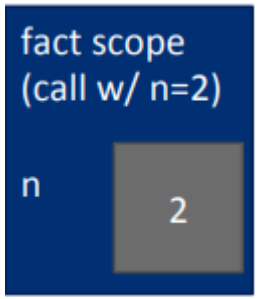

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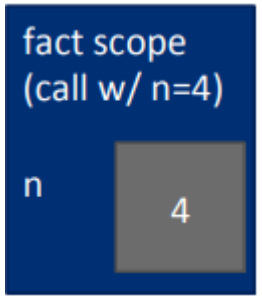


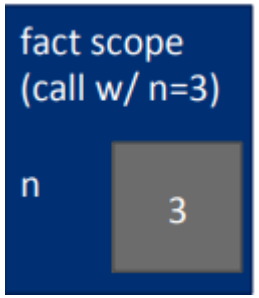


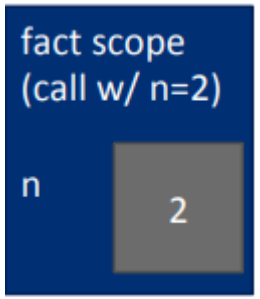


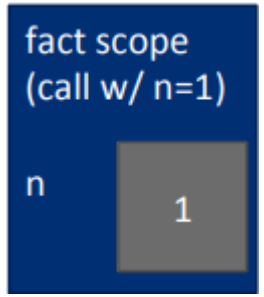

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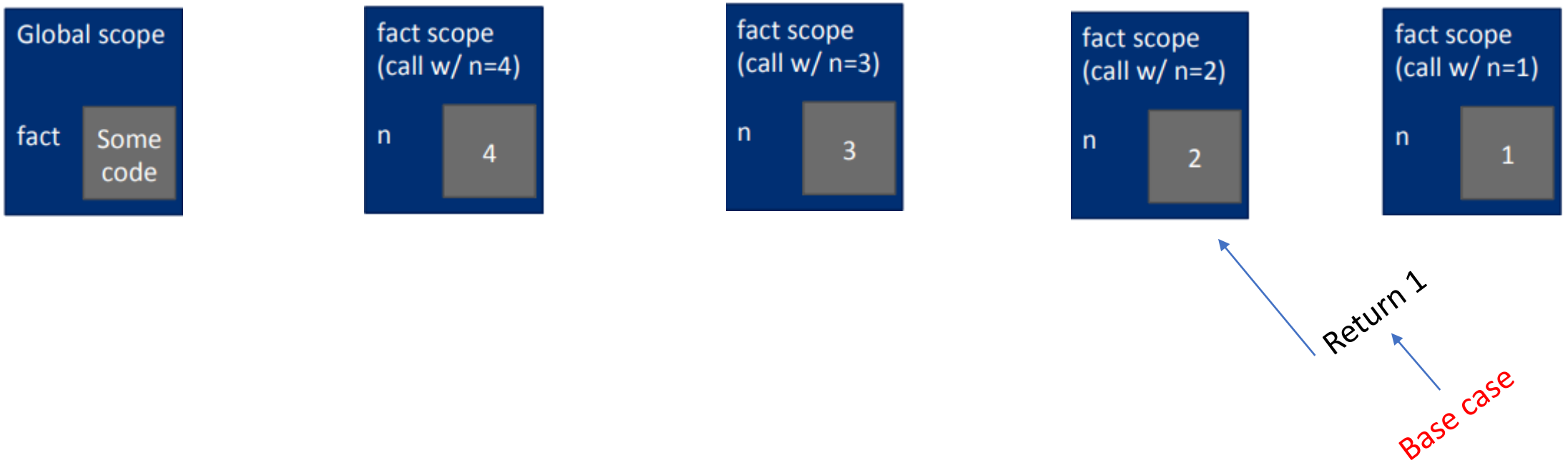

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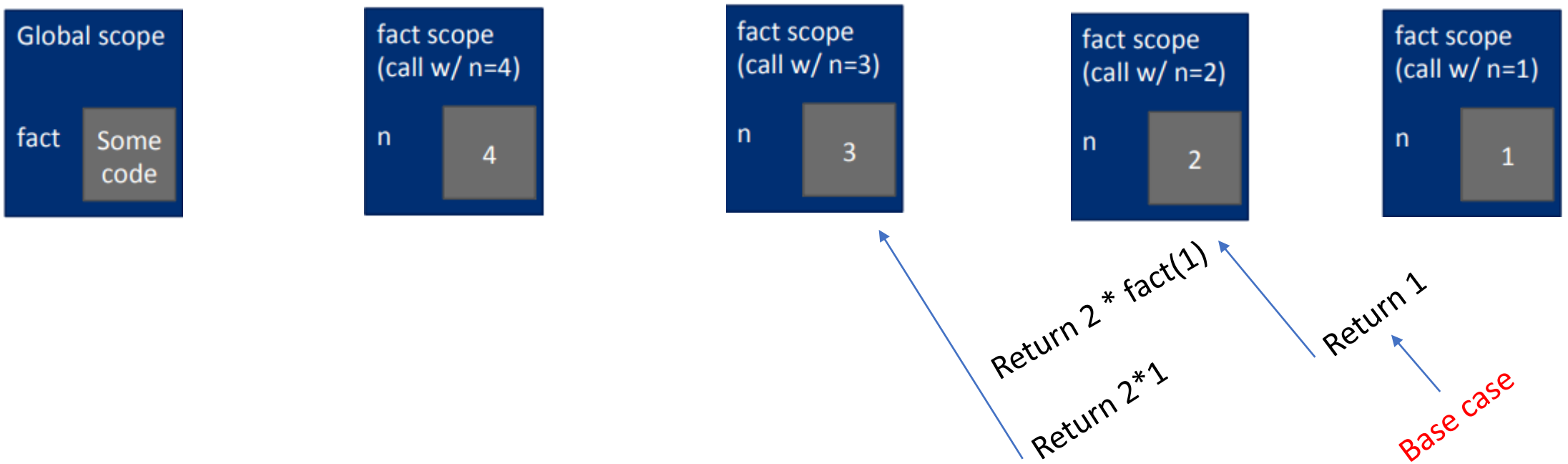

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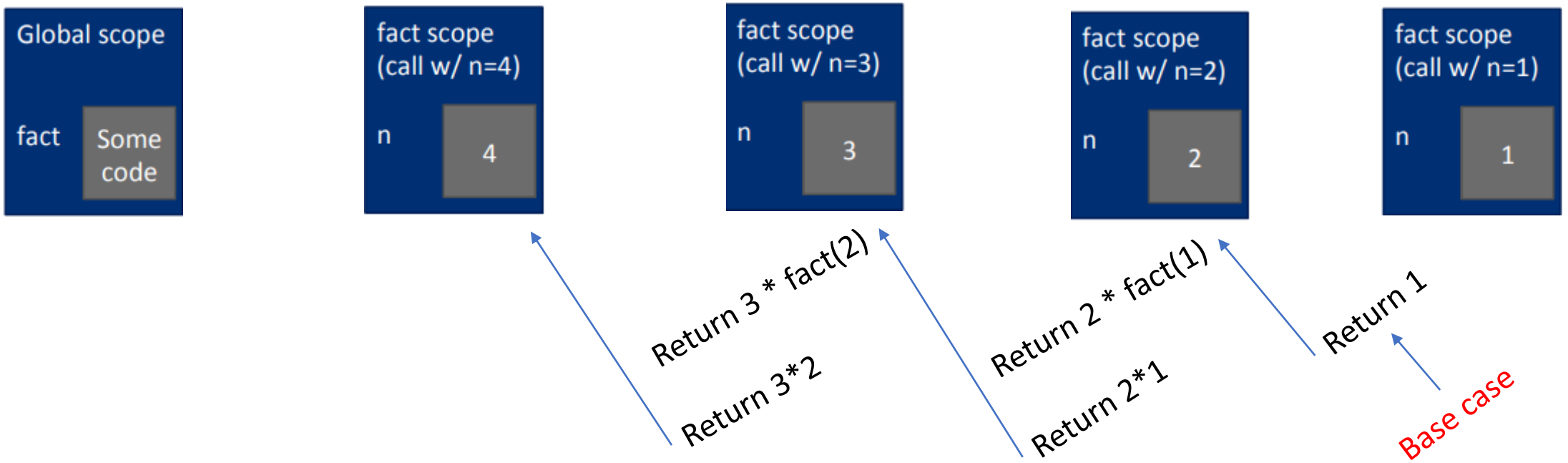

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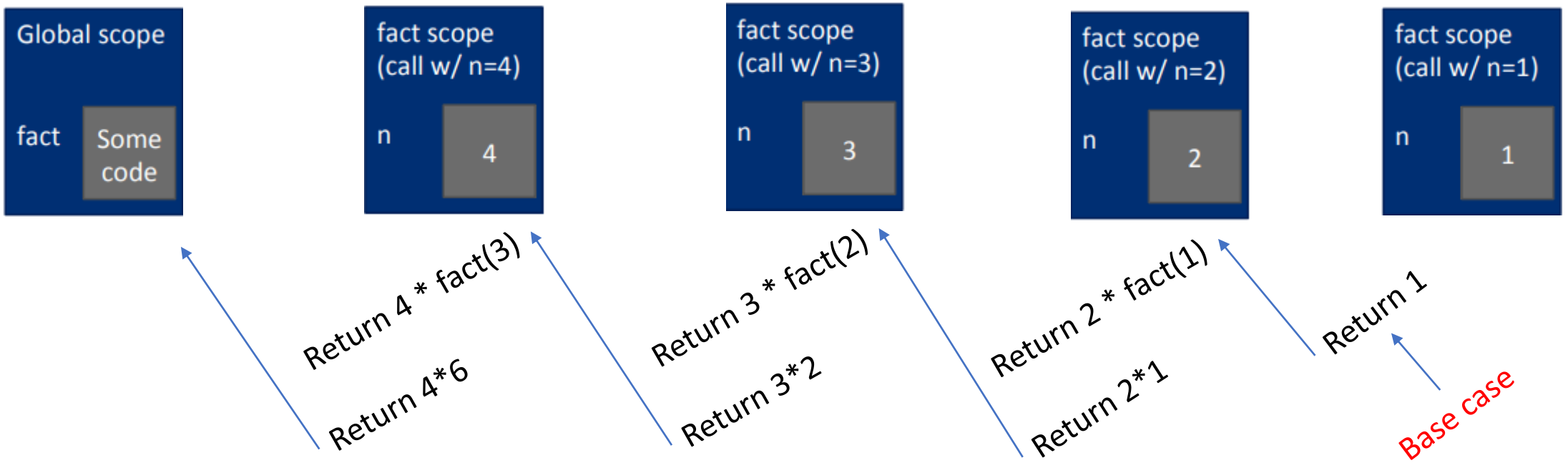

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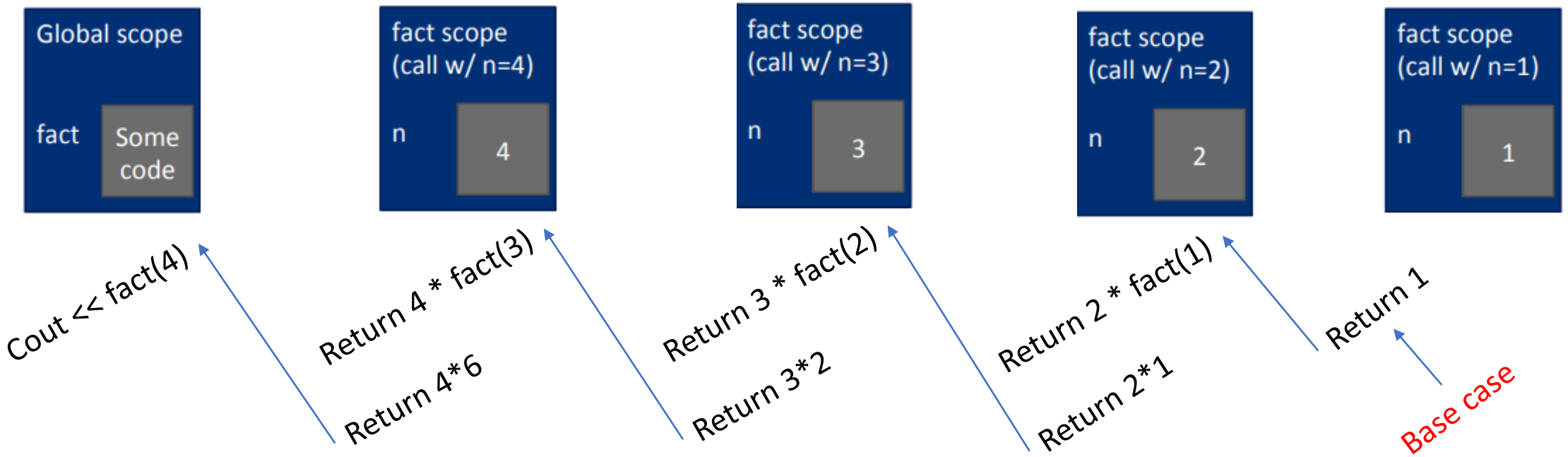
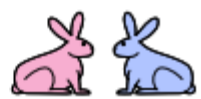
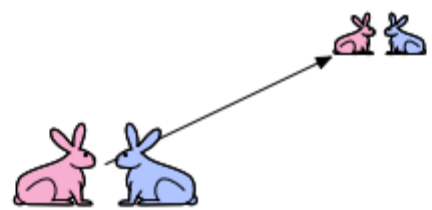
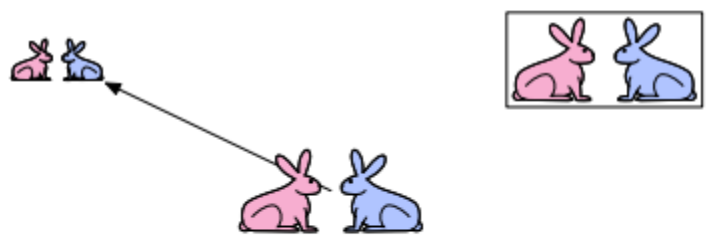
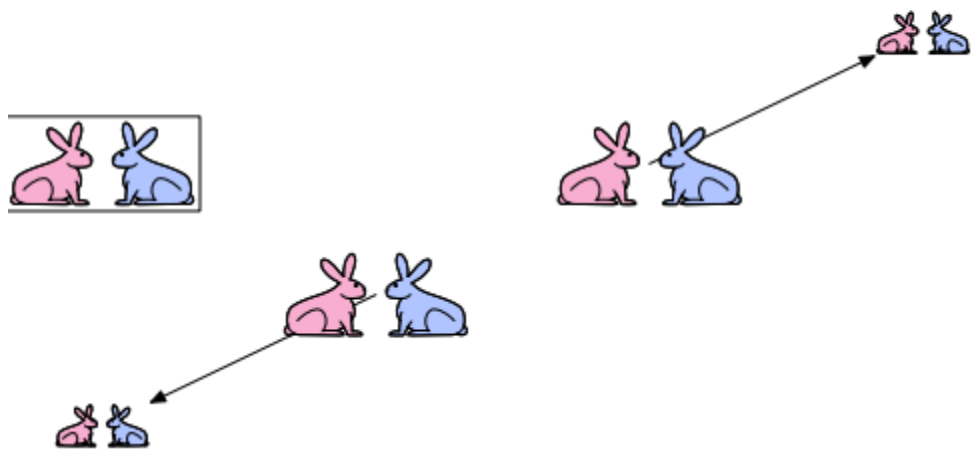
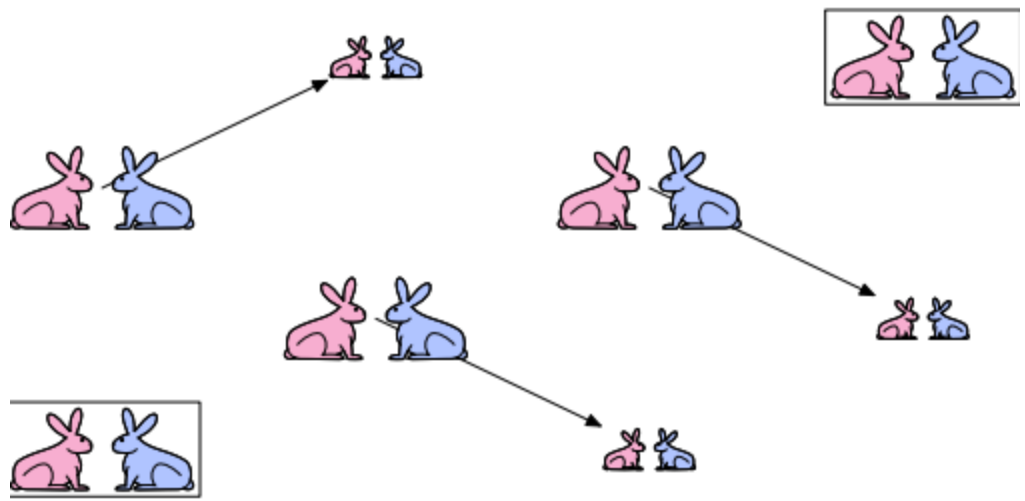


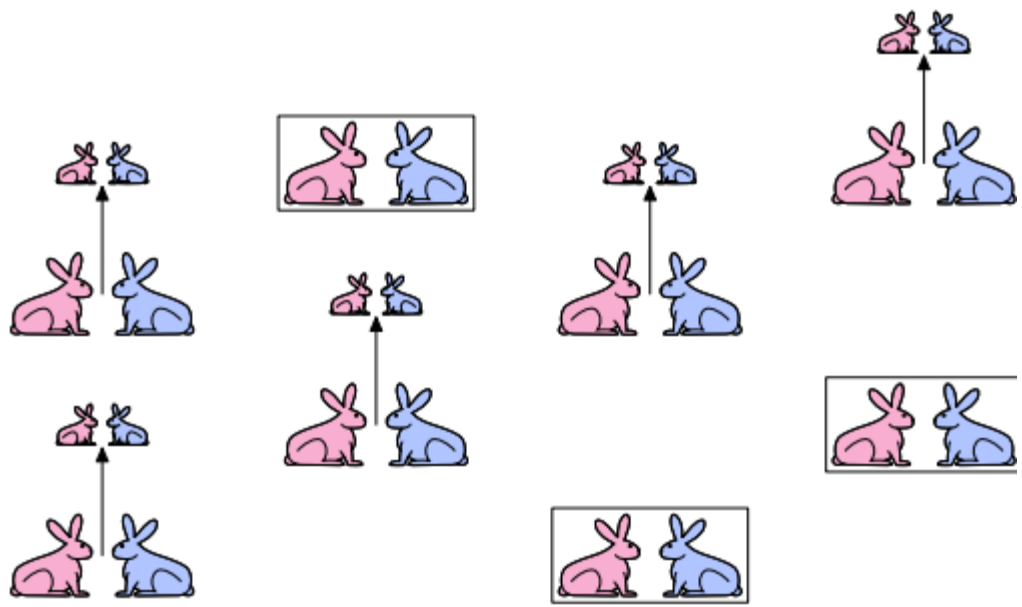


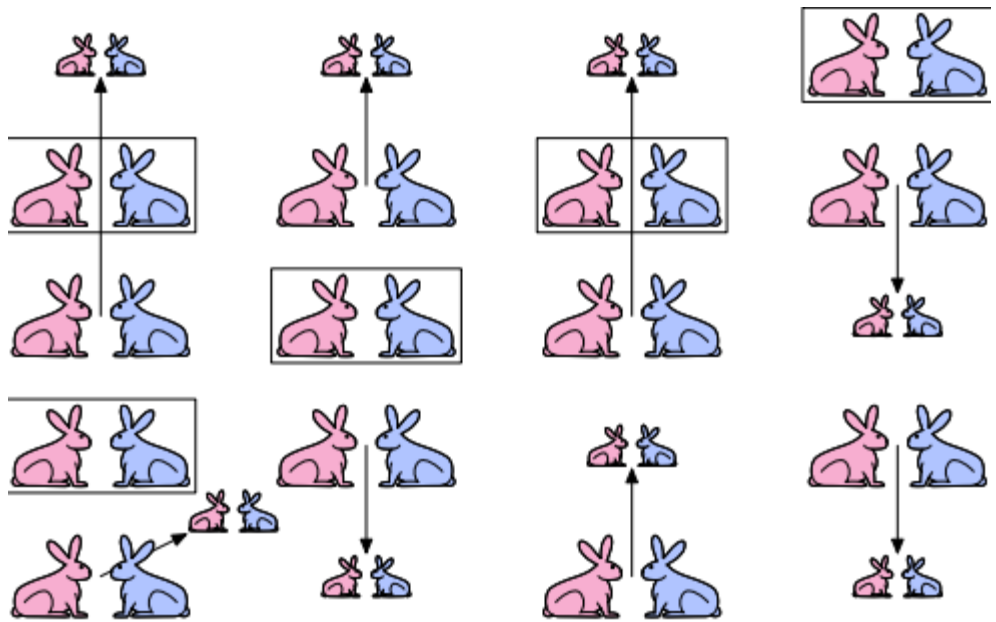


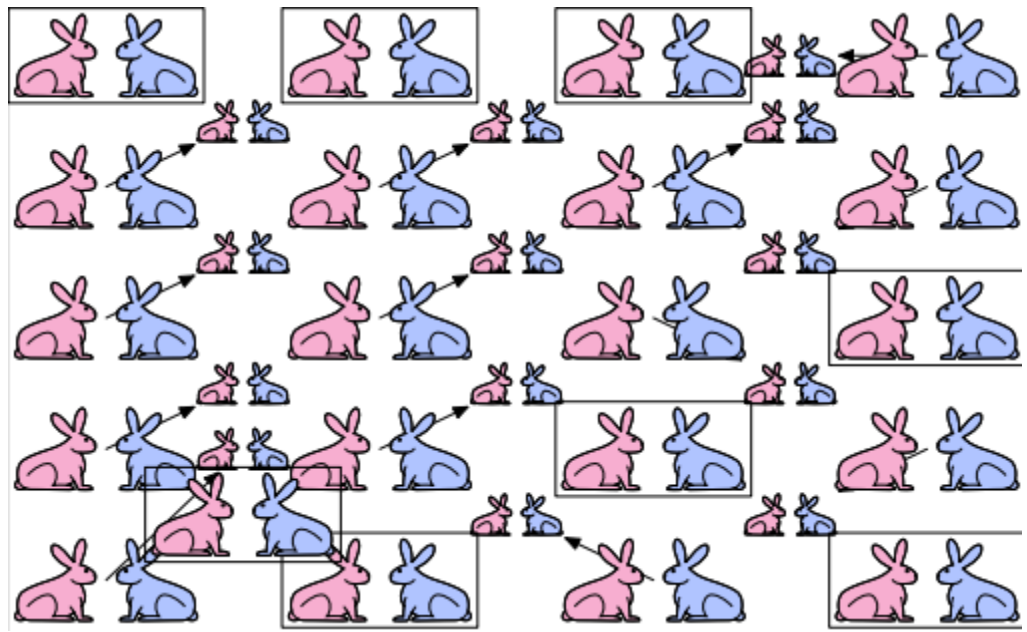




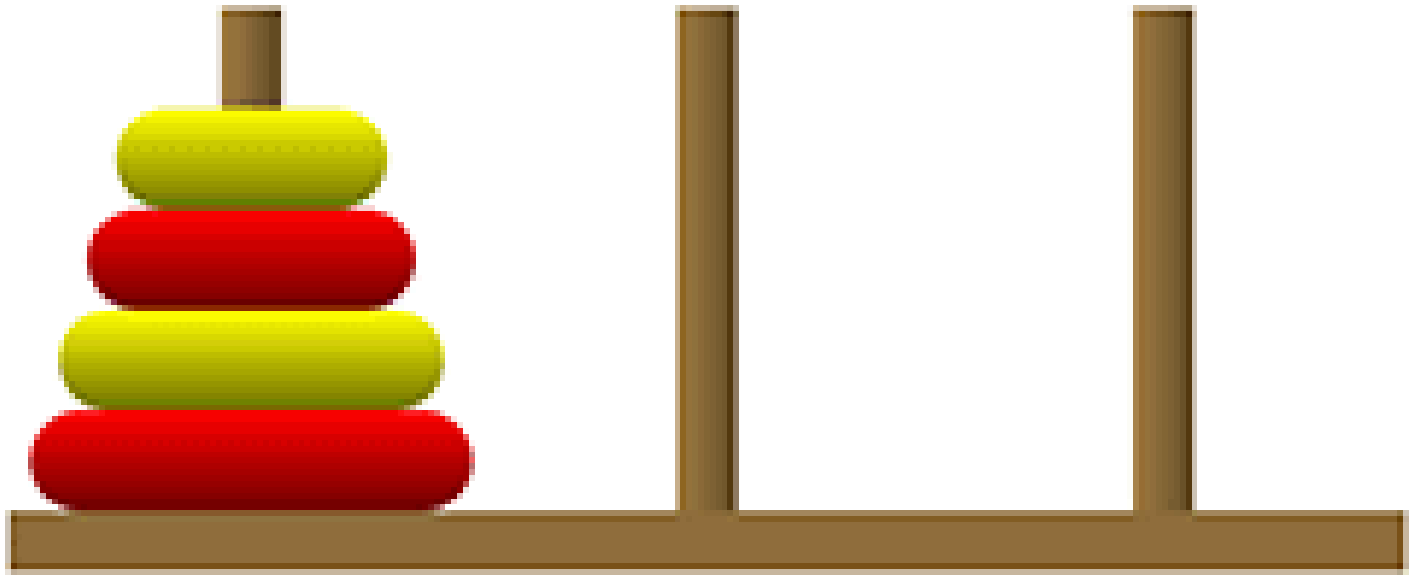








# Hanoi Town 1



# Hanoi Town 2