

recursive

5/3, hydai

復習

- 遞迴函式就是會自己呼叫自己的函式
- 遞迴必要有的東西：
 - 條件關係：衍生呼叫的關係
 - 中止條件：決定何時結束
- 加速：把算過的東西存起來

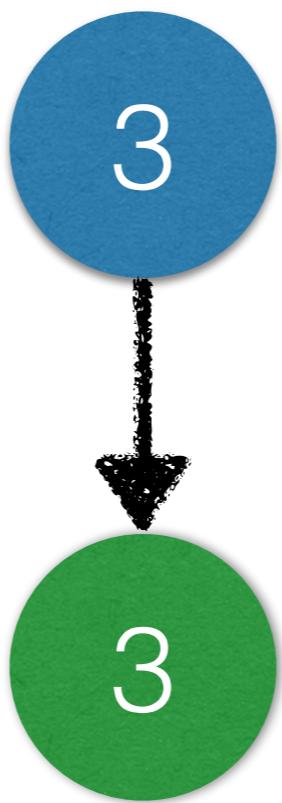
150:搗蛋的洗腦機

- 將 N 分解成 0~3 組成的數字
- 一開始輸入正整數 N
- 如果 N 是偶數，則把 N 分成 $N/2-1$ 和 $N/2+1$
- 如果 N 是奇數，則把 N 分成 $(N-1)/2$ 和 $(N+1)/2$
- 直到分解出的數 $<= 3$
- 依序印出分解出的數字

$N = 3$



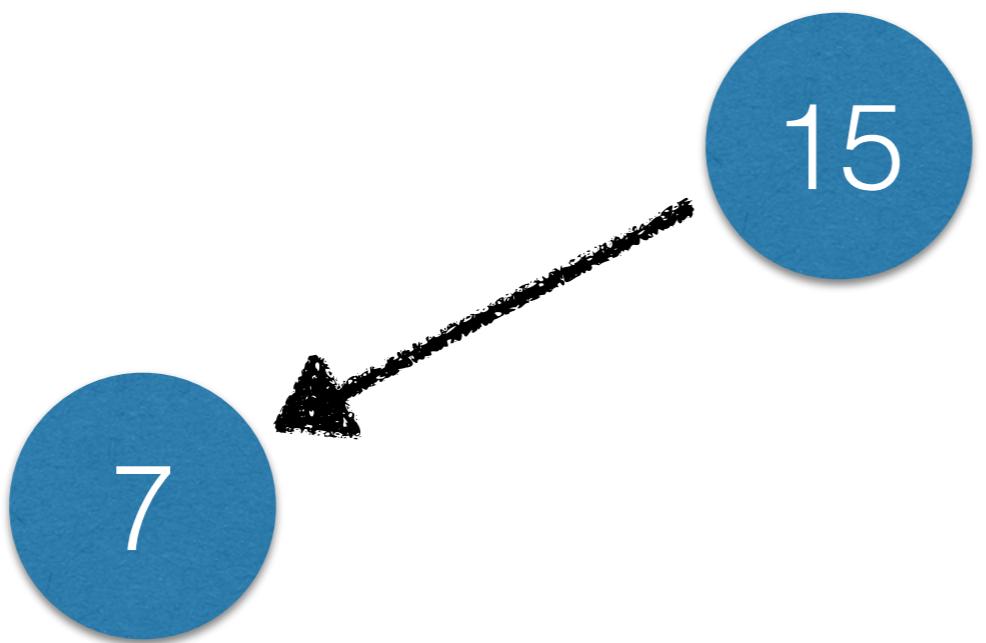
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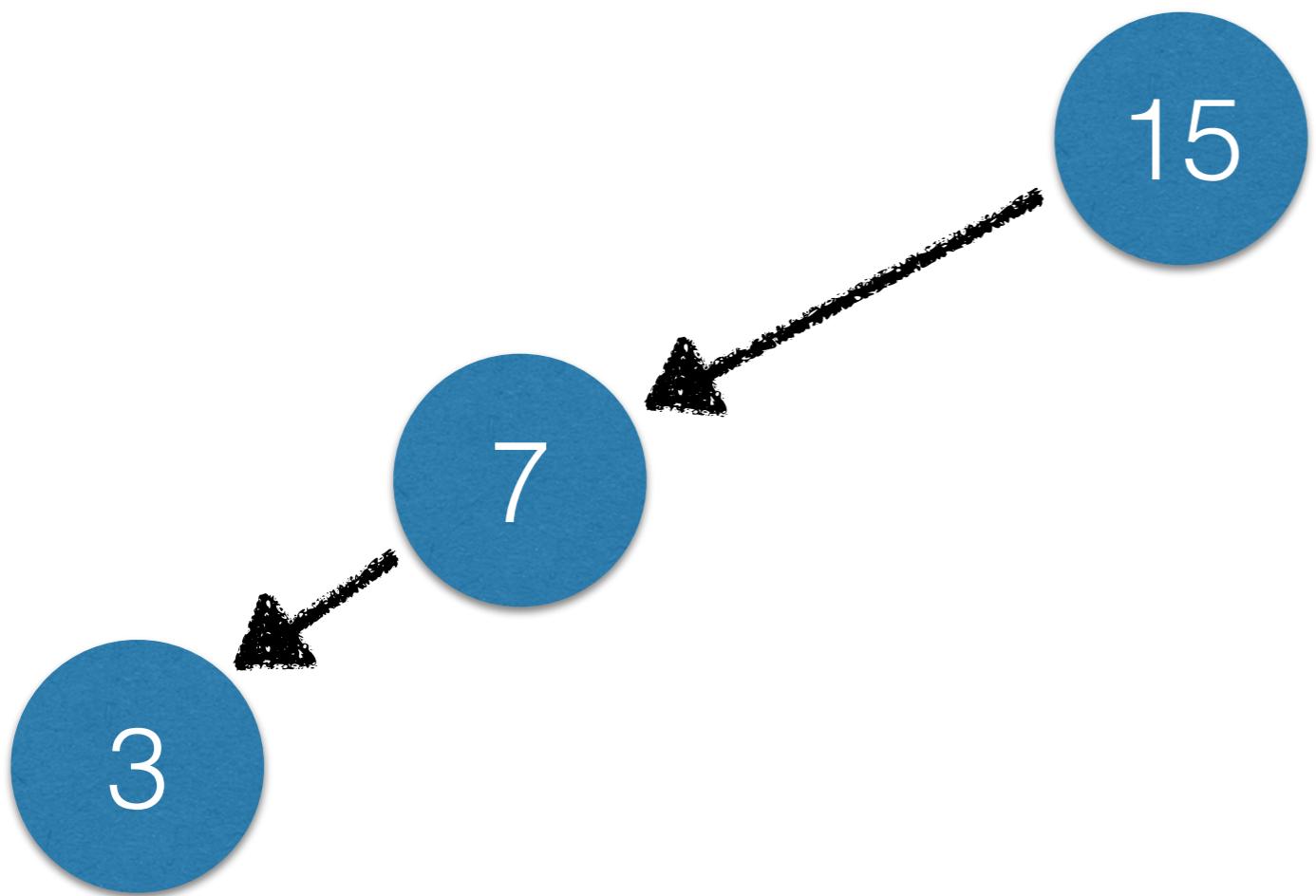
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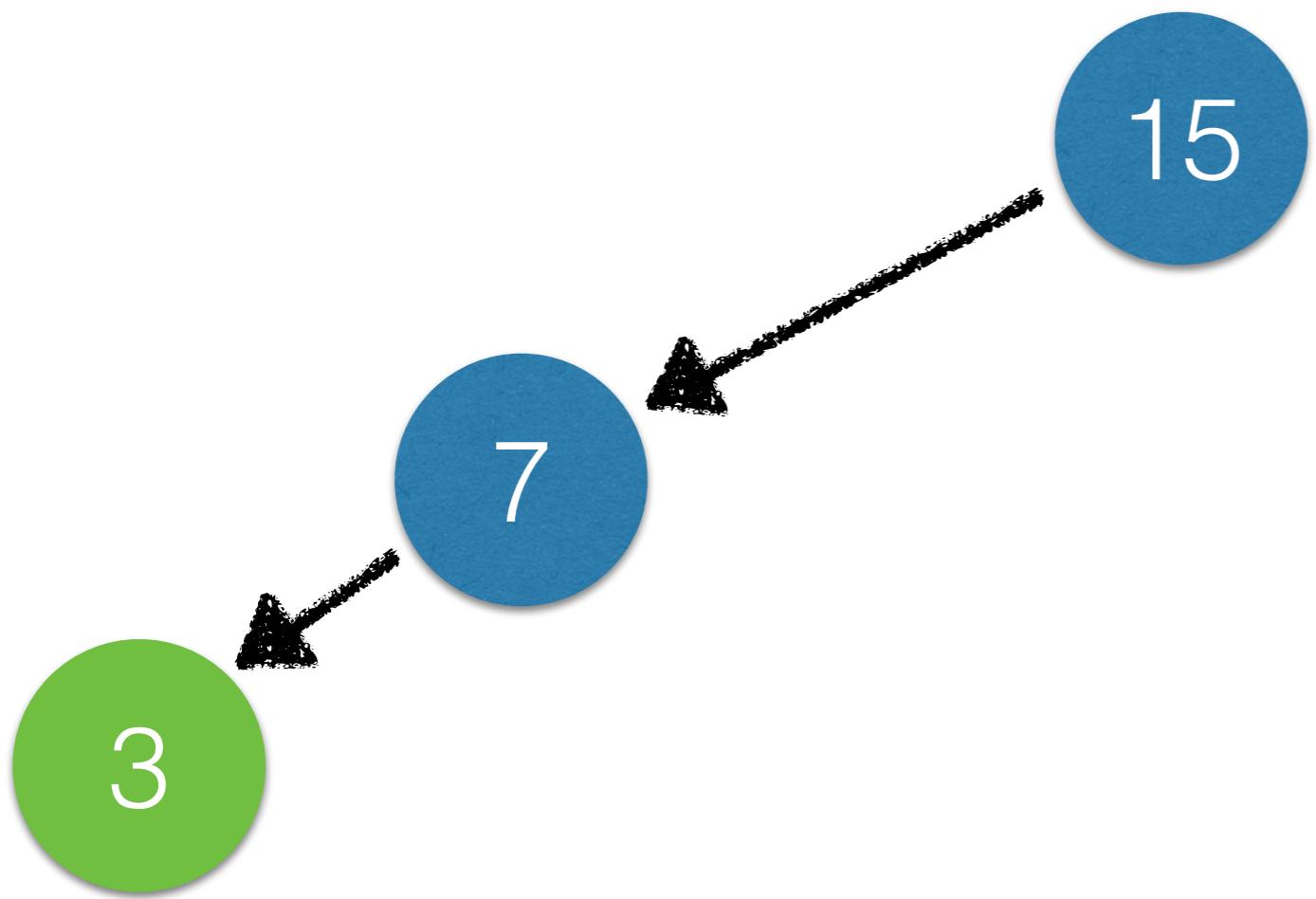
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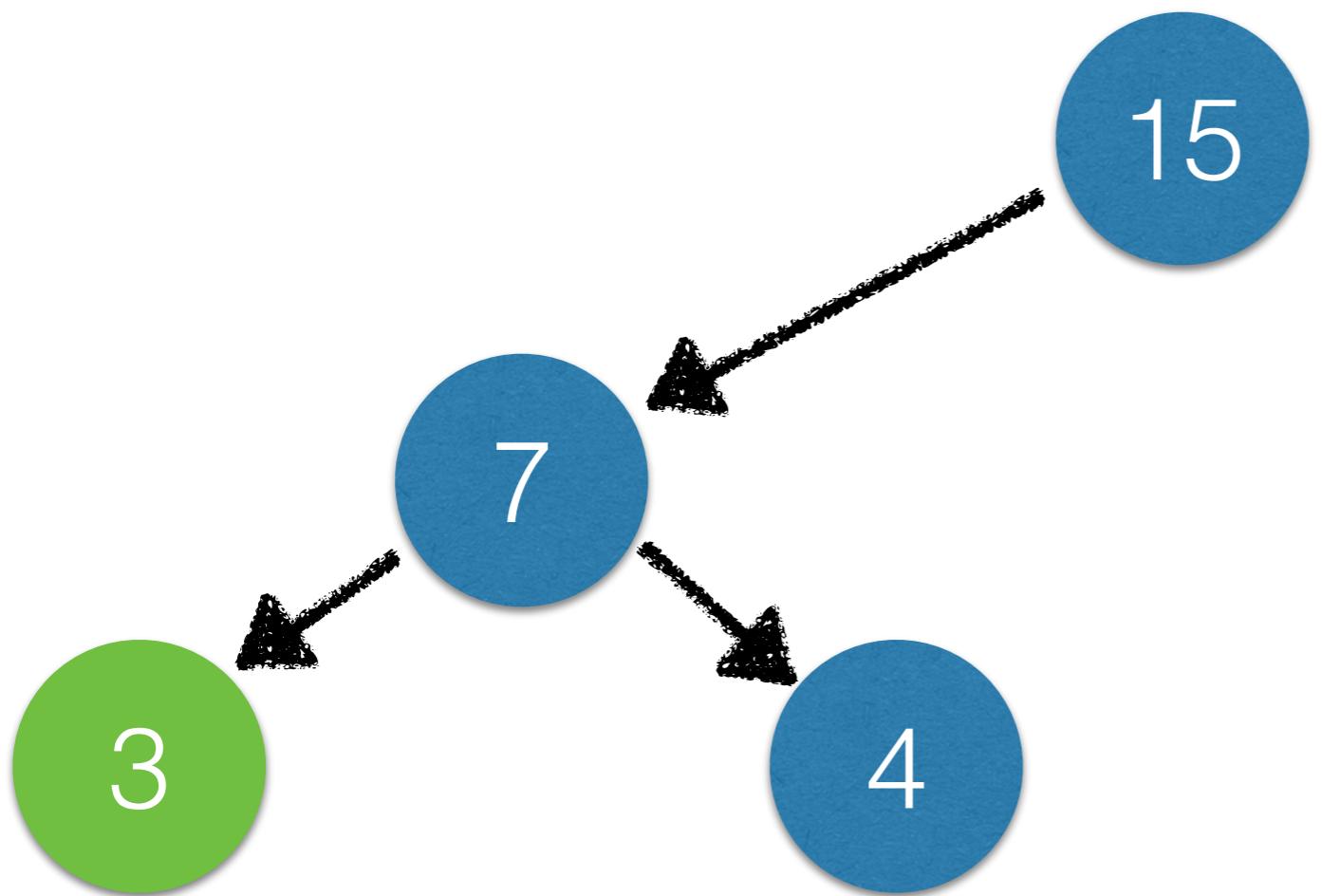
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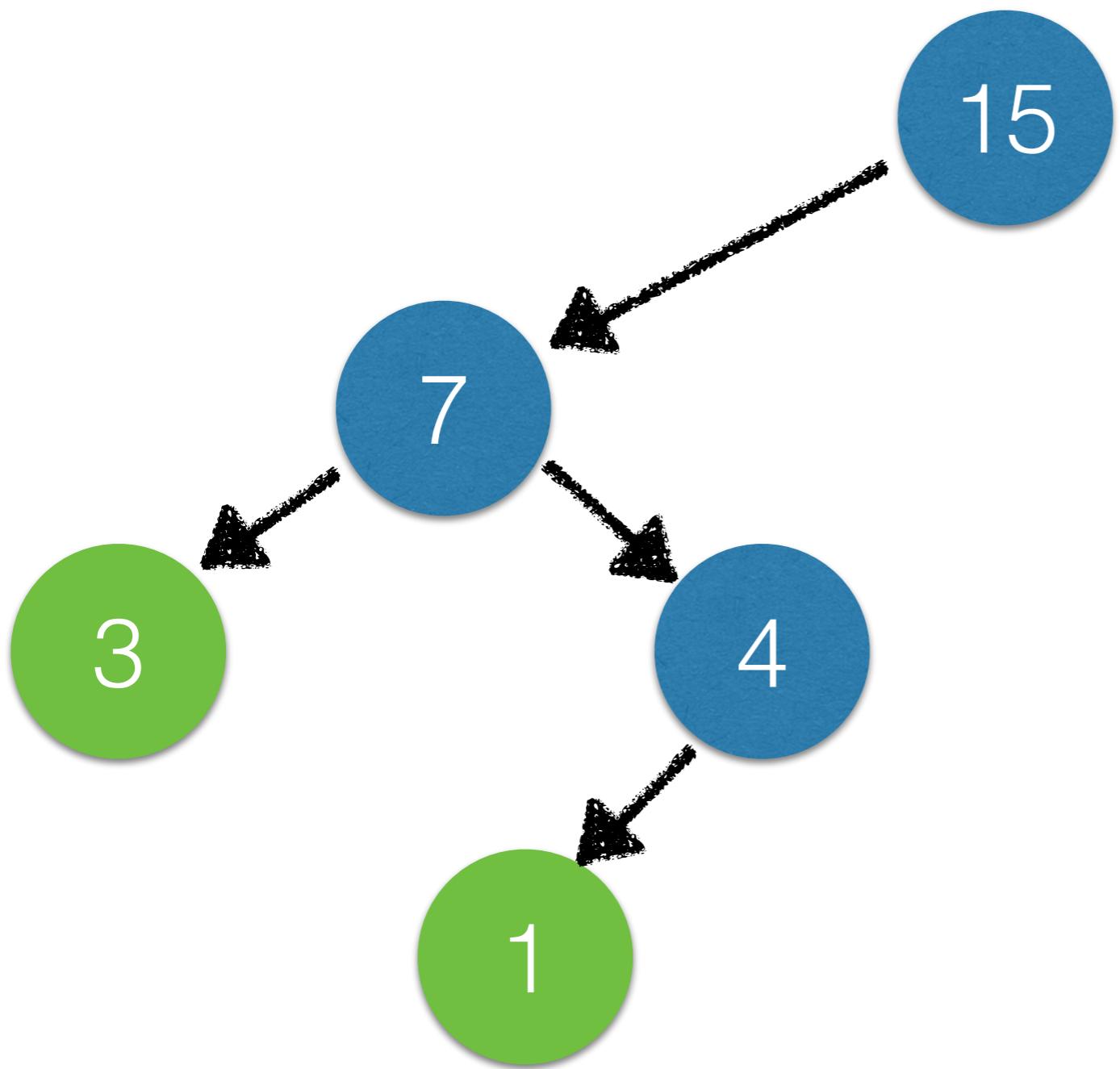
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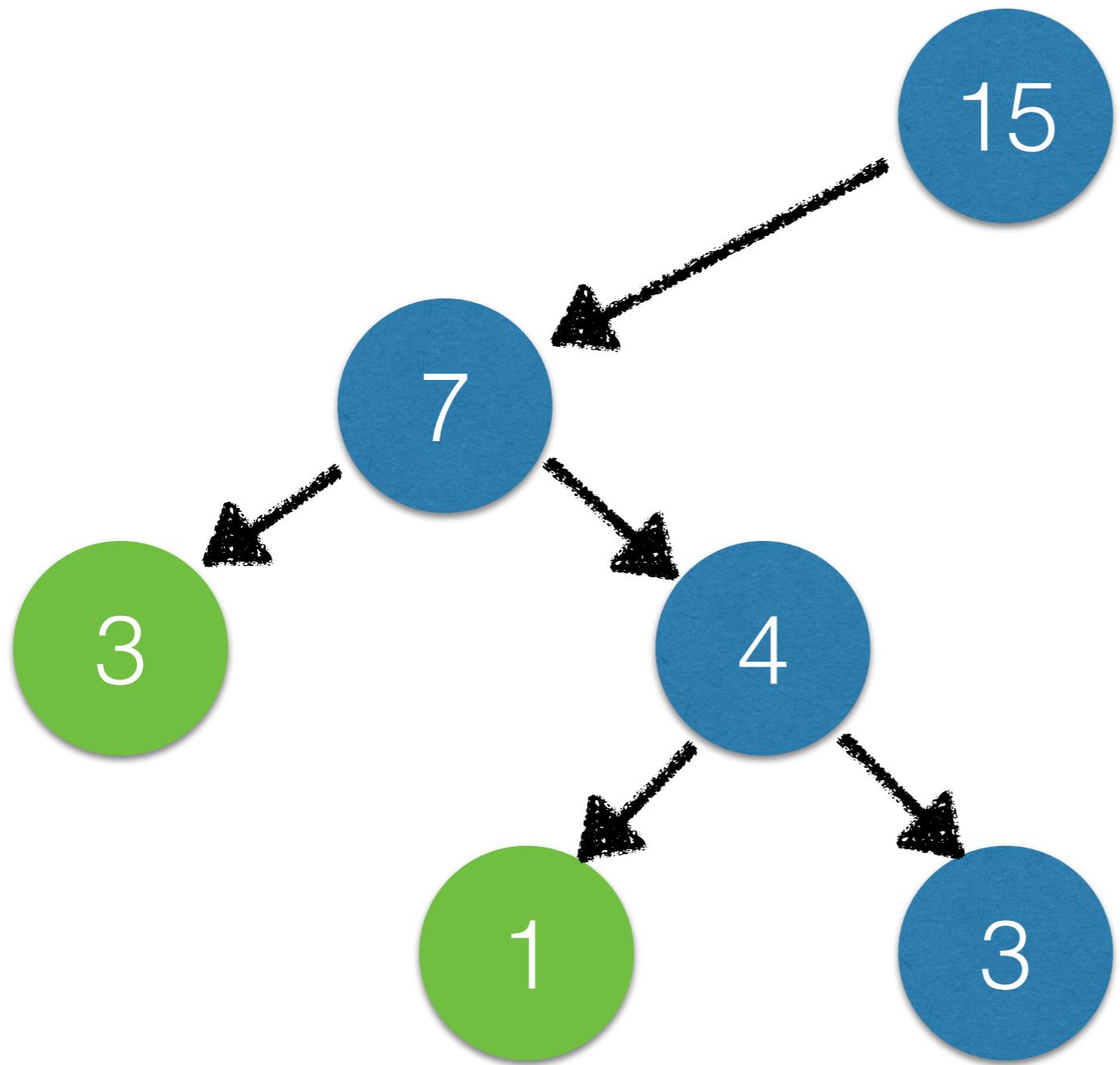
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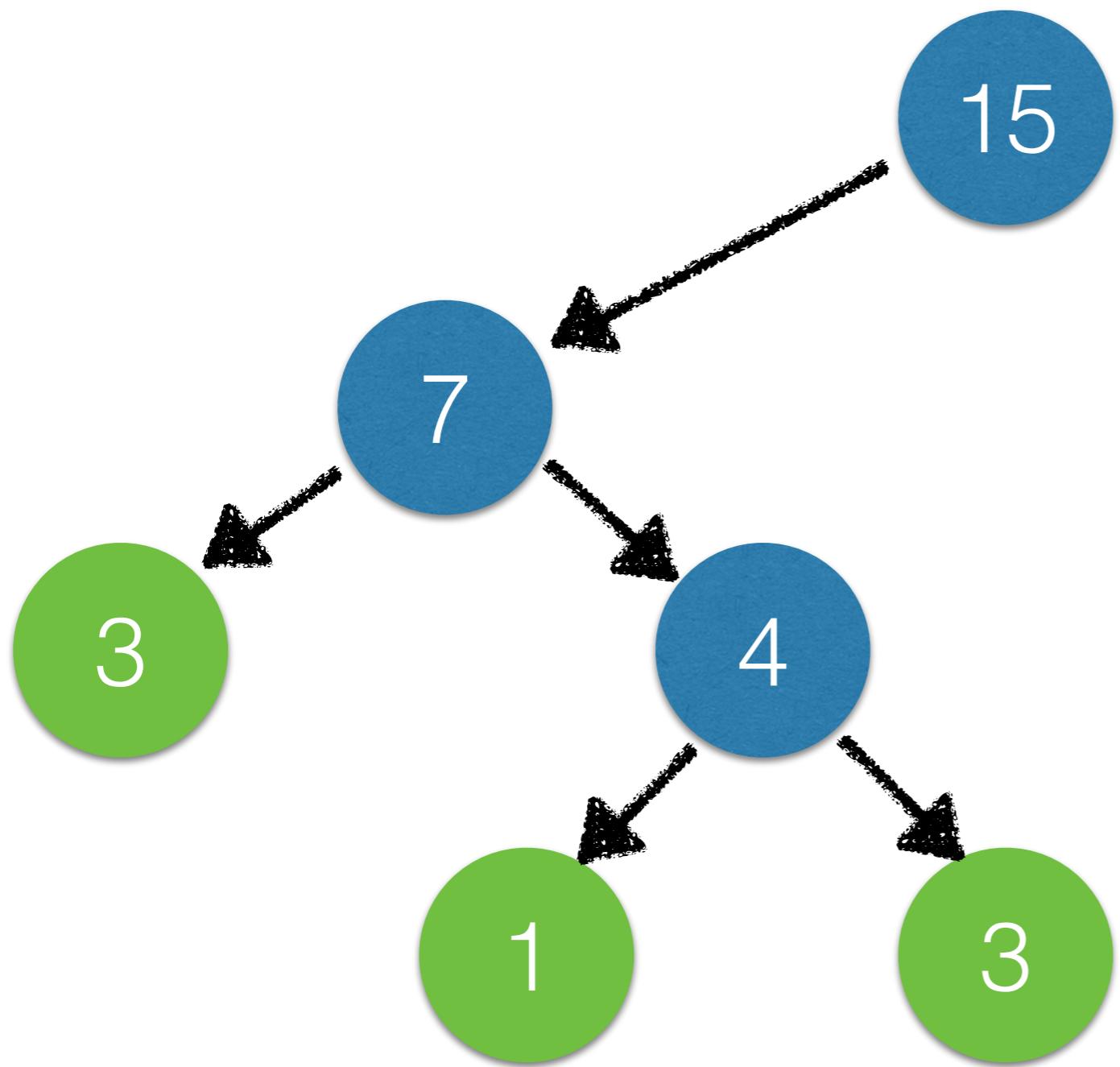
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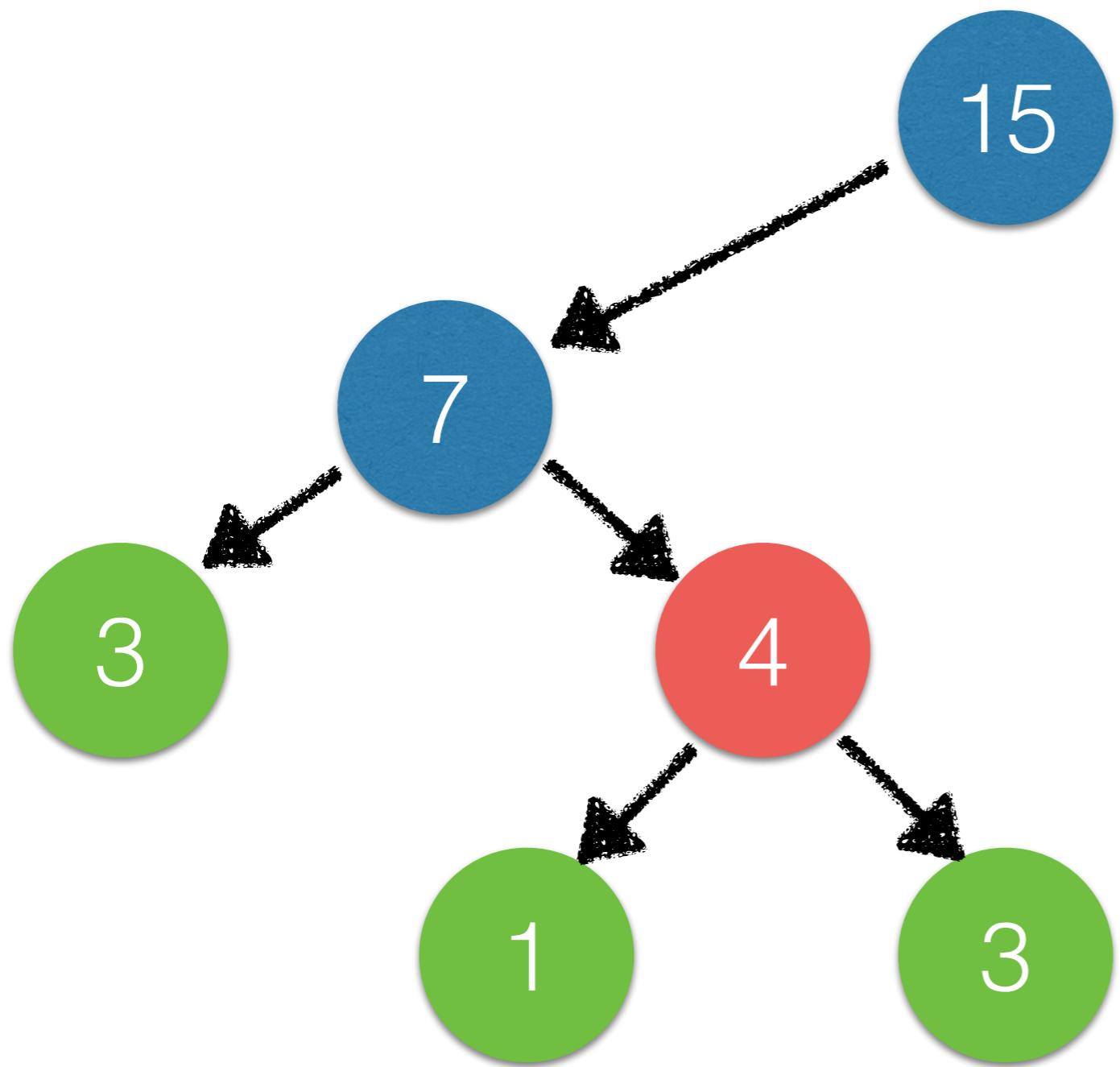
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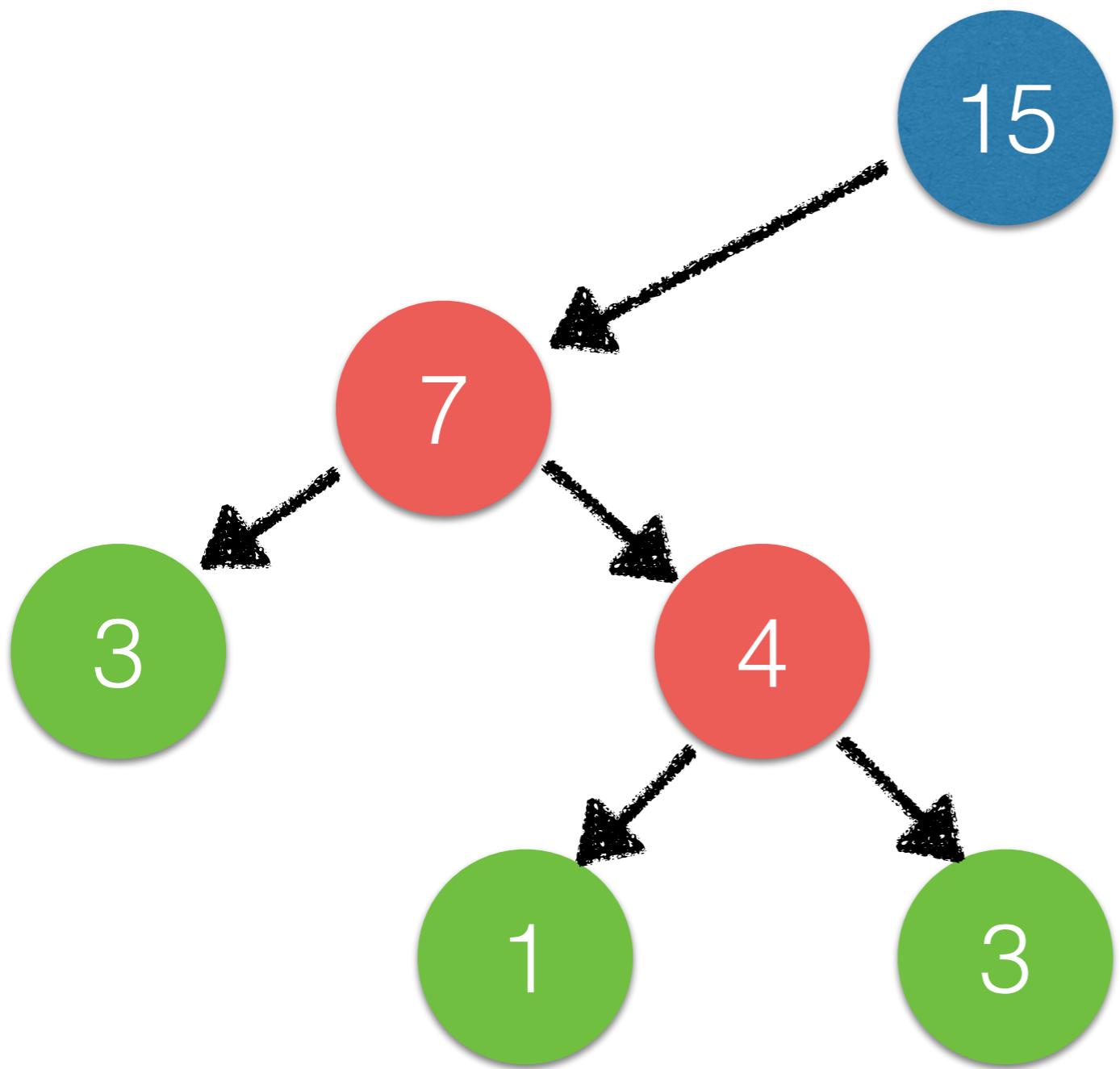
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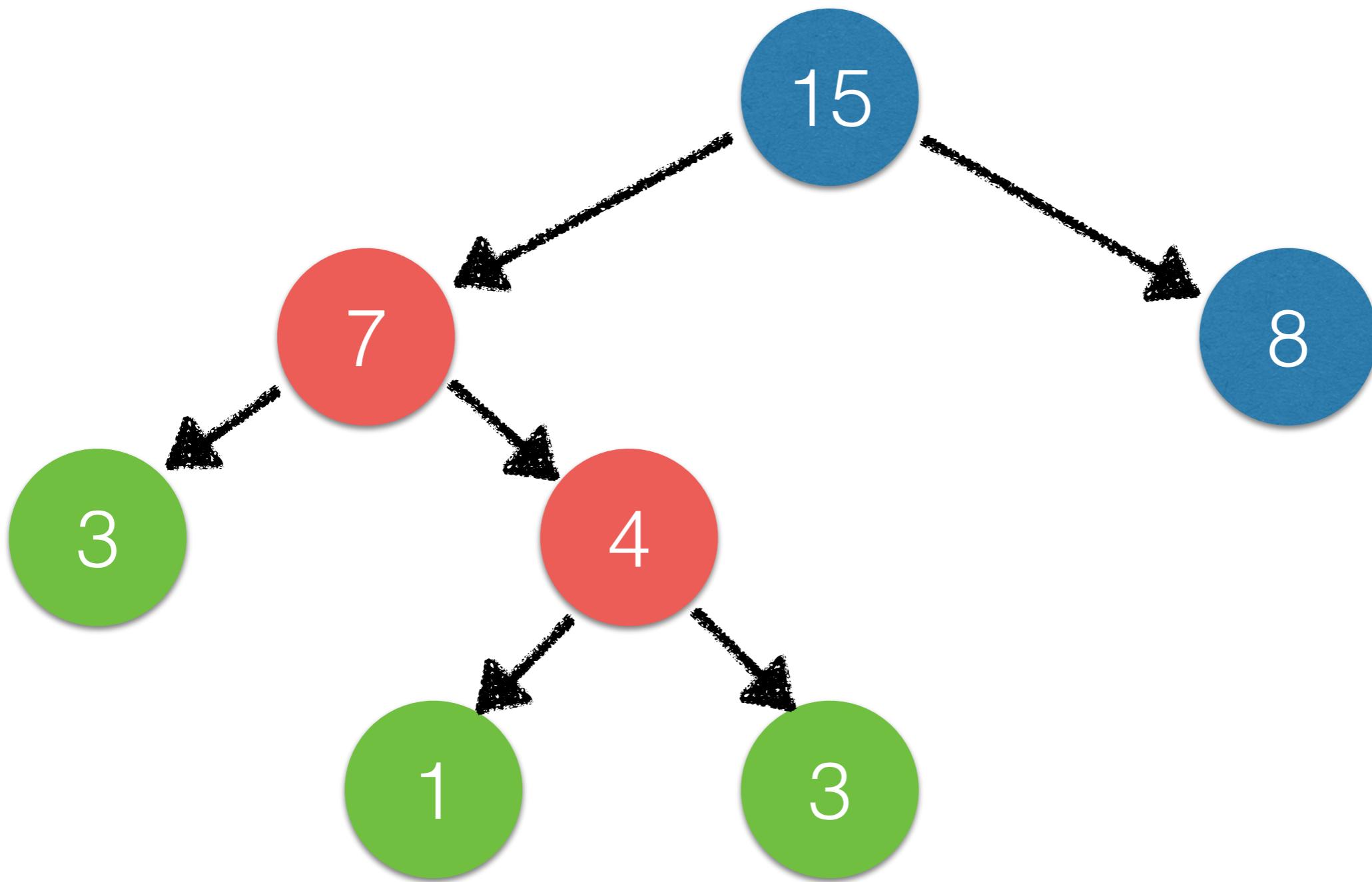
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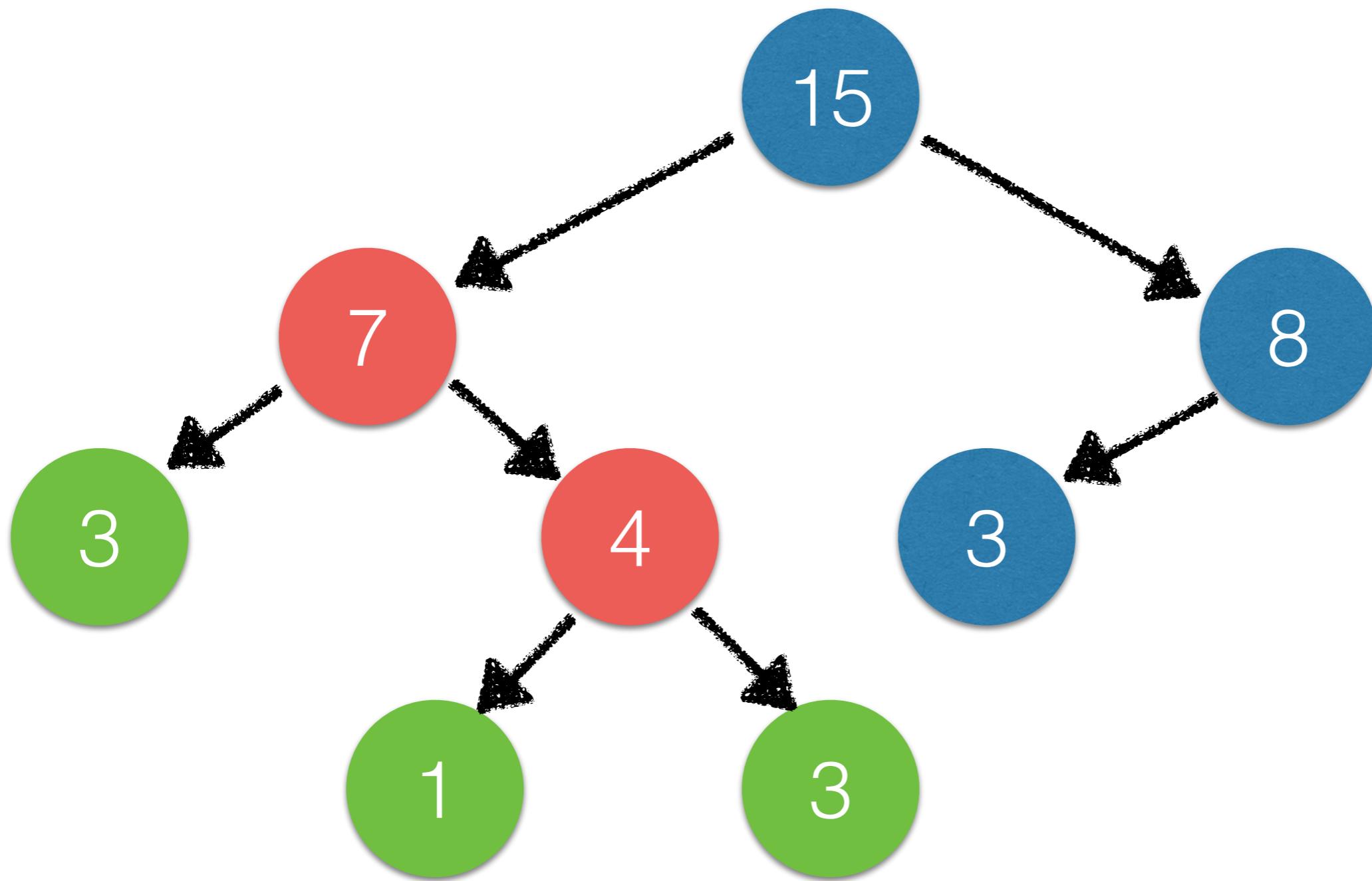
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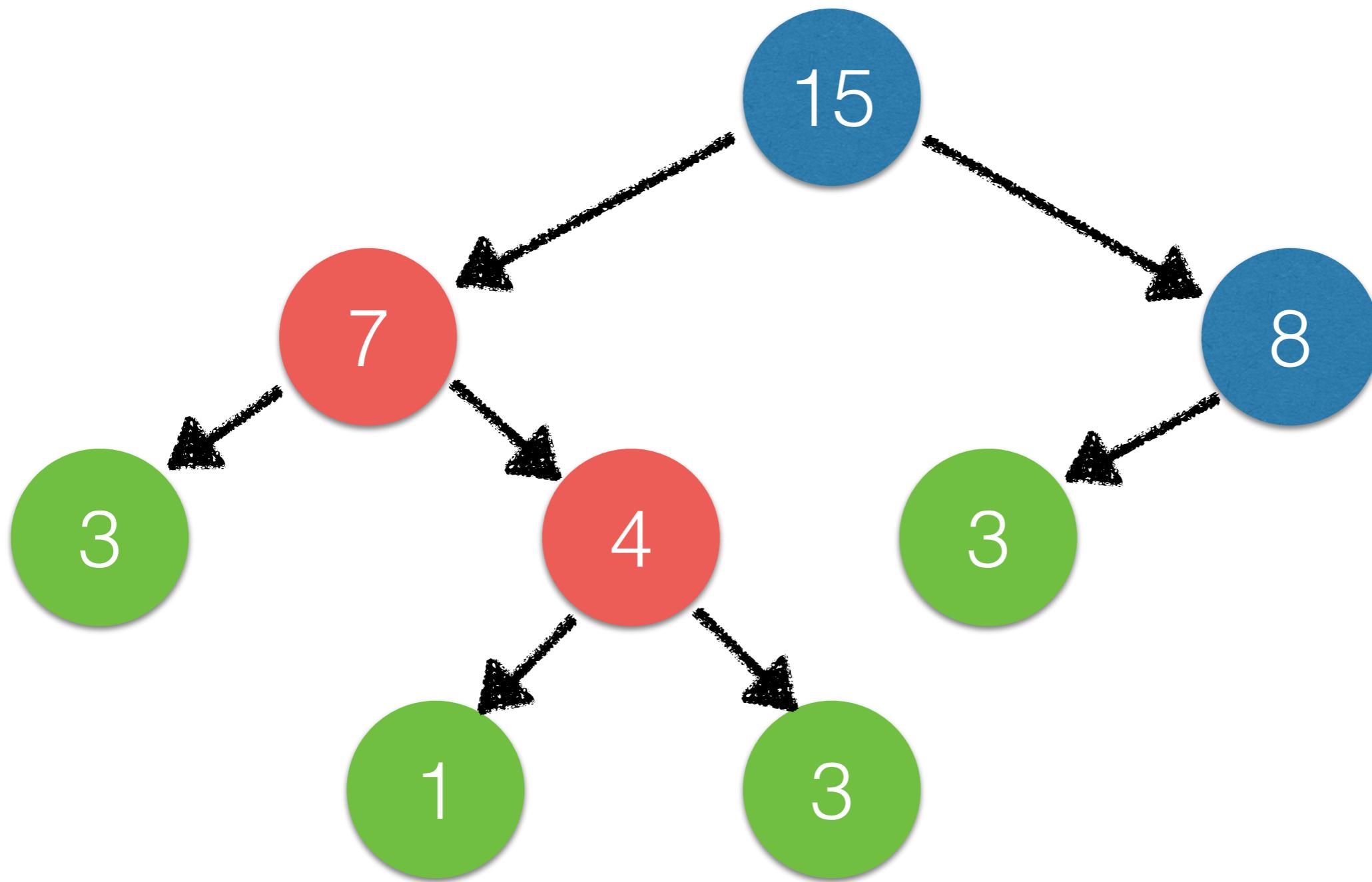
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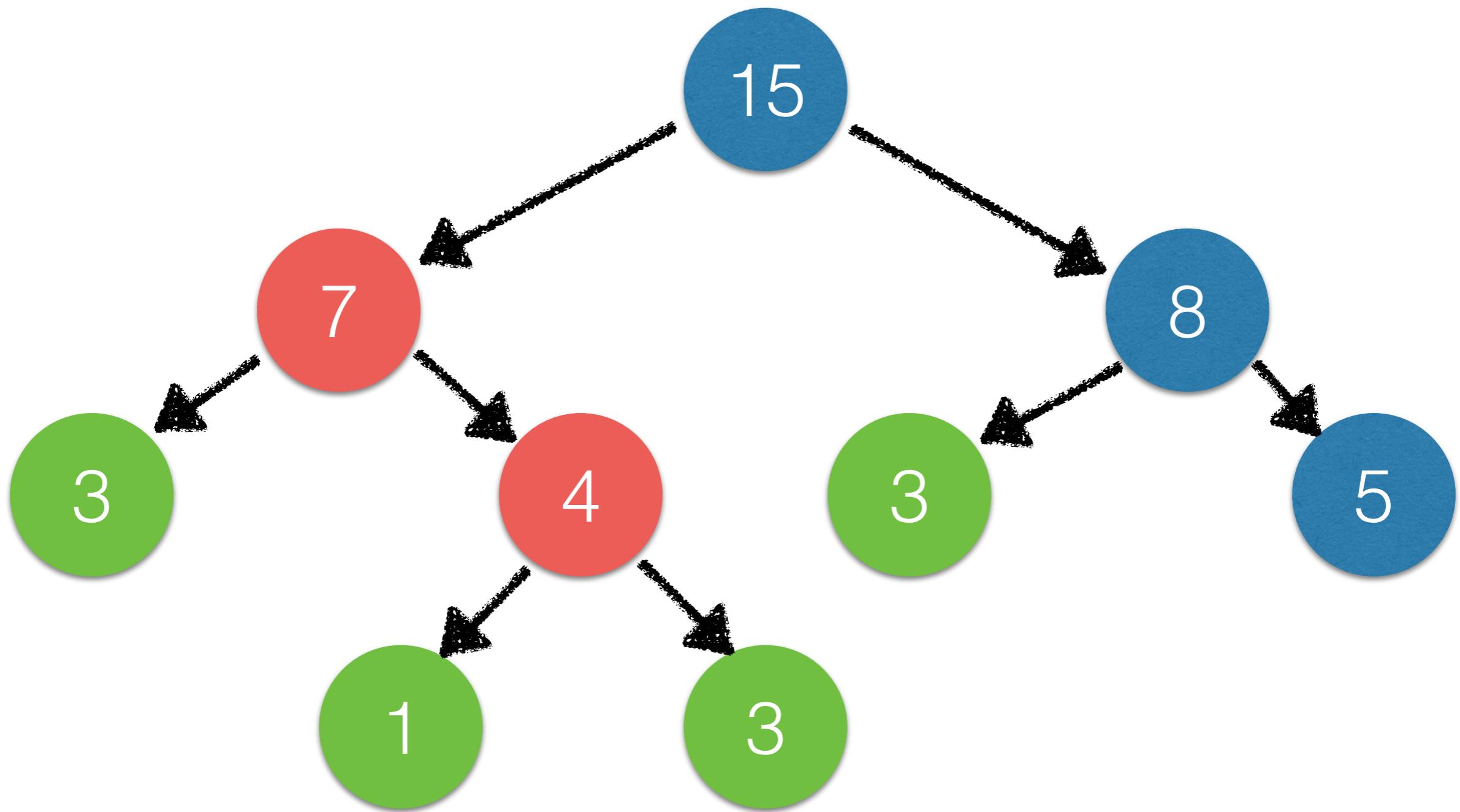
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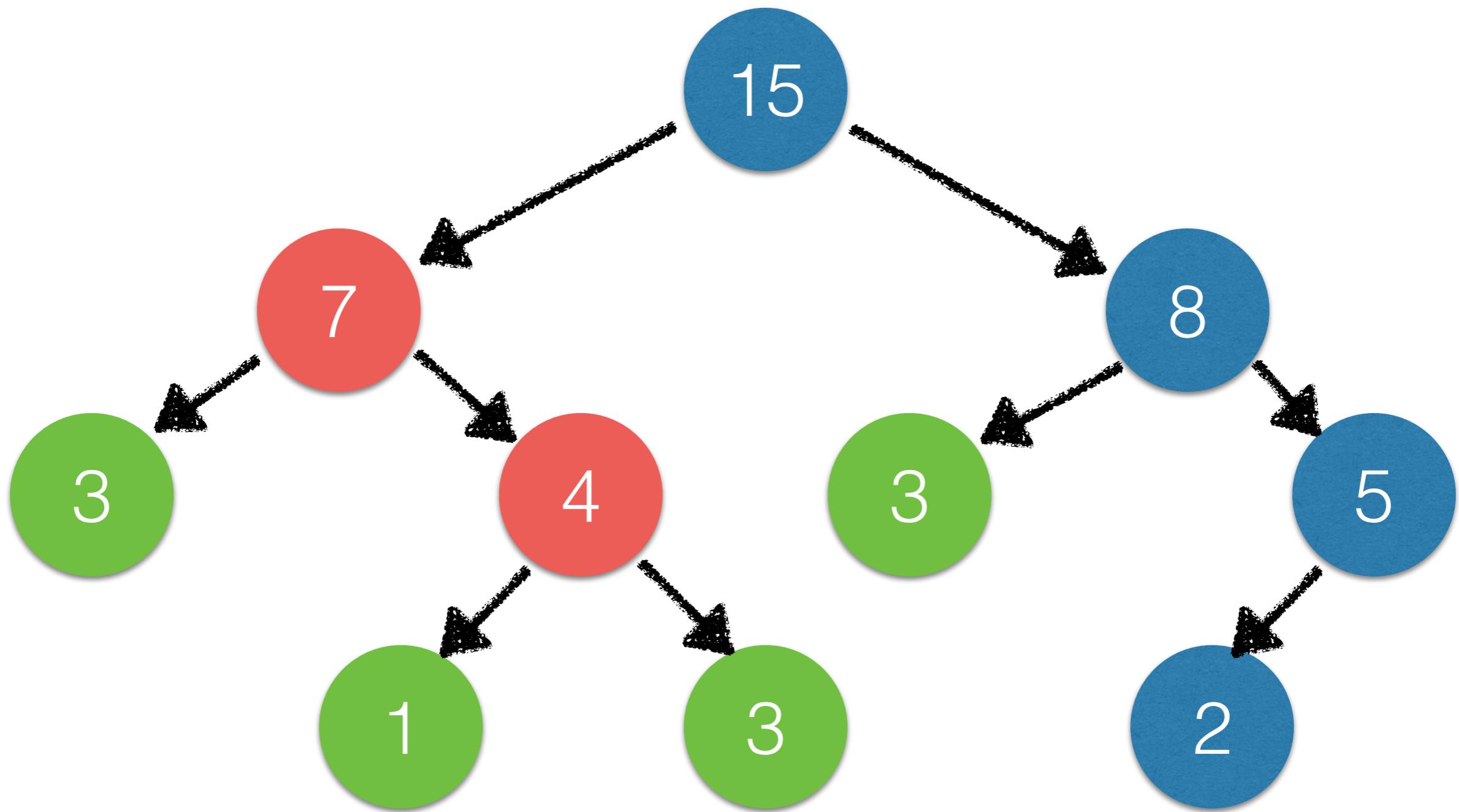
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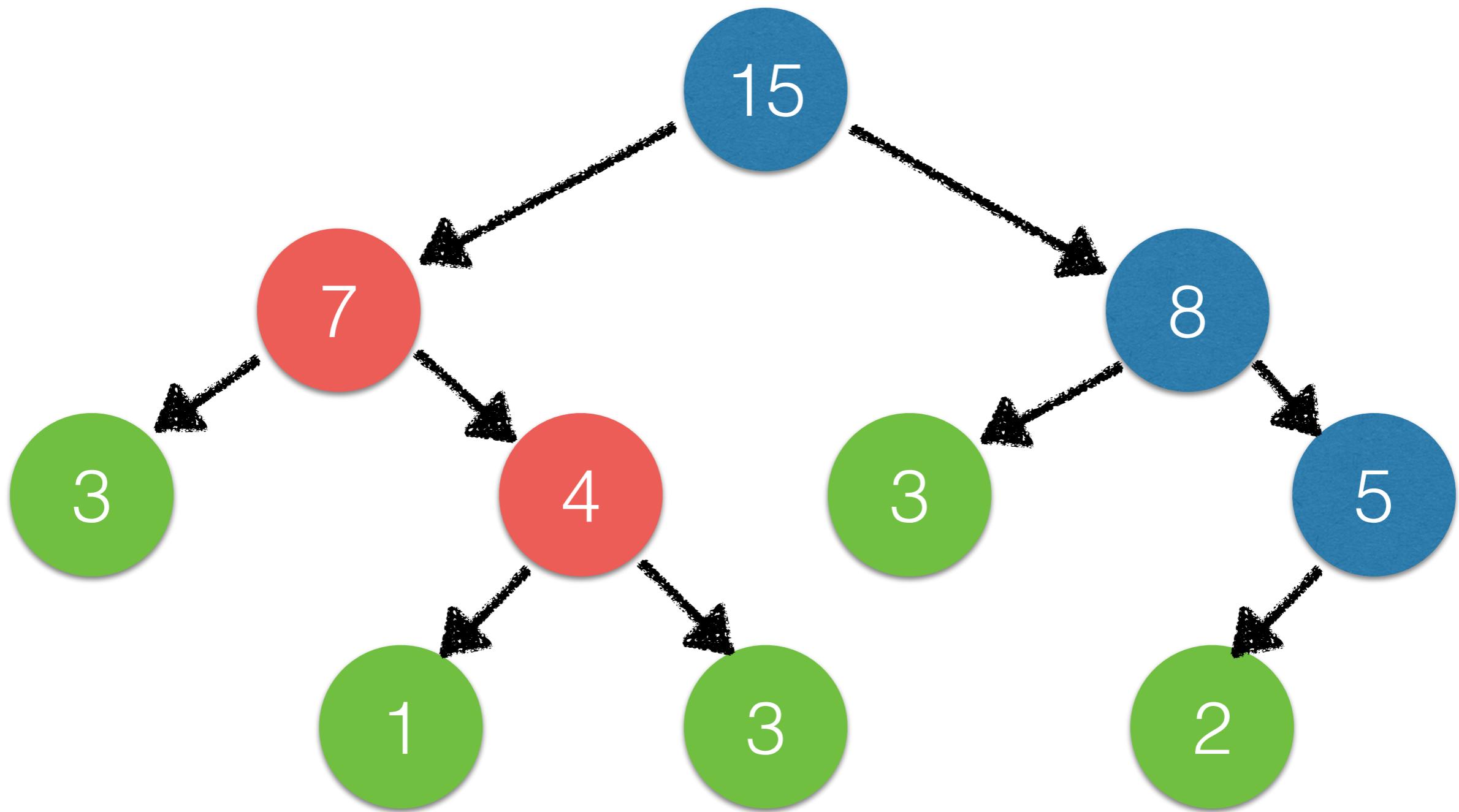
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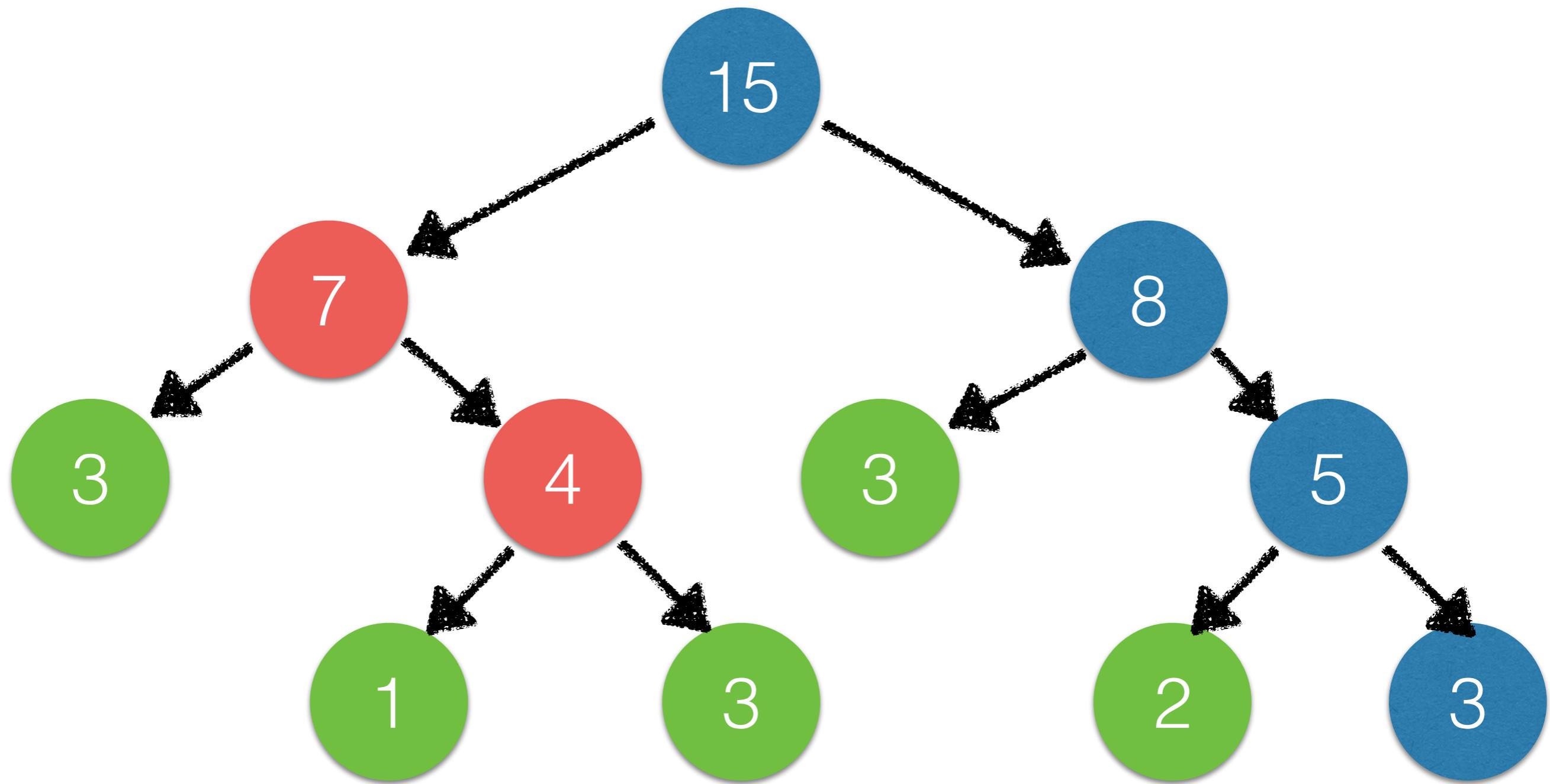
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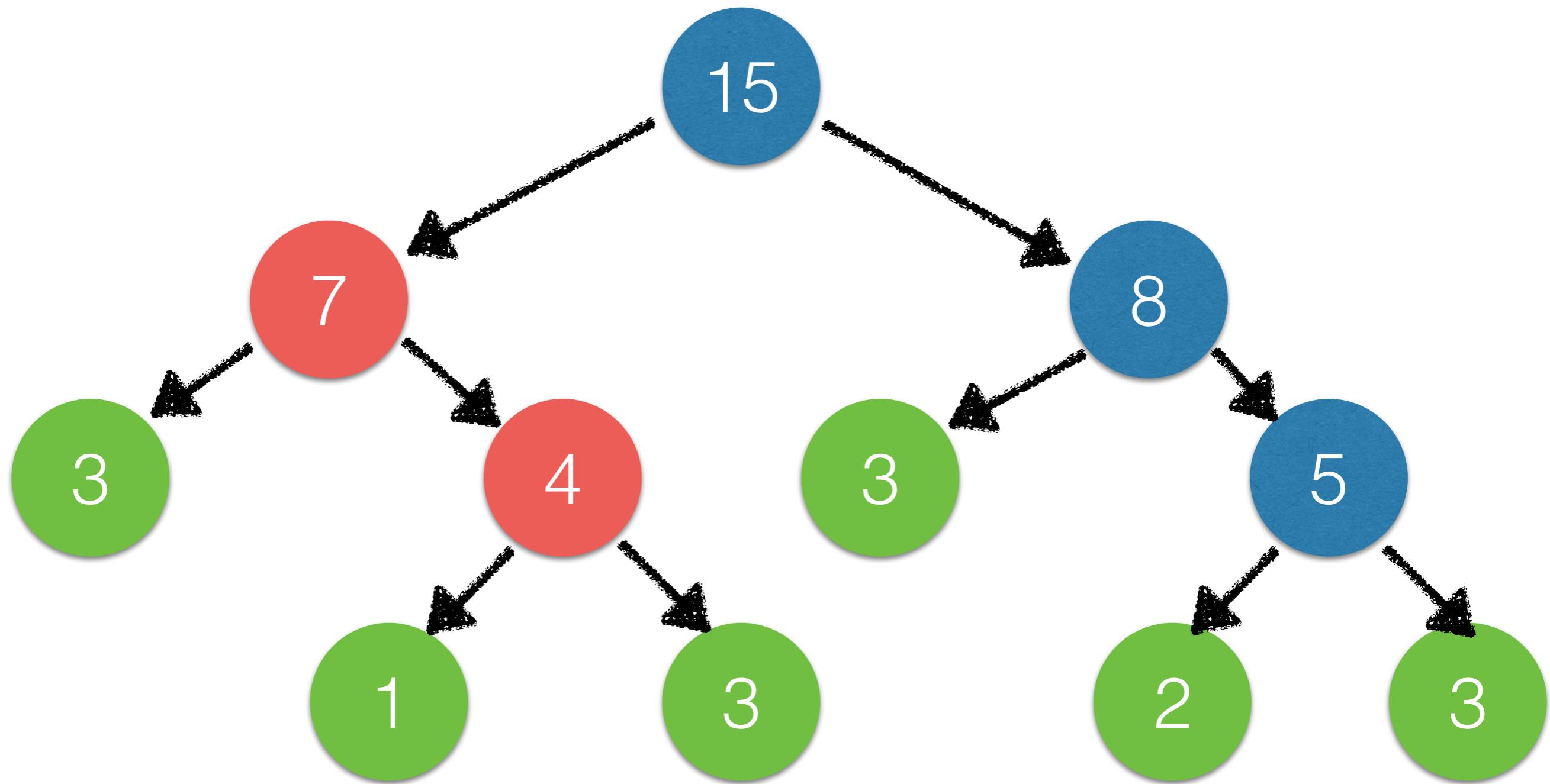
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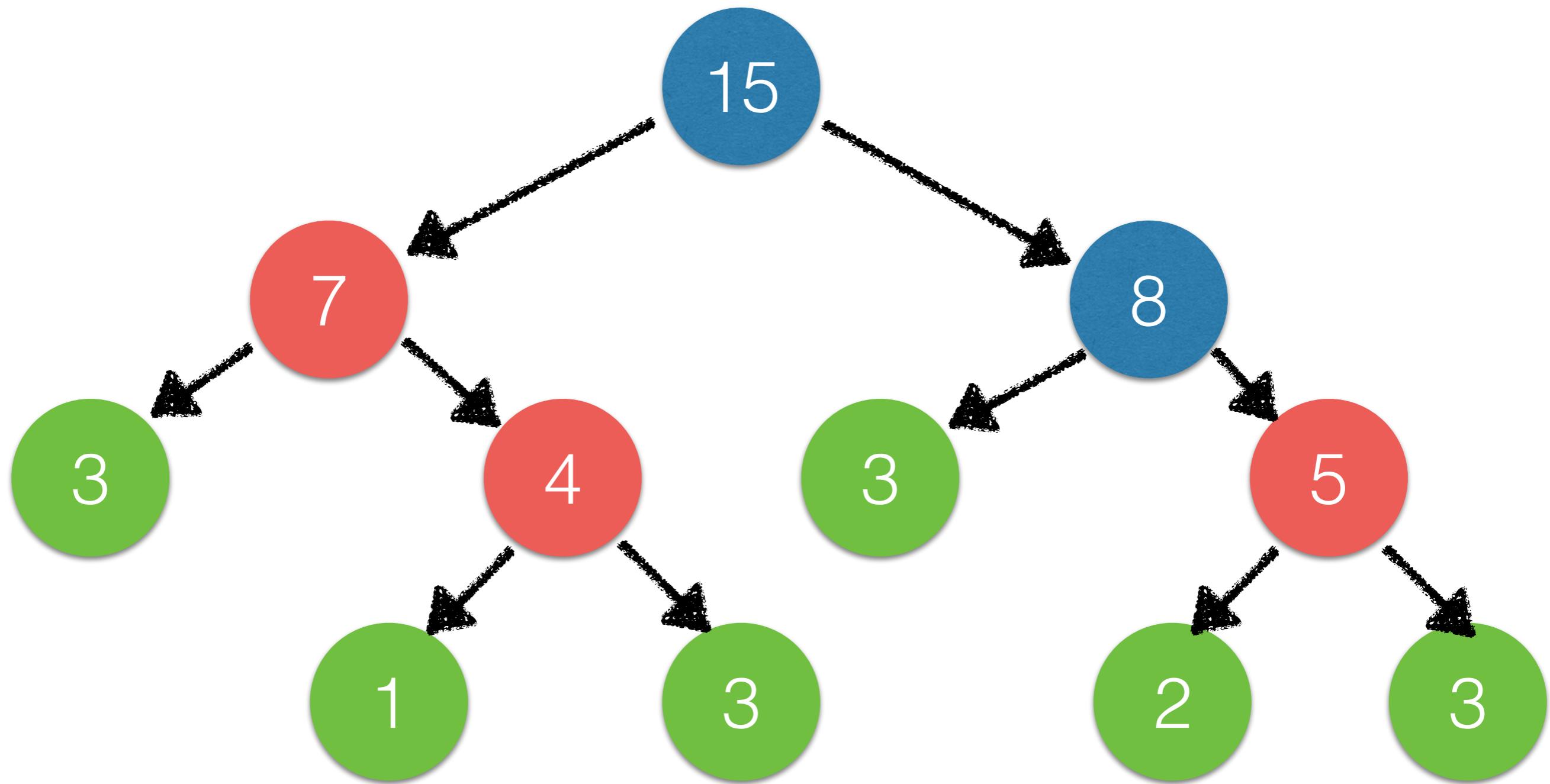
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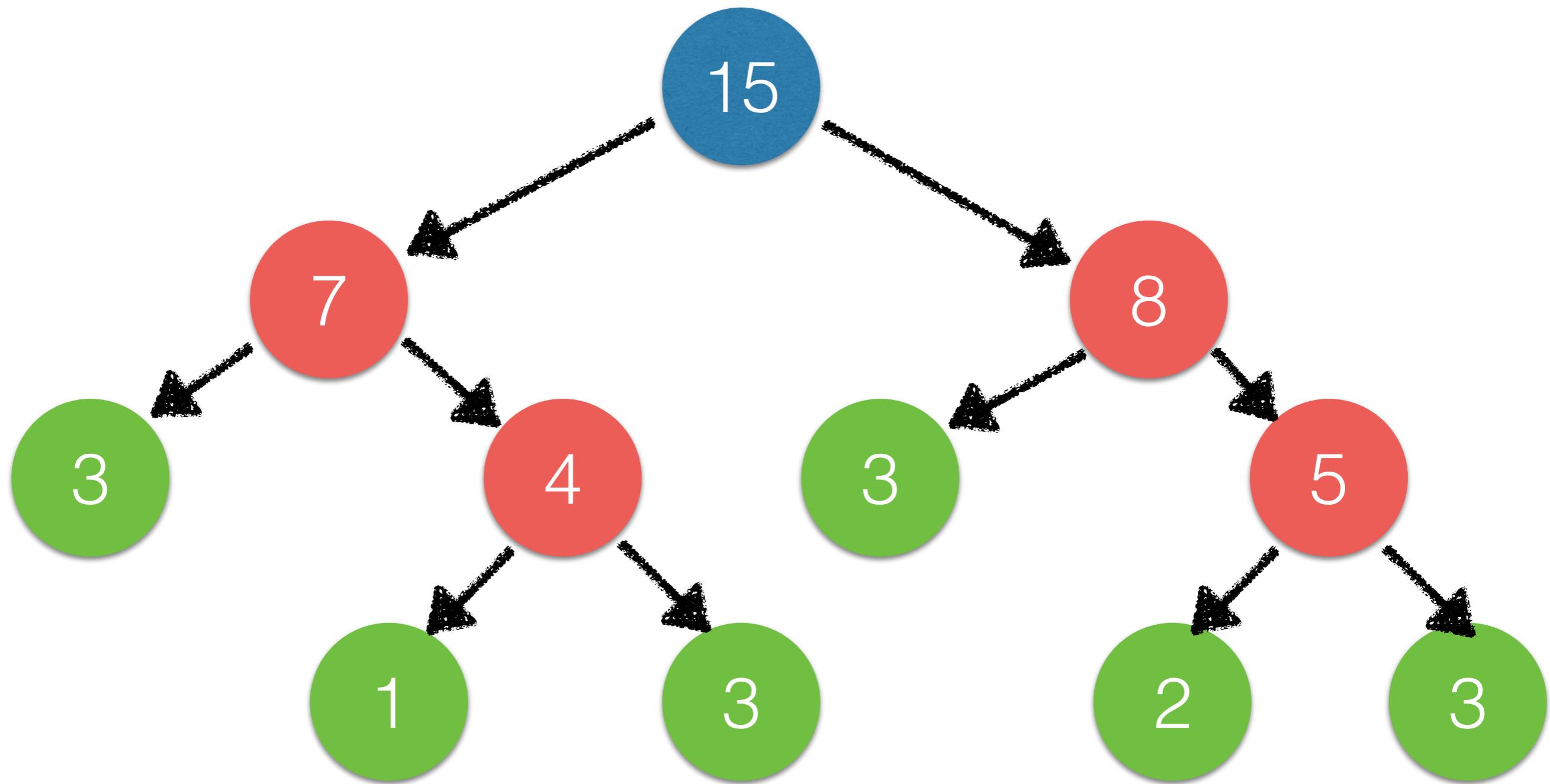
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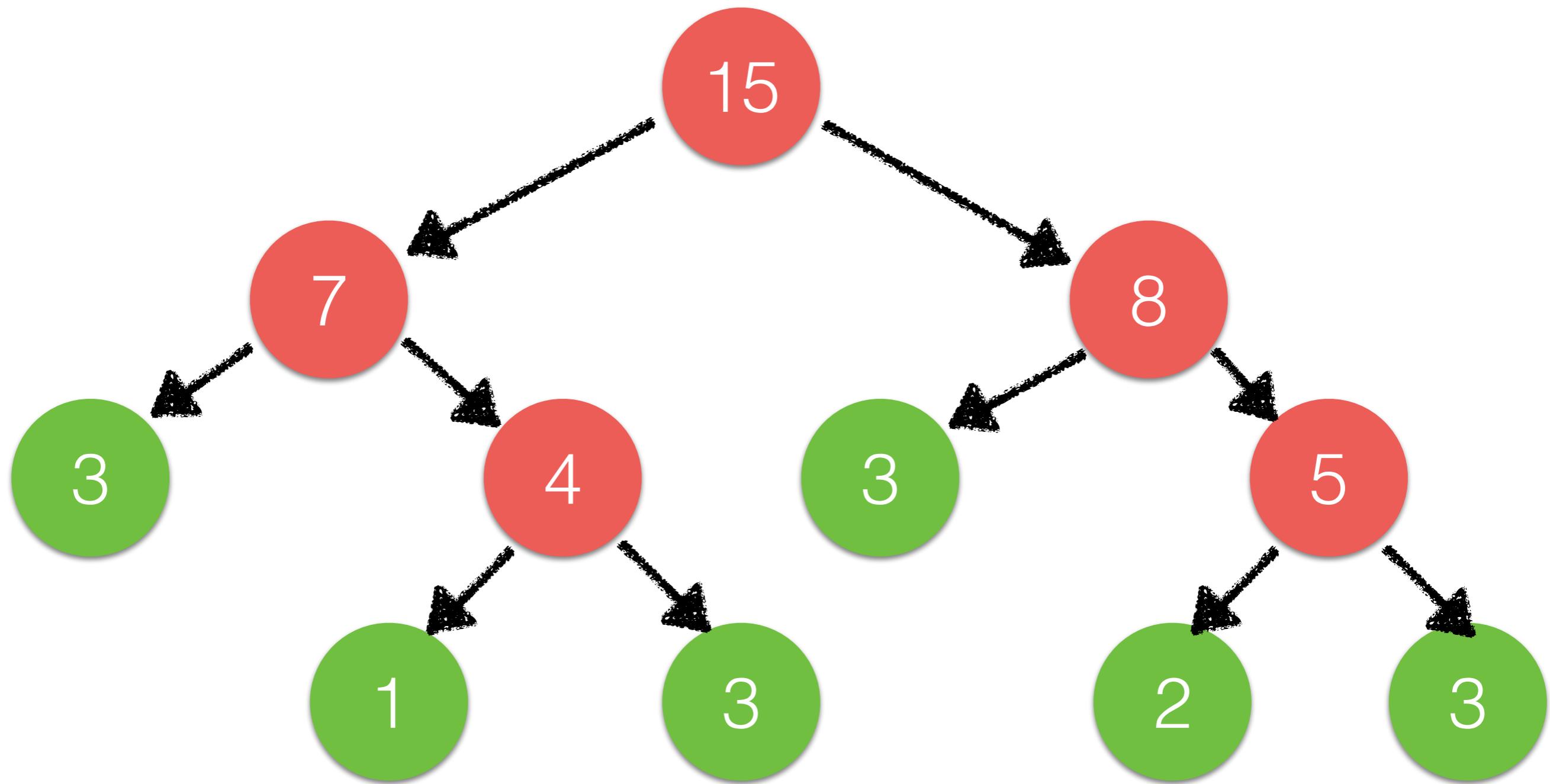
$N = 15$



$N = 15$



$N = 15$



Answer

3

1

3

2

3

3

Answer

3

1

3

3

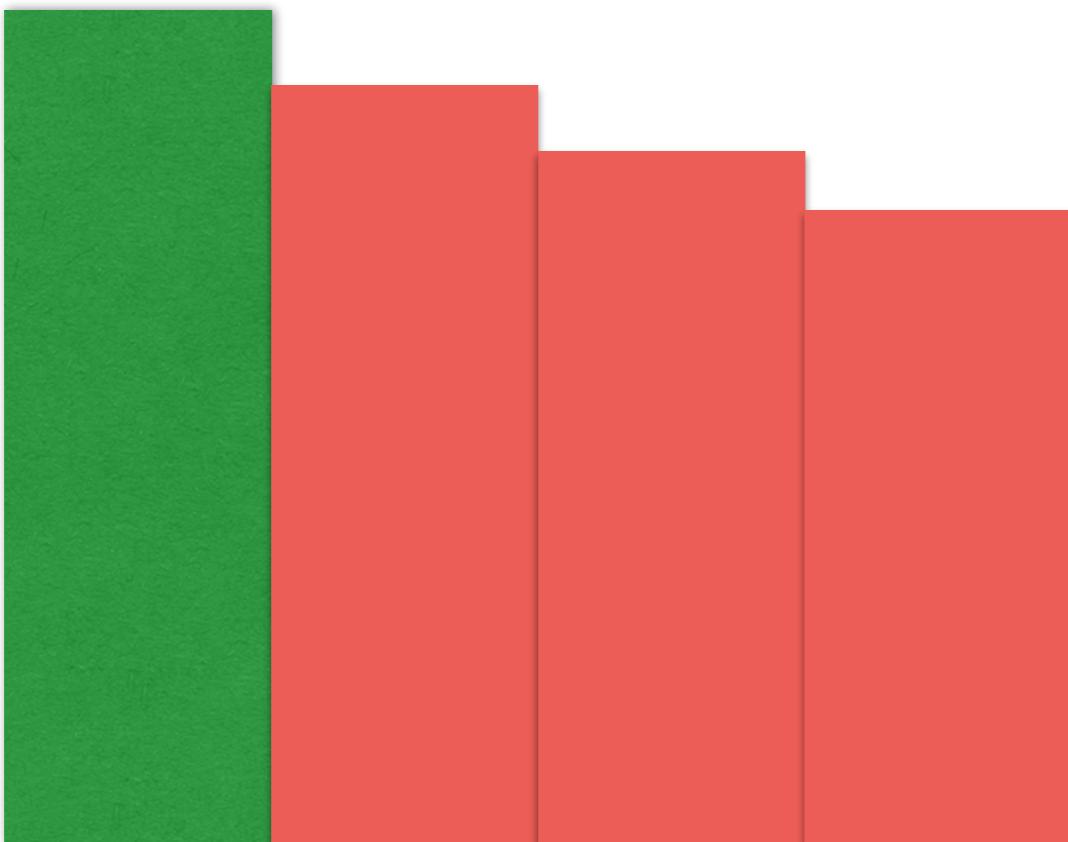
2

3

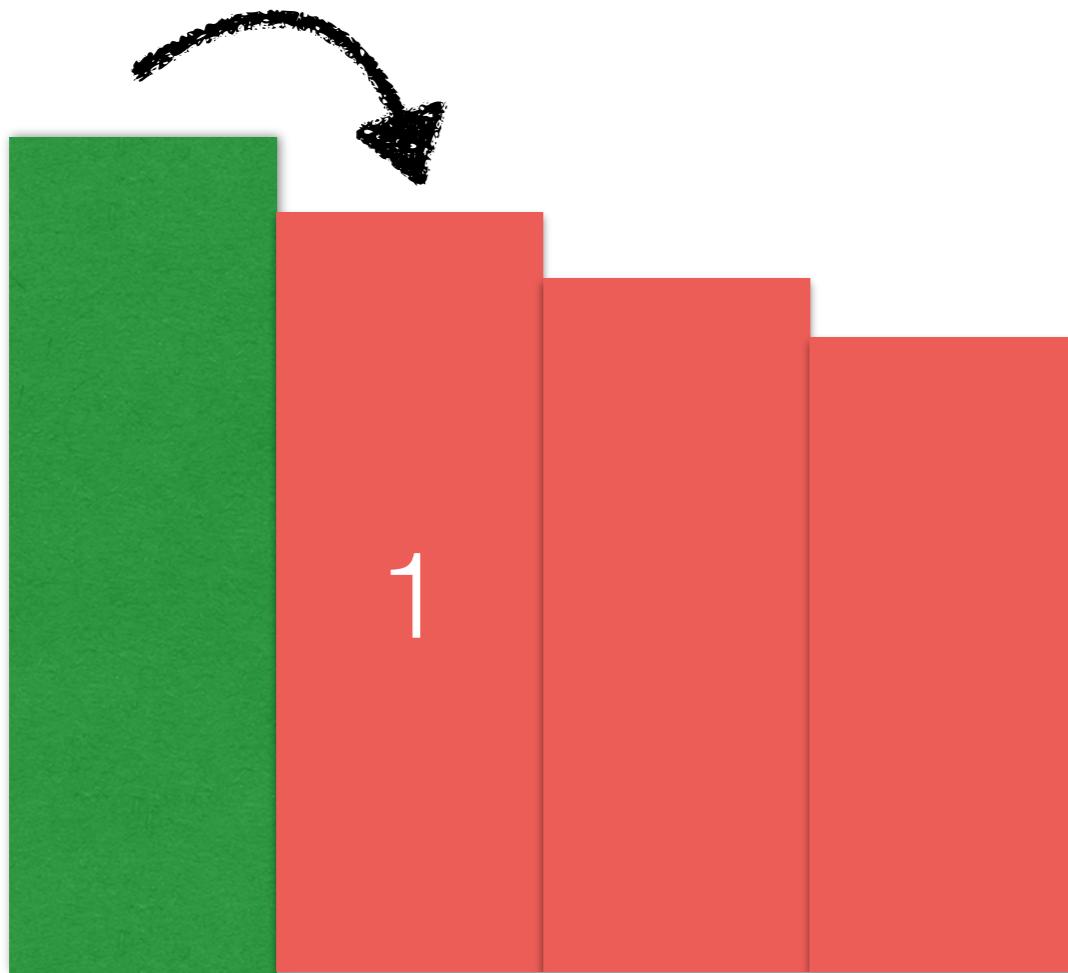
151:小朋友下樓梯

- 海帶今天要走樓梯，每次可以走一階或跳兩階
- 試問：給定 N 階樓梯，海帶下樓的方式有幾種？

$N = 3$

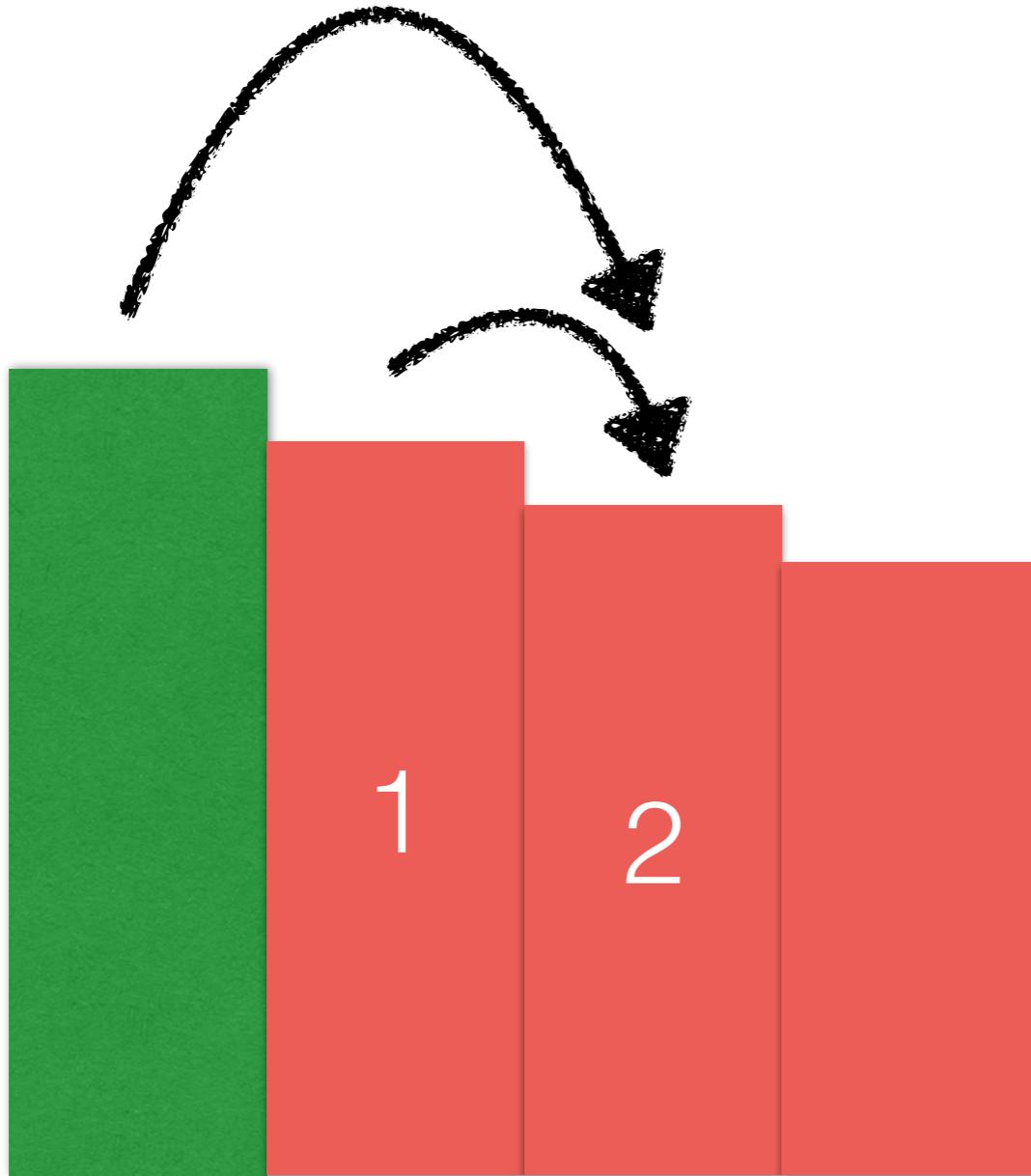


$$N = 3$$



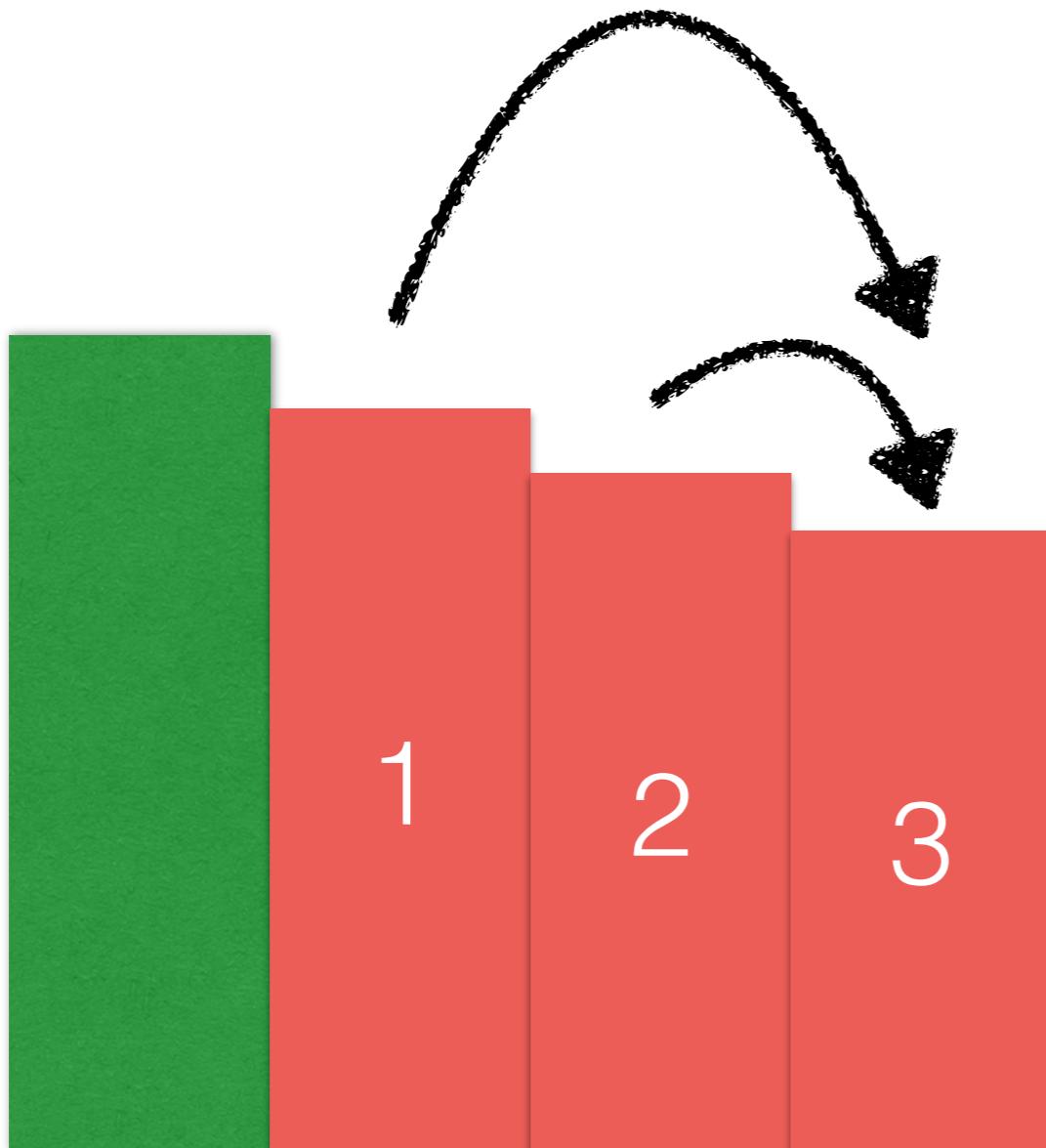
- 走到第一階：
 - 走一步：1種
 - 跳兩步：0種

$$N = 3$$



- 走到第二階：
 - 走一步：1種
 - 跳兩步：1種

$$N = 3$$



- 走到第三階：
 - 走一步：2種
 - 跳兩步：1種

$N = ??$



- 走到第 N 階：
 - 走一步：從 $N-1$ 階來
 - 跳兩步：從 $N-2$ 階來

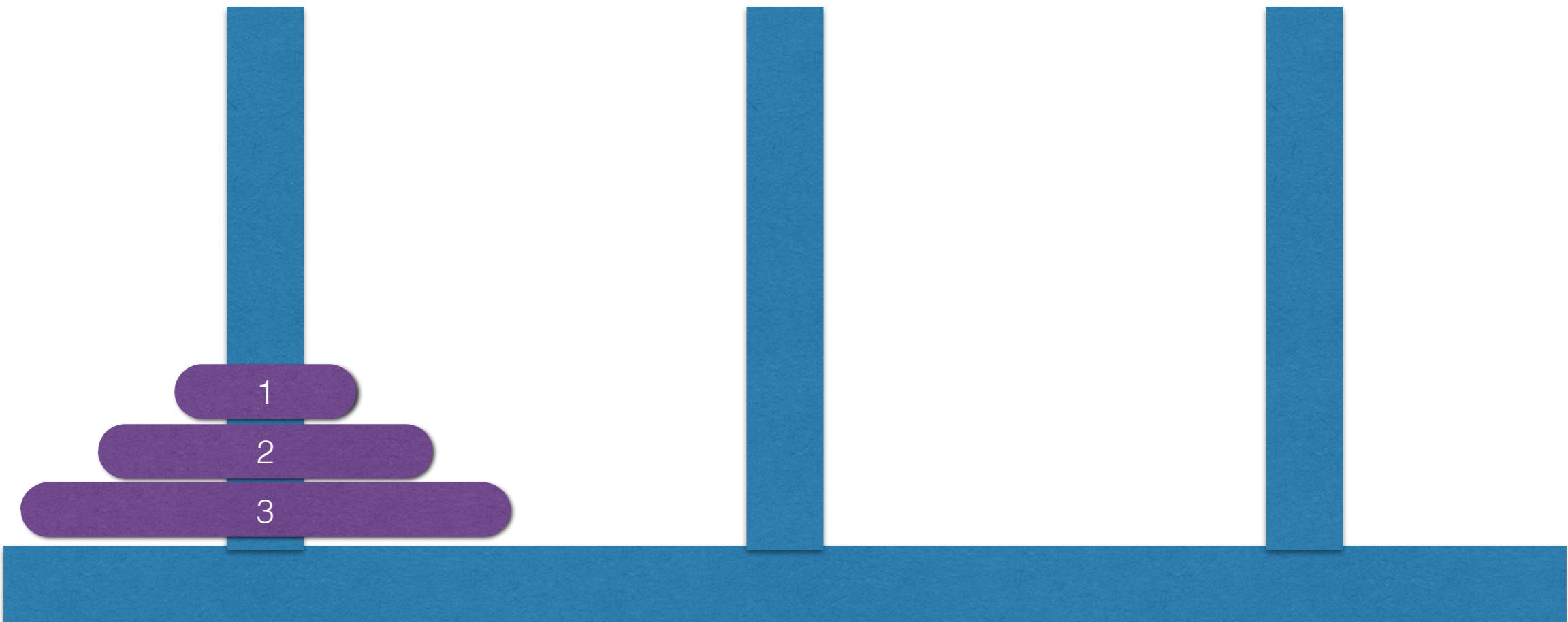
本週作業

- DL: 2014/5/5 23:59
- 152: 幸運大樂透
- 153: 文字轉轉轉
- 154: 河內之塔

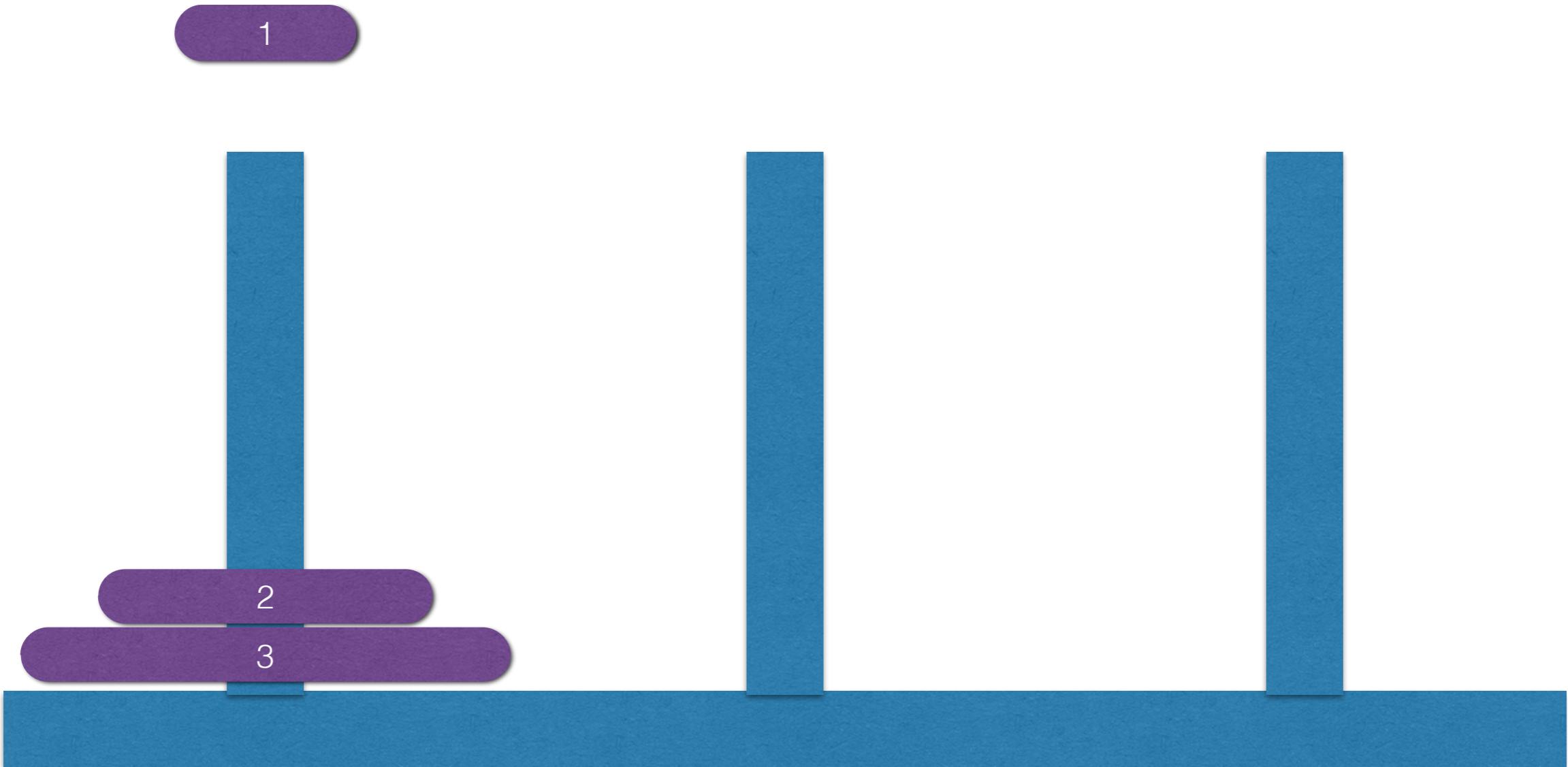
作業講解，河內塔

- 盤子有 N 個，每個大小都不一樣
- 只有小的能疊在大的上頭
- 起始，所有盤子都在最左邊
- 最終要把所有盤子放到最右邊

N = 3

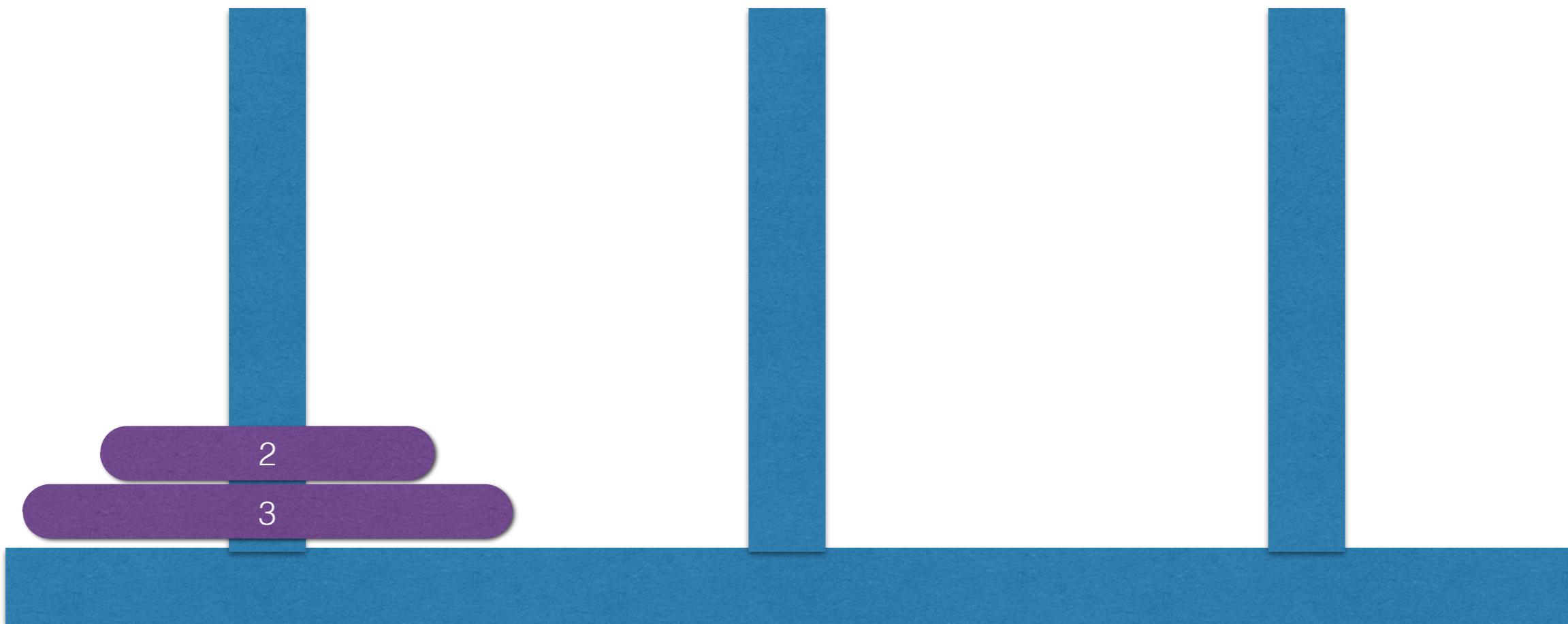


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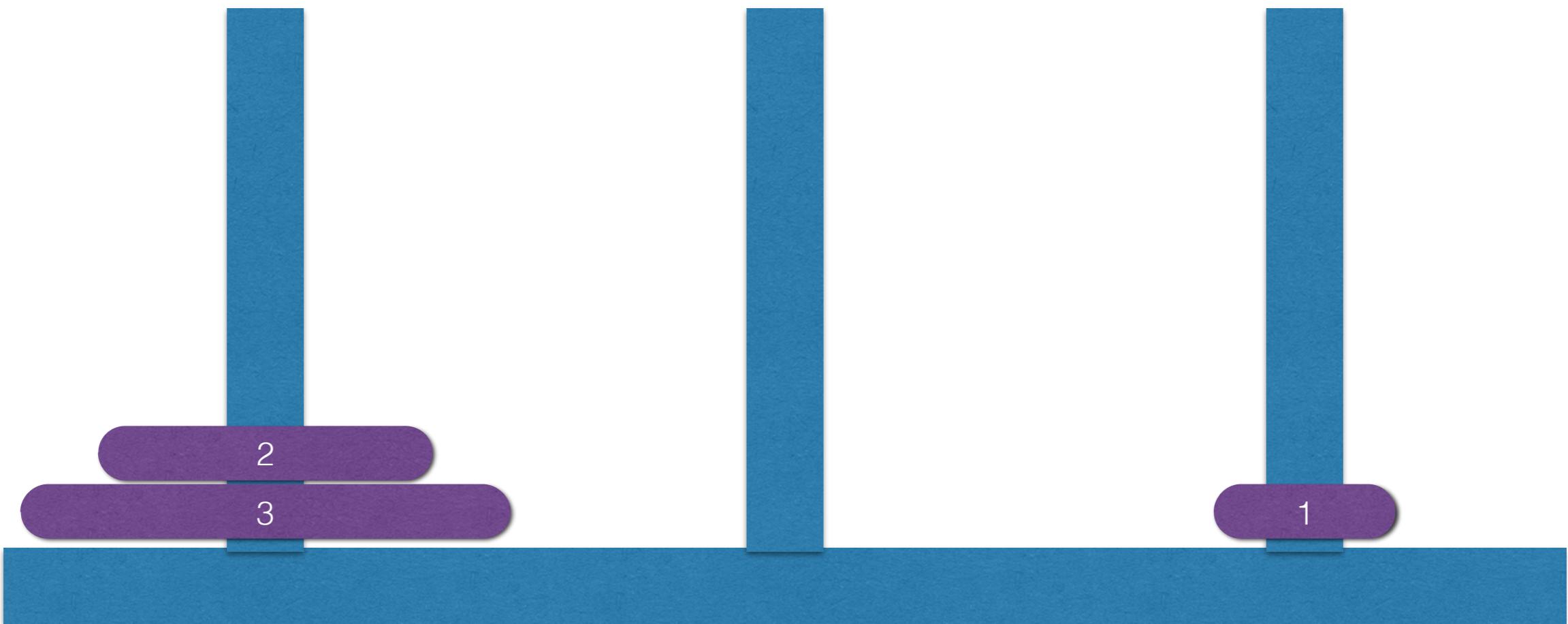


N = 3

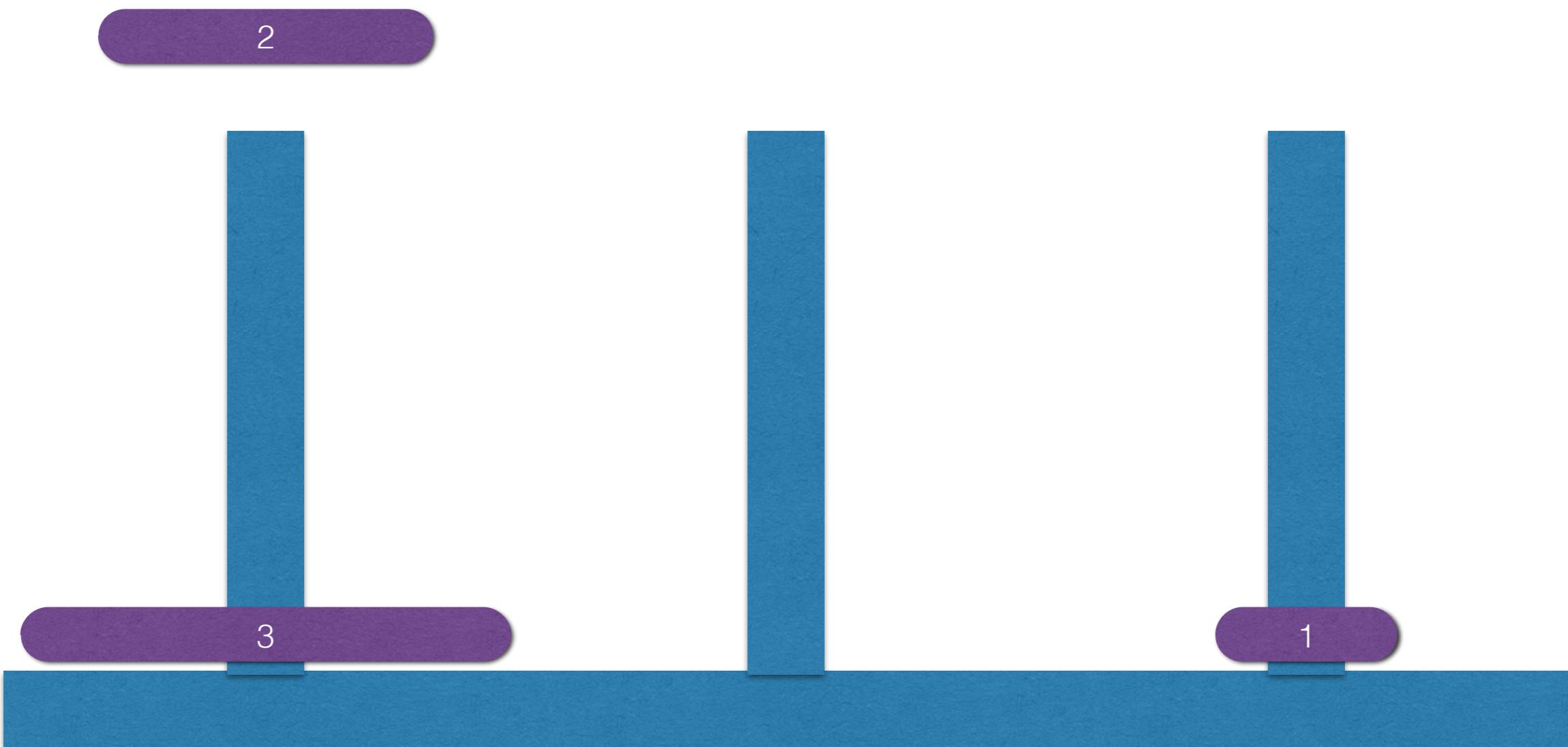
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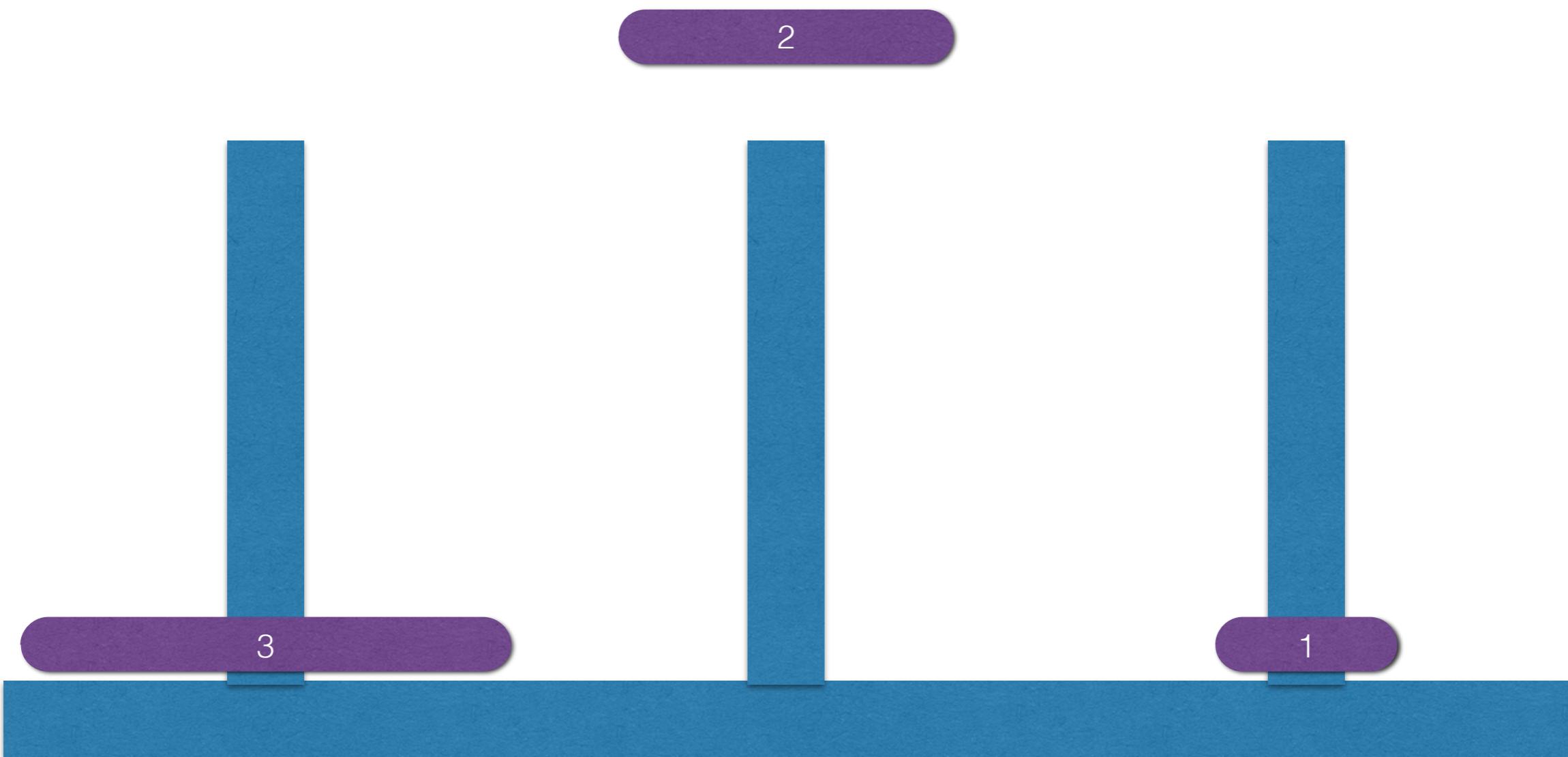
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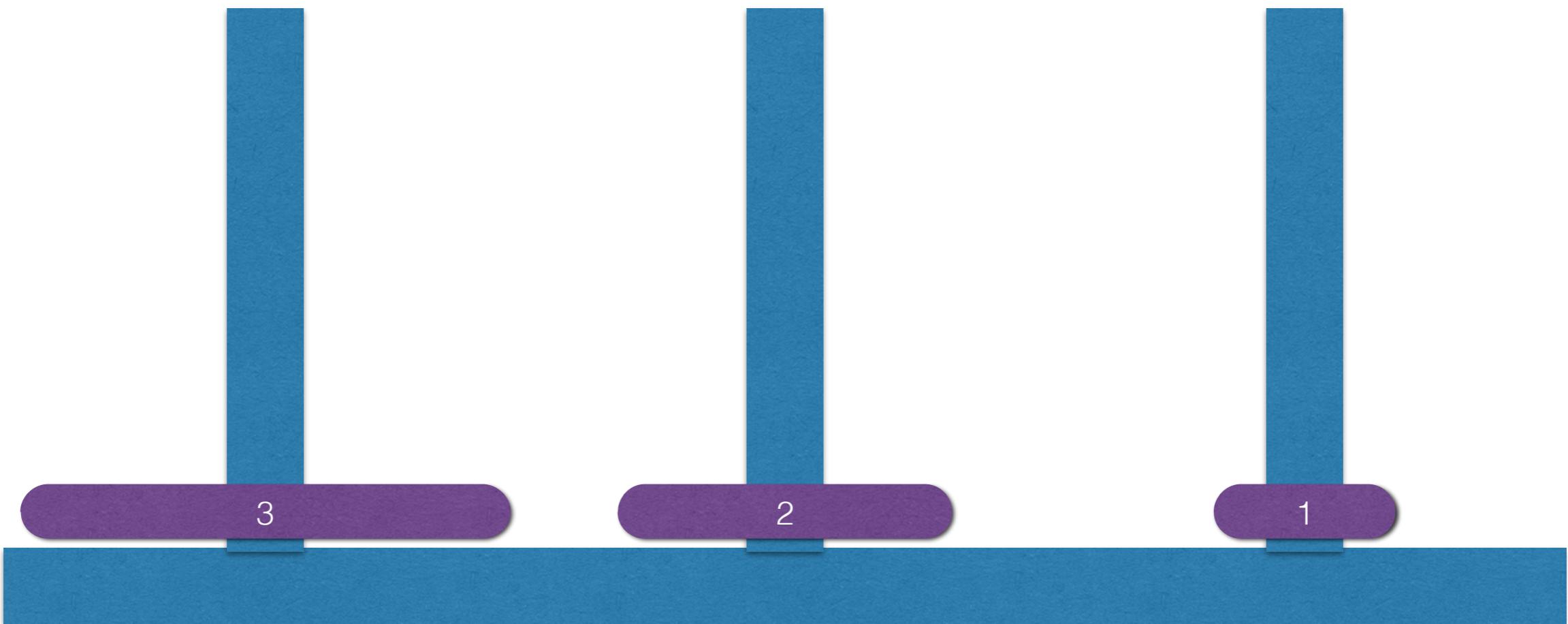
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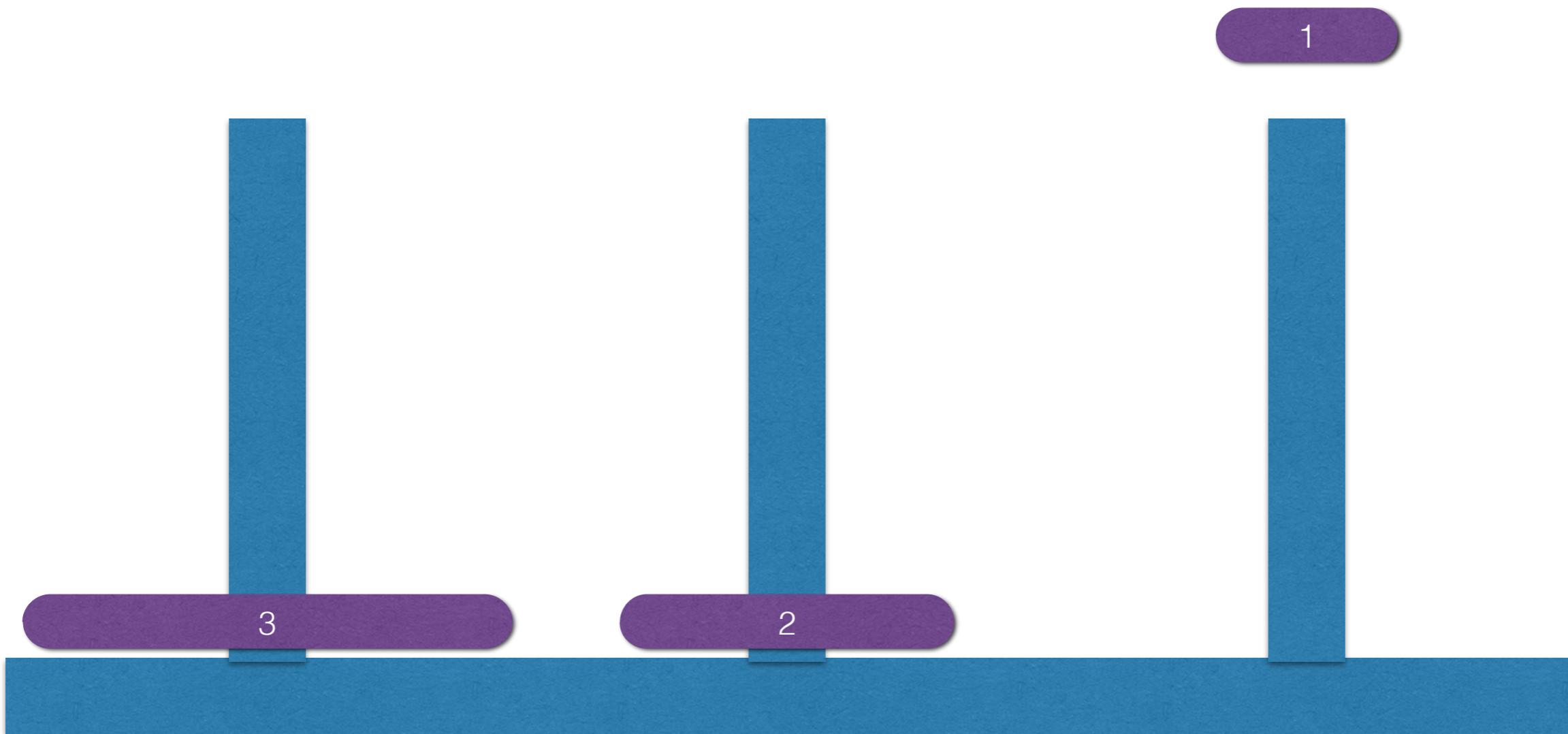
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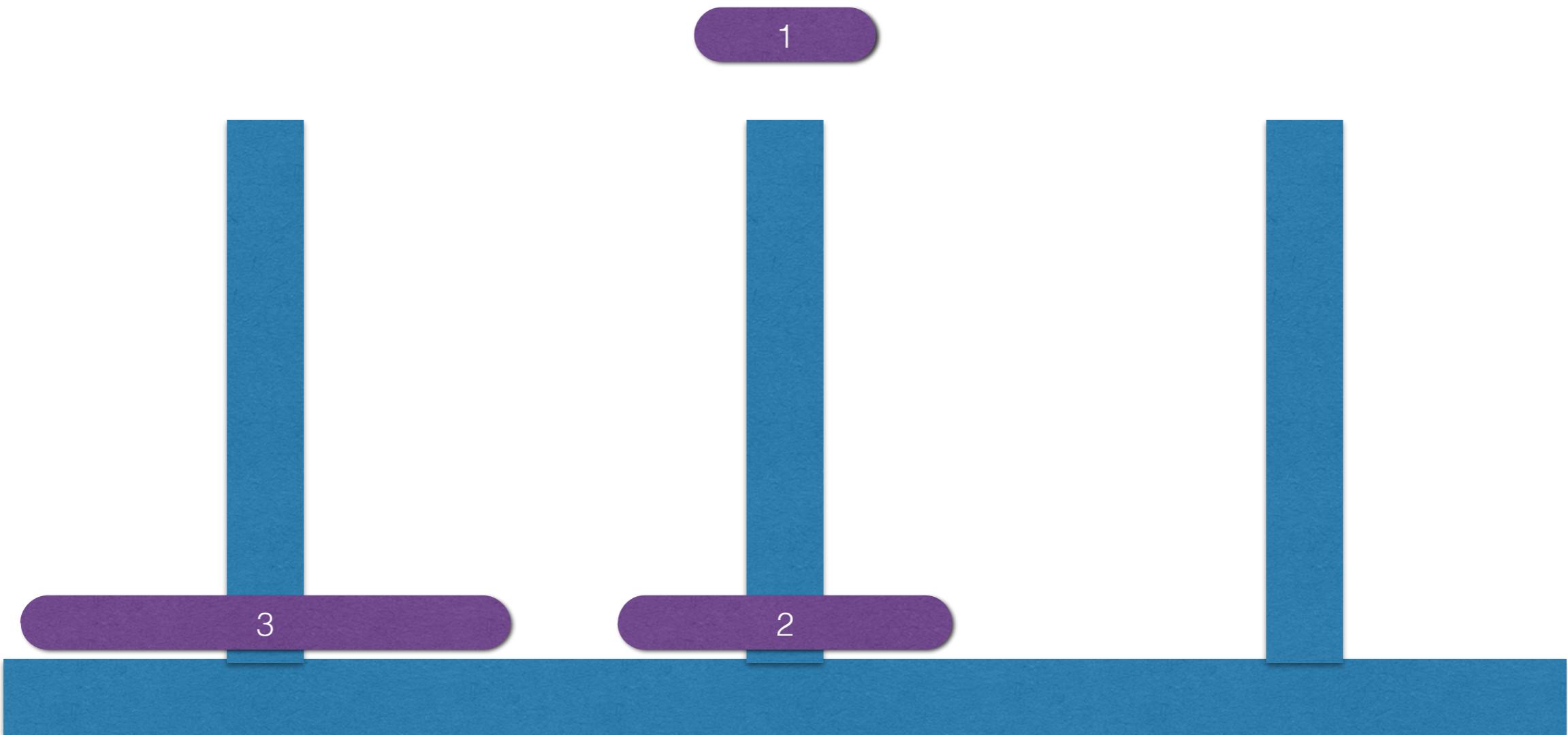
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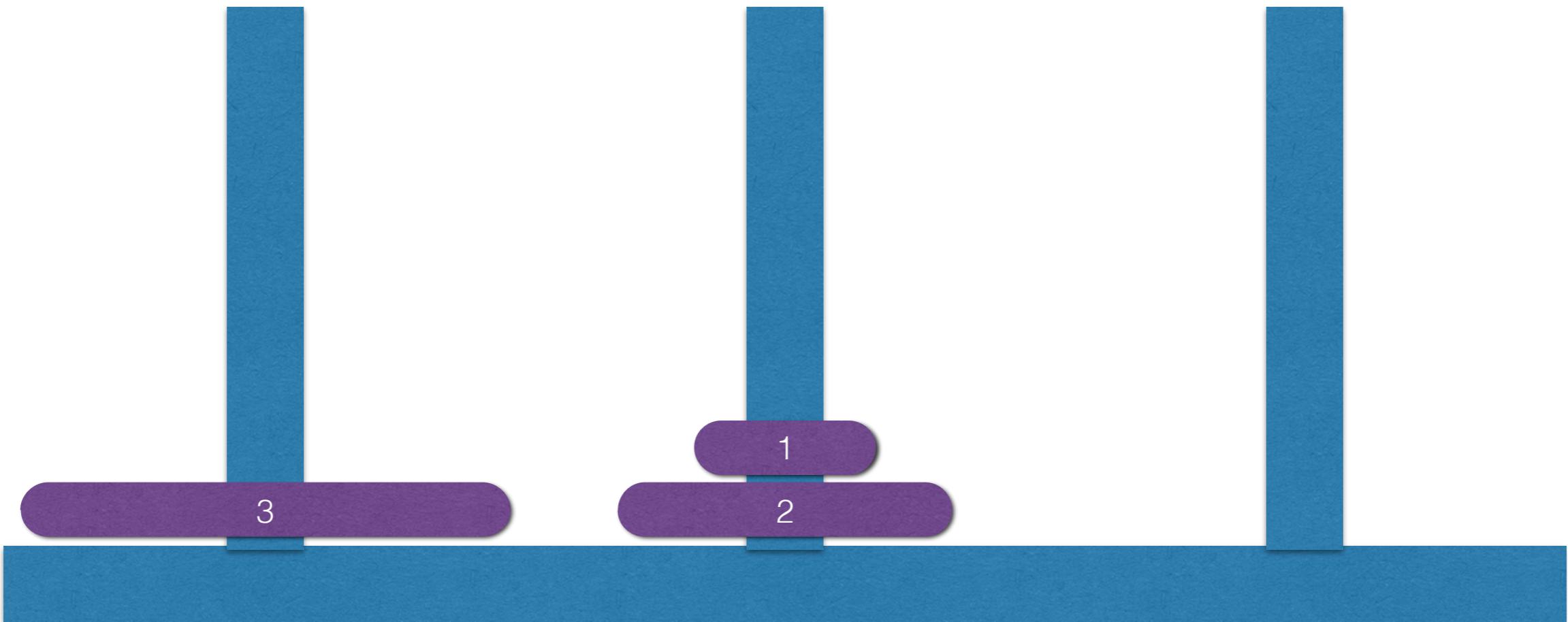
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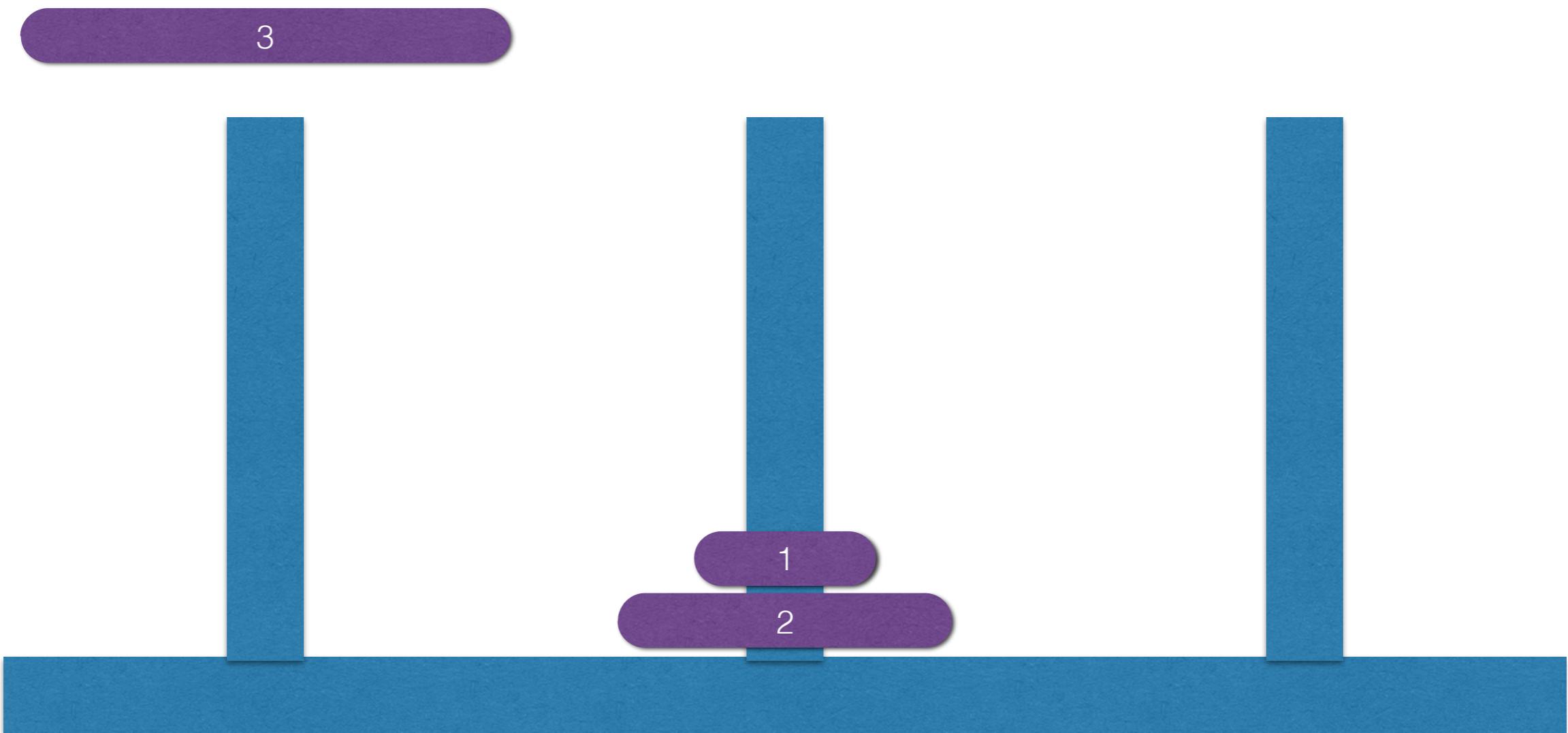
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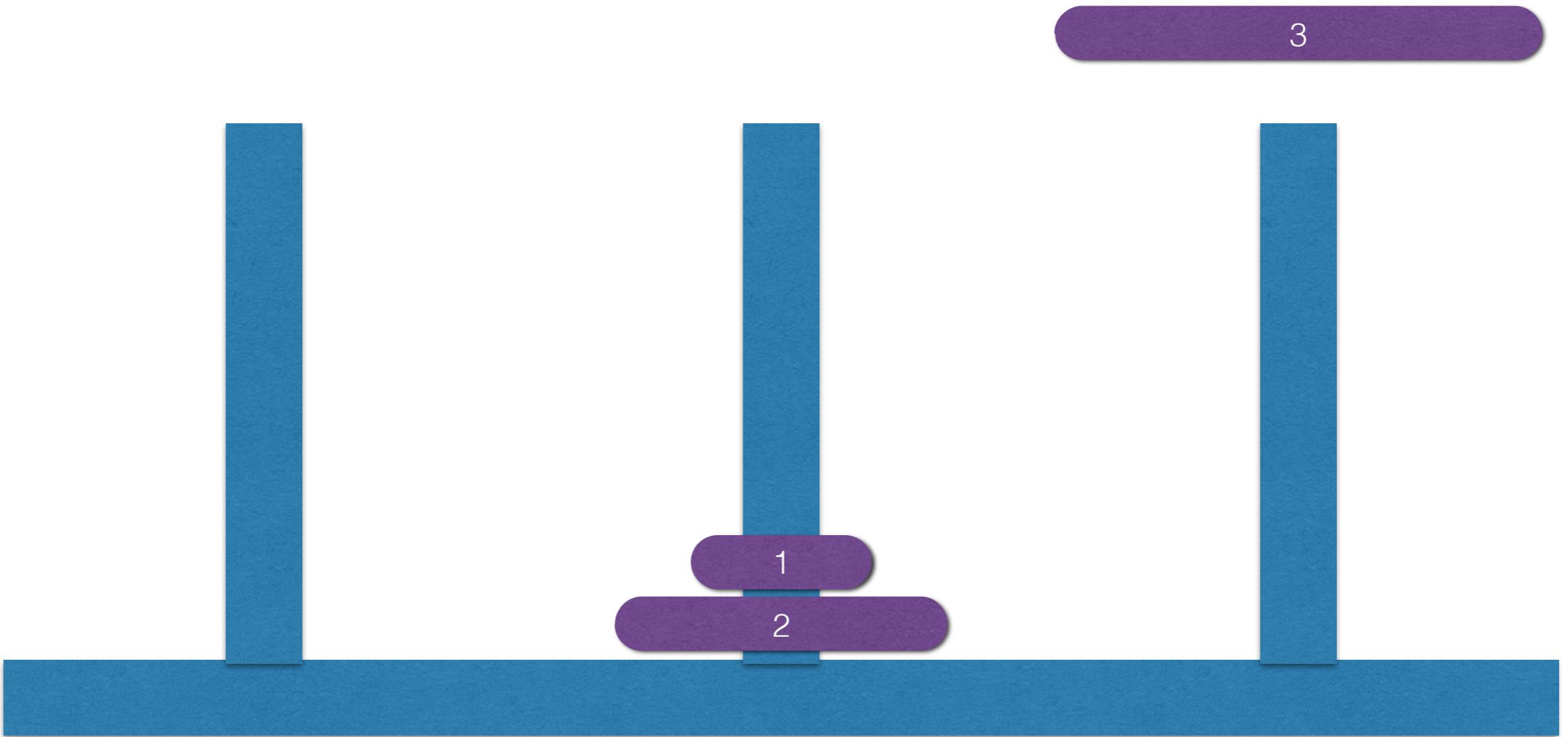
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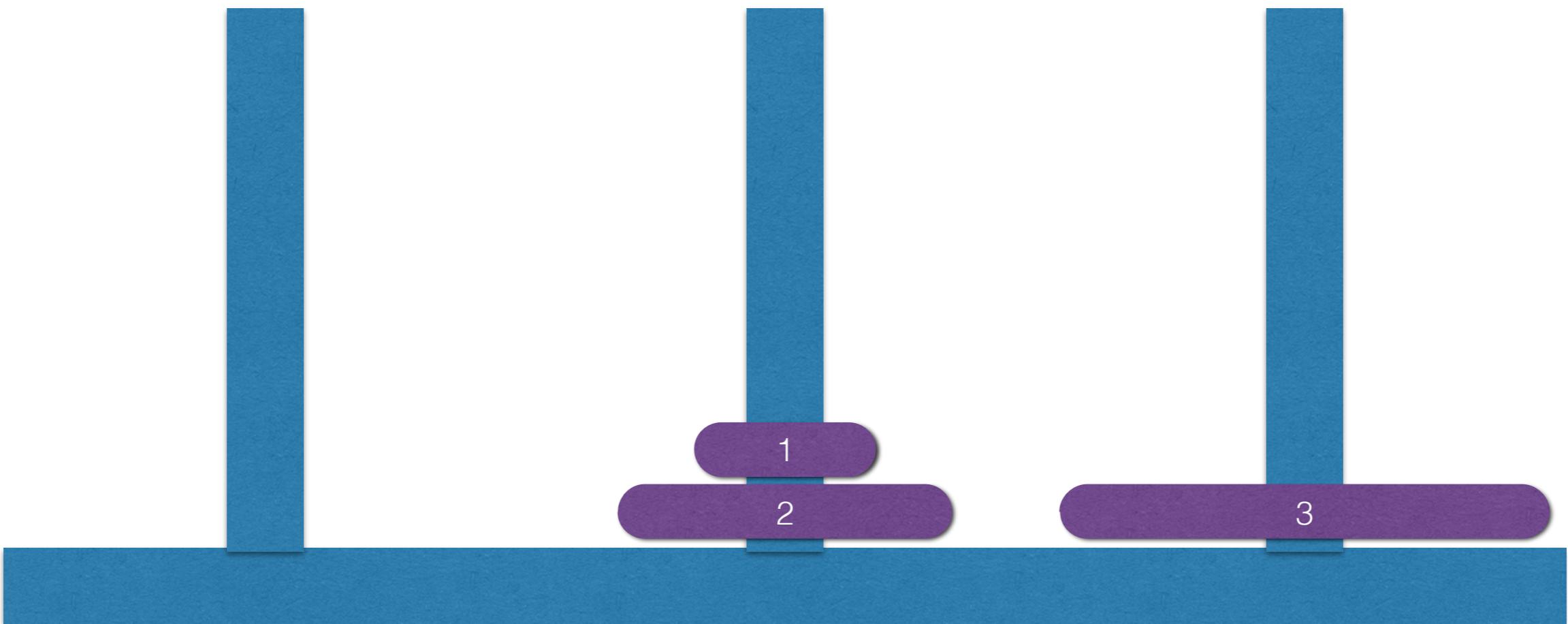
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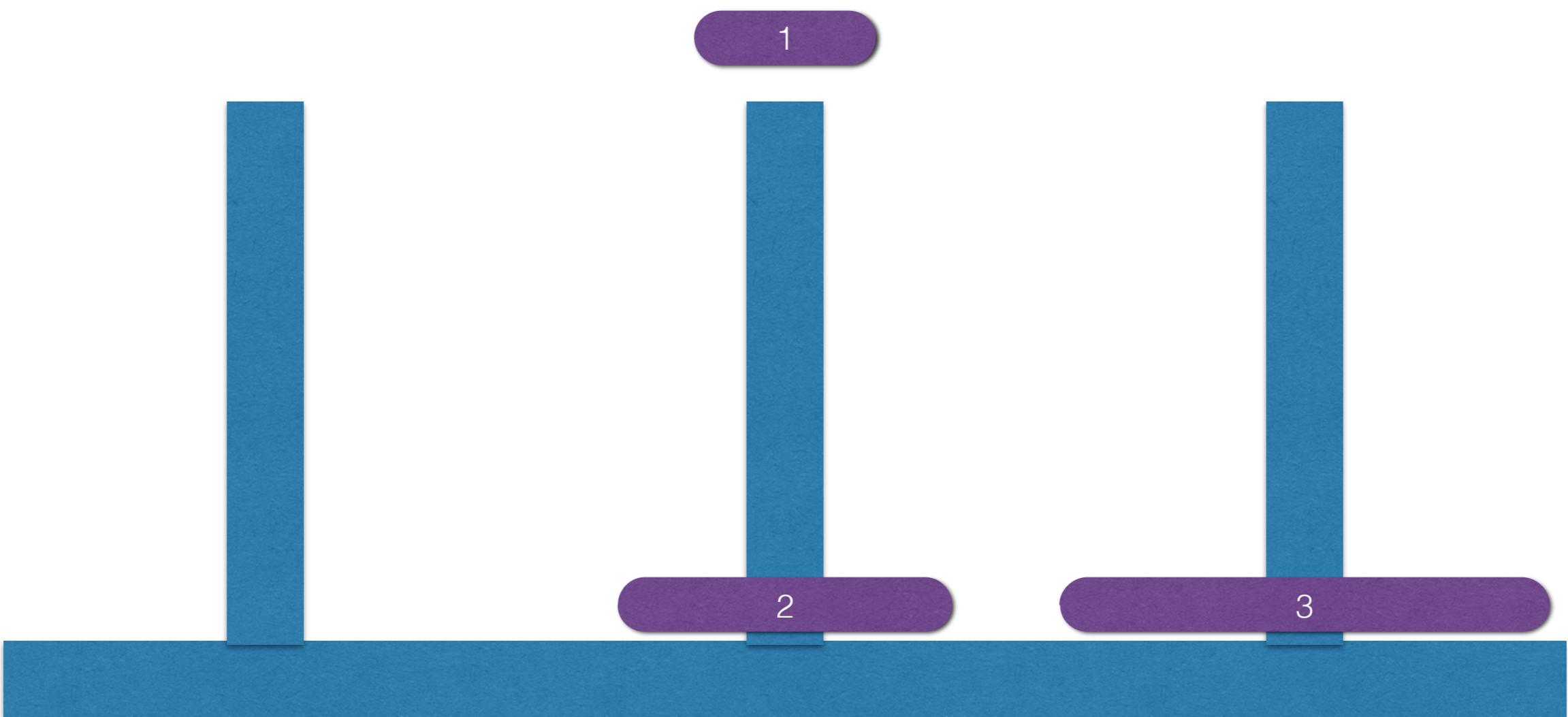
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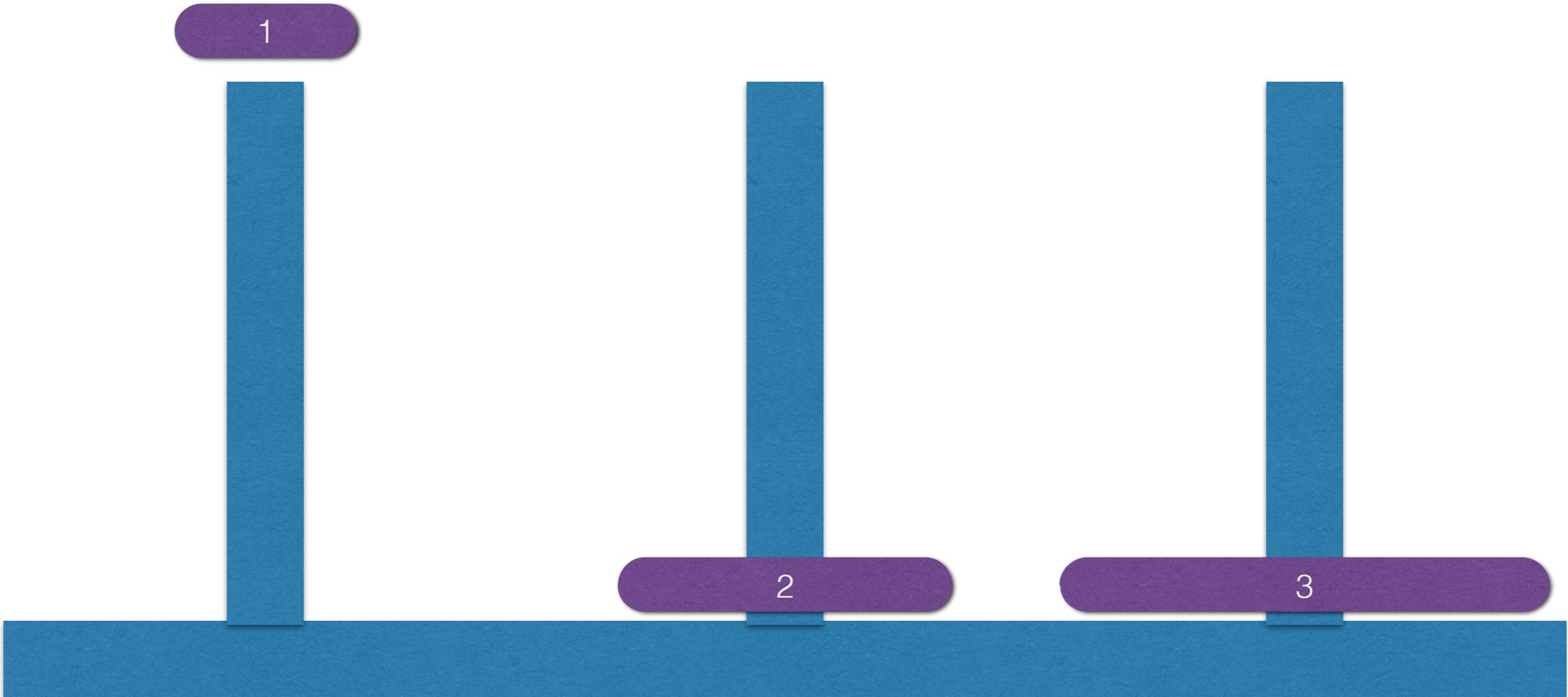
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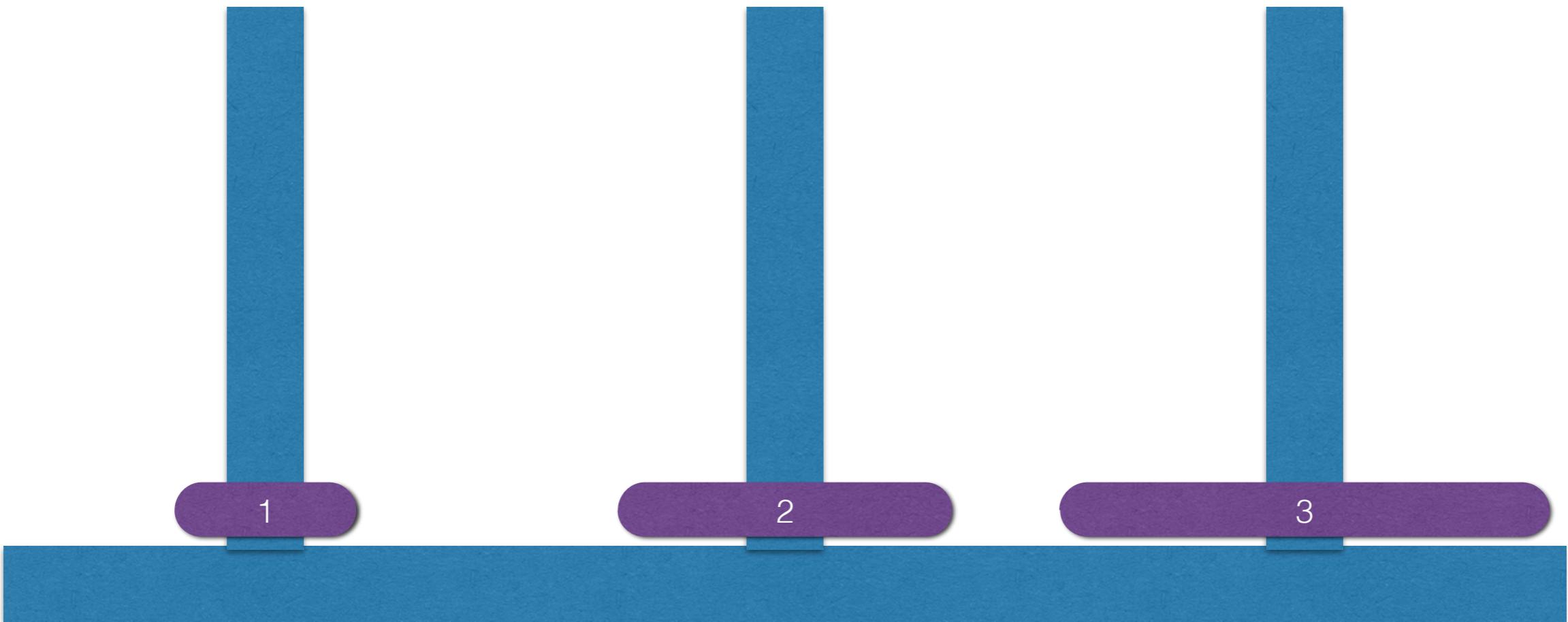
N = 3



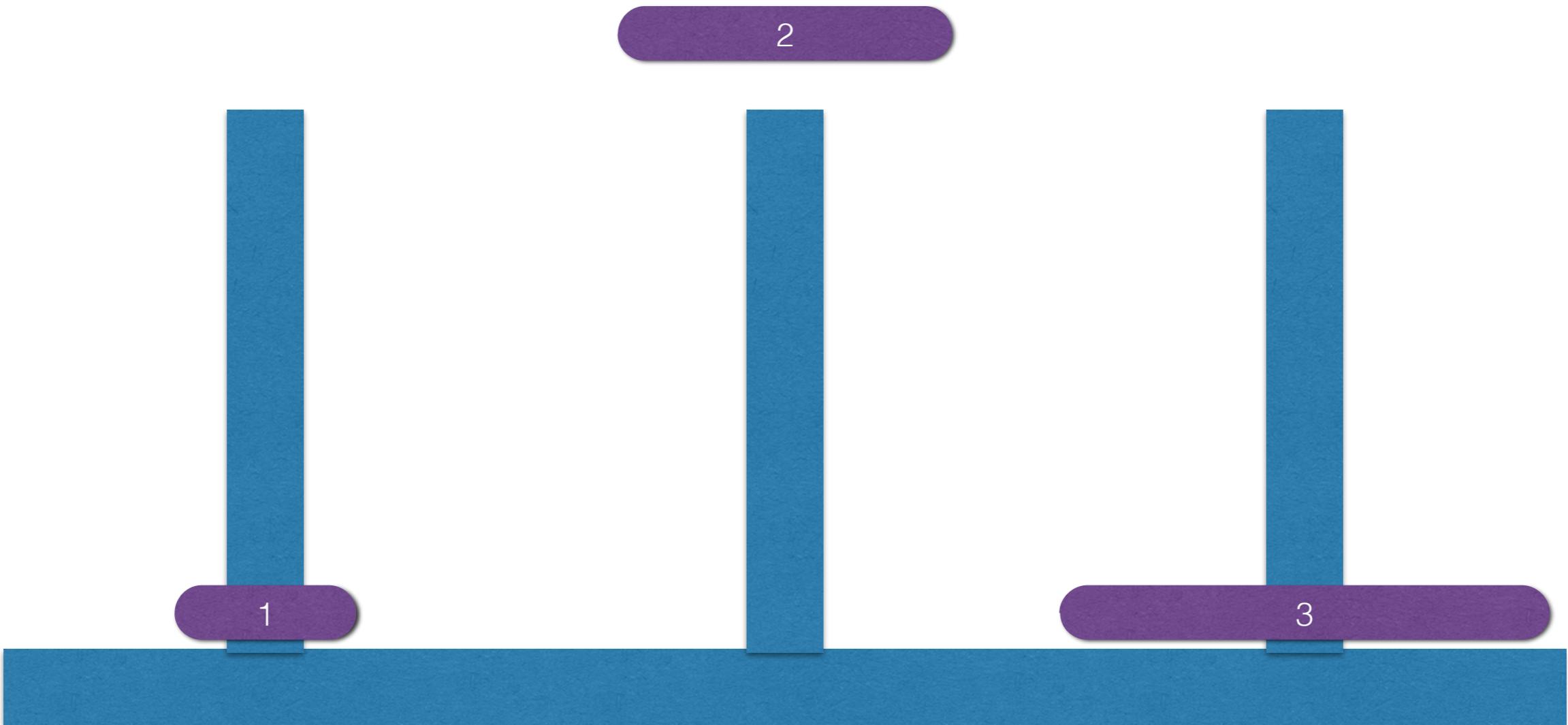
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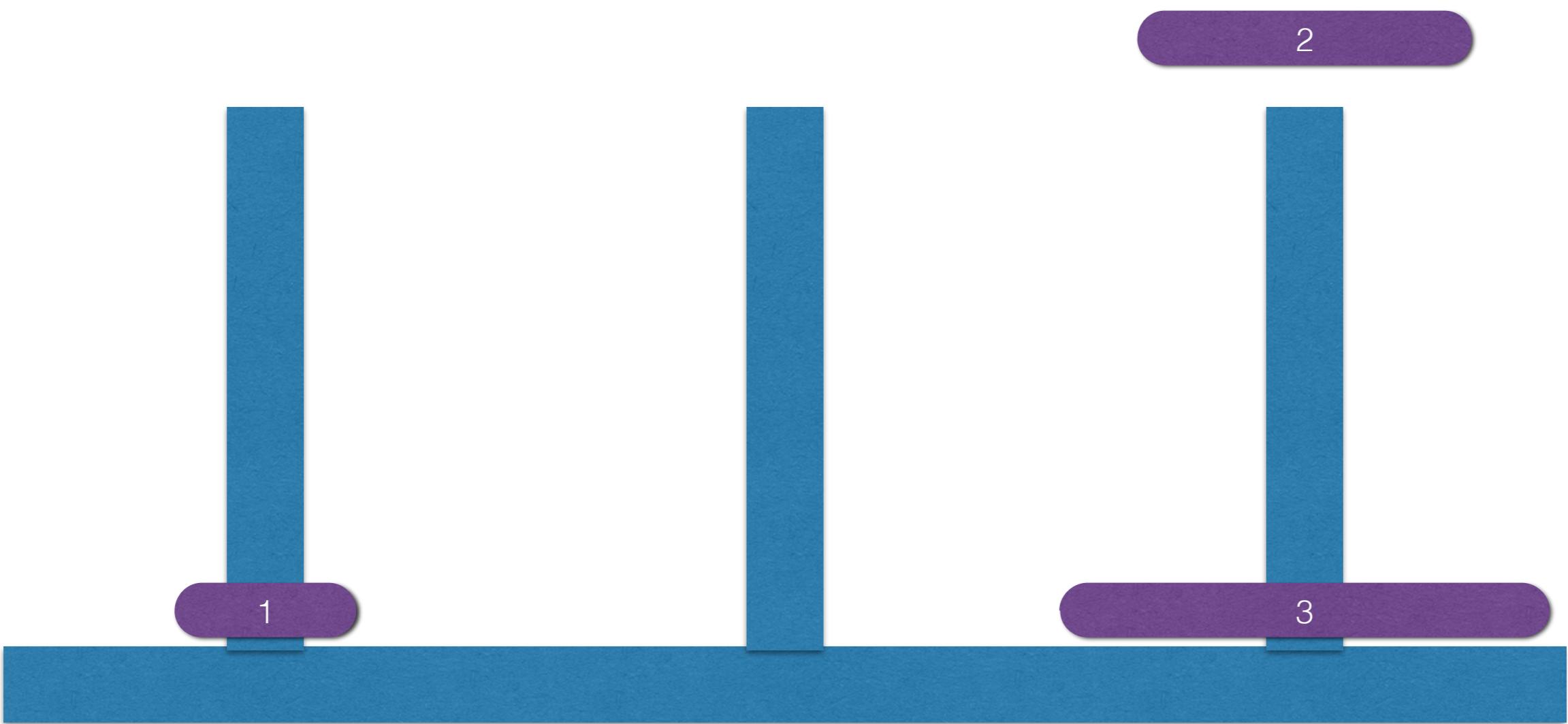
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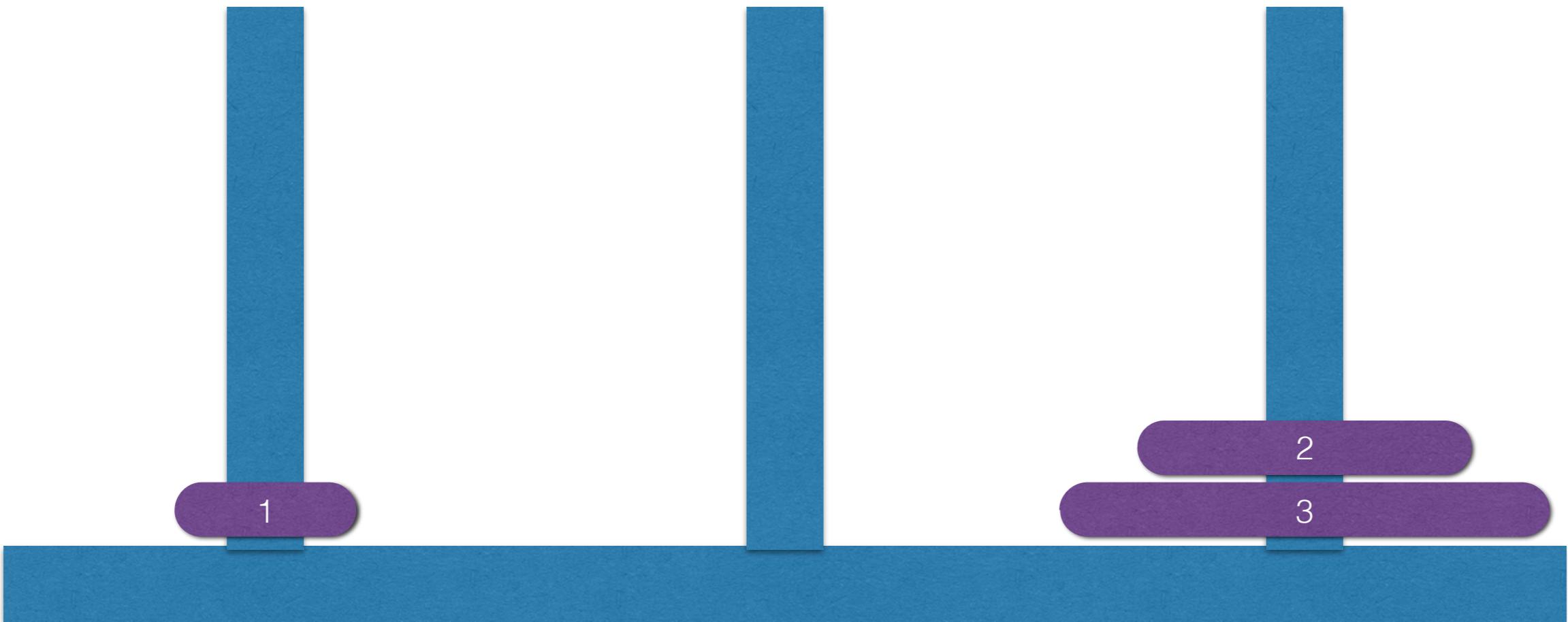
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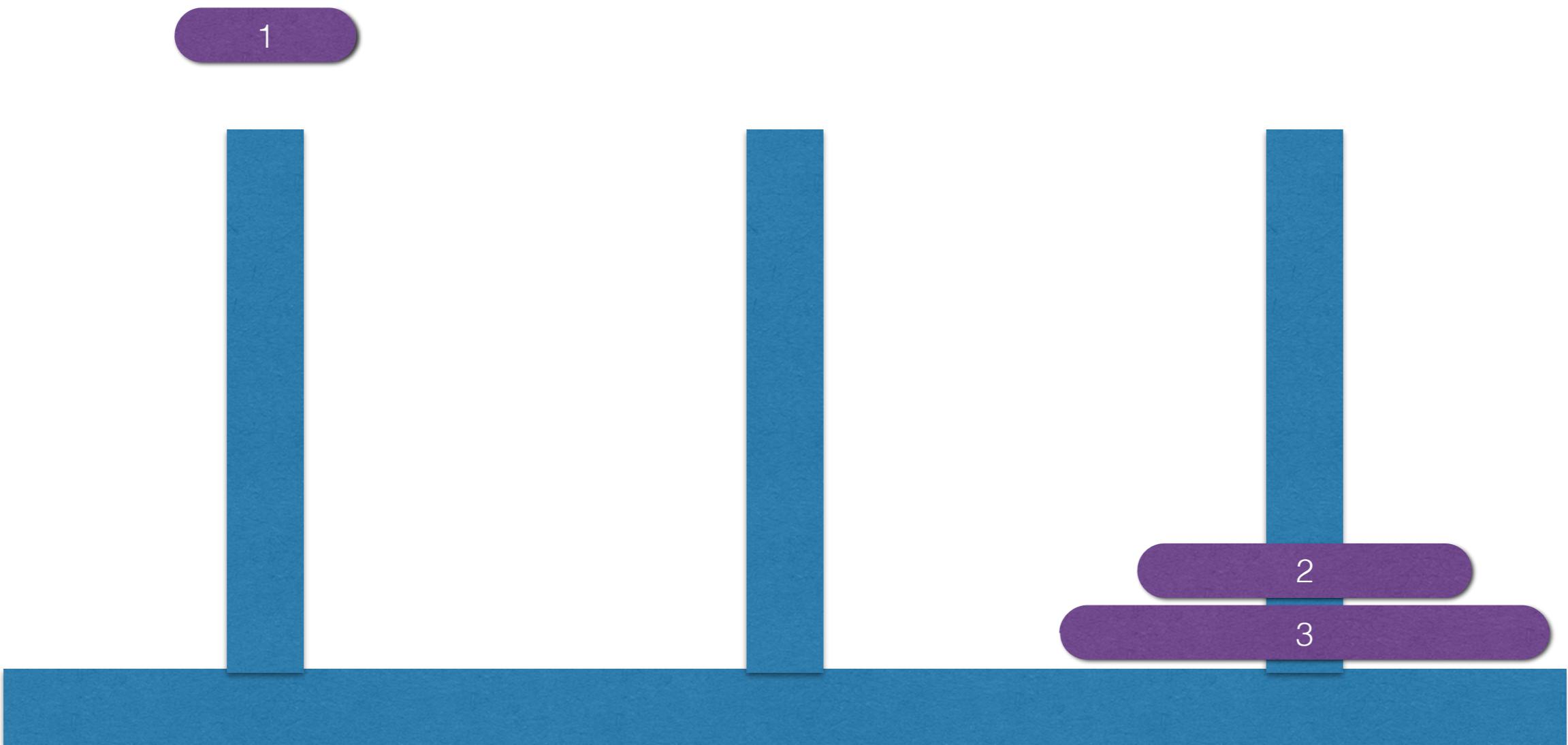
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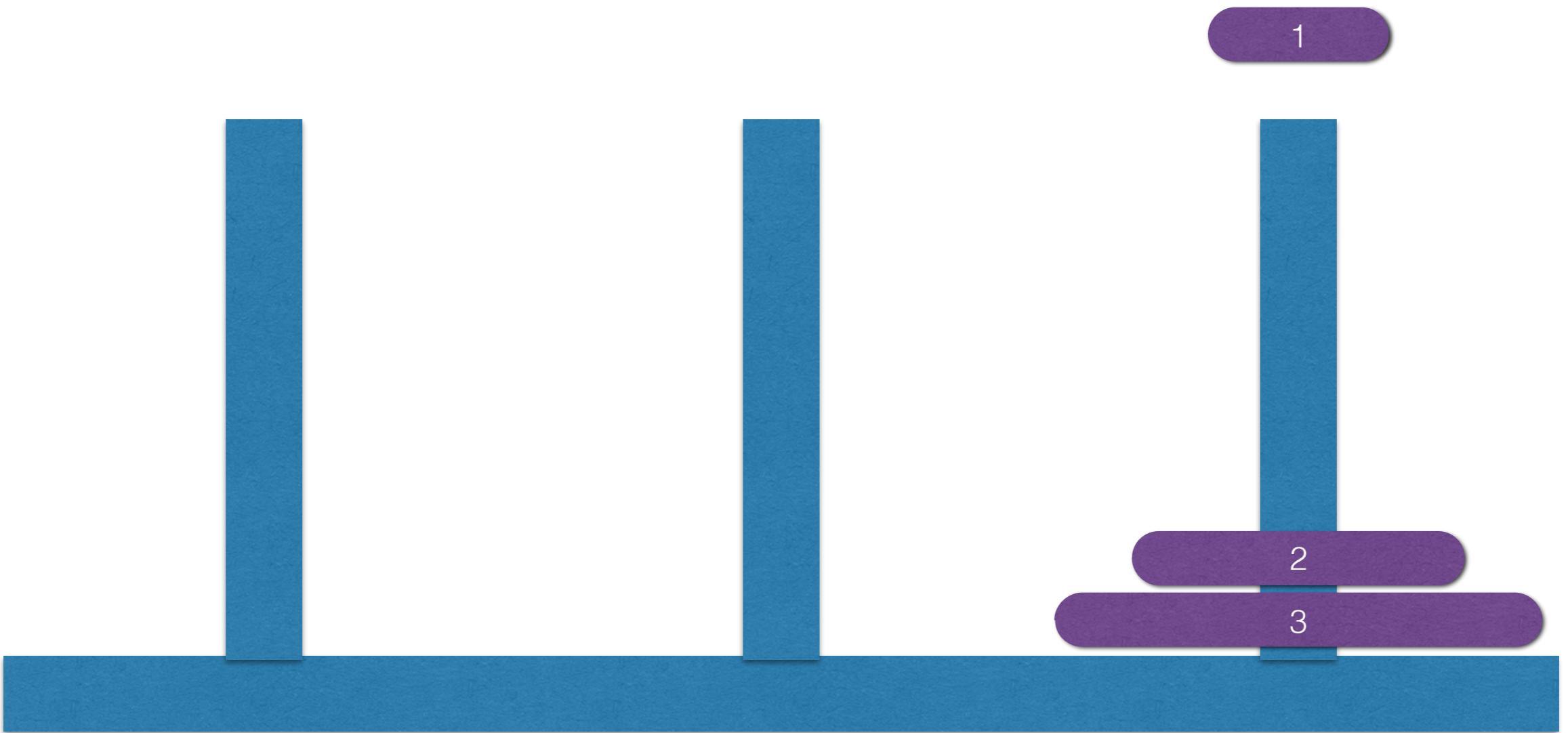
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N = 3



N = 3



$N = 3$

