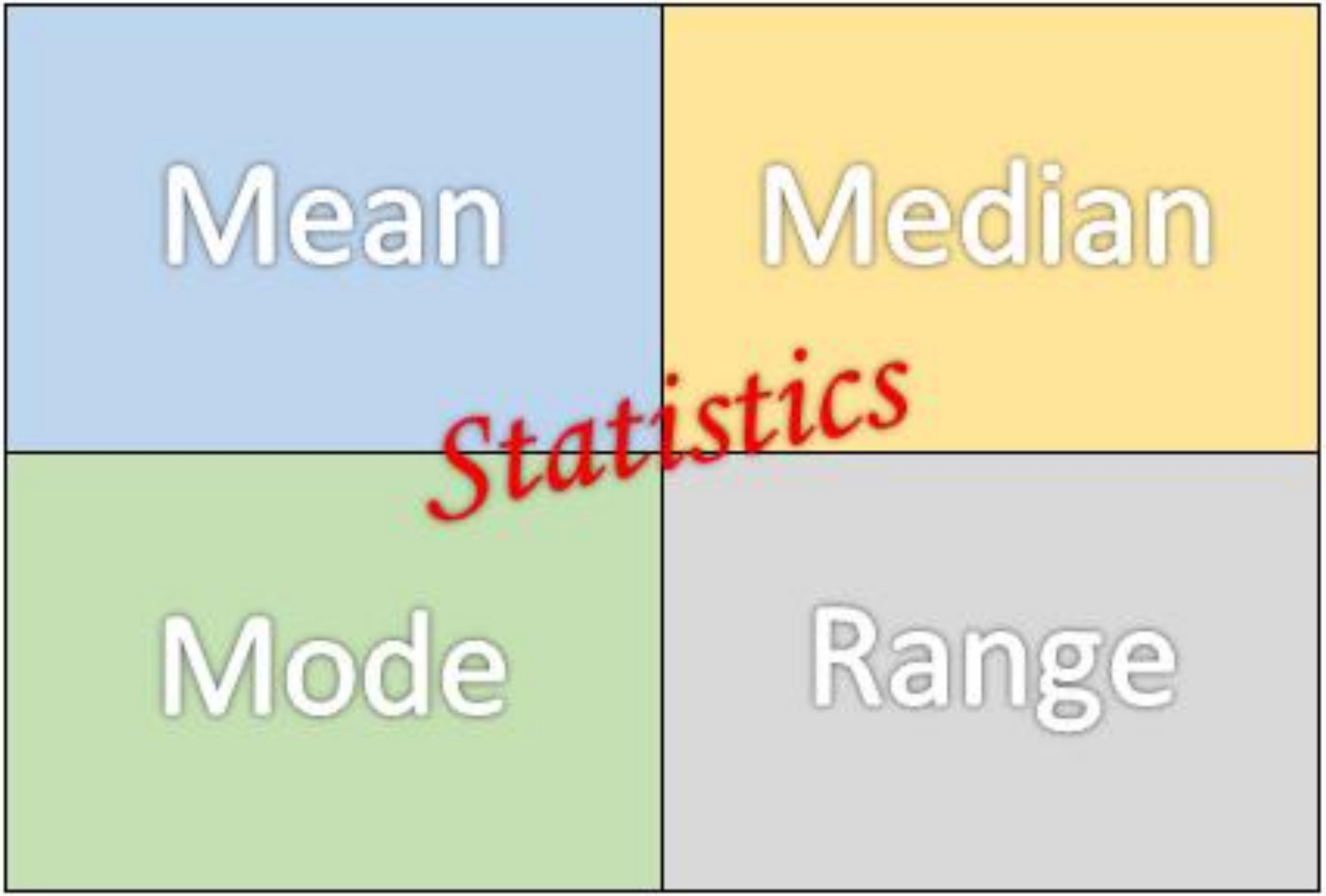
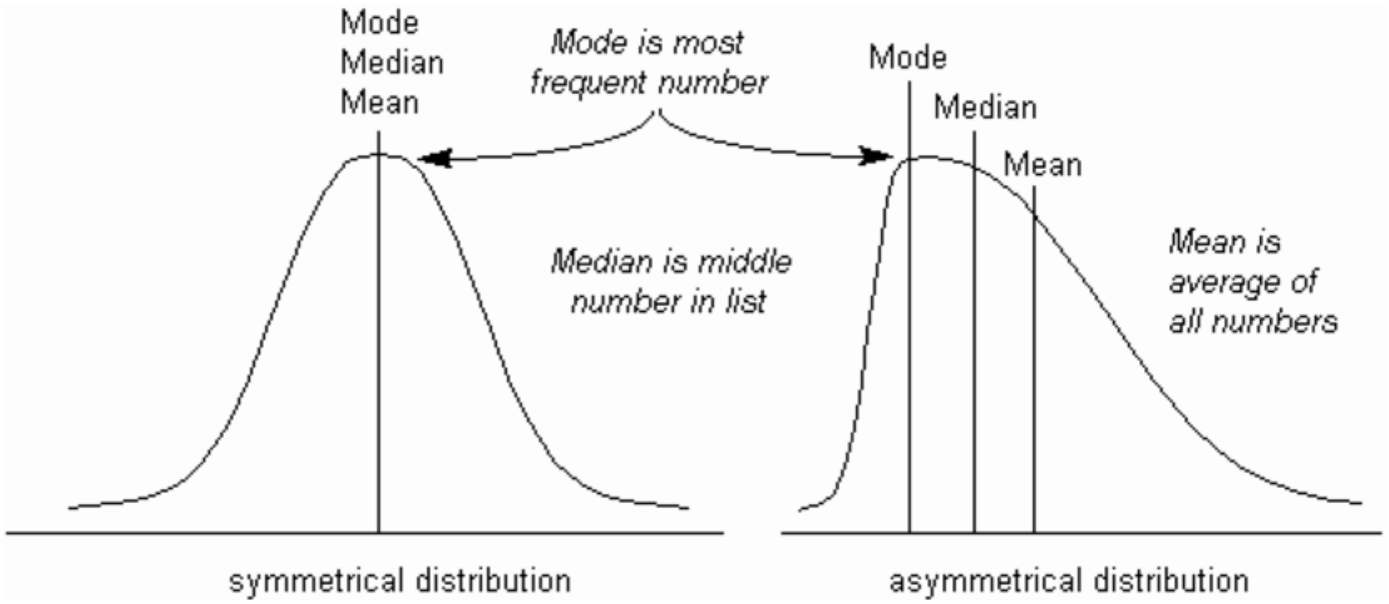
Lying with Statistics

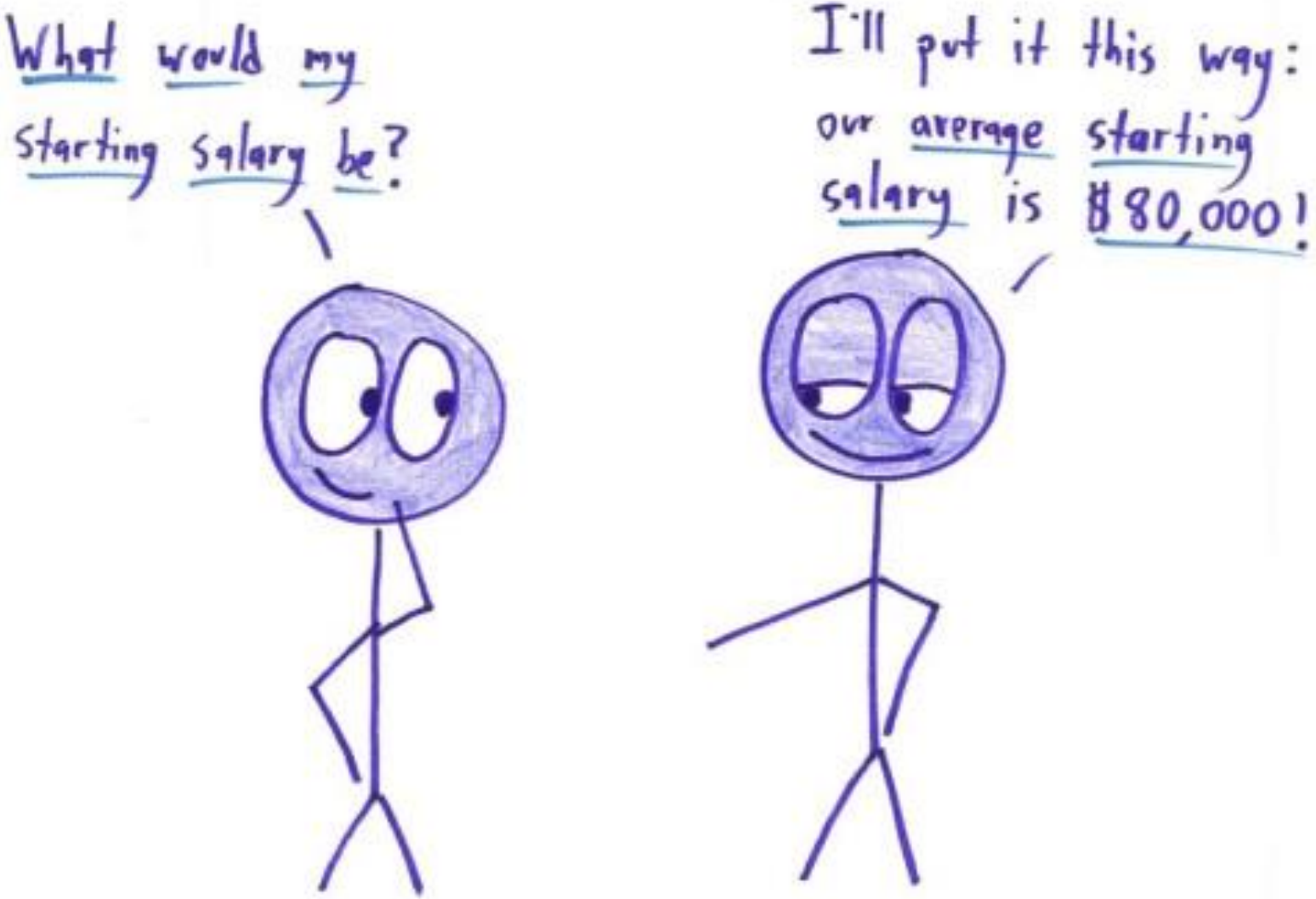
Drawing by Ben Orlin, www.mathwithbaddrawings.com


Mean
Median
Statistics
Mode
Range

Distribution Matters!



Mean



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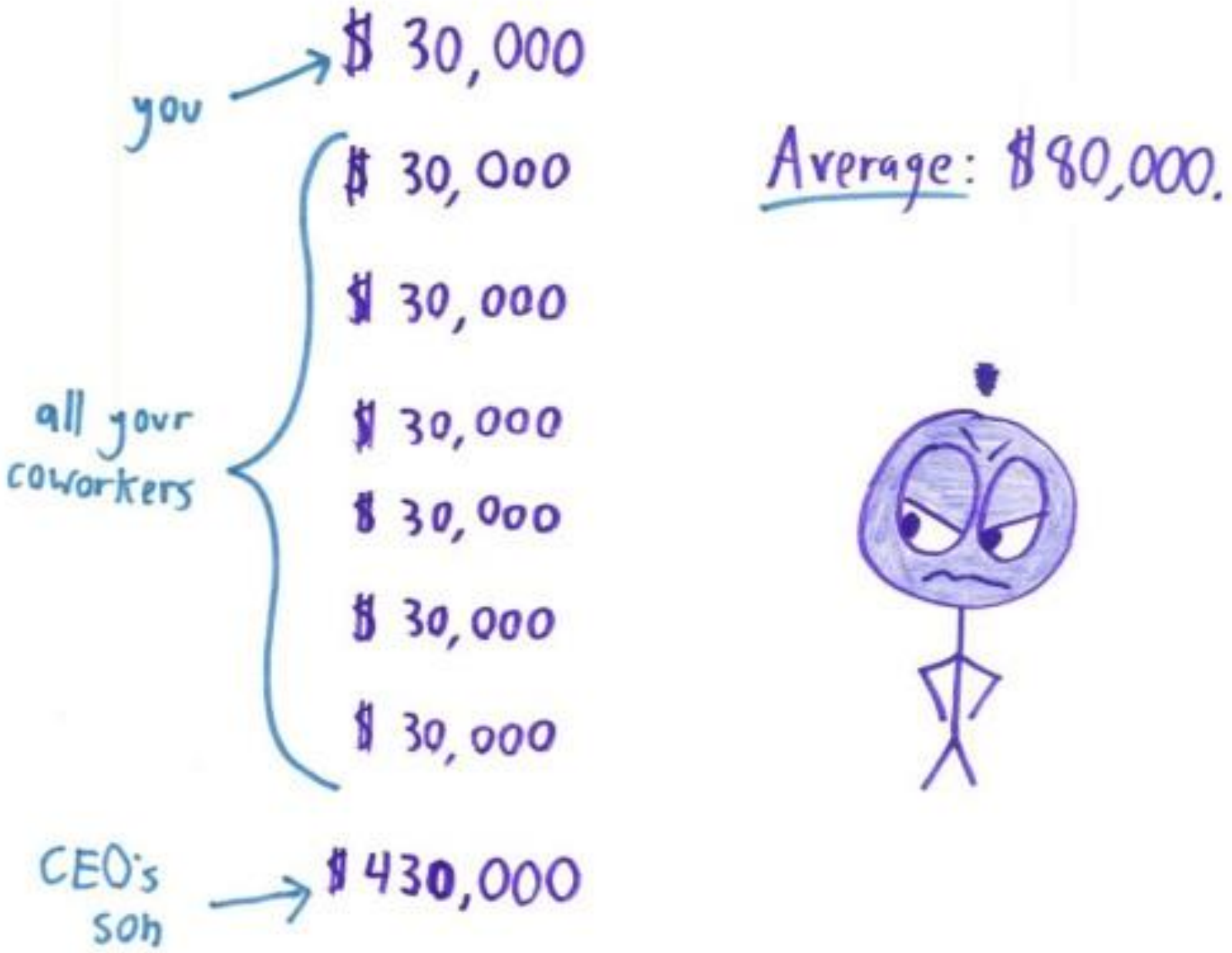

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Median

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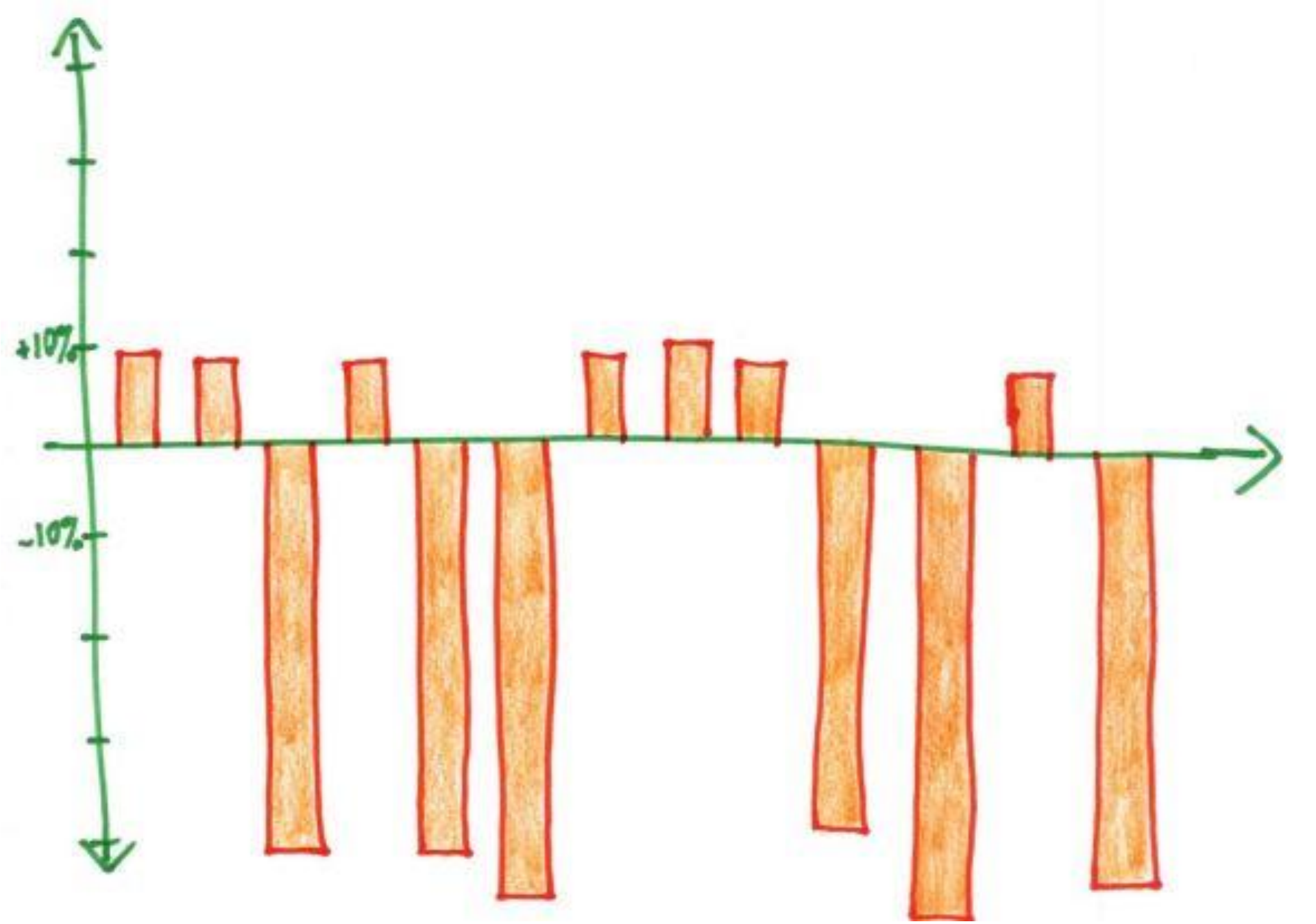

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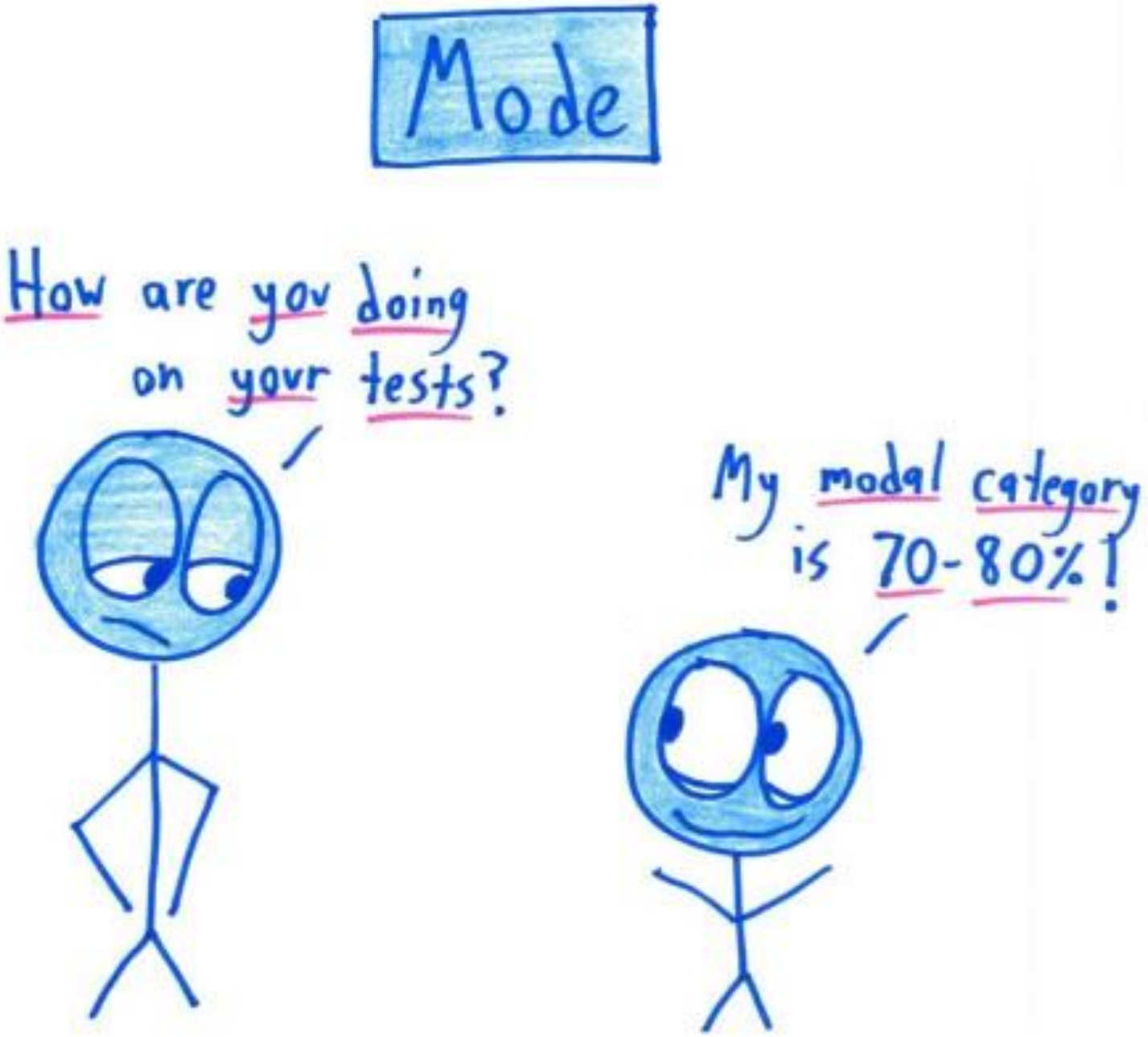
Mode



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Score Category	Number of Tests
90s	0
80s	0
70s	2
60s	1
50s	1
40s	1
30s	1
20s	1

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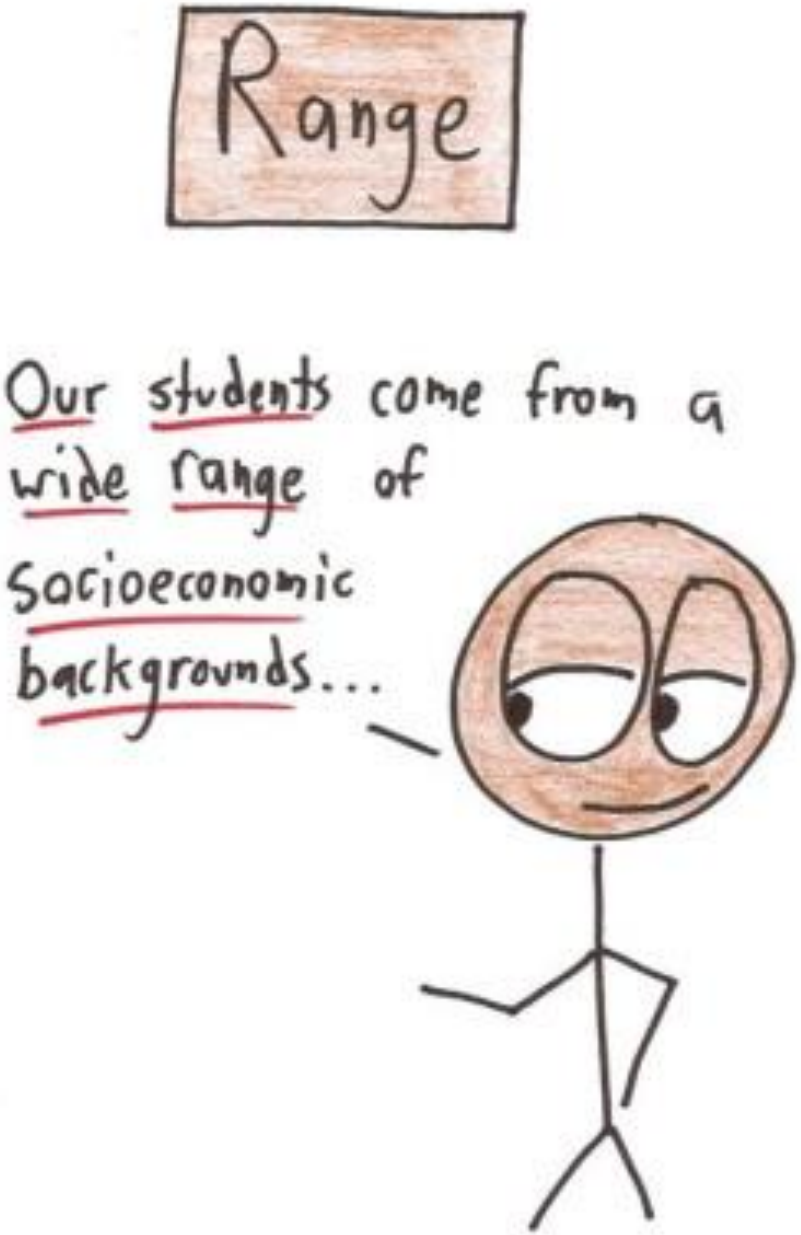

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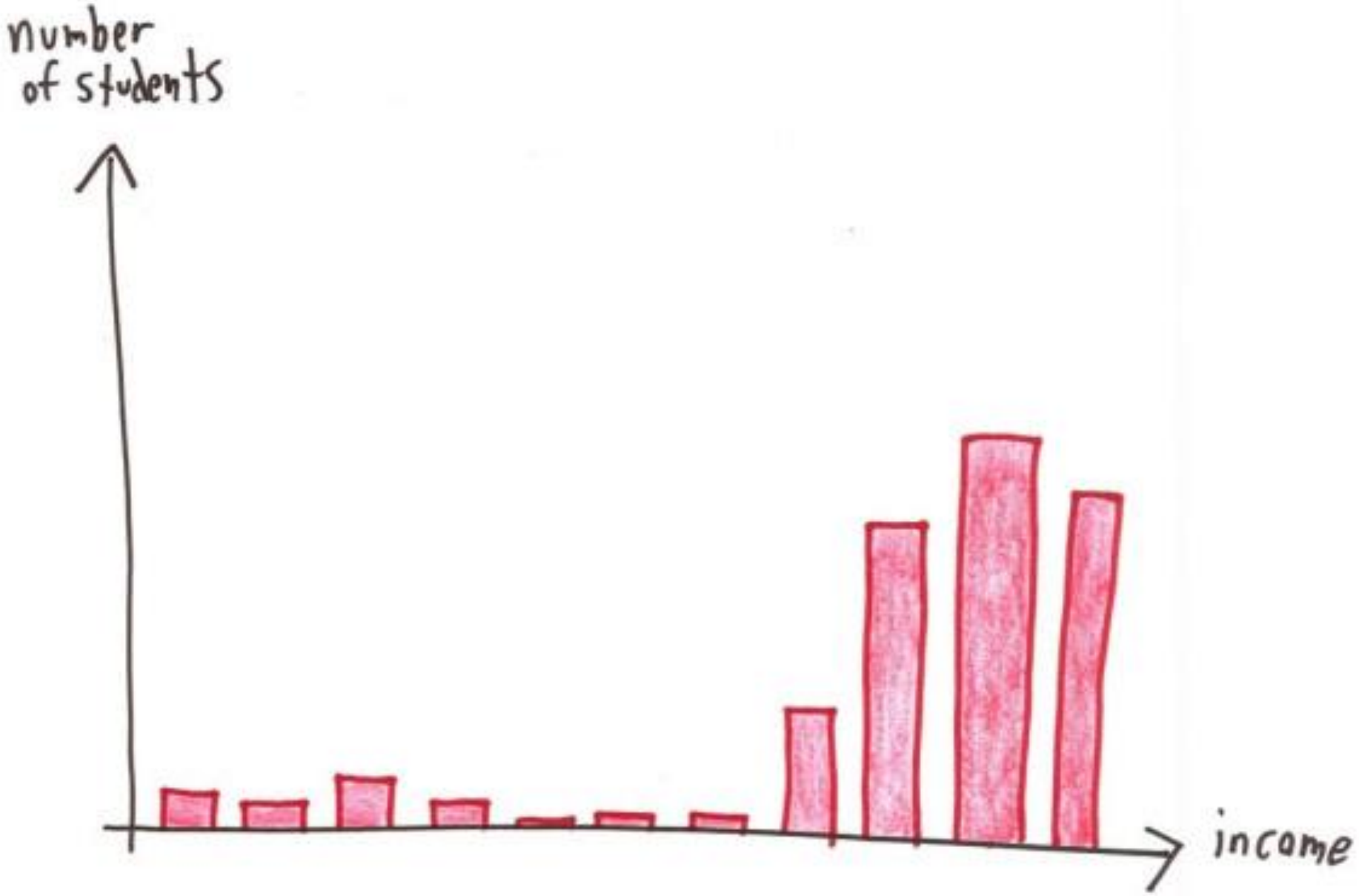

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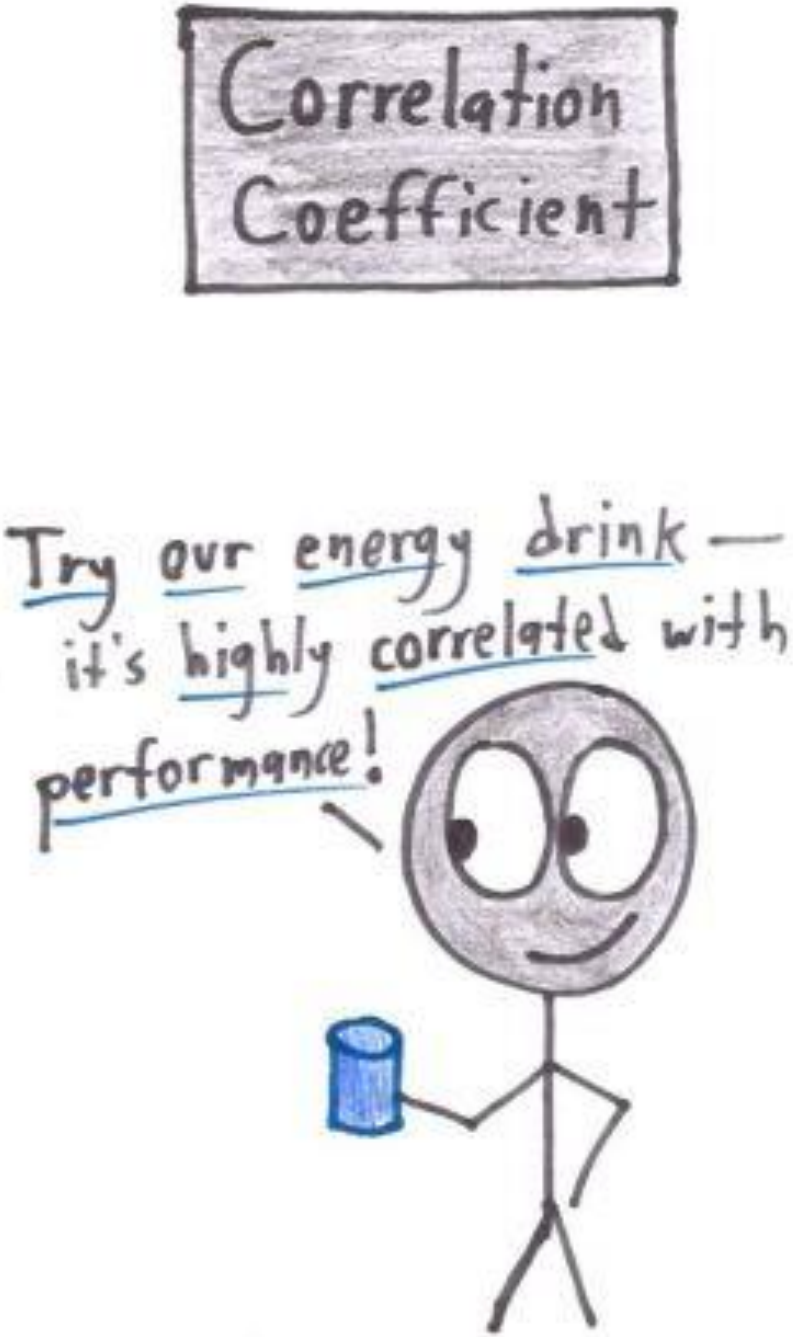

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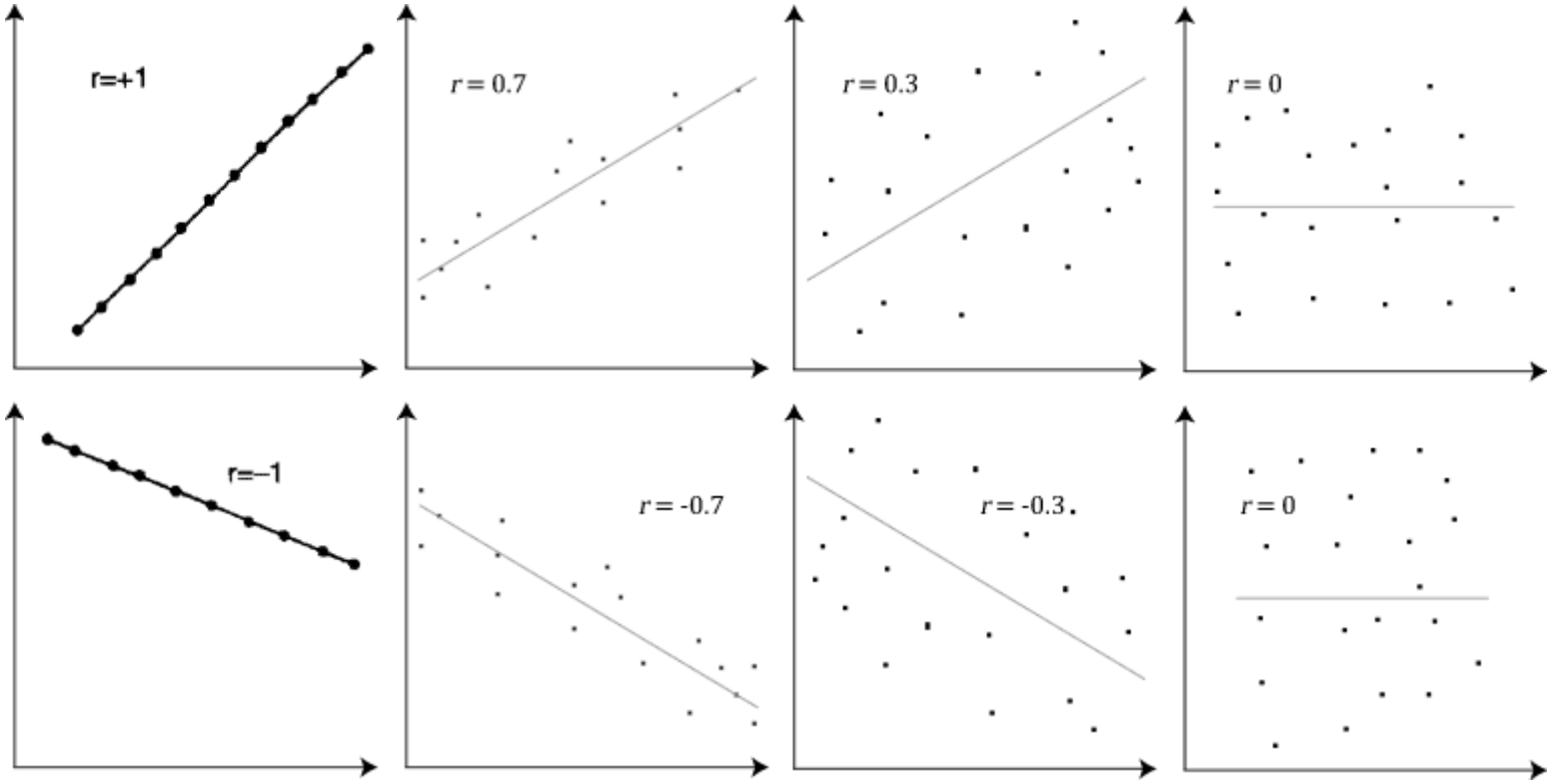
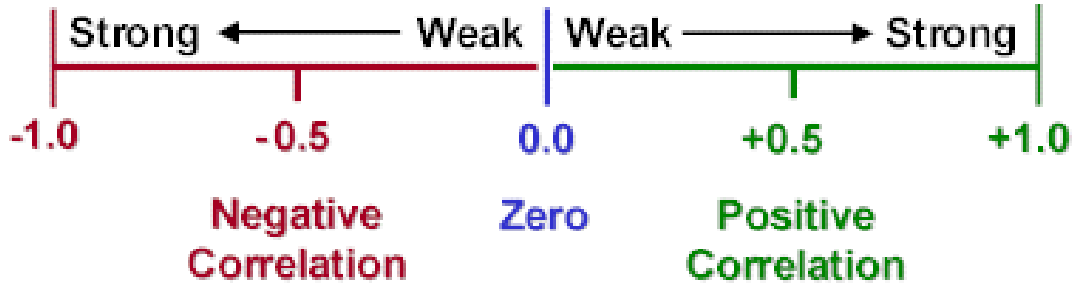
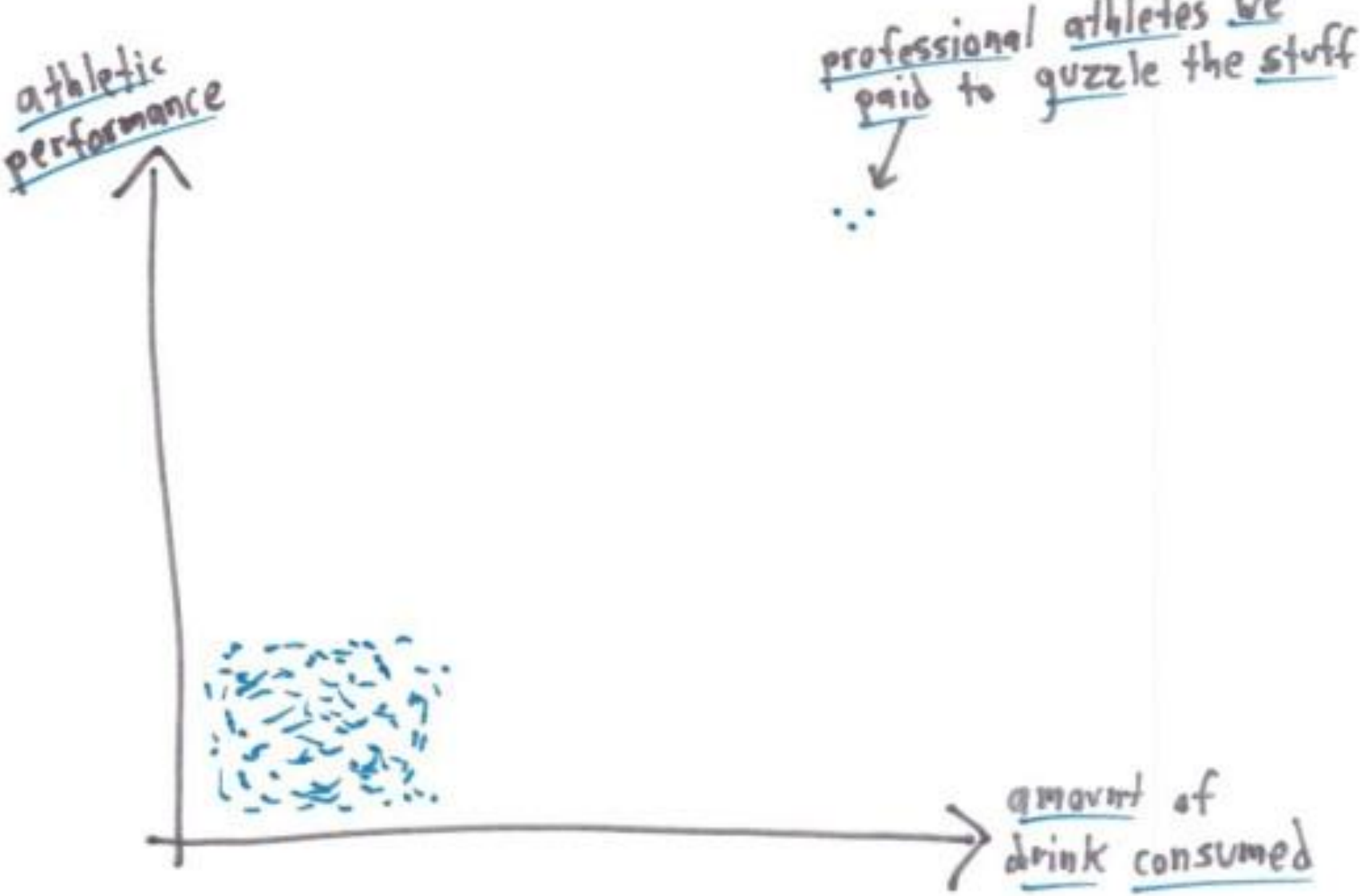


Correlation Coefficient

Shows Strength & Direction of Correlation





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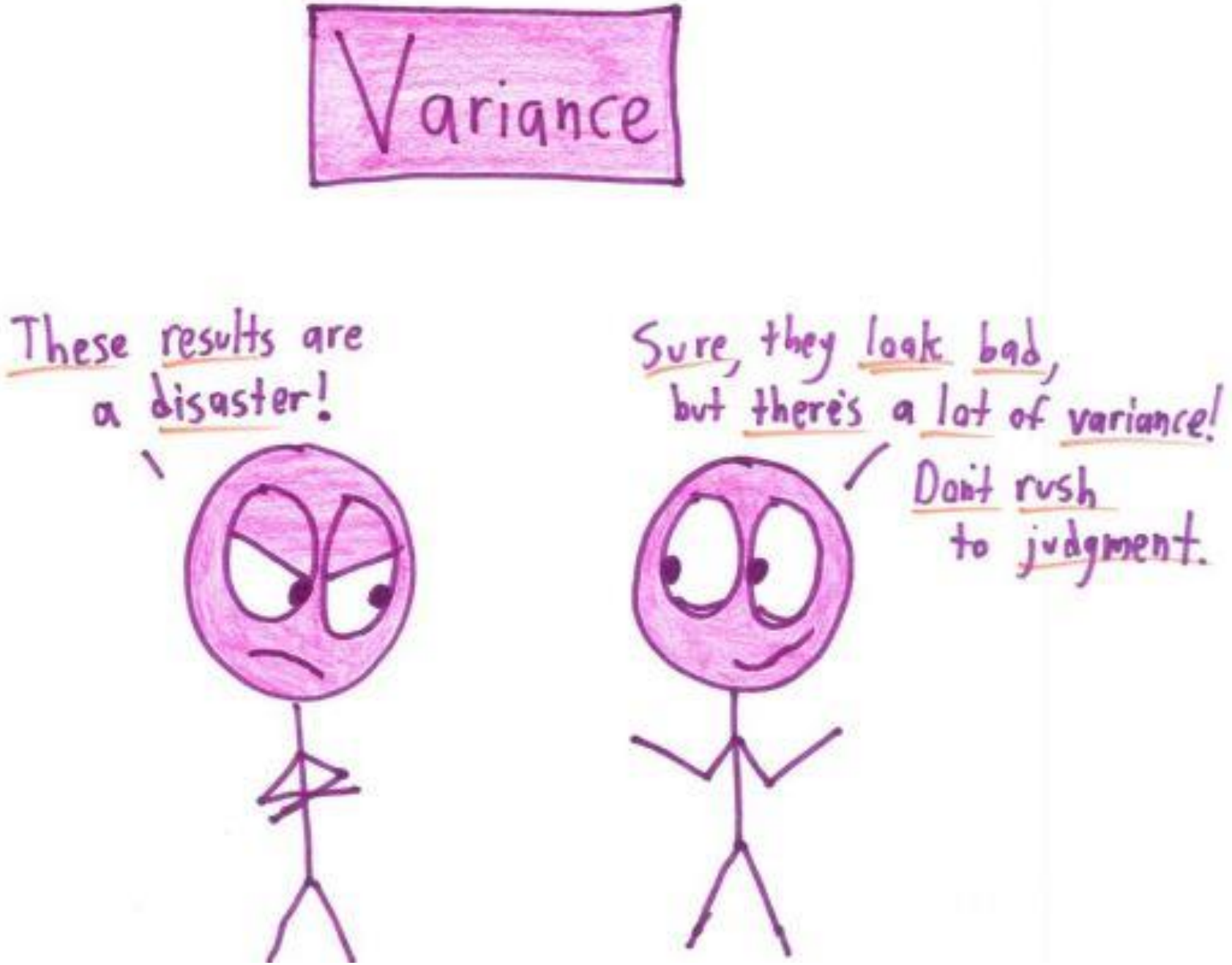
Variance

Variance



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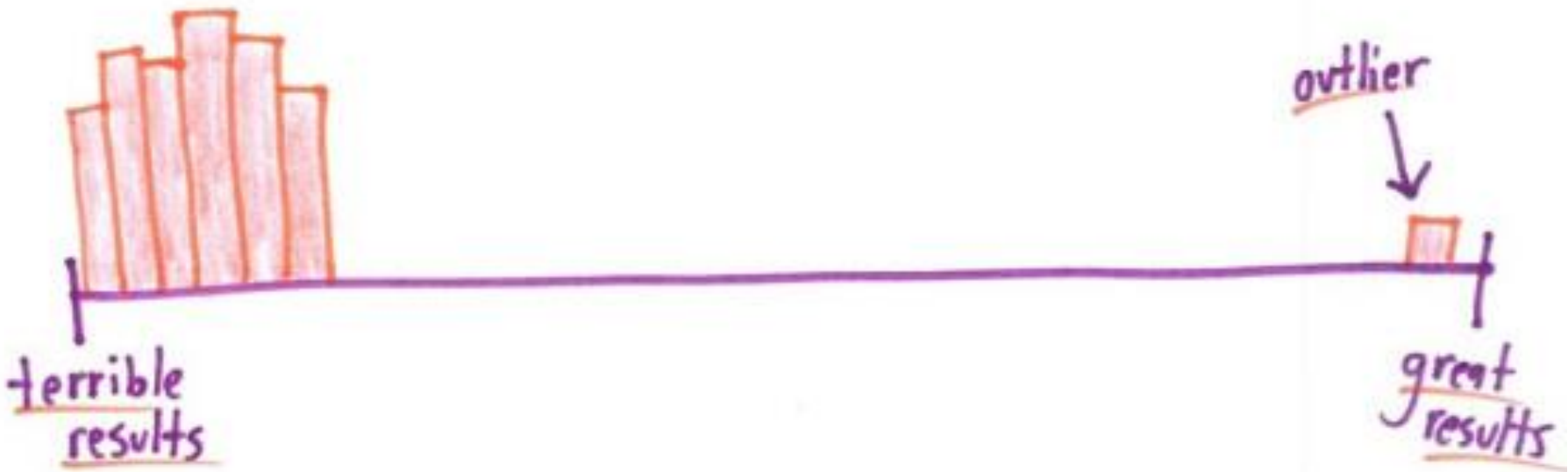

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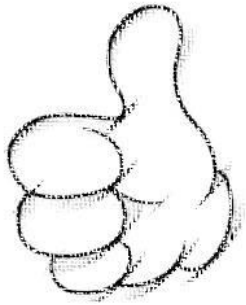
BY ACTUAL TEST (one test)

Science proves that tossed pennies come up heads 80 per cent of the time.

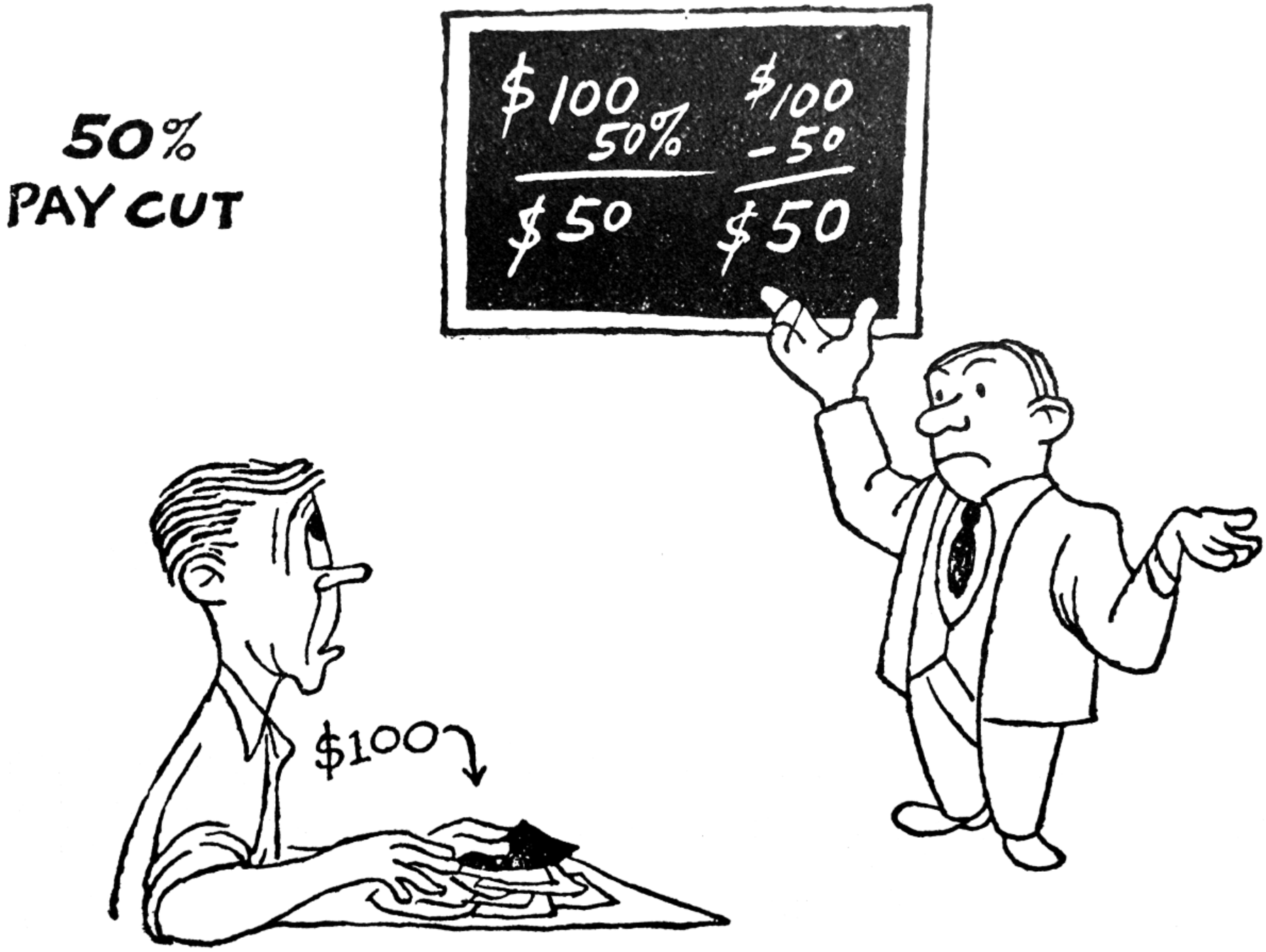
Changing the Base

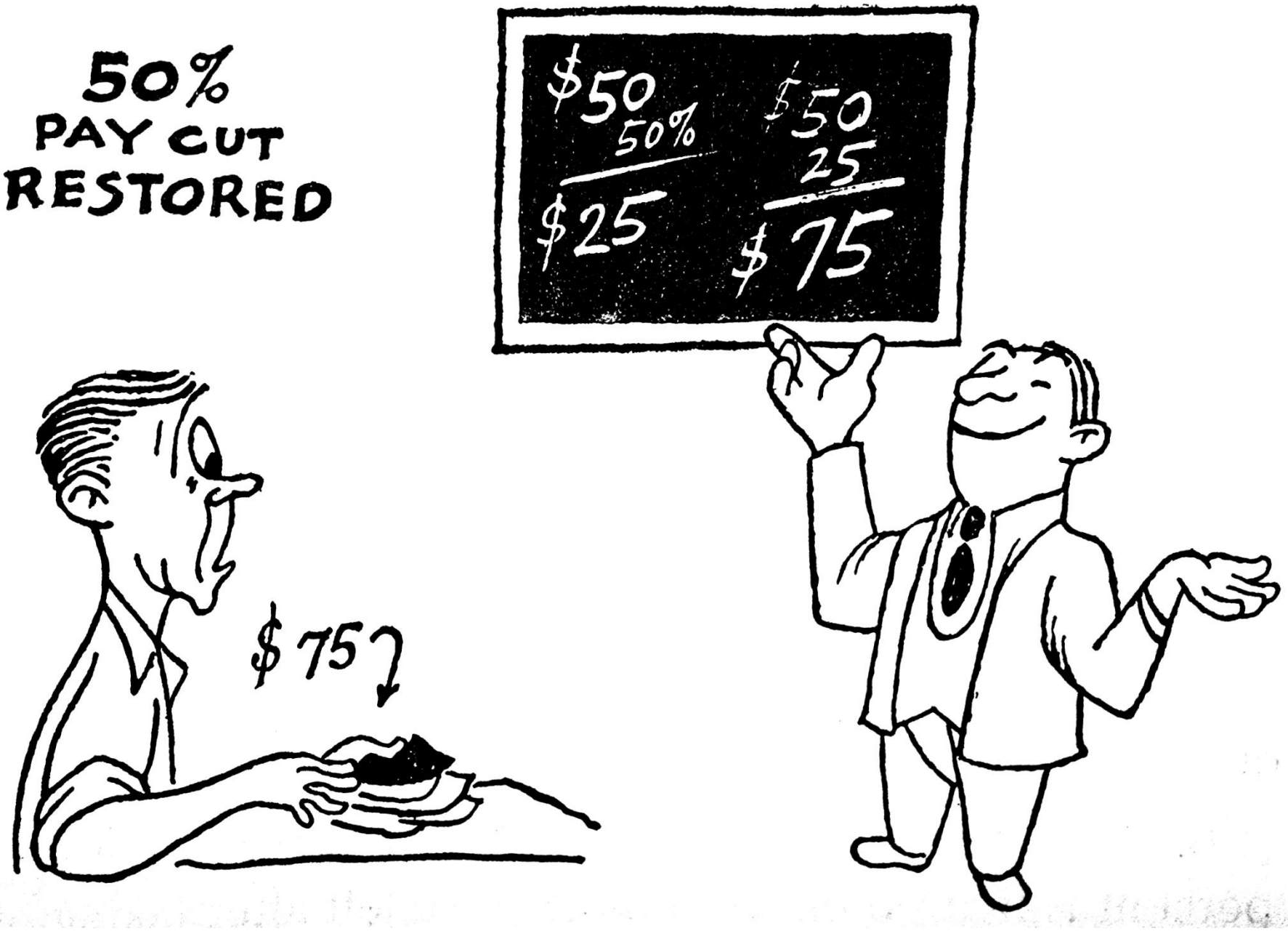
Last year: 50% pay cut

This year: 50% raise



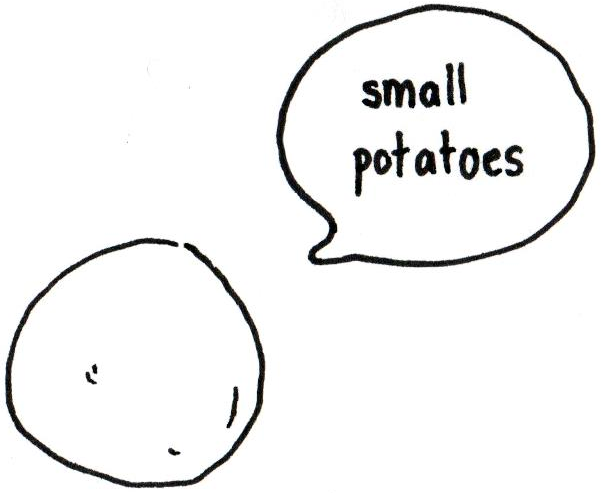
We’re even, Steven!


50%
PAY CUT
$100
50%
$50
$100
-50
$50
$100


50%
PAY CUT
RESTORED
$50
50%
$25
$50
25
$75
$75?

2017 profits: 3%

2018 profits: 6%



Our profits increased 3 percentage points.

vs **Our profits increased 200 percent!**

Semiattached Statistic

Survey: “Do you have any complaints about your union?”

RESULTS

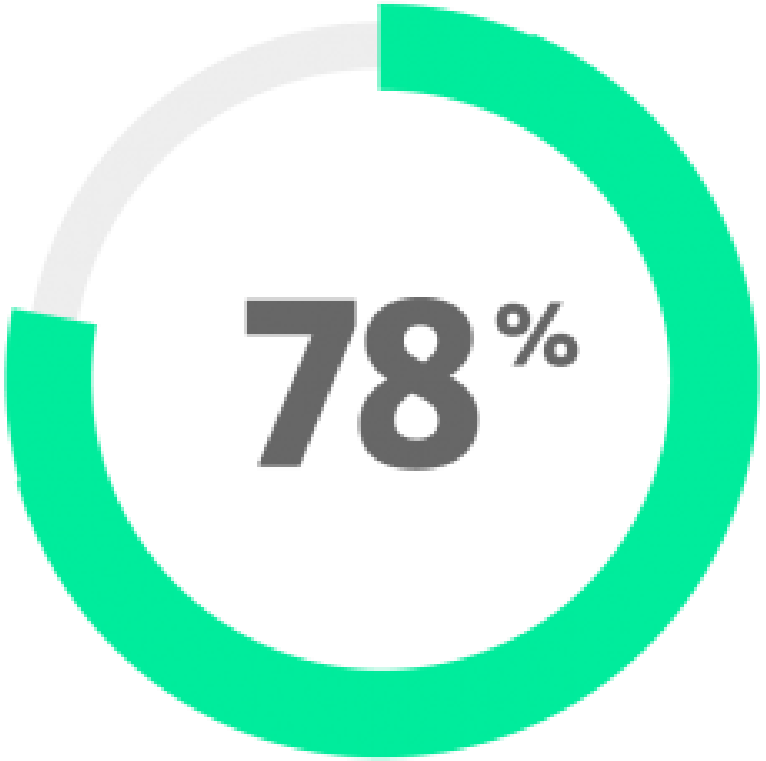
---

200 workers total

156 workers have one or more complaints about their union

REPORTING

78% of workers are opposed to the union



The vast majority of workers do not like the union!

Does this square with the question?

“Do you have **any** complaints about your union?”

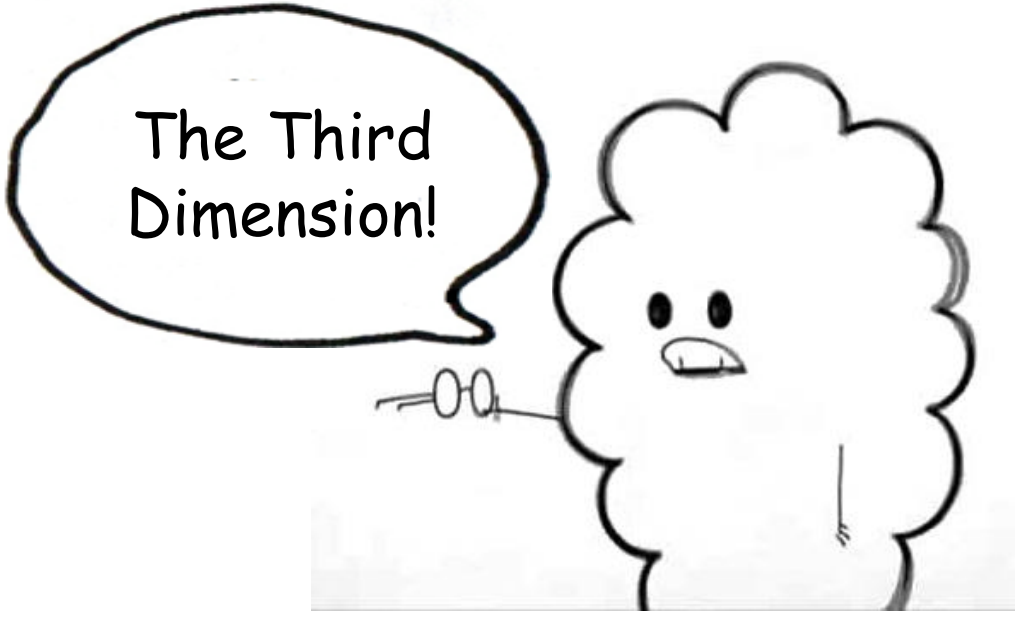
2D Stats in the 3rd Dimension!

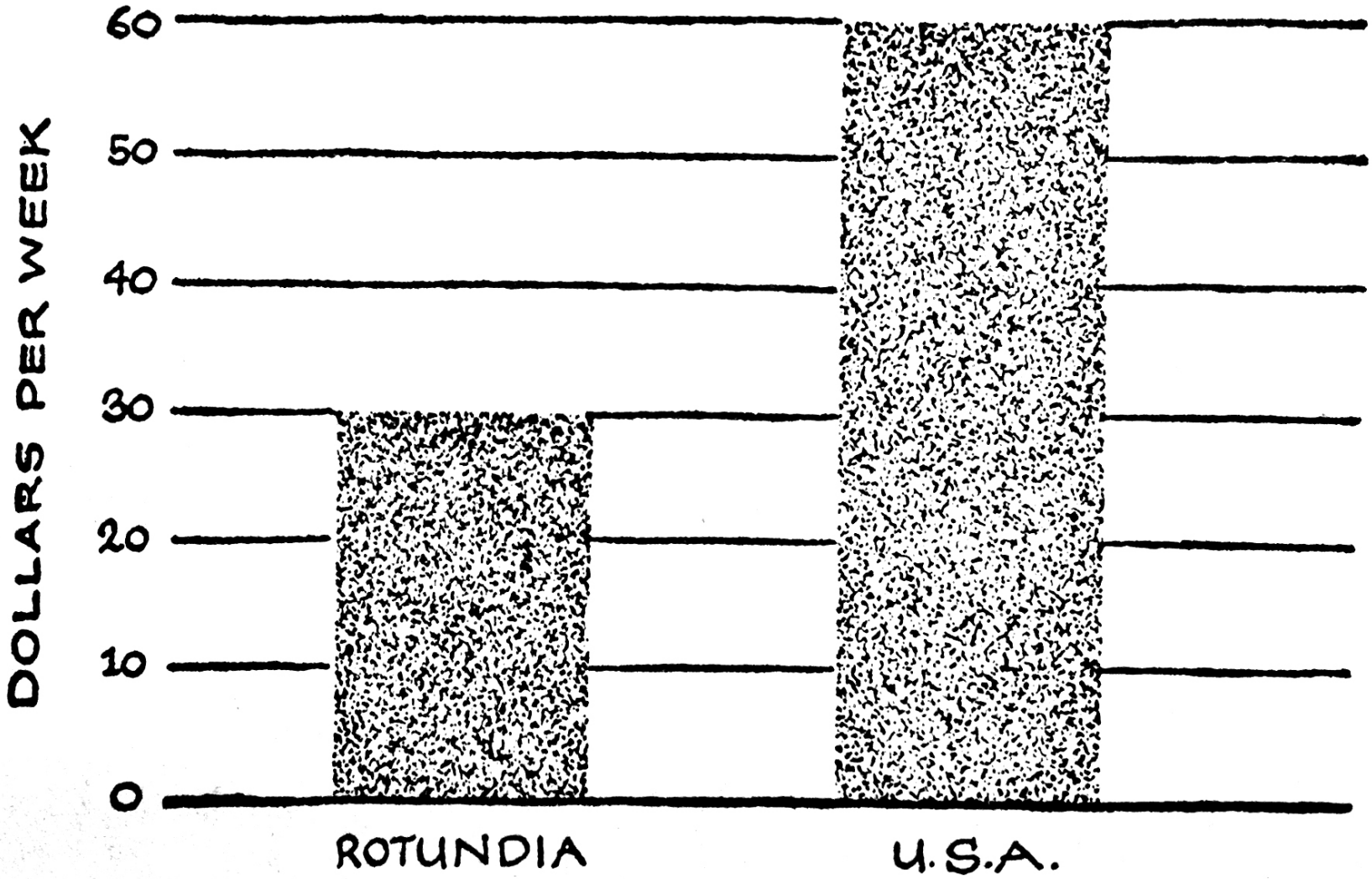
USA

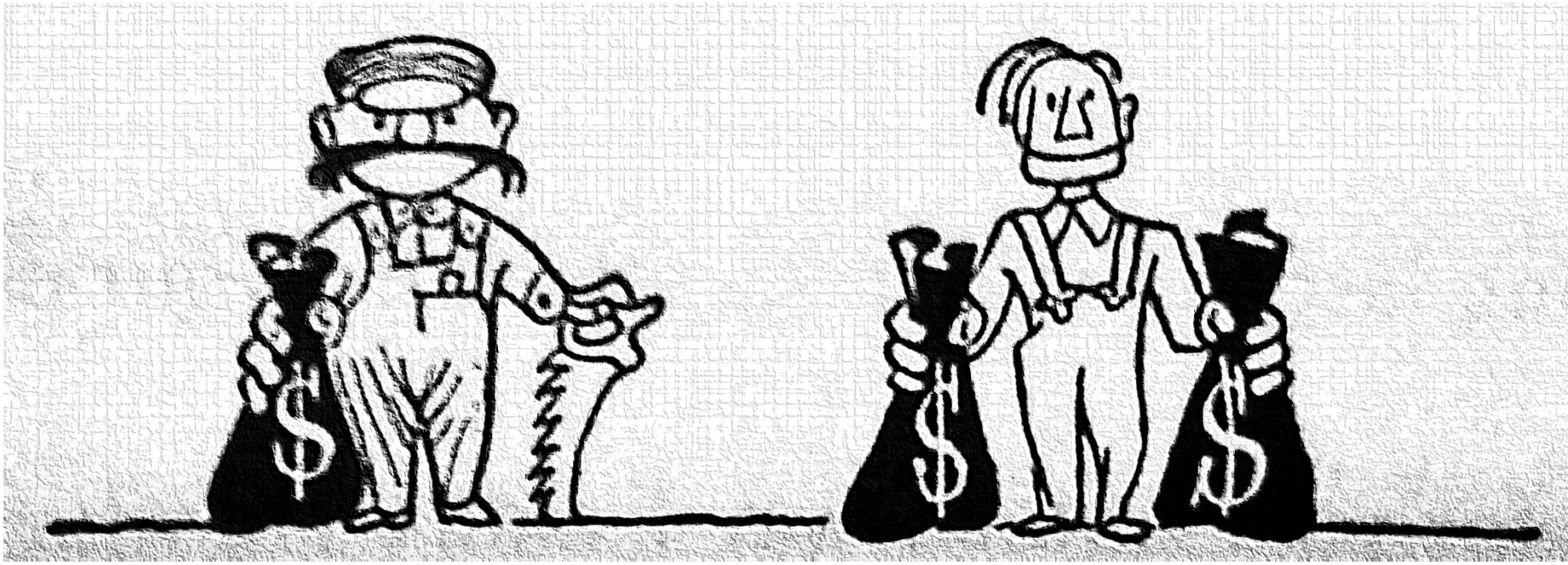
$60/week

ROTUNDIA

$30/week




DOLLARS PER WEEK
60
50
40
30
20
10
0
ROTUNDIA
U.S.A.



ROTUNDIA USA

ROTUNDIA

USA