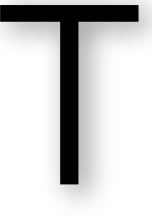
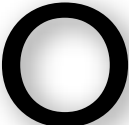
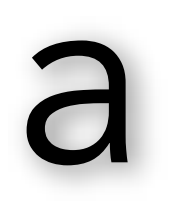
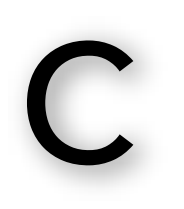
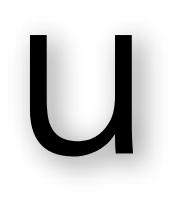
Δa



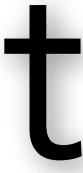


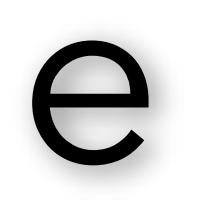

a

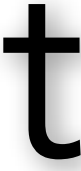


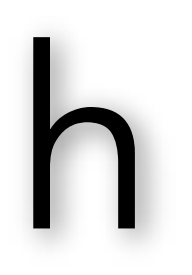


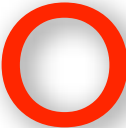
a





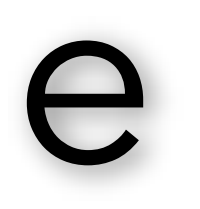


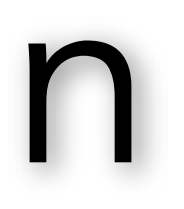


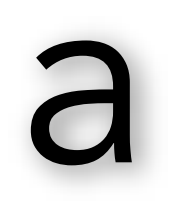


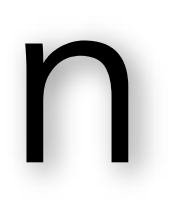
a

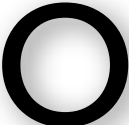
a

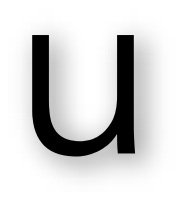


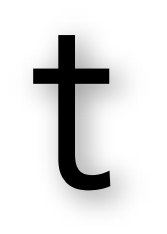

n

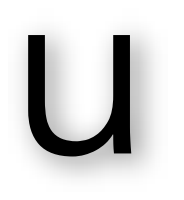



n

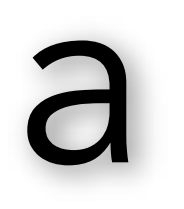


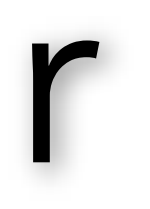


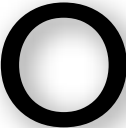


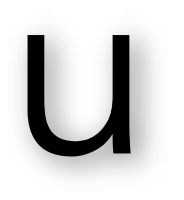


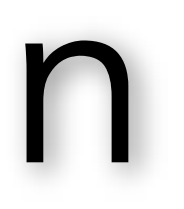
a

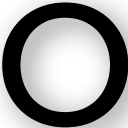

a

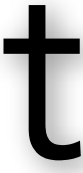


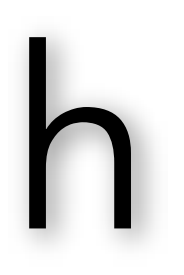


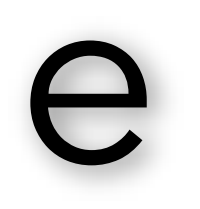


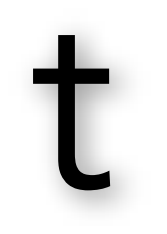

n

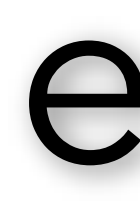


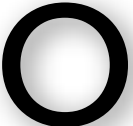


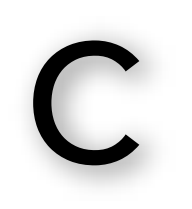


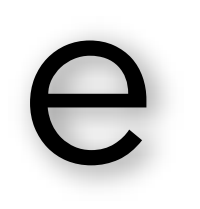


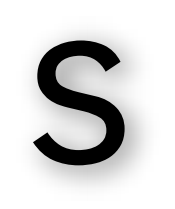


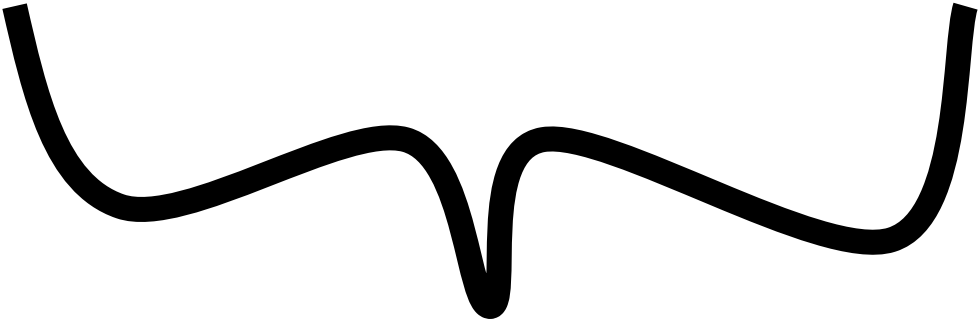


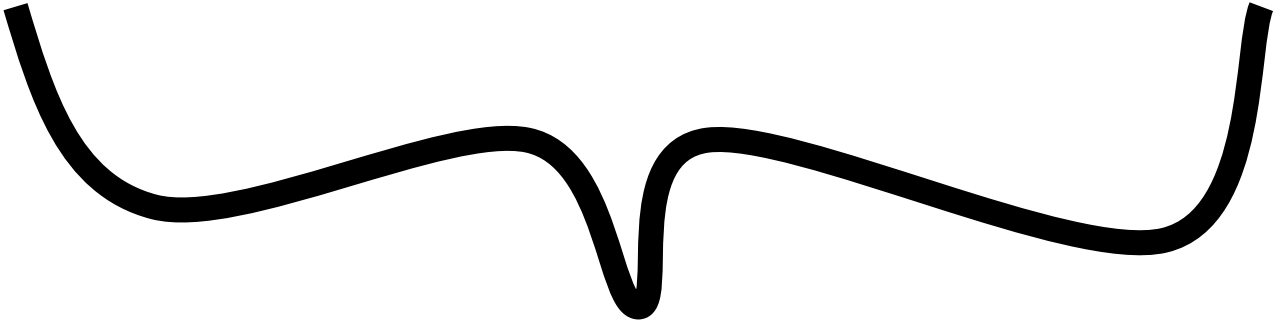




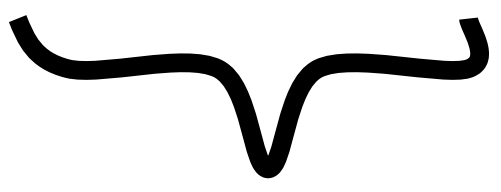


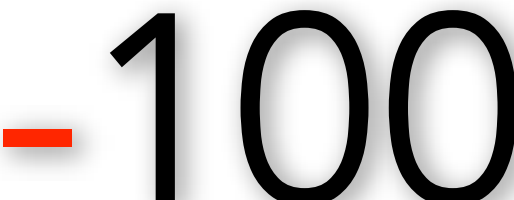


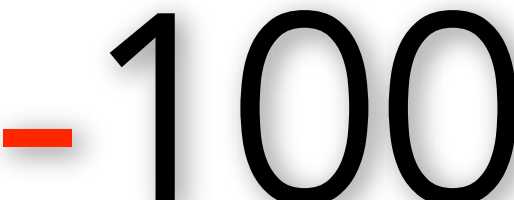




ΔC




-100


-100

$$-100 * 0.9$$

$$-100 * 0.9$$

$$-100 * 0.9 * 0.9$$

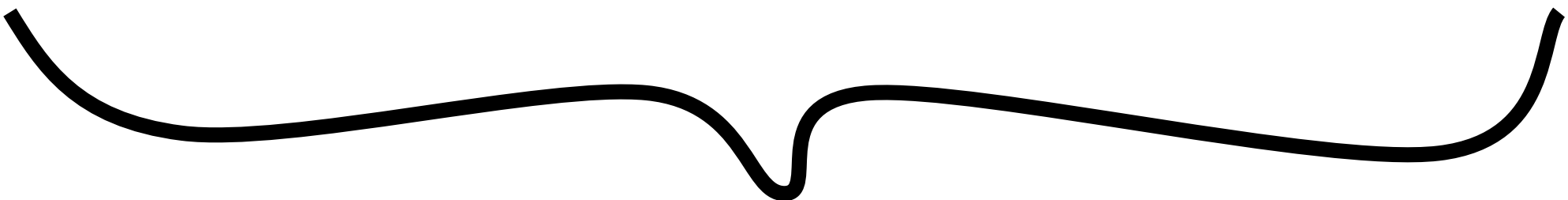
$$-100 * 0.9 * 0.9 * 0.9$$

ΔC

$$-100 * 0.9 * 0.9 * 0.9$$

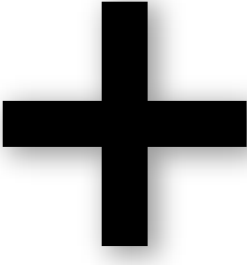
-100 * 0.9 *0.9

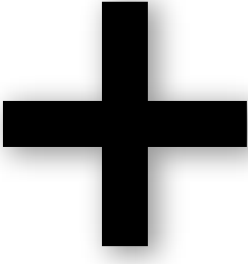
-100 * 0.9 *0.9 *0.9 *0.9

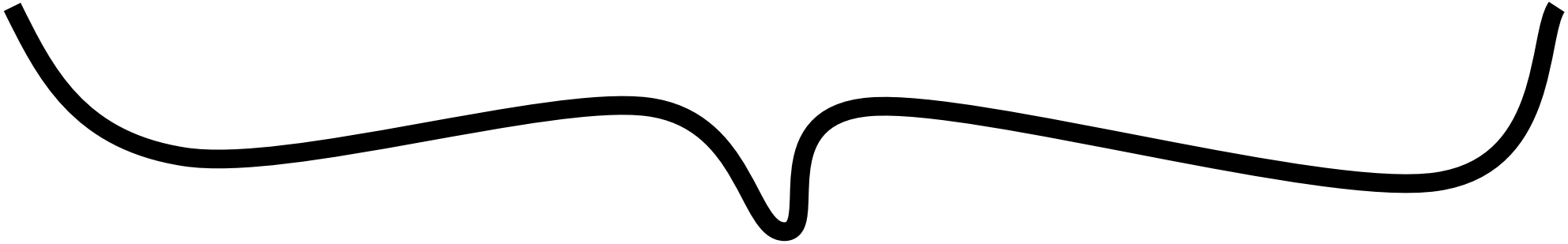


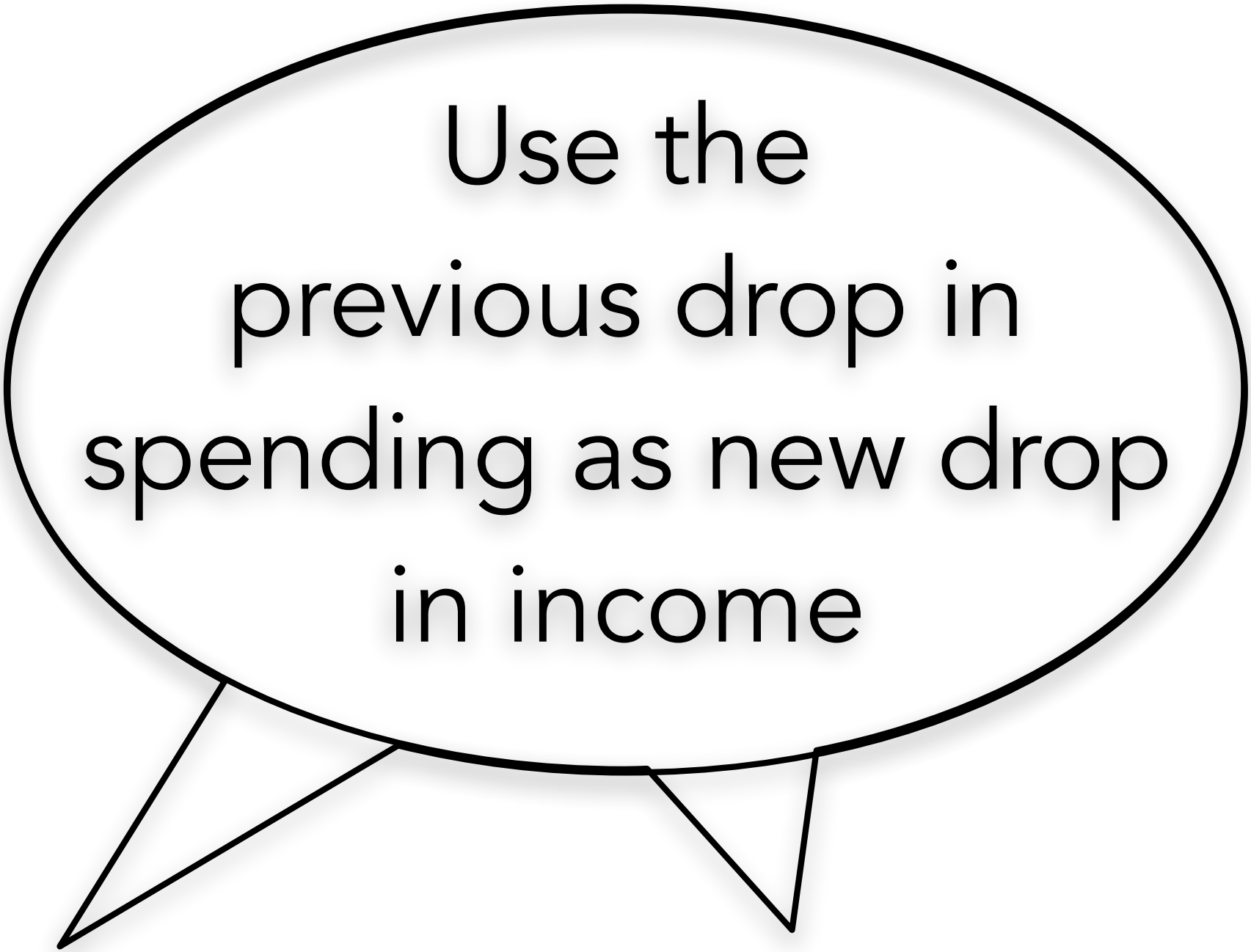
ΔC

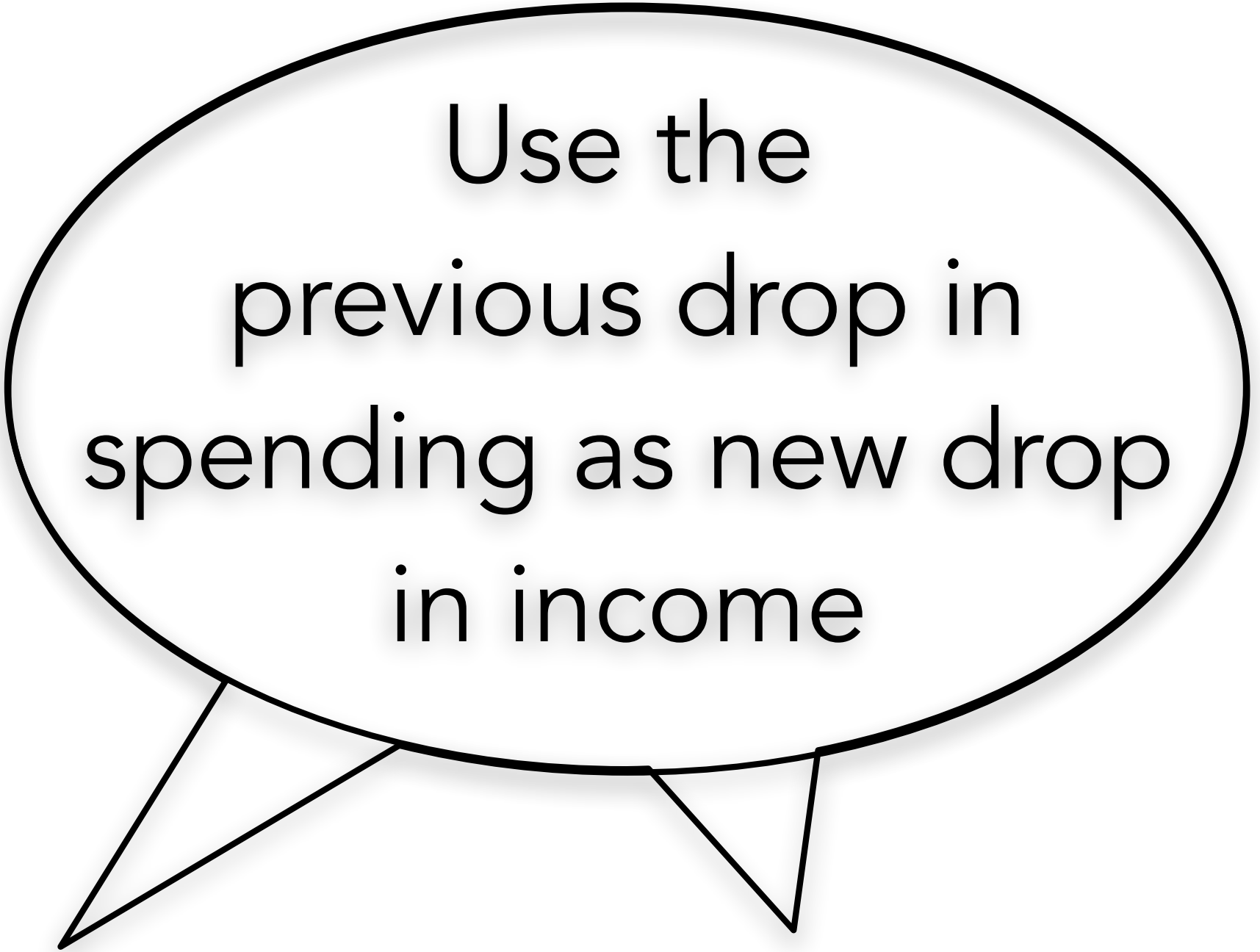
and so on...

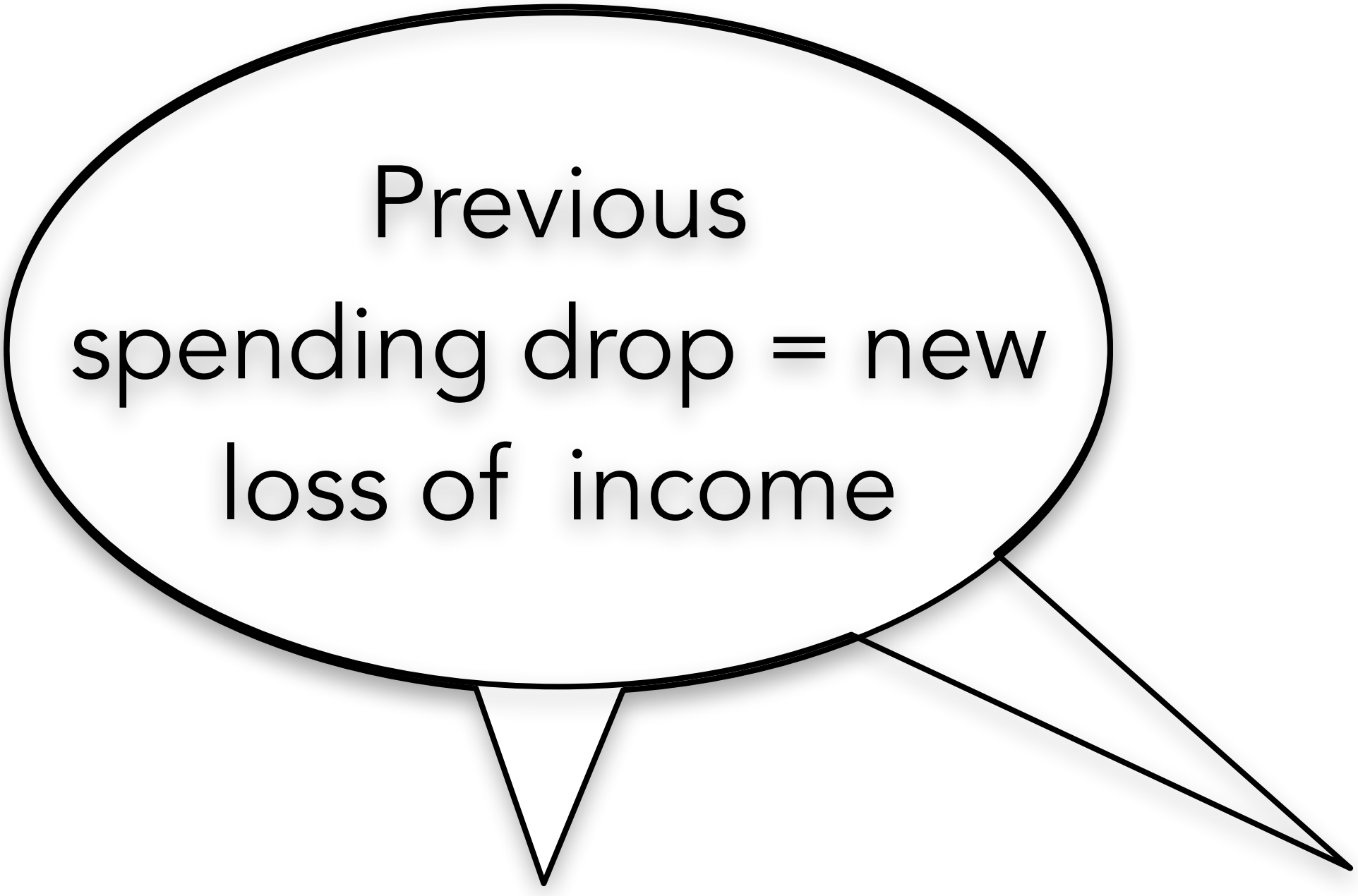







Use the
previous drop in
spending as new drop
in income


Use the
previous drop in
spending as new drop
in income


Previous
spending drop = new
loss of income

To calculate the total change in spending and output after all rounds of the multiplier process:

$$\underbrace{-100}_{\Delta a} + \underbrace{-100 * 0.9}_{\Delta C} + \underbrace{-100 * 0.9 * 0.9}_{\Delta C}$$

$$+\underbrace{-100 * 0.9 * 0.9 * 0.9}_{\Delta C} + \underbrace{-100 * 0.9 * 0.9 * 0.9 * 0.9}_{\Delta C}$$

and so on… $+ \ldots$

$$-100 + -100 * 0.9 + -100 * 0.9 * 0.9$$

$$-100 * 0.9 * 0.9 * 0.9 + -100 * 0.9 * 0.9 * 0.9 * 0.9$$

$$+ \ldots$$