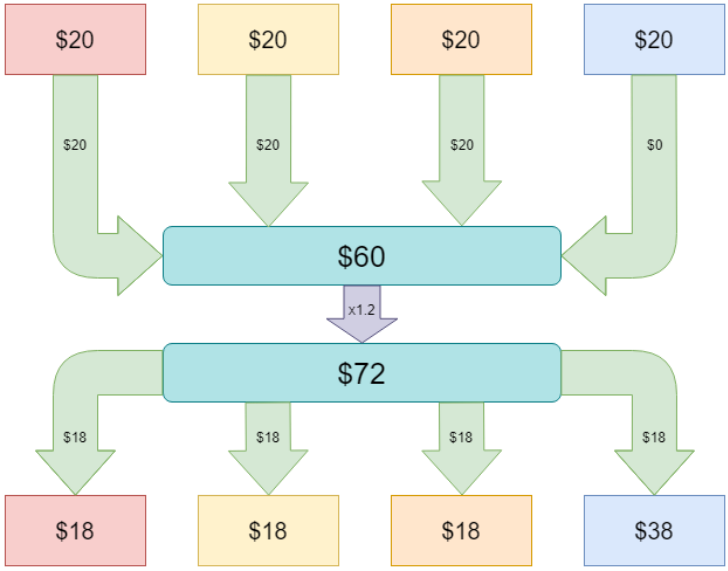
Public goods game

- In the basic game, subjects secretly choose how many of their private tokens to put into a public pot.
- The tokens in this pot are multiplied by a factor (greater than one and less than the number of players, N) and this "public good" payoff is evenly divided among players.

Each subject also keeps the tokens they do not contribute



Three players choose to contribute their full $20 while the fourth player chooses to contribute $0. The $60 is multiplied by a factor of 1.2 and the resulting $72 is distributed equally among the four players.

- The group's total payoff is maximized when everyone contributes all of their tokens to the public pool.
- However, the Nash equilibrium in this game is simply zero contributions by all; if the experiment were a purely analytical exercise in game theory it would resolve to zero contributions
- Because any rational agent does best contribute zero, regardless of whatever anyone else does. This only holds if the multiplication factor is less than the number of players, otherwise, the Nash equilibrium is for all players to contribute all of their tokens to the public pool.
- Depending on the experimental design, those who contribute below average or nothing are called "defectors" or "free riders", as opposed to the contributors or above-average contributors who are called "cooperators“

Iterated public goods games

- Repeat-play" public goods games involve the same group of subjects playing the basic game over a series of rounds.

- The typical result is a declining proportion of public contribution, from the simple game (the "One-shot" public goods game).
- When trusting contributors see that not everyone is giving up as much as they do they tend to reduce the amount they share in the next round.
- If this is again repeated the same thing happens but from a lower base, so that the amount contributed to the pot is reduced again.
- However, the amount contributed to the pool rarely drops to zero when rounds of the game are iterated, because there tends to remain a hard core of "givers".

Open public goods games

- Transparency about past choices and payoffs of group members affects future choices.
- Players signal their intentions through transparency which allows "conditional operators" to follow the lead.
- If players are informed of individual payoffs of each member of the group it can lead to a dynamic of players adopting the strategy of the player who benefited the most (contributed the least) in the group.
- This can lead a drop in cooperation through subsequent iterations of the game.However, if the amount contributed by each group member is not hidden, the amount contributed tends to be significantly higher.
- The finding is robust in different experiment designs: Whether in "pairwise iterations" with only two players (the other player's contribution level is always known) or in nominations after the end of the experiment.