MONKEYS REJECT UNEQUAL PAY: THE COMIC

Original paper:

Brosnan SF, De Waal FB. Monkeys reject unequal pay. Nature. 2003 Sep 18;425(6955):297-9. doi: 10.1038/nature01963. PMID: 13679918.

Can be found online here: https://pubmed.ncbi.nlm.nih.gov/13679918/

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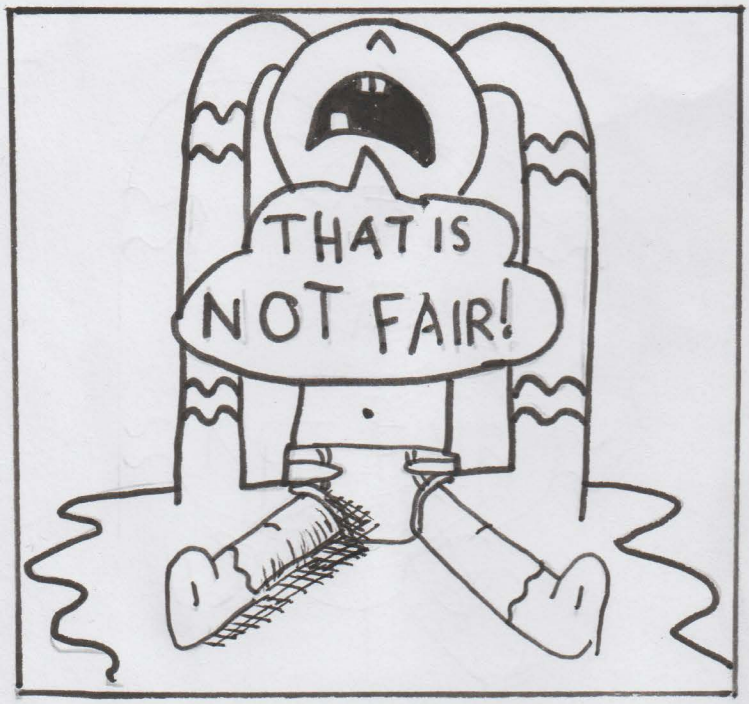
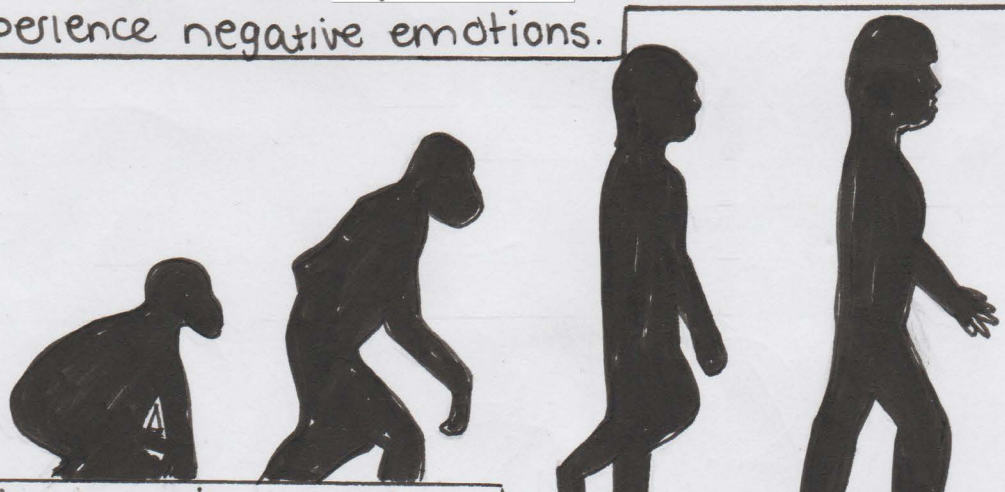


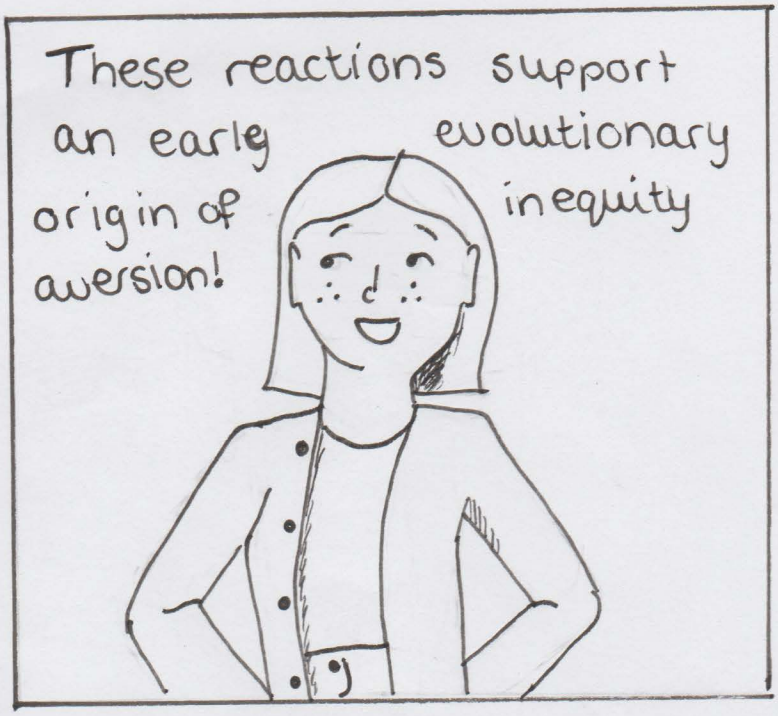
During the evolution of cooperation, individuals may have learned to compare their efforts and rewards with that of of others. When these expectations are violated, the individual may experience negative emotions.



This is called inequity aversion.

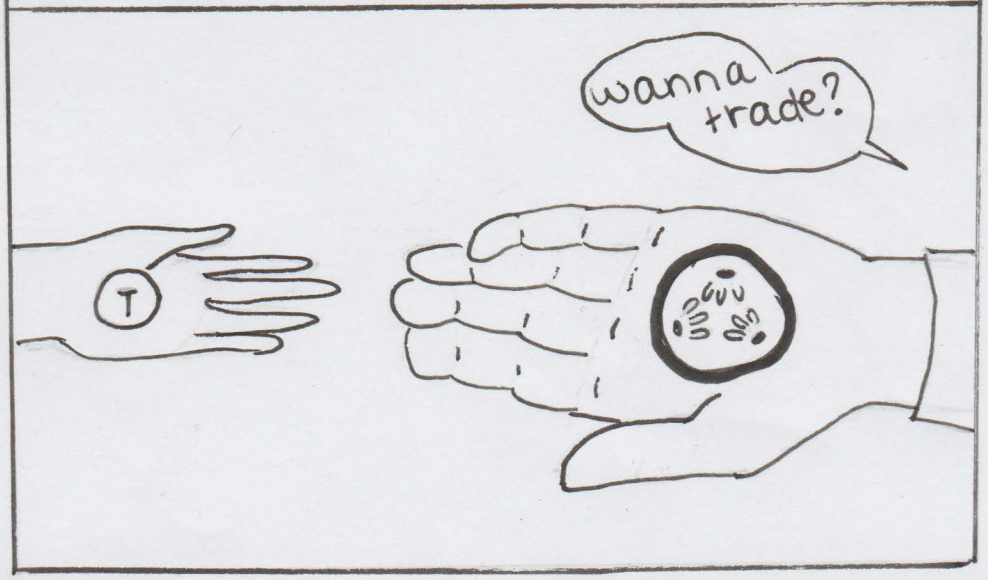
In the present study, Dr. Sarah Brosnan and Dr Frans de Waal demonstrated that capuchin monkeys also respond negatively to unequal reward distribution.

The monkeys refused to perform a task if a conspecific was given a more preferred reward for equal effort.

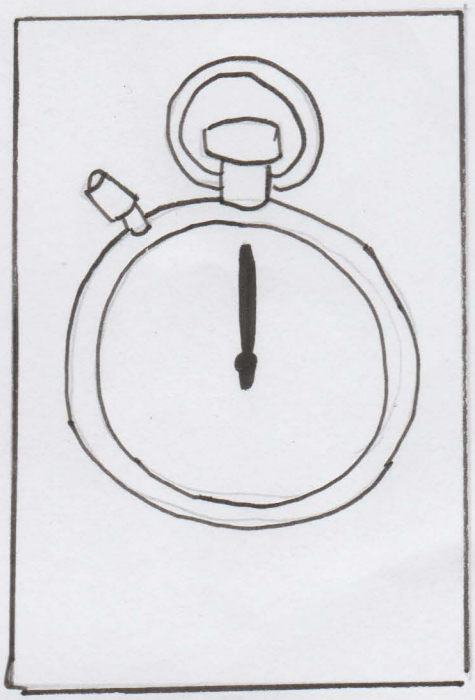


So, how was this study conducted?

The researchers taught the capuchins to exchange a token for a piece of cucumber.

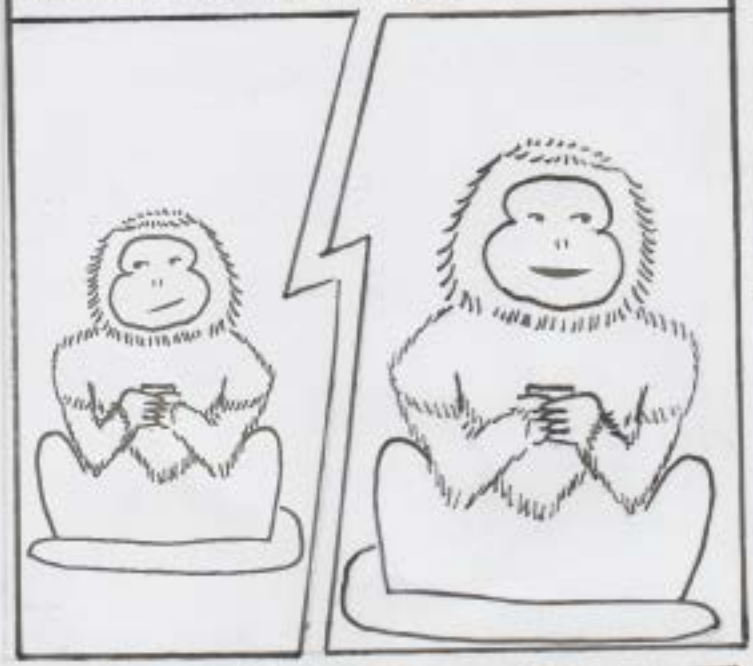


During the experiment they measured the monkeys' rate of and latency to successful exchanges.

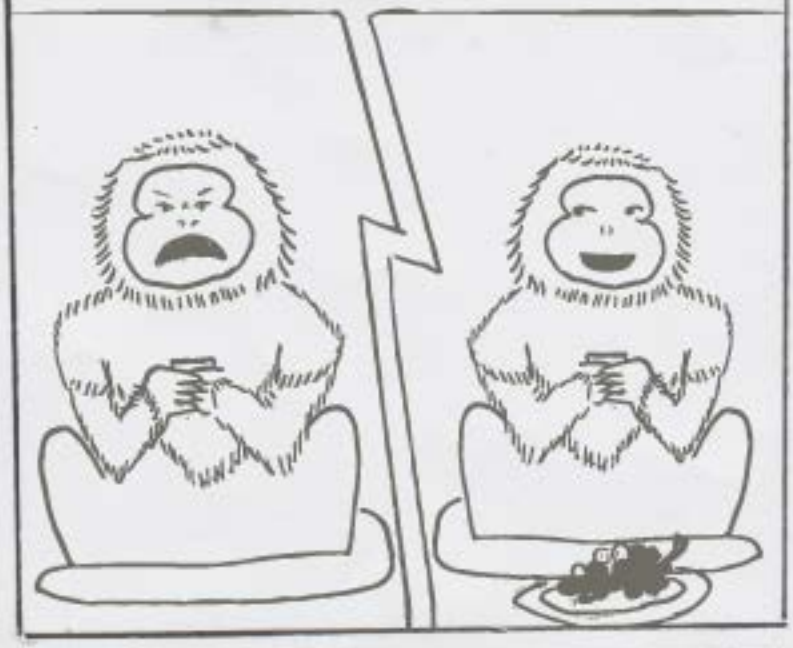


The study consists of four conditions: two experimental and two control conditions.

Equality test (ET): two monkeys exchanged tokens with an experimenter to receive a slice of cucumber.



Inequality Test (IT): one monkey exchanged tokens with an experimenter to receive cucumber, while the partner received grapes, a preferred food.



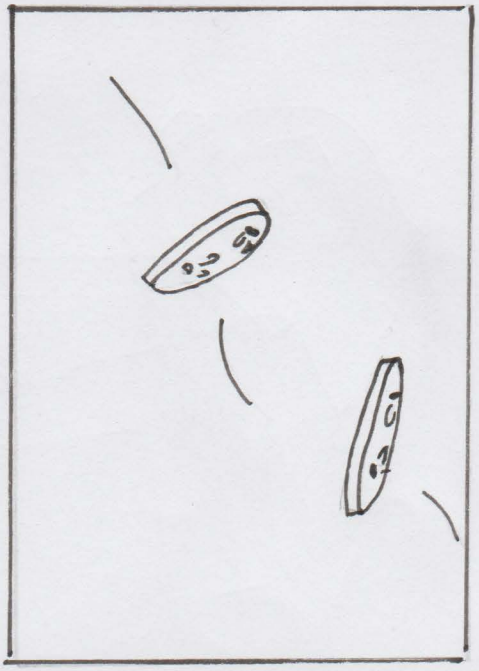
Effort control (EC): a grape was simply handed to the partner by the experimenter without exchange, while the subject exchanged for cucumber.

Food control (FC): The subject witnessed a grape being placed in the location of the partner (absent), while exchanging for cucumber herself.

If an exchange was incomplete it was divided into two groups

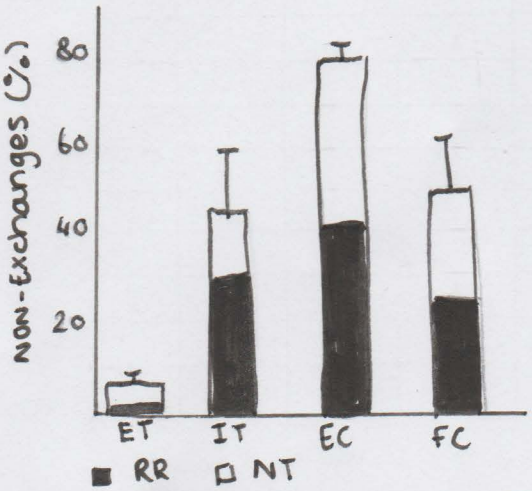
1: No token (NT): Failure to hand back the token.
2: Reject Reward (RR): Failure to accept / eat the offered reward.

It was found that both incomplete exchanges involved active rejection, like tossing the token or reward out of the testroom.



The researchers found a significant difference across the four conditions! The high-value reward (grapes) reduced the tendency of the test subject to exchange for low-value rewards (cucumber).

Table 1



This effect was enhanced by a difference in effort between partners. The monkeys were most likely to refuse if a partner received better rewards without any effort.

This outcome was unusual for the capuchins, as they barely performed this way during their two-year training. In only 5% of their training cases they would fail to exchange a token, similar to the Equality Test in the experiment.

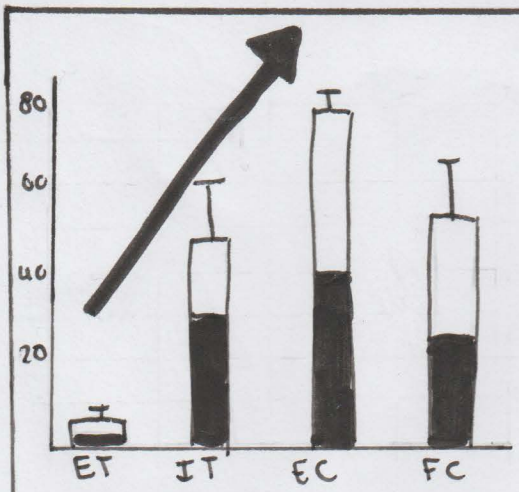


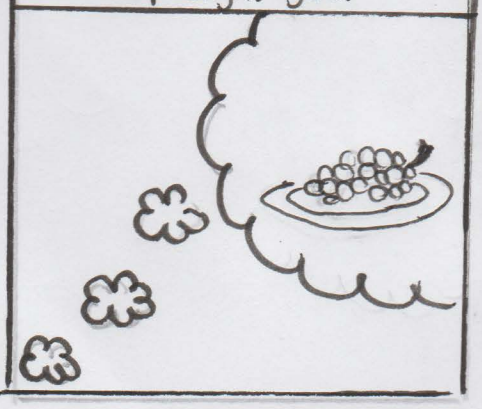
Table 1

The increase in failure (NT) during the Inequity Test and control conditions can also not be explained by absence of positive reinforcement, because they accepted the cucumber during the equility test.

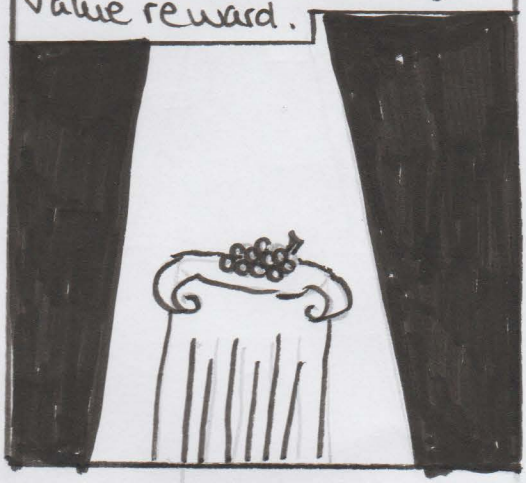
Most curious is the increase in failure to accept or consume the reward. (RR).

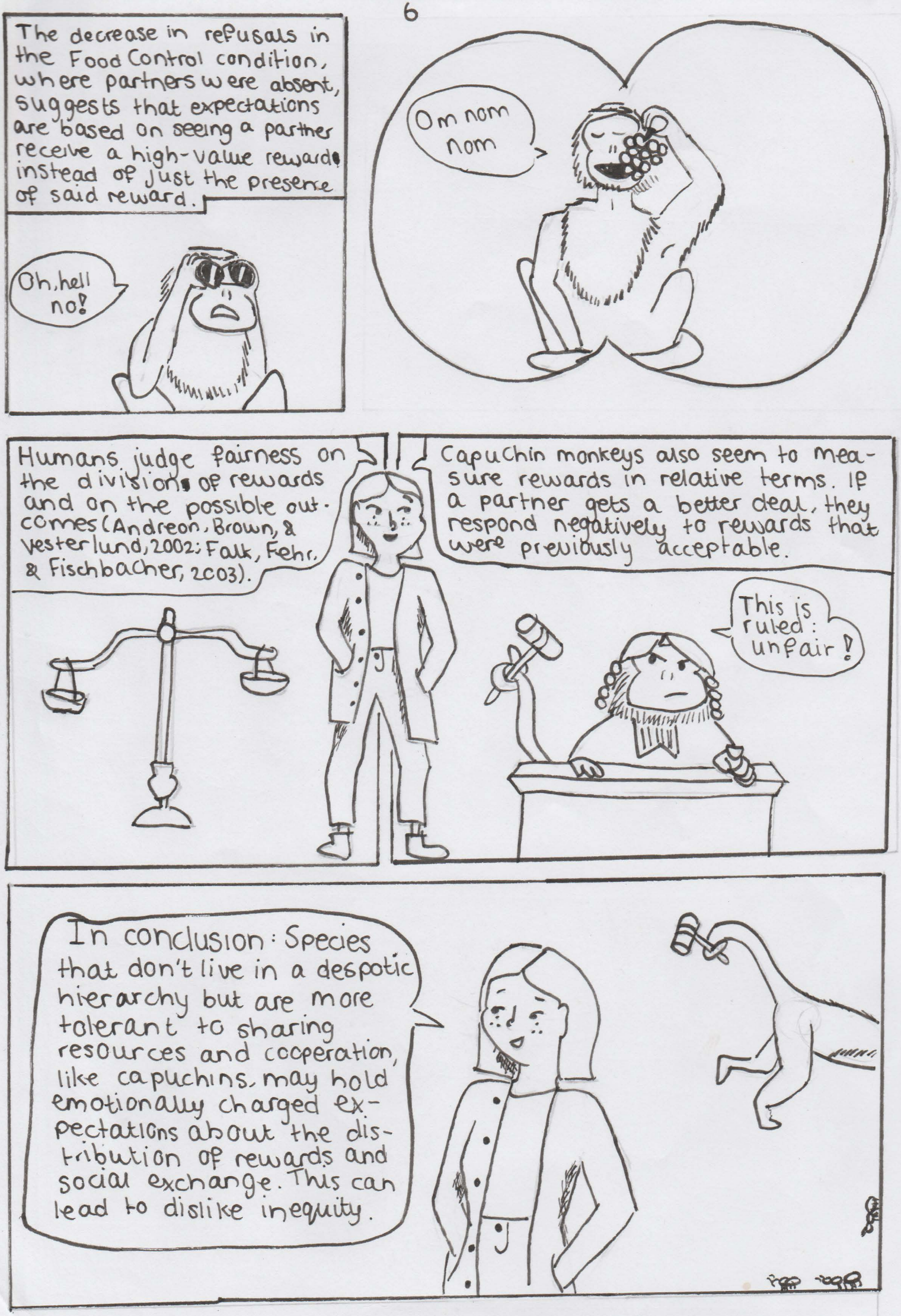
They chose to reject a food they would usually accept.

This could be explained by violated expectations. They might anticipate a high-value reward if they disregard a low-value one (Tinklepaugh, 1928)



Noticably, they were given no reason to expect grapes. If expectations play a role, they could be based on the visible presence of a high-value reward.




The decrease in refusals in the Food Control condition, where partners were absent, suggests that expectations are based on seeing a partner receive a high-value reward instead of just the presence of said reward.
Oh, hell no!
Om nom nom
Humans judge fairness on the division of rewards and on the possible outcomes (Andreon, Brown, & Vesterlund, 2002; Falk, Fehr, & Fischbacher, 2003).
Capuchin monkeys also seem to measure rewards in relative terms. If a partner gets a better deal, they respond negatively to rewards that were previously acceptable.
This is ruled: unfair!
In conclusion: Species that don't live in a despotic hierarchy but are more tolerant to sharing resources and cooperation, like capuchins, may hold emotionally charged expectations about the distribution of rewards and social exchange. This can lead to dislike inequity.

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