

Freeloaders, Contrafreeloaders, and Opportunists: Giraffe Preferences for a Feeding Enrichment Device



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Introduction

Laboratory experiments and some animal enrichment studies have found that in some cases animals choose to work for a resource or reward that is simultaneously freely available, a phenomenon called contrafreeloading¹⁻⁶. Food-based animal enrichment studies with giraffe have relied on their 'willingness' to work for food, but have not assessed whether they actually preferred to do so⁷⁻⁸. To examine their potential for contrafreeloading, giraffe at the Bronx Zoo were given the opportunity to choose between two sources of grain, a typical grain bowl and a more challenging feeder that required additional tongue manipulations to obtain grain. The division of grain between these sources was varied to see if willingness and preference for contrafreeloading would stay the same when more and less grain was freely available.

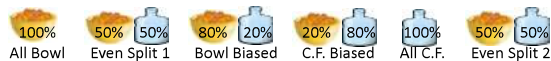
Methods

Seven giraffe at the Bronx Zoo were presented with their daily ration of grain, a desired food, in their usual bowls and in more challenging feeders constructed from 5-gallon water cooler bottles with four 3-inch circular holes cut out. Distribution of grain between bowls and challenge feeders was varied in six experimental conditions (see below), each presented three times. The hour-long sessions were video recorded and were coded using GriffinVC software⁹. One giraffe was housed and tested separately and therefore could not be assessed for all behaviors.

Behaviors of interest were:

- first choice (challenge feeder, bowl, or hay)
- number and length of feeding bouts at each food source
- instances where one giraffe would displace another from a food source (displacements)

Conditions



Results

Overall, the proportion of time spent at the challenge feeders vs. the bowls varied with grain distribution, $F(3, 18) = 15.78, p < .000$. All giraffe displayed some contrafreeloading behavior during the study, although there was considerable individual variation (Figure 1). The bowls were chosen first most often (66% of first choices). Displacements were lowest when all of the grain was in the challenge feeders and highest when all of the grain was in the bowls (Figure 2).

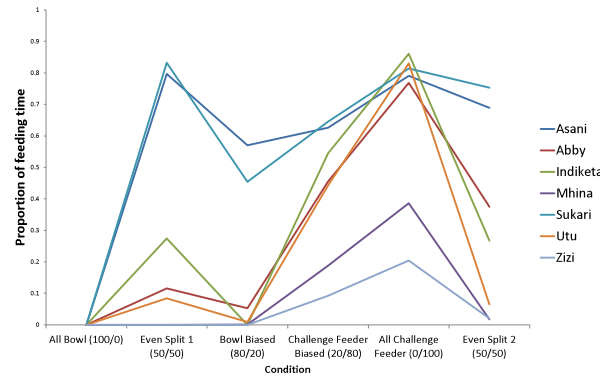


Figure 1. Average proportion of feeding time spent at challenge feeders by condition.

Three Foraging Strategies

Freeloaders	Contrafreeloaders	Opportunists
<ul style="list-style-type: none"> • Choose bowls first • Use bowls whenever possible • Spend most time at bowls 	<ul style="list-style-type: none"> • Choose challenge feeders first • Use challenge feeders whenever possible • Spend most time at challenge feeders 	<ul style="list-style-type: none"> • Choose grain source with highest potential reward first • Follow the grain distribution • Spend most time at grain source with highest potential reward



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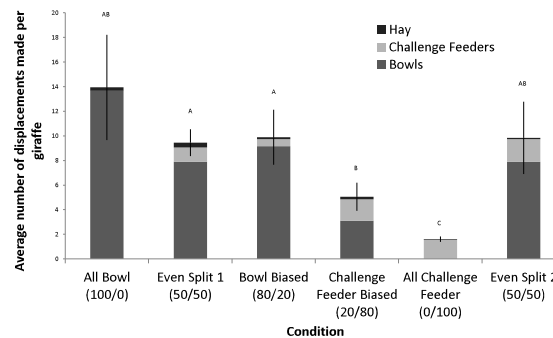


Figure 2. Average number of displacements made per giraffe by condition. Significant differences do not share a superscript.