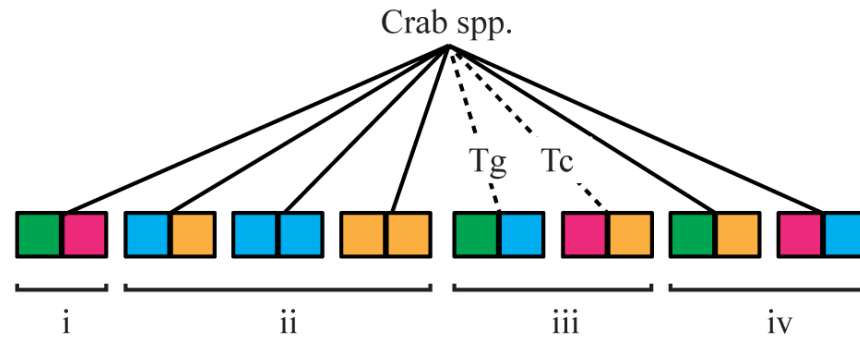


a) Olfactory trials



b) Predator trials

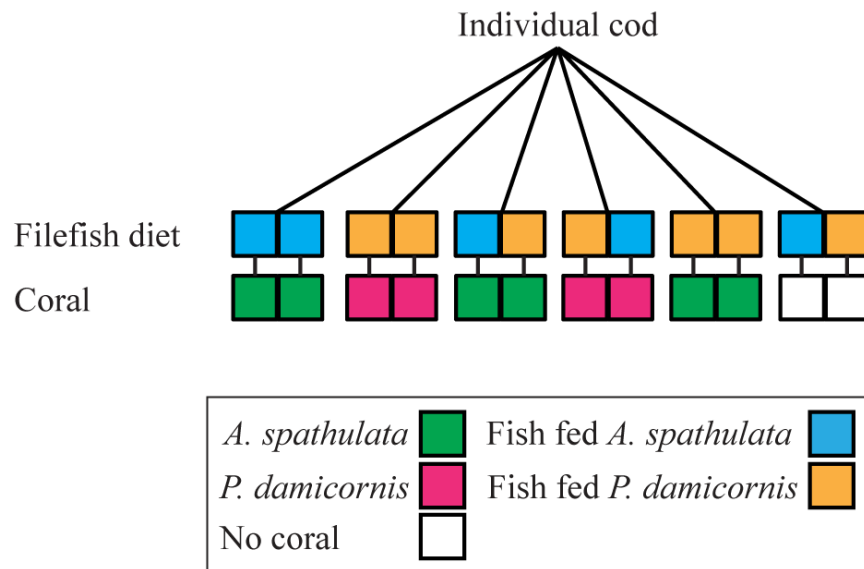


Figure S1. Design trees for behavioural experiments. (a) shows odour combinations used in choice trials with two species of coral-obligate crabs, as indicated in split boxes. Seven different choice trials were conducted for each crab species. Combinations conducted for both species are indicated by a solid line. Combinations indicated by a broken line were only conducted for either the *Acropora* obligate, *Tretralia glaberimma* (Tg), or the *Pocillopora* obligate, *Trapezia cymodoce* (Tc). Trial types (i, ii etc.) correspond with those in methods. (b) shows treatment combinations used in behavioural trials using predatory cod (*Cephalopholis* spp.). Each treatment consisted of a choice between the odours of two filefish fed a certain coral diet, with each odour presented along with a coral colony that either matched or differed from that diet. The diet of each filefish is shown in the top row, with the corresponding coral colony indicated directly below. Each cod was run through each of the 6 treatments in a random order.