Exemplary force plots of footfalls

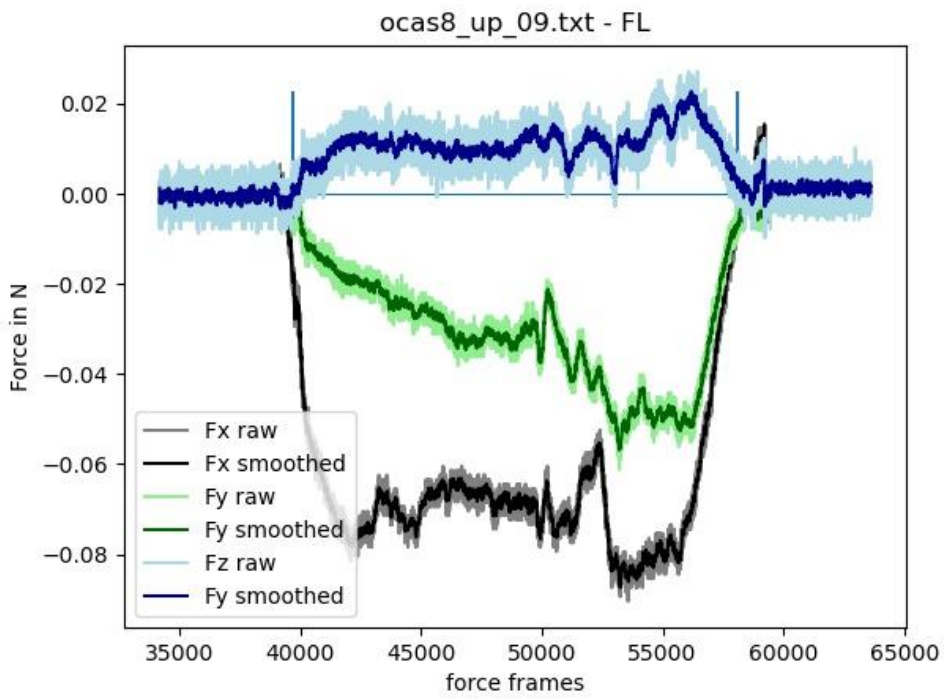
UP

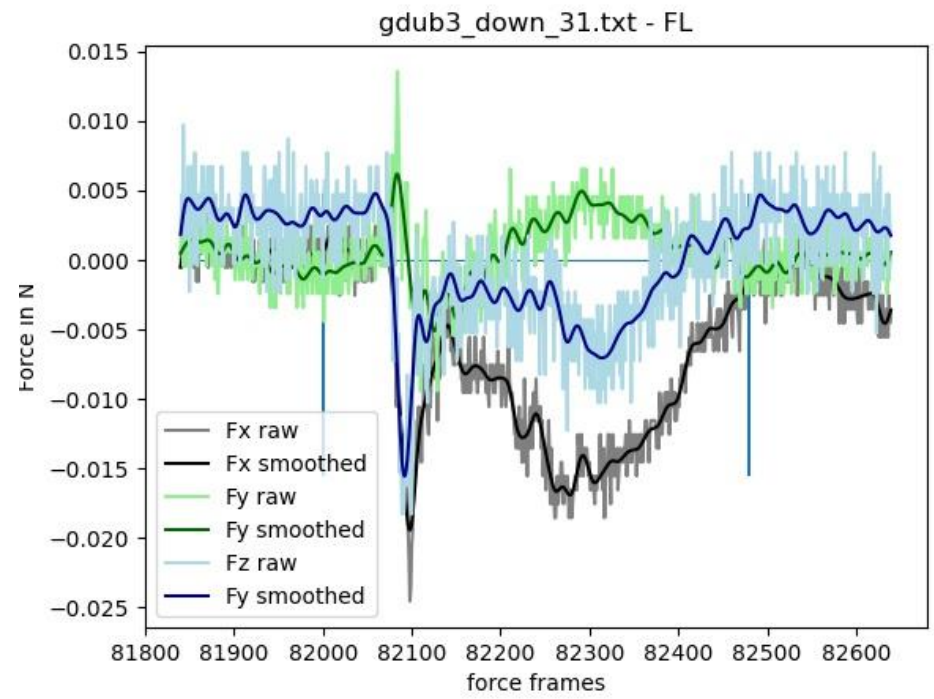
DOWN

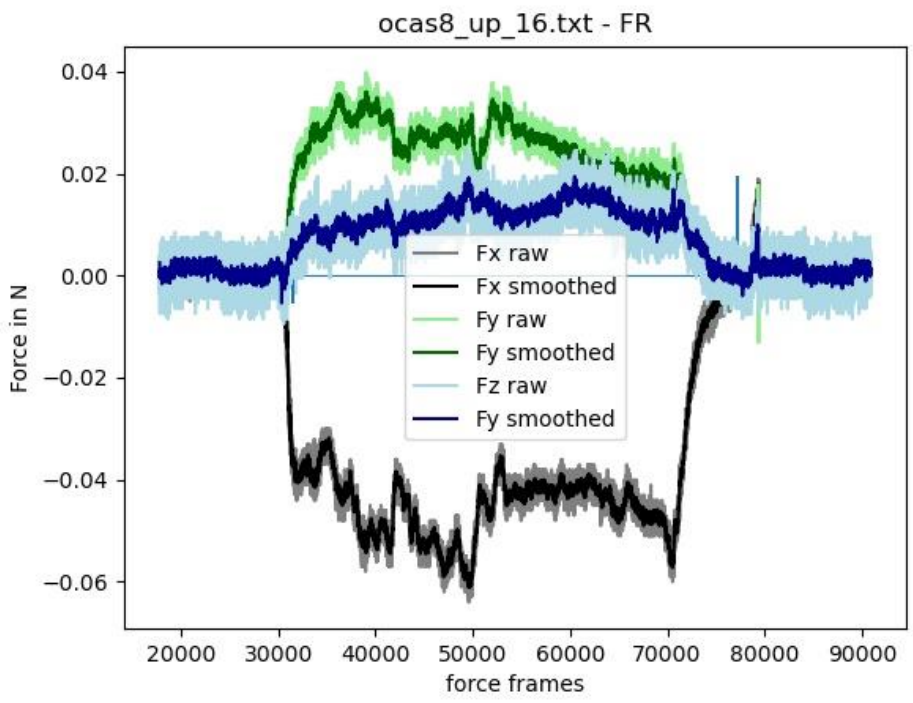
Fx

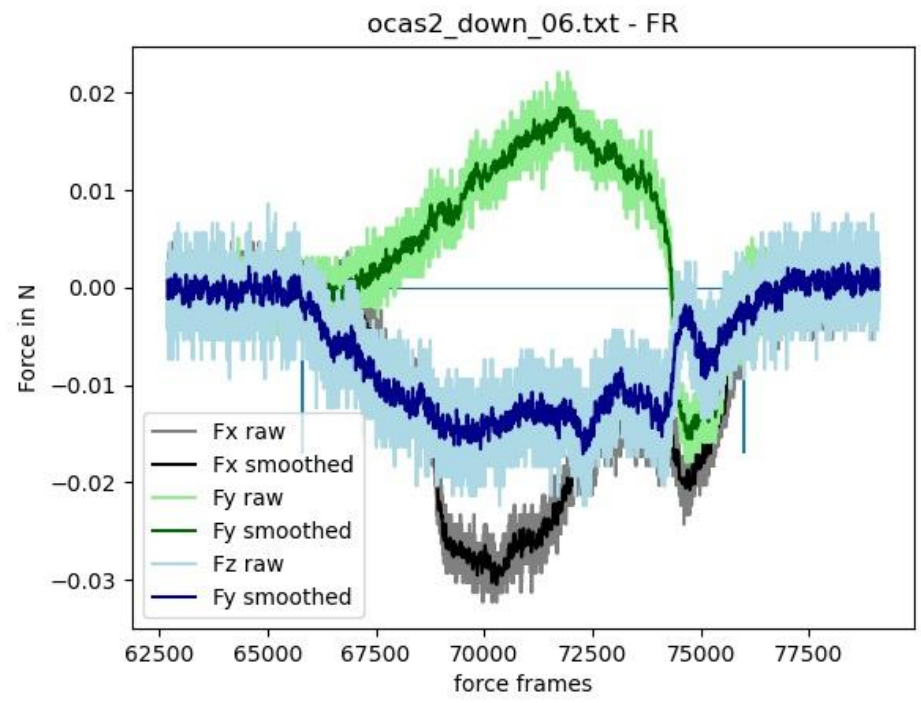
Fy

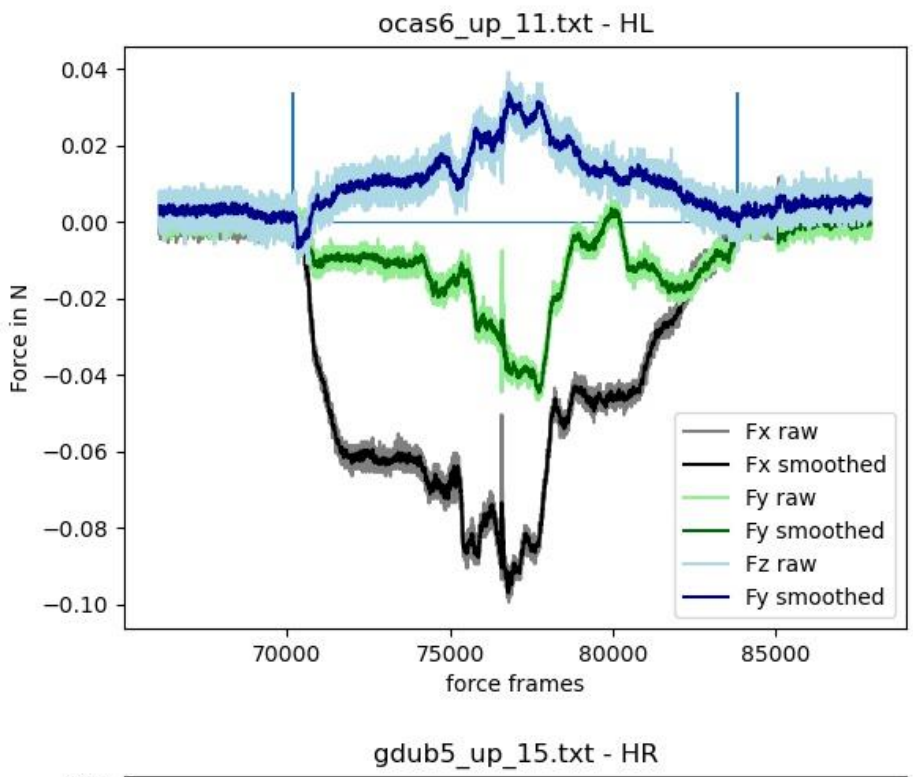
Fz

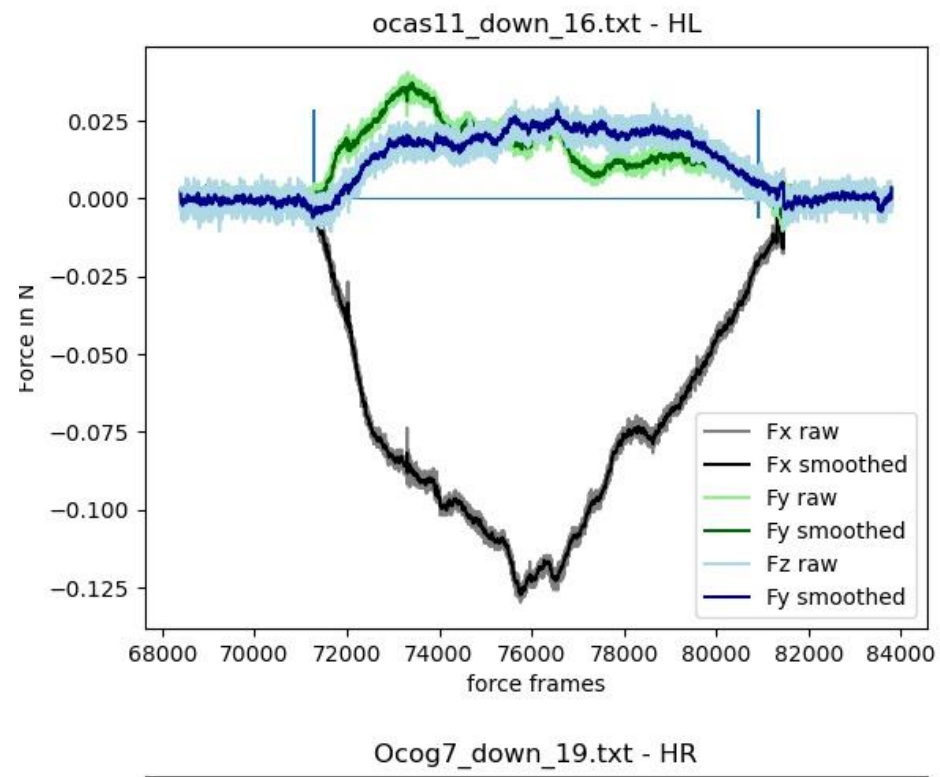


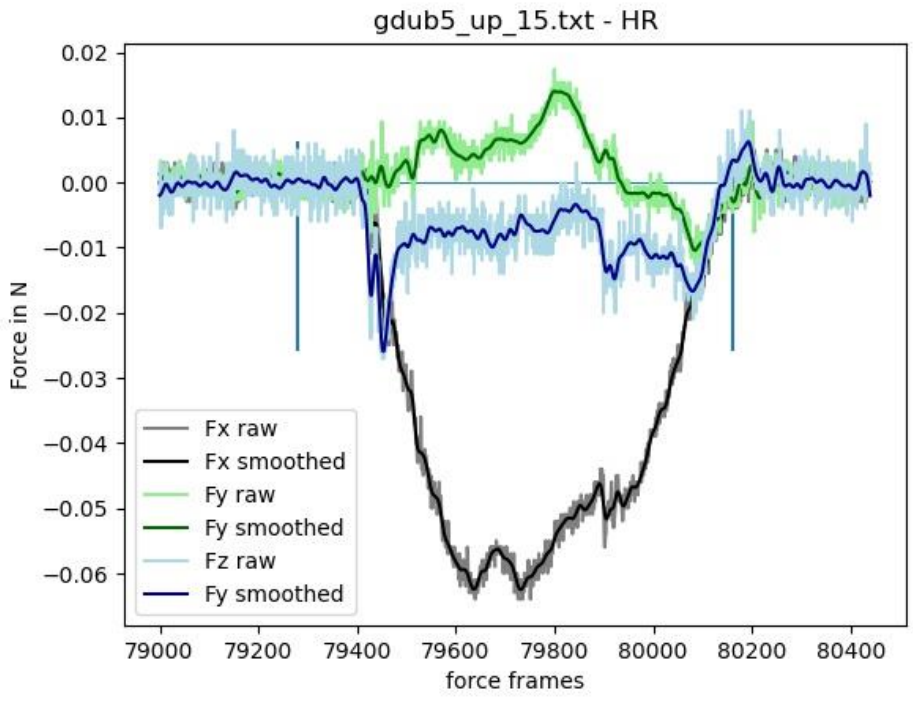


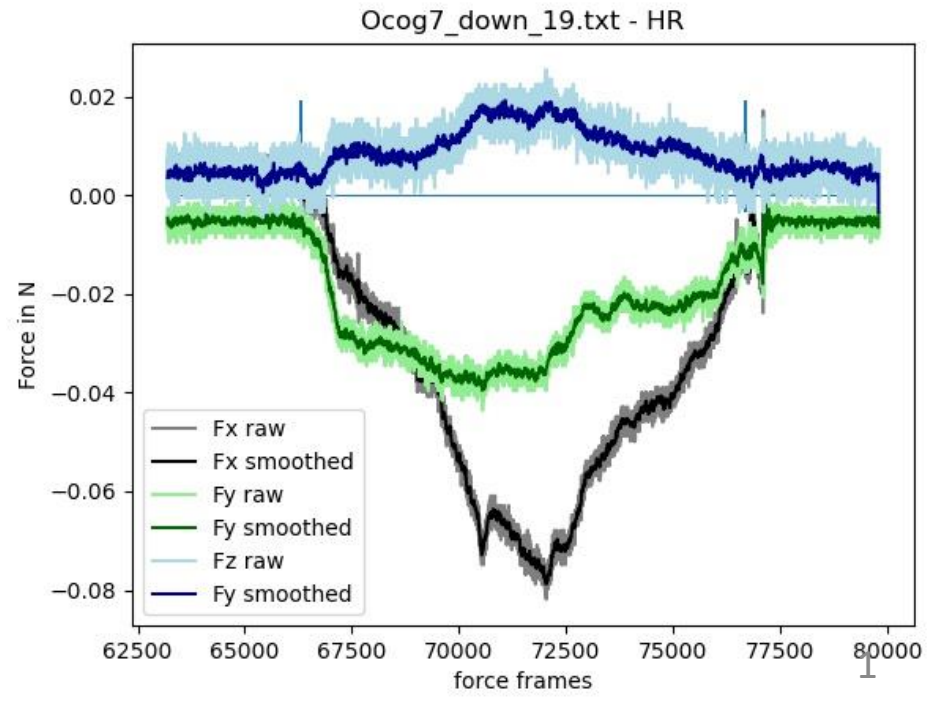






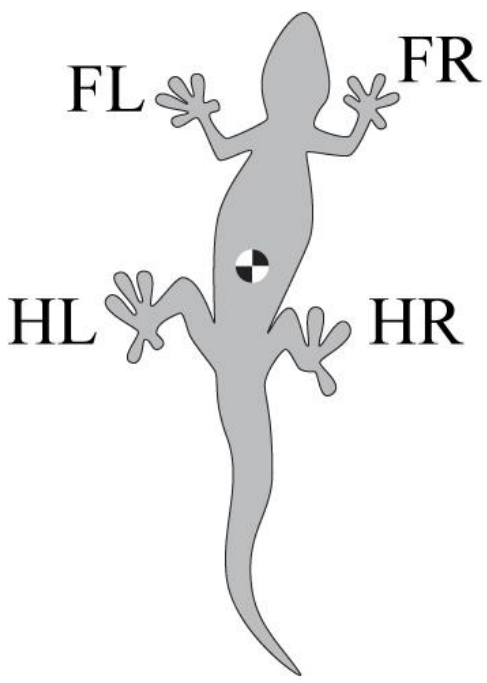


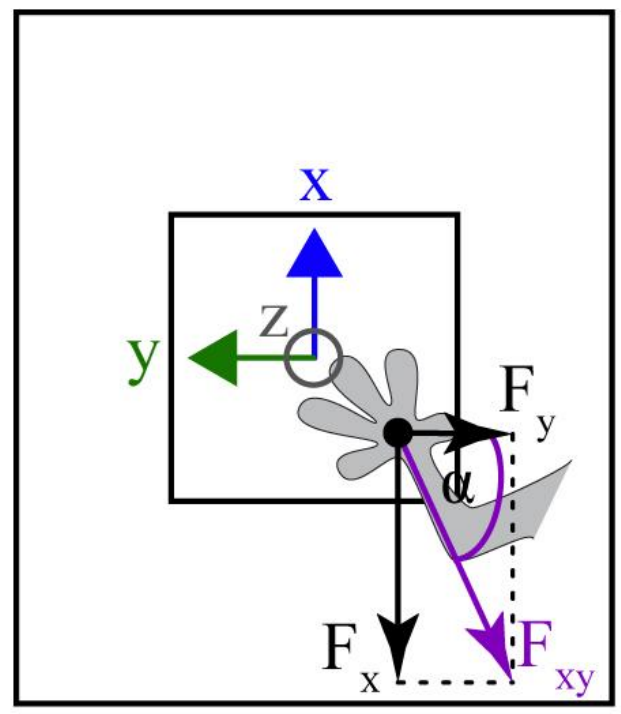


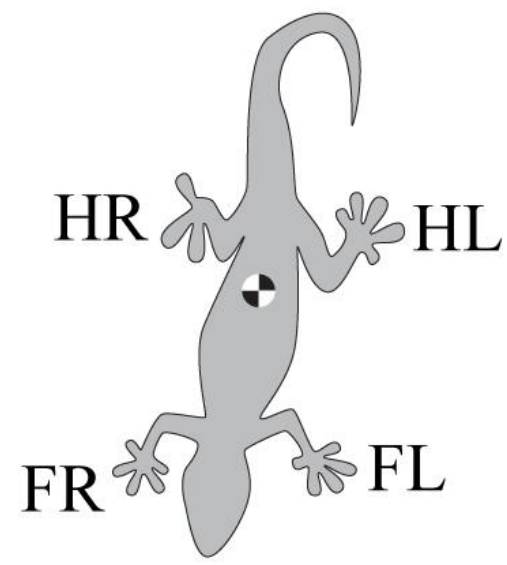


UP

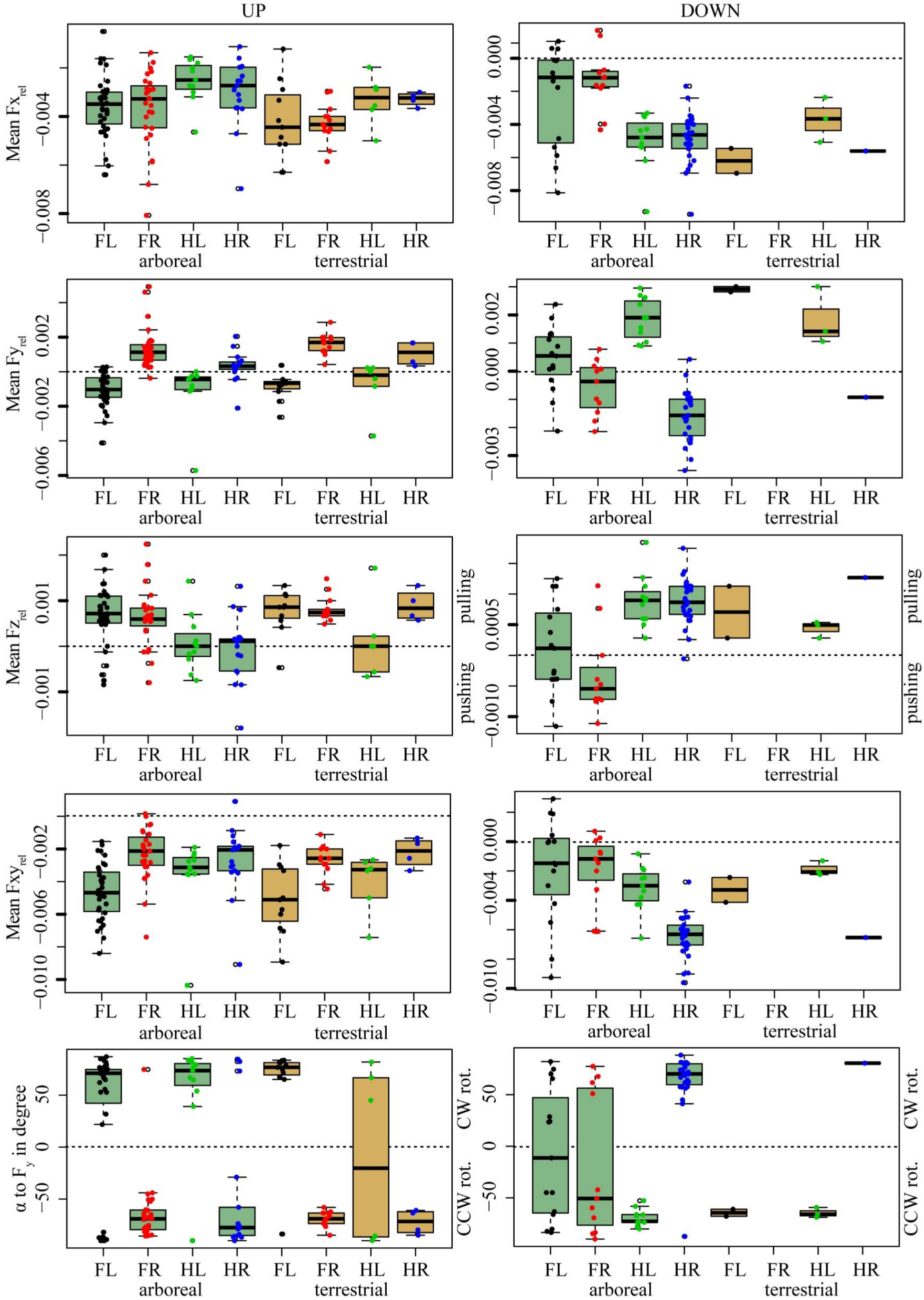
DOWN





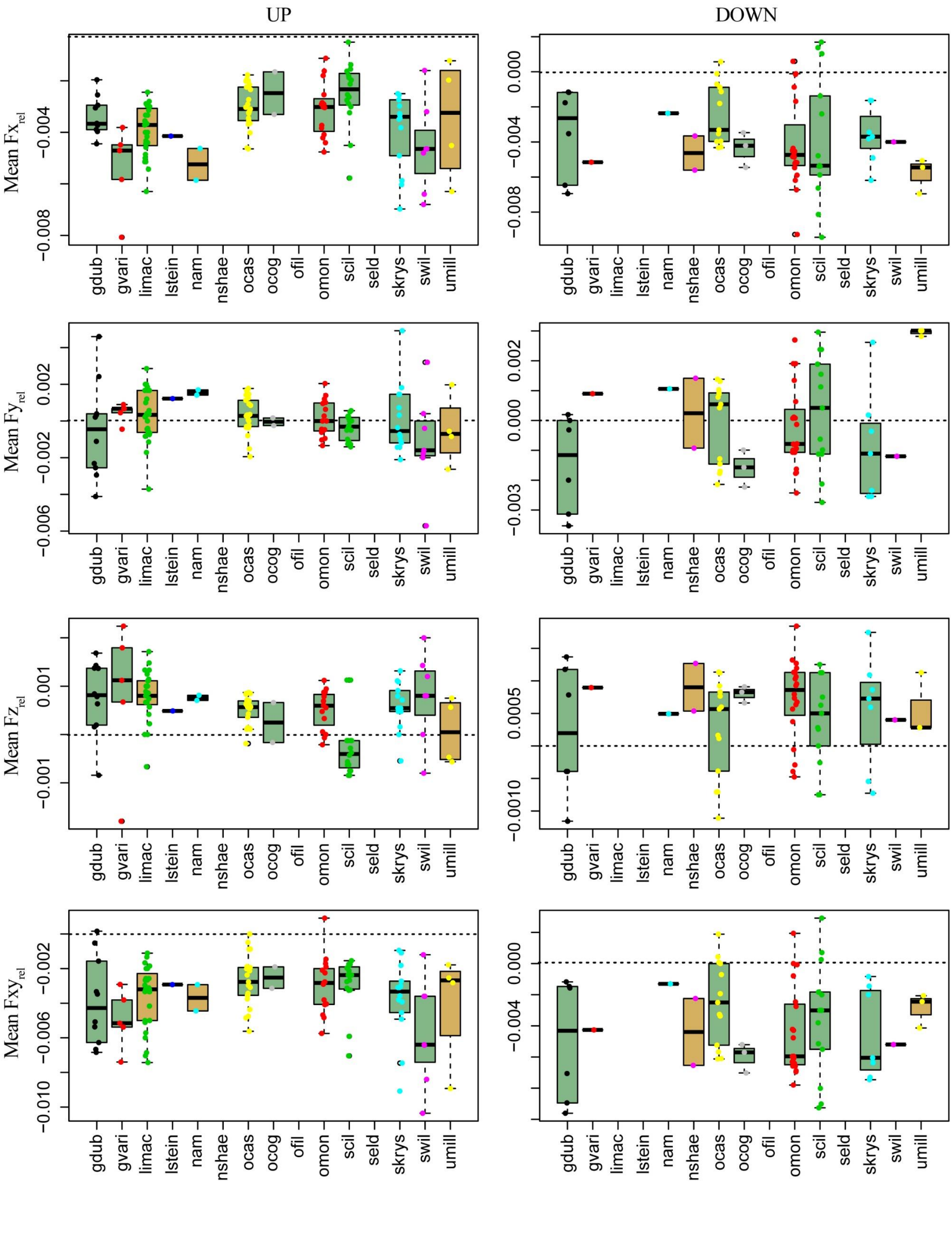


Mean Forces relative to bodyweight split by foot and habitat

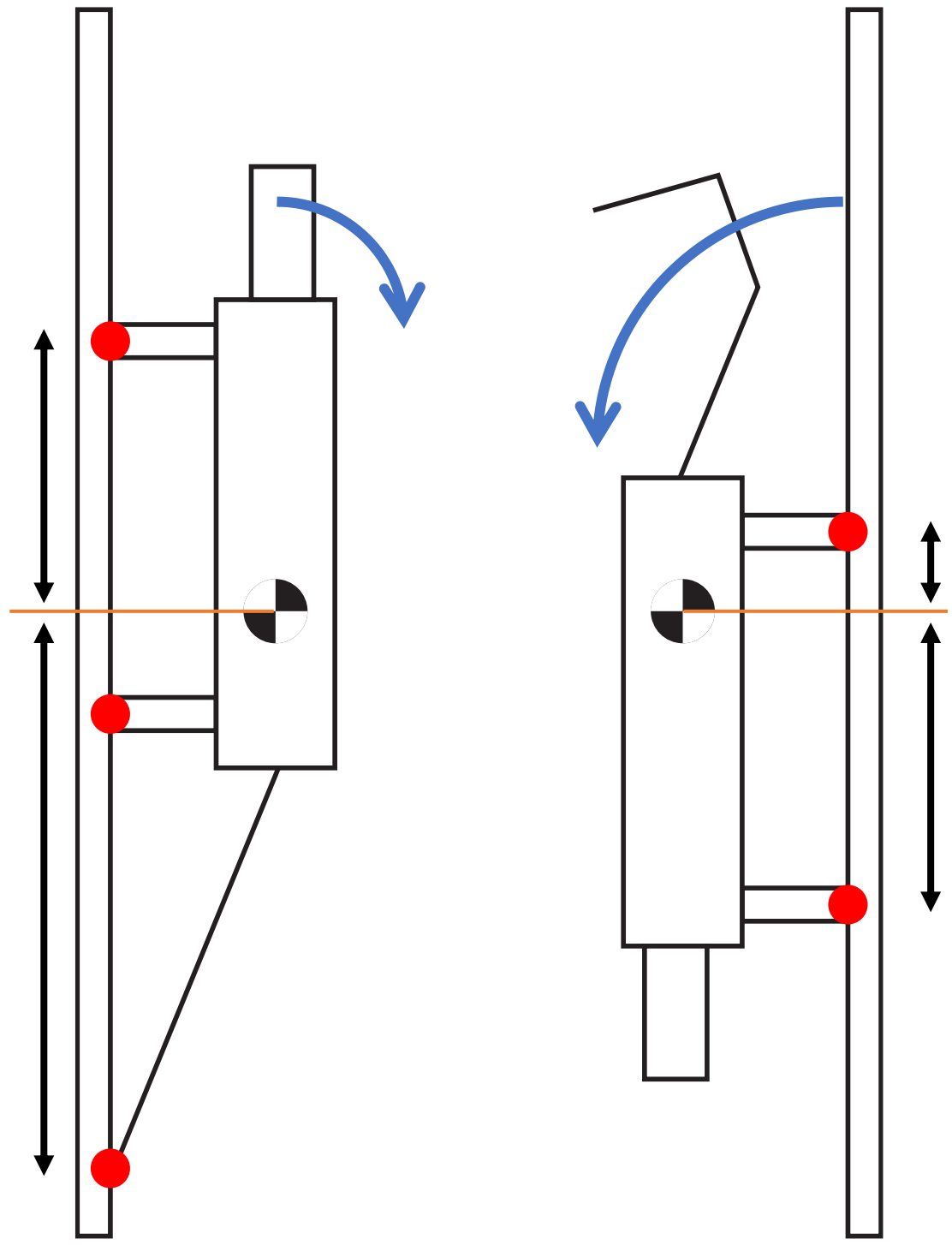


- **Fx/fore-aft force**: all feet produce a forward force, when climbing head-up the fore feet produce a higher force, when climbing head down the hind feet produce a higher force in arboreal species
- **Fy/lateral force**: The pattern of all feet pulling inwards becomes visible, while hind feet hardly pull when climbing head-up, they pull strongly when climbing head-down!
- **Fz/push-pull force:** Expected pattern according to previous literature was that fore feet pull, while hind feet push for climbing head-up. We find this pattern, however the hindfeet seem to act almost passively producing only very small forces. When climbing head-down hind feet now pull with forces almost 10-fold, fore feet push also with higher forces compared to head-up climbing in arboreal species.

Mean Forces relative to bodyweight split by species



Modelling questions:



- Geckos have 3 points of contact when climbing head up, but only 2 when climbing head down. (also see Jusufi et al., 2008)
- Overturning moment larger when climbing head-down? → would explain much higher Fz forces for that direction pulling very hard with the hind feet (see page 3, middle row)!
- Incorporate the morphology of the geckos to calculate the overturning moment.