

Contests against unreliable opponents: when to fight and when to go home

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Animals routinely compete for access to limited resources, including food, territories or mates. Because combat is energetically costly and increases the risk of injury or death, individuals should avoid fighting unless they have a reasonable chance of winning. Specialised structures such as teeth, claws or horns can be used to show off potential strength, so that opponents can assess each other without contact and decide whether or not to escalate. In most cases, animals should only fight when the competitors are closely matched, possess similar perceived strengths, and when the resources are valued highly. But what happens if the signal is difficult to interpret, or is an unreliable indicator of strength? In this talk, I will show how some crustaceans use unreliable signals of their strength to win disputes without combat. Crustaceans use their claws in fighting, but since the claw muscles are hidden within an exoskeleton, competitors cannot determine each other's true strength without contact. This situation allows some individuals to deceive others and gain more resources by growing claws that appear strong (i.e. large) but are actually weak. I will discuss how signals are kept mostly honest in nature and highlight parallels in human societies where aggression may be based on unreliable information.
