



## **Democracy dilemma: (dis)advantages of having several individuals deciding about a solitary task.**

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Working for a common goal is a cornerstone of social insects. Most contributions of workers are solitary tasks, i.e. tasks that can be performed by a single individual. However, several individuals could conflict when they decide on or execute the same solitary task, hence having a “work-conflict”. In acacia ants, we assessed whether (1) work-conflicts could change a solitary task final outcome, and (2) whether colony size (as a proxy for task-specialization) influence work-conflicts. We expected longer or more conflicts in colonies with less task-specialization (smaller) than in colonies with greater task-specialization (two times and four times larger). Acacia ant workers conflict when deciding whether to discard or store plant-produced food that we experimentally placed on the host tree. We found that conflicts increased the chances of storing the food item, and this effect decreased as colonies got larger. Colony size did not influence conflict rate, or number of conflicts by worker. However, in mid-size colonies conflicts lasted almost three times longer than in larger colonies, and workers spent in average 35% of the time in a conflict while performing the solitary task, compared to only 12% in larger colonies and 18% in smaller colonies. Longer conflicts in mid-size colonies could be the consequence of transitioning between two different systems that solve conflicts faster: small colonies with “Jacks-of-all-trades”, and large colonies with experts. Work-conflicts could act as a quality control mechanism in societies that lack central control and direct supervision.