



Utrecht University



Comparative
Cultural Psychology

Chimpanzees use social information to acquire a skill they fail to innovate

Edwin van Leeuwen, Sarah DeTroy, Daniel Haun, Josep Call



Utrecht University | Animal Behaviour & Cognition group | Biology Department
Max Planck Institute for Evolutionary Anthropology | Comparative Cultural Psychology

Meet Julie



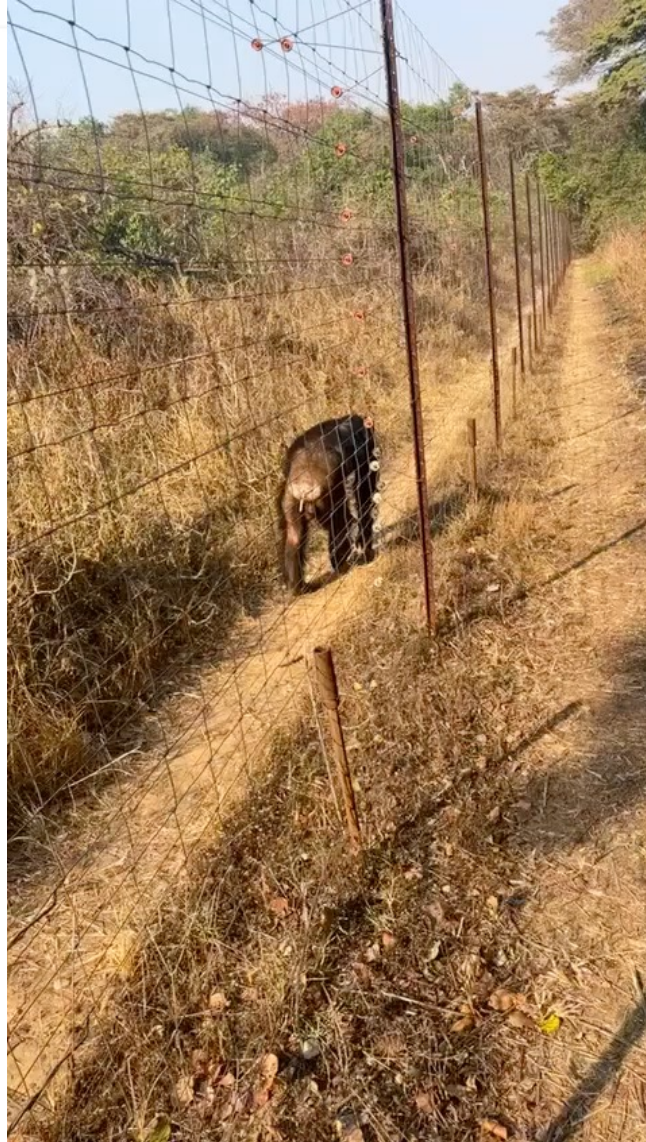
Social learning



Cultural “fashion trend”?



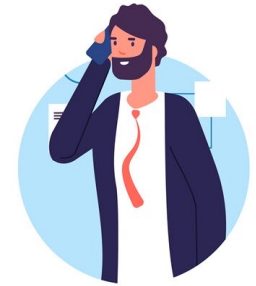
Update from the field..



Investigating origins of human culture



CULTURE AS SOCIALLY TRANSMITTED BEHAVIOUR
*within-group homogeneity | durability



Comparative evolutionary method

Humans



Apes and monkeys

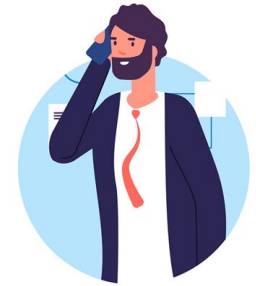


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Comparative evolutionary method

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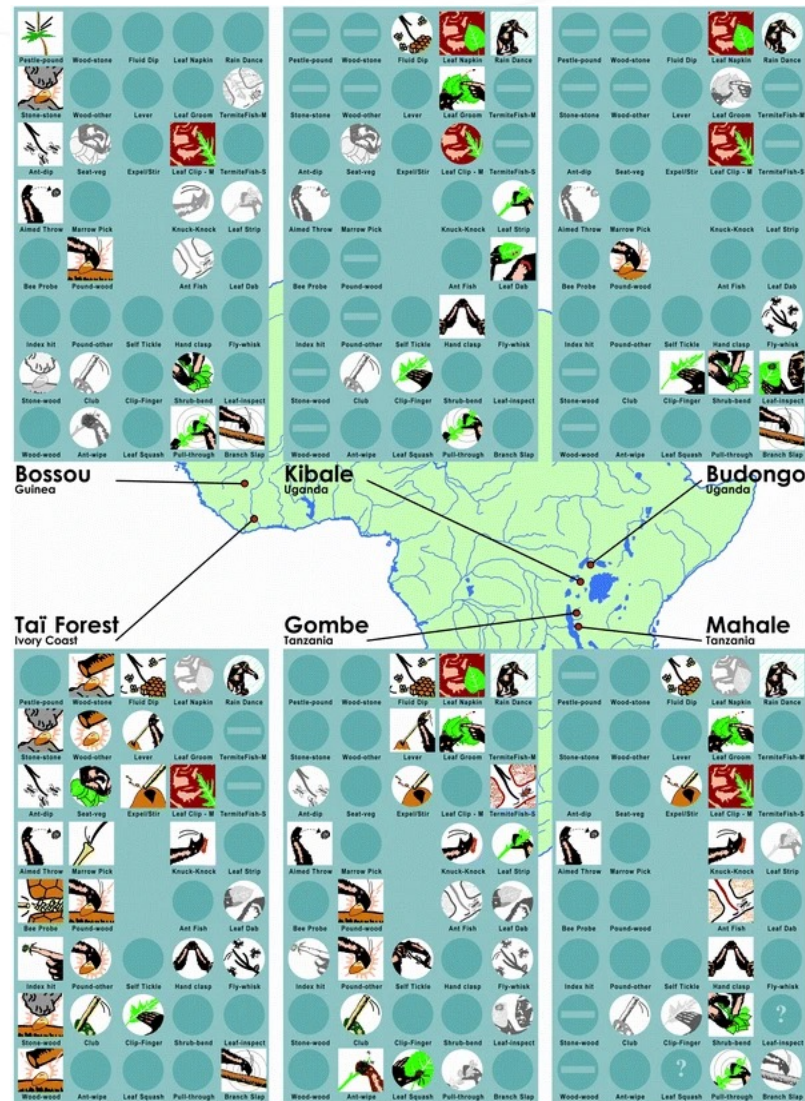


Cultural traditions in chimpanzees



e.g. Whiten et al., 1999; de Waal, 2001; McGrew, 2004; Kalan et al. 2020; Boesch et al. 2020

Cultural traditions in chimpanzees



Fieldsite

Chimfunshi Wildlife Orphanage Trust, Zambia



Long-term social groups



1. Diversity in interaction styles



Method

- ◆ Data collection: all-occurrence sampling (opportunistic windows 2007-2019): $N_{ind}=71$; $N_{bouts}=2049$
- ◆ Focus on handclasp *styles*
- ◆ Based on clasping contact area:
 - Palm
 - Wrist
 - Forearm
 - Other

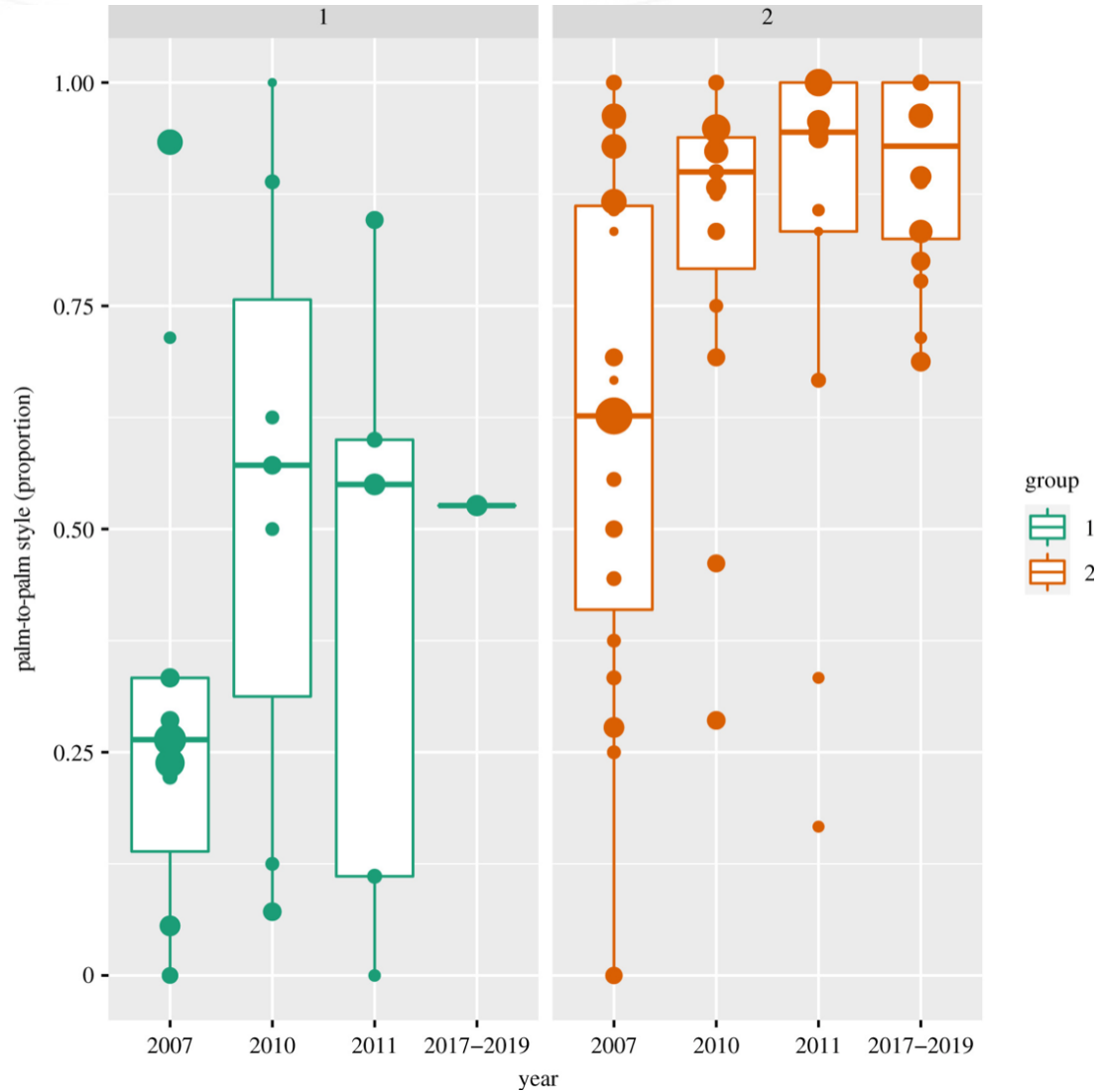


Palm clasping to Palm



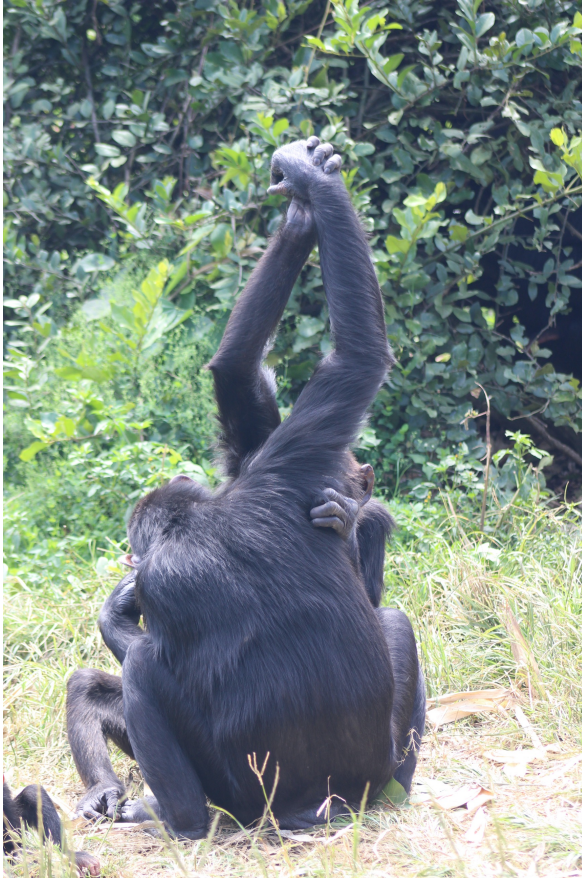
Palm clasping to Wrist

Diversity across years



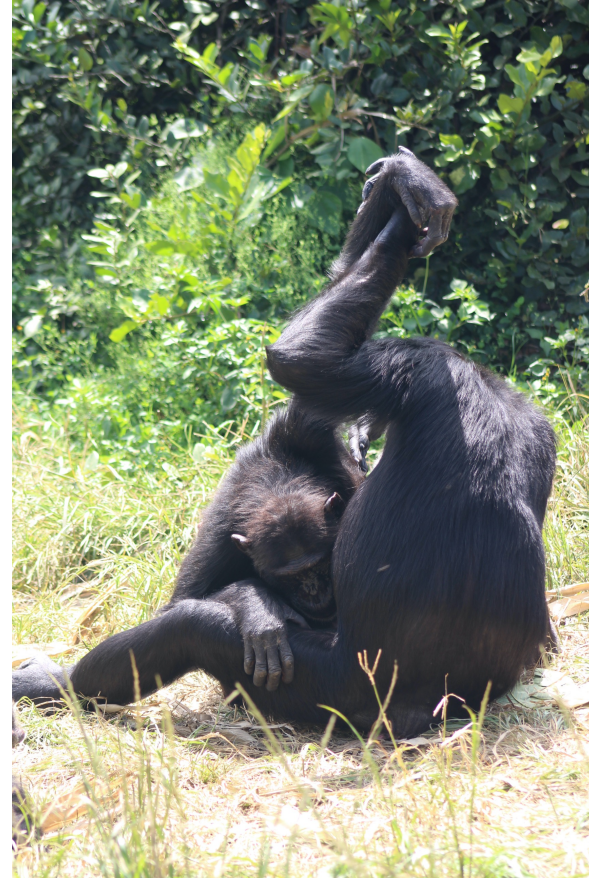
Consistent style differences

a)



Group 2

b)



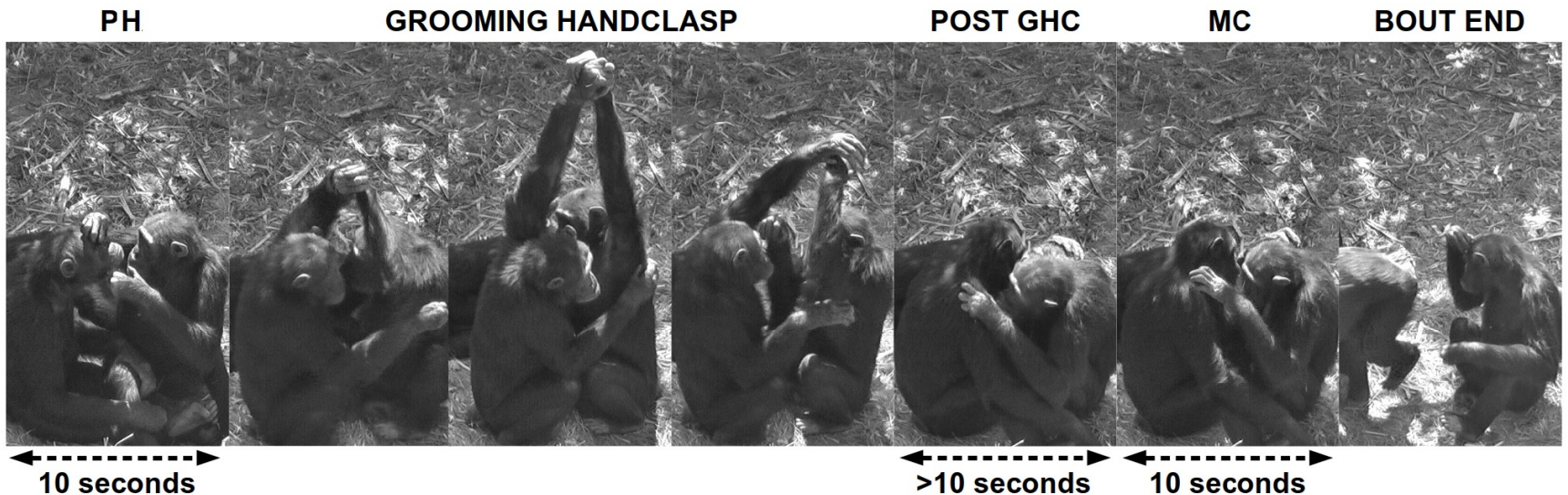
Group 1

Mechanism?



Zoë Goldsborough

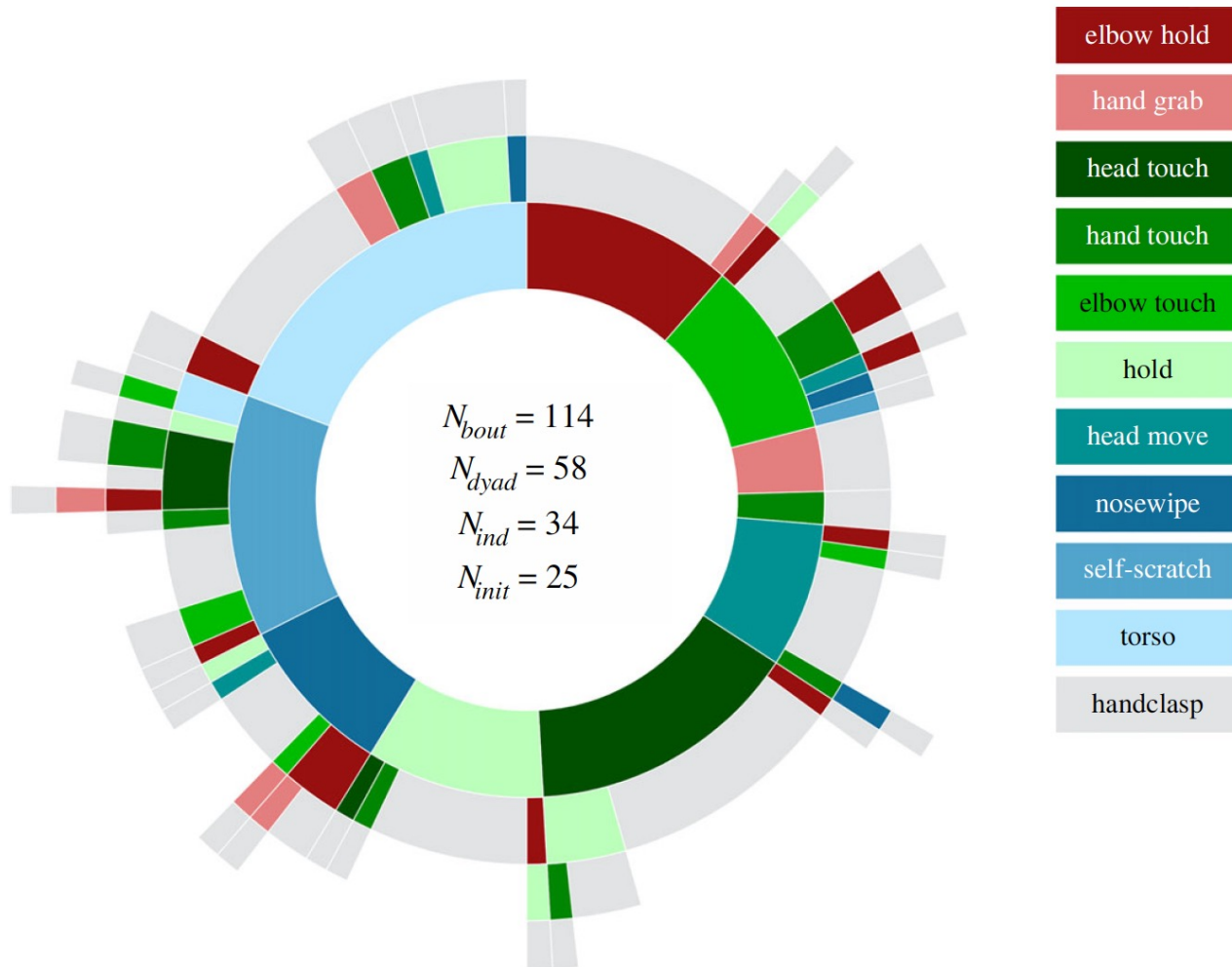
How do the chimpanzees initiate/coordinate this behavior?



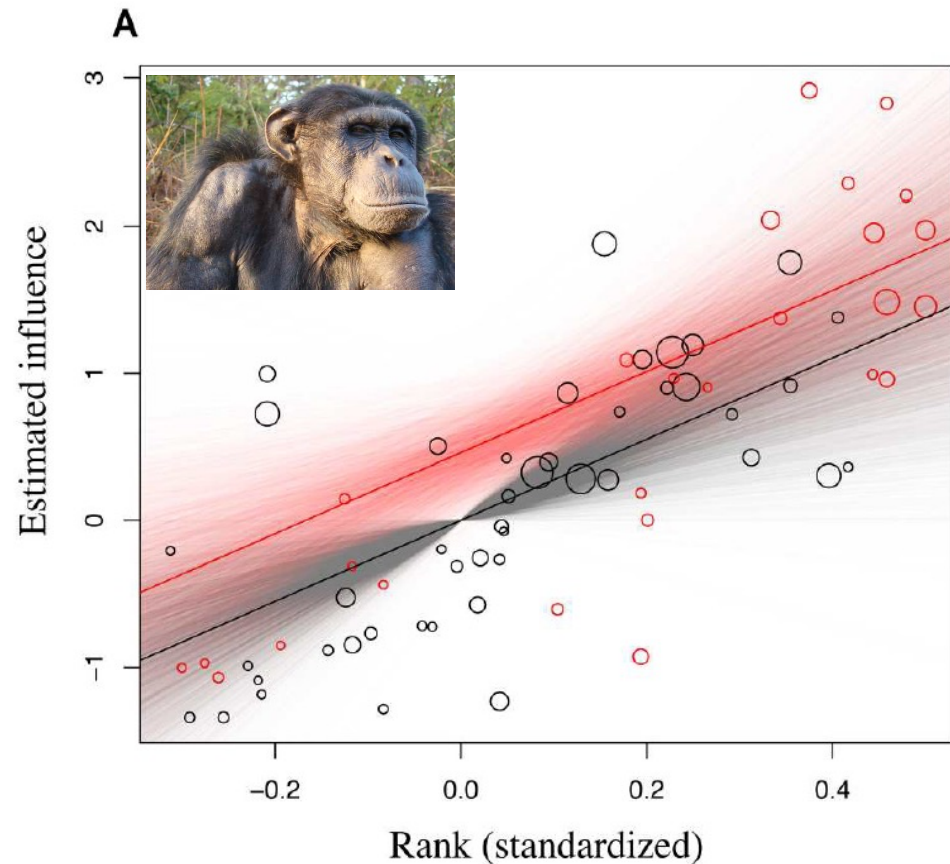
Chimpanzees communicate to interact



Variation in initiation sequences



Function? Mechanism?



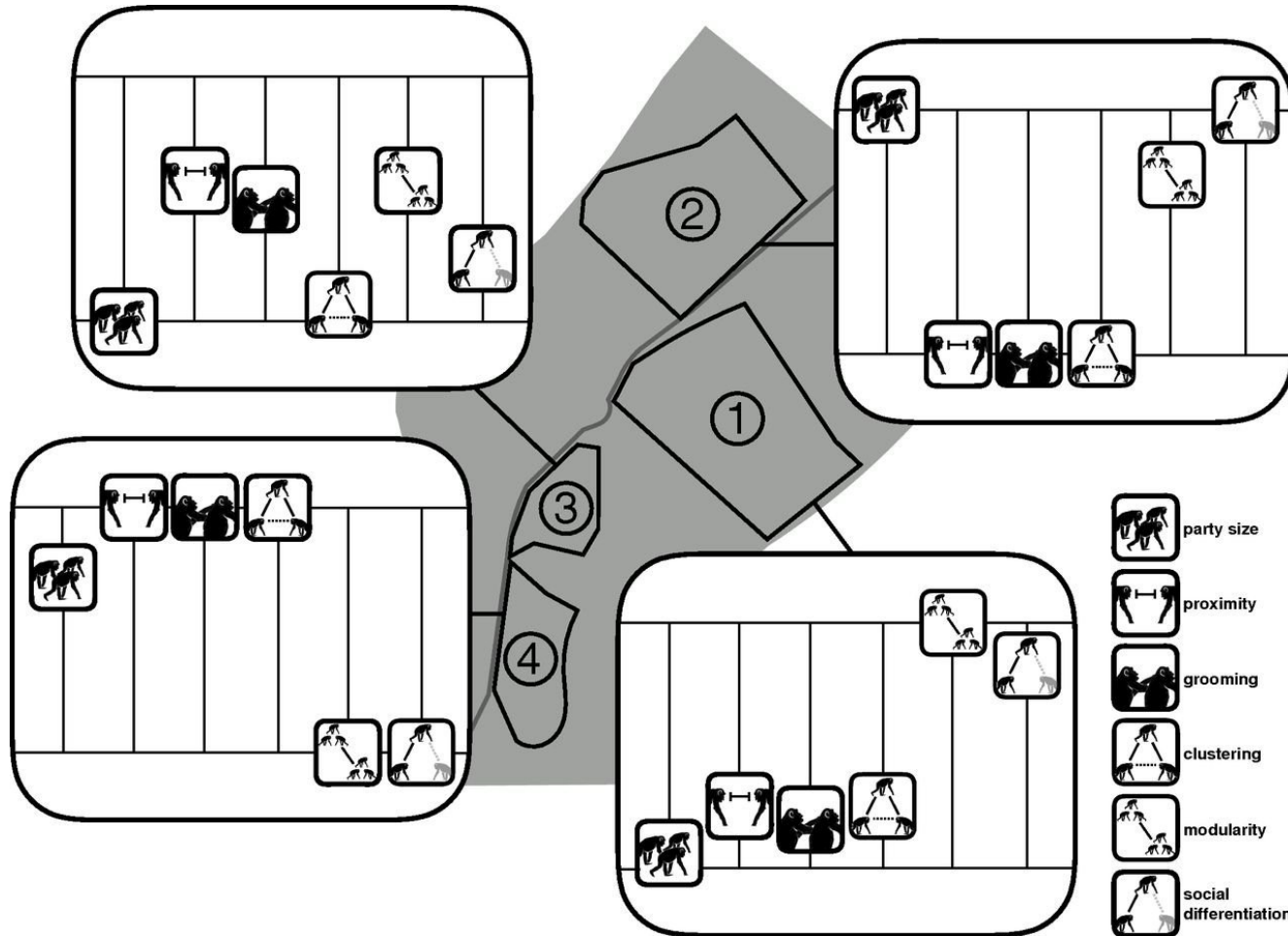
More dominant chimpanzees use the handclasp to (try and) exert superiority..

2. Diversity in day-to-day social behaviour

Is sociality itself a species-specific trait?



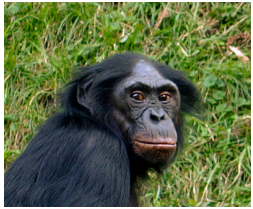
chimpanzee



2011-2013 daily observations

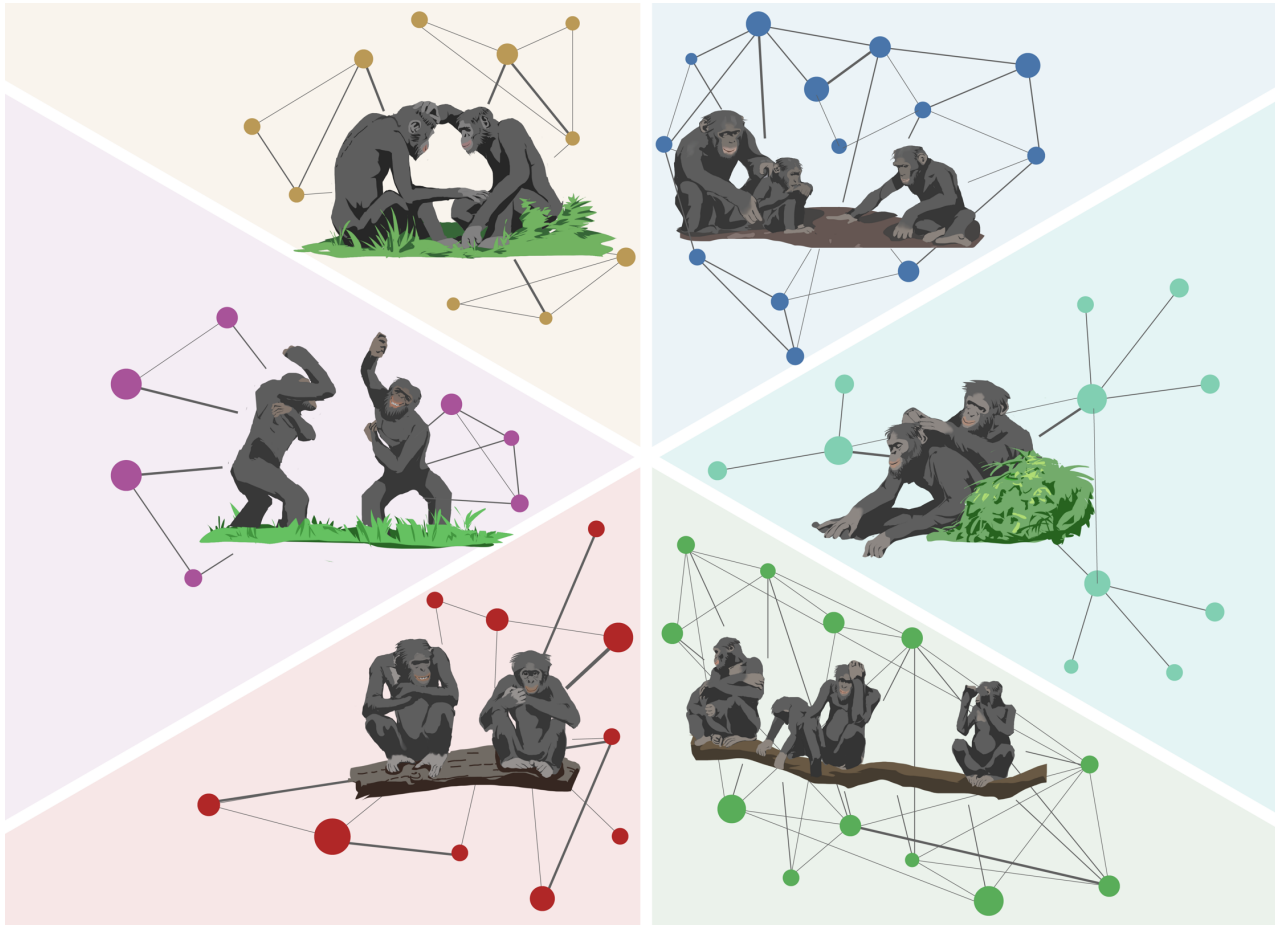
van Leeuwen, Cronin & Haun, *PNAS*, 2018

2. Diversity in day-to-day social behaviour



bonobo

Is sociality itself a species-specific trait?



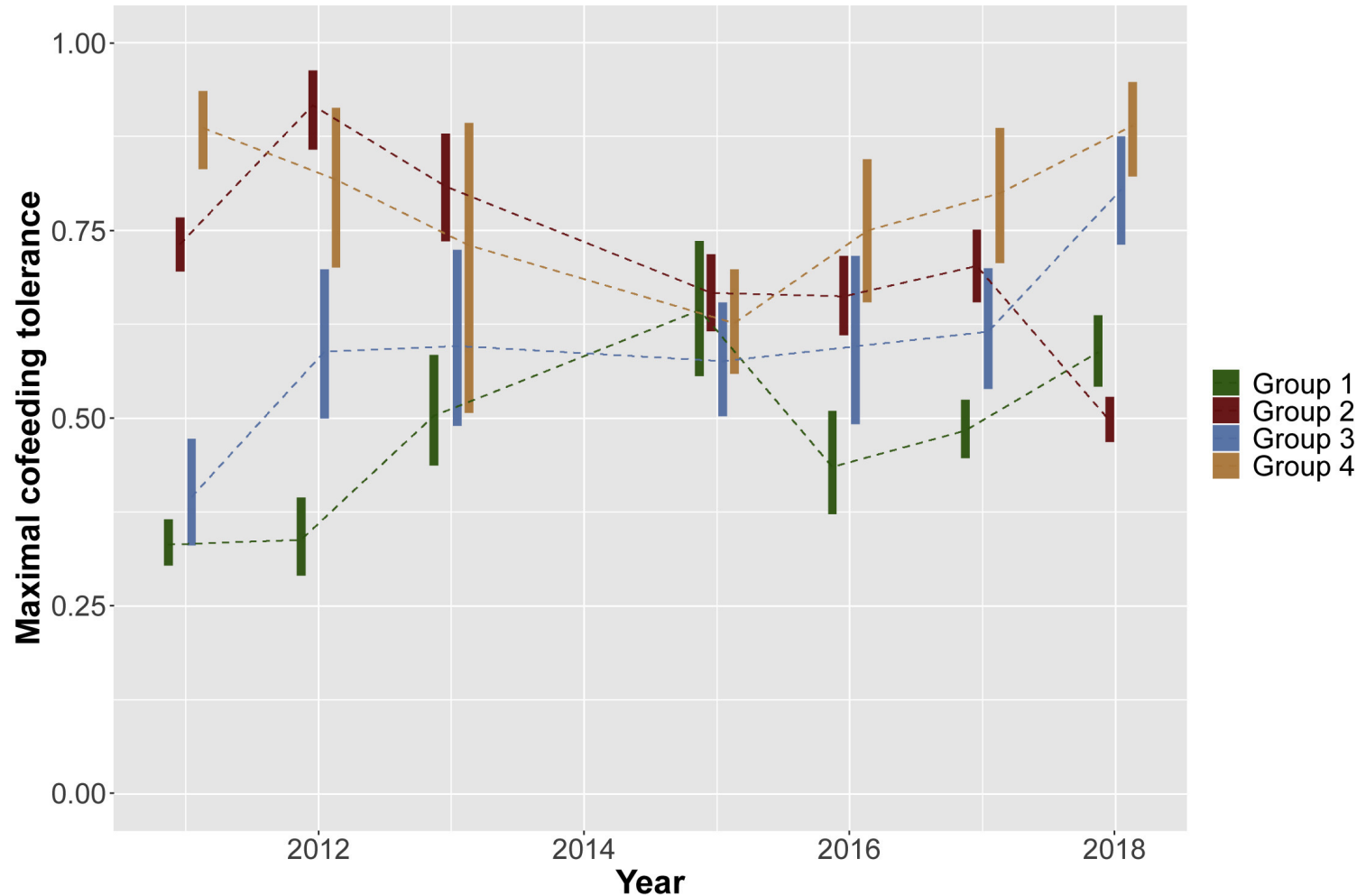
3. Diversity in social tolerance (exp)

Is social tolerance a species-specific trait?

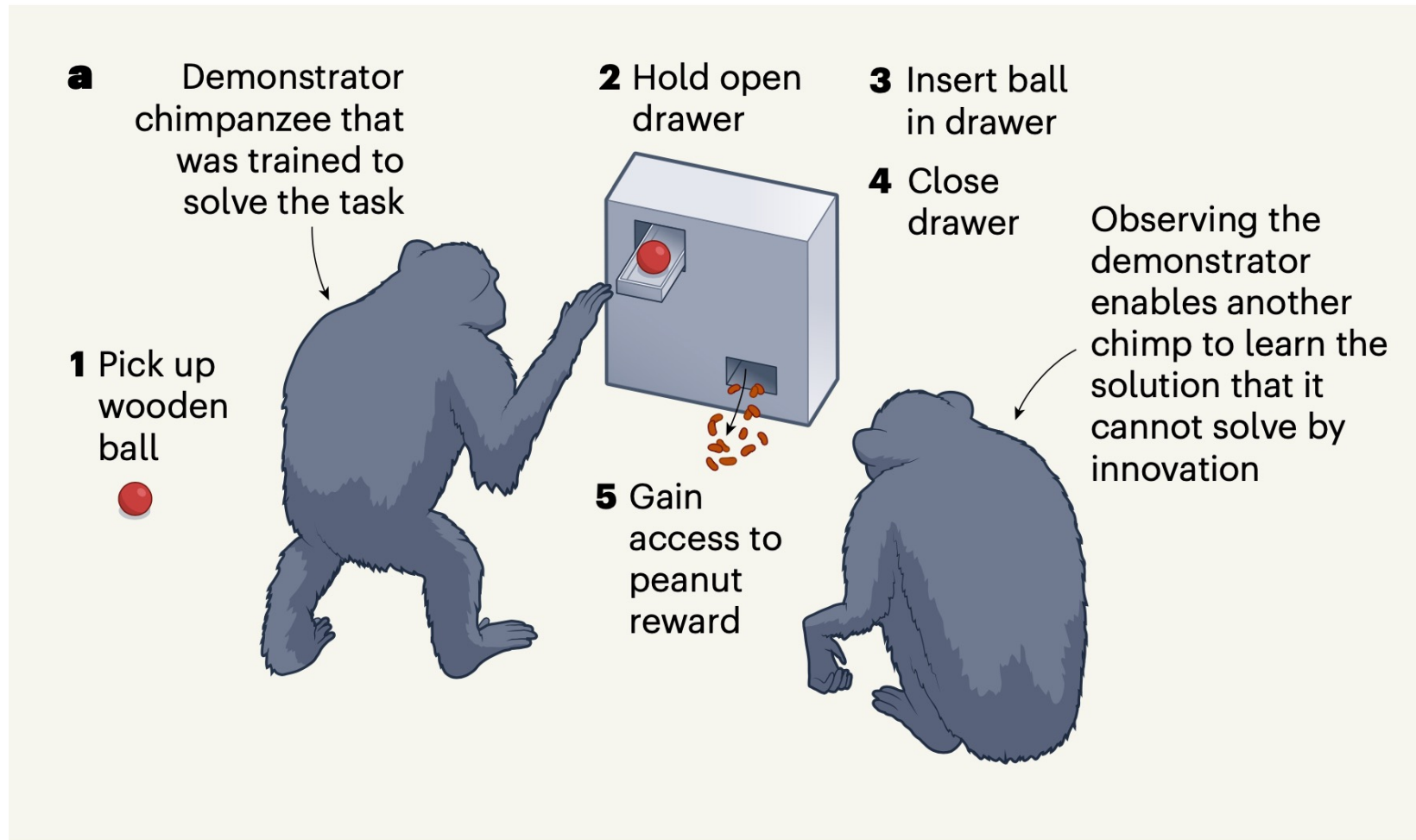


3. Diversity in social tolerance (exp)

Is social tolerance a species-specific trait?



4. Cultural transmission (& diversity)



Social learning of know-how

Implemented automated social learning box inside chimps' enclosures



Social learning of know-how

Chimpanzees' solving attempts



Social learning of know-how

To no avail (n=0 in 3 months)



Social learning of know-how

Two models (one in each group) were trained



Rita (group 1)

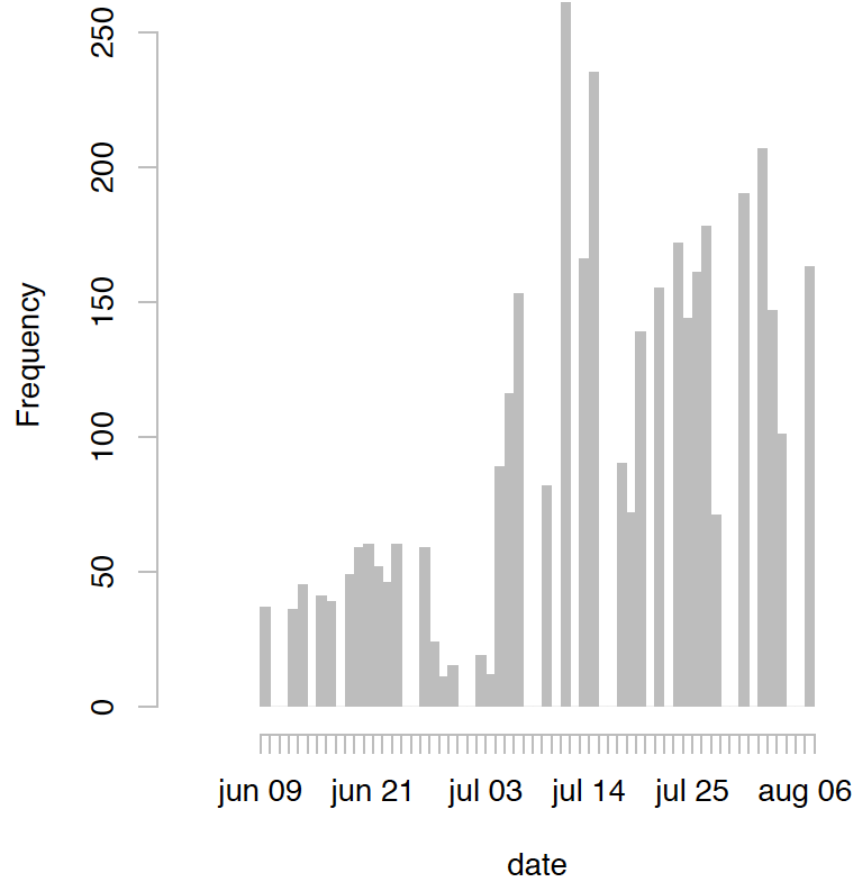


Pippa (group 2)

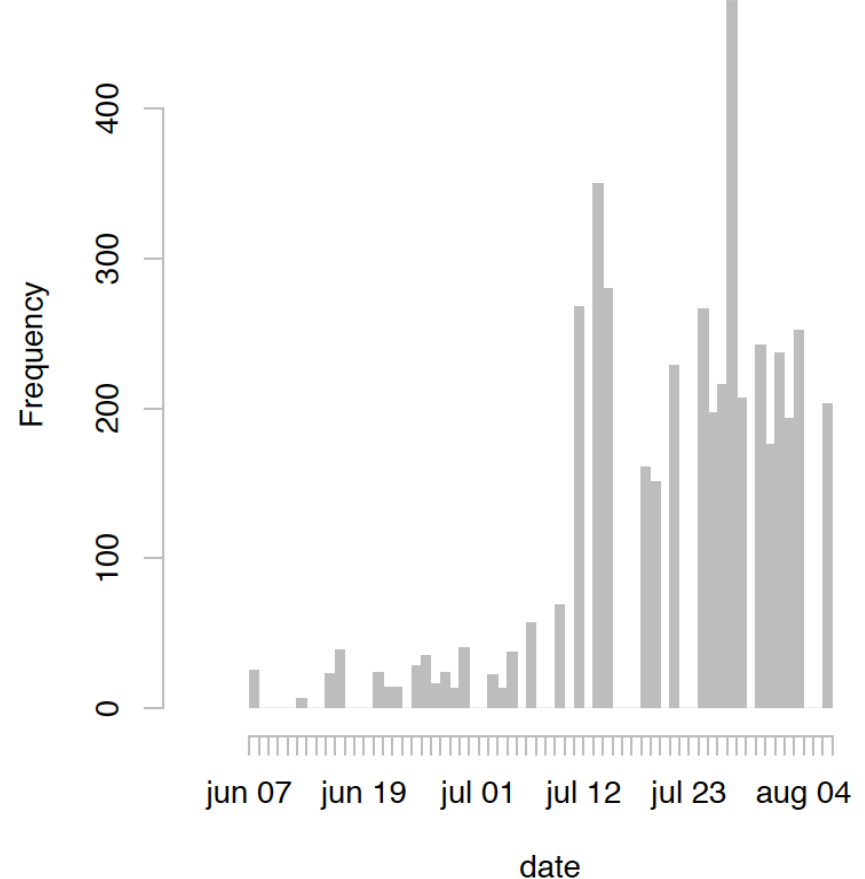
Social learning of know-how



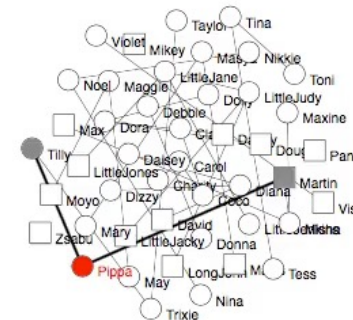
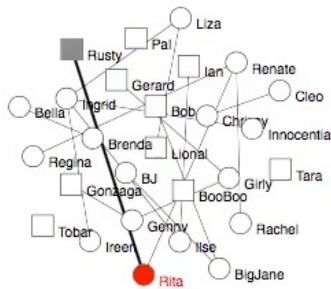
events per day



events per day



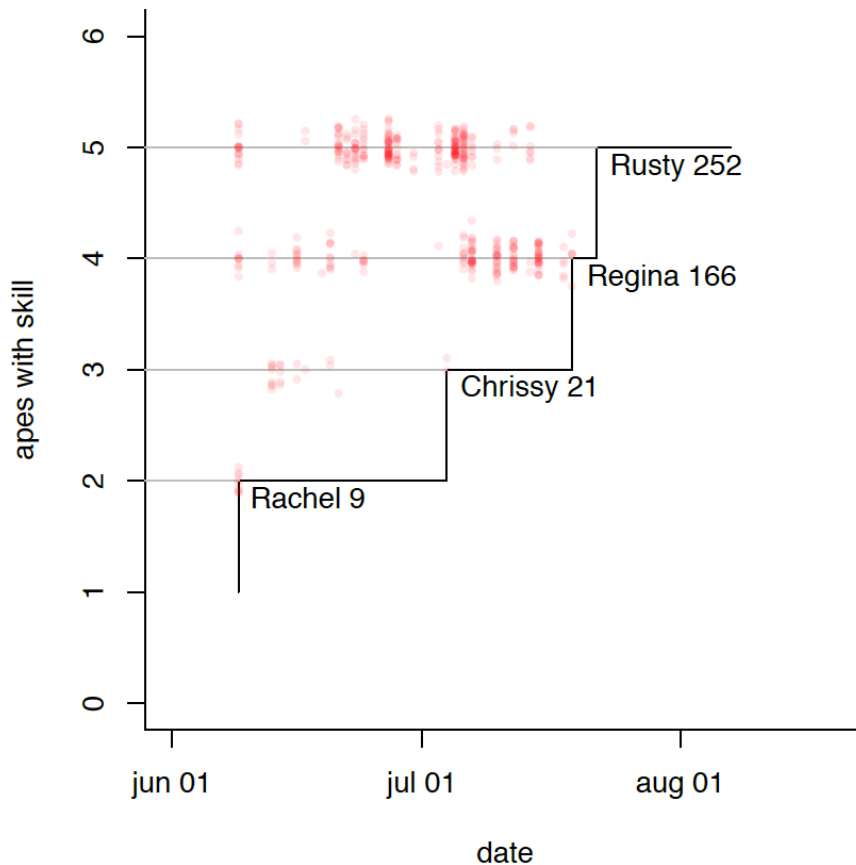
Social learning of know-how



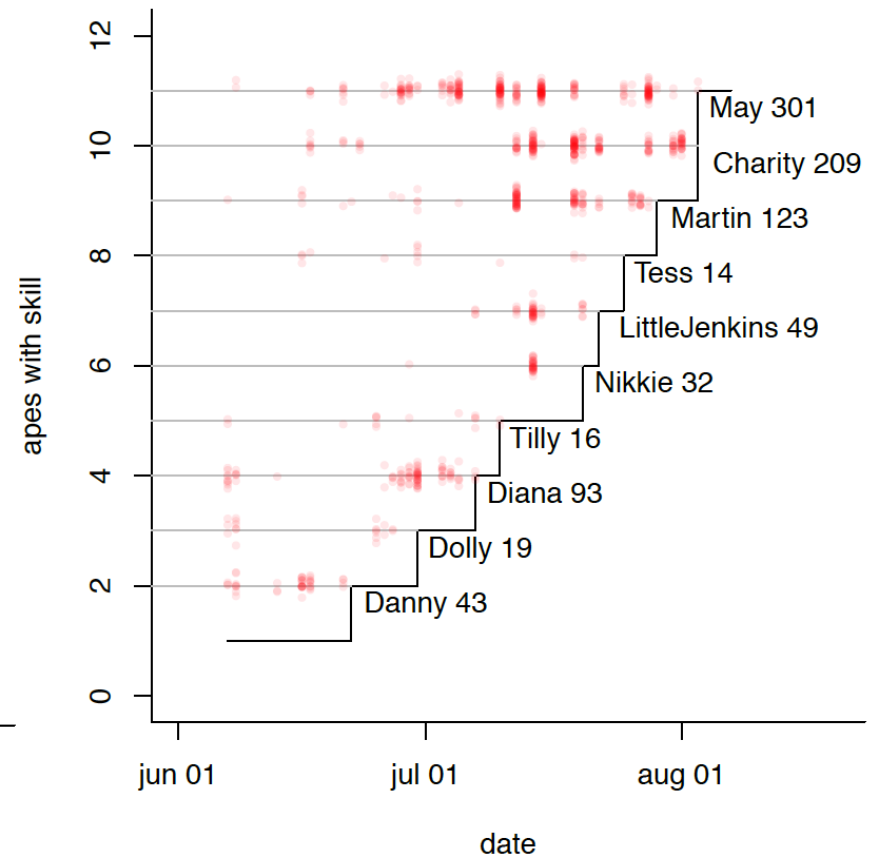
Social learning of know-how

All chimpanzees who learned the skill had observed successful executions of the task: NBDA supports social over asocial learning

(A) Group 1



(B) Group 2





Summary & Conclusion

- Baseline shows that no chimpanzee ($n=66$) learns the skill in a group context (thus, with social influences)
- Models were trained in 6-8 days with full demonstrations and scaffolding
- Over the course of ± 70 hours of testing, 14 naïve chimpanzees learned the skill from observing conspecifics
- Chimpanzees can learn a complex skill by means of social learning, possibly by “know-how copying”
- Is there meaningful variation between groups?



Long-term collaborators



Max Planck Institute for Evolutionary Anthropology
(prof. Daniel Haun)



MAX PLANCK INSTITUTE
FOR EVOLUTIONARY ANTHROPOLOGY



St. Andrews University
(prof. Josep Call)



University of
St Andrews



Centre for Research and Conservation
(prof. Zjef Pereboom)

ZOO
SCIENCE



Chimfunshi Wildlife Orphanage Trust, Zambia



CHIMFUNSHI

Field site staff & funding agencies



European Research Council
Established by the European Commission



Research Foundation
Flanders
Opening new horizons

Thank you for your attention

