

That's what friends are for: Friendship and tolerance to underbenefiting in humans and nonhuman primates



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RuG

Friendship in biology

- Kummer (1978): the social bond is an investment that, sooner or later, benefits the actor (p. 688).
- Smuts (1985): Under which conditions is having a friend with certain characteristics fitness enhancing? Do individuals in such conditions have such friends, or try to make such friends?

Friendship in the social sciences

- Allan 1979: individuals can be useful because they are friends, but not friends because they are useful. (p. 43)
- Hays 1988: The primary goal of the interdependence between friends is social-emotional rather than instrumental, meaning that friends derive satisfaction from their interactions themselves rather than engaging in interaction primarily to achieve an ulterior motive. (p. 393).

Different concepts of friendship

Biology:

friendship is an instrumental relationship yielding fitness benefits



Social sciences:

friendship is an explicitly non-instrumental relationship, characterized by concern for the other's welfare and a willingness to help the other when there is a need



Different concepts of friendship

True difference in friendship between human and non-human friendships

Difference in explanatory level:

- Biologists focus on ultimate explanations: fitness benefits a friend may provide
- Social scientists focus on proximate motivations and expectations about friendship

Difference in research methods

Proximate mechanism of friendship

'I'll scratch your back, if you scratch mine'

-Reciprocal Altruism, Tit-for-tat
(Trivers 1971, Axelrod & Hamilton 1981)

-Balanced Exchange

(Henzi & Barret 2002, Noë *et al.* 1991)

-Friends:

Concern for each others

welfare (Clark & Mills 1979)

Distributive Justice Theory;

Need (Deutsch 1975)



Friendship translates in:

Delayed reciprocal altruism. Tolerance for imbalance

Goal of project

Compare degree of instrumentality in human and non-human friendships, using similar concepts and research methods.

Longitudinal study

Are friends (close friends) more tolerant than non-friends (less close friends) towards imbalances in providing and receiving support, and can this imbalance be observed?

Previous Research



Social sciences:

Previous research on give and take in close relationships

(Hays 1985; van Yperen & Buunk 1990)

but ...

...focus on social-emotional benefits, and general positive or negative aspects of the relationship.

Biology:

Previous research on balance of give and take,

(Barrett ea. 1999; Hemelrijk & Ek 1991)

but...

...no relationship quality taken into account.

Design

Measure
friend-
ship

Measure interactions in which help is
given or received.

Measure
friend-
ship

t0

t1



Research population



21 humans

Mostly students

9 men; 12 women

Age 20 to 28 ($M=23$; $sd=2$).

Report interactions with three persons for 1 month.



27 socially housed rhesus macaques

12 males; 15 females

Age 1 to 18 ($M=5,6$; $sd=5,5$)

All interactions

Defining Friendship



Humans

Simply ask:

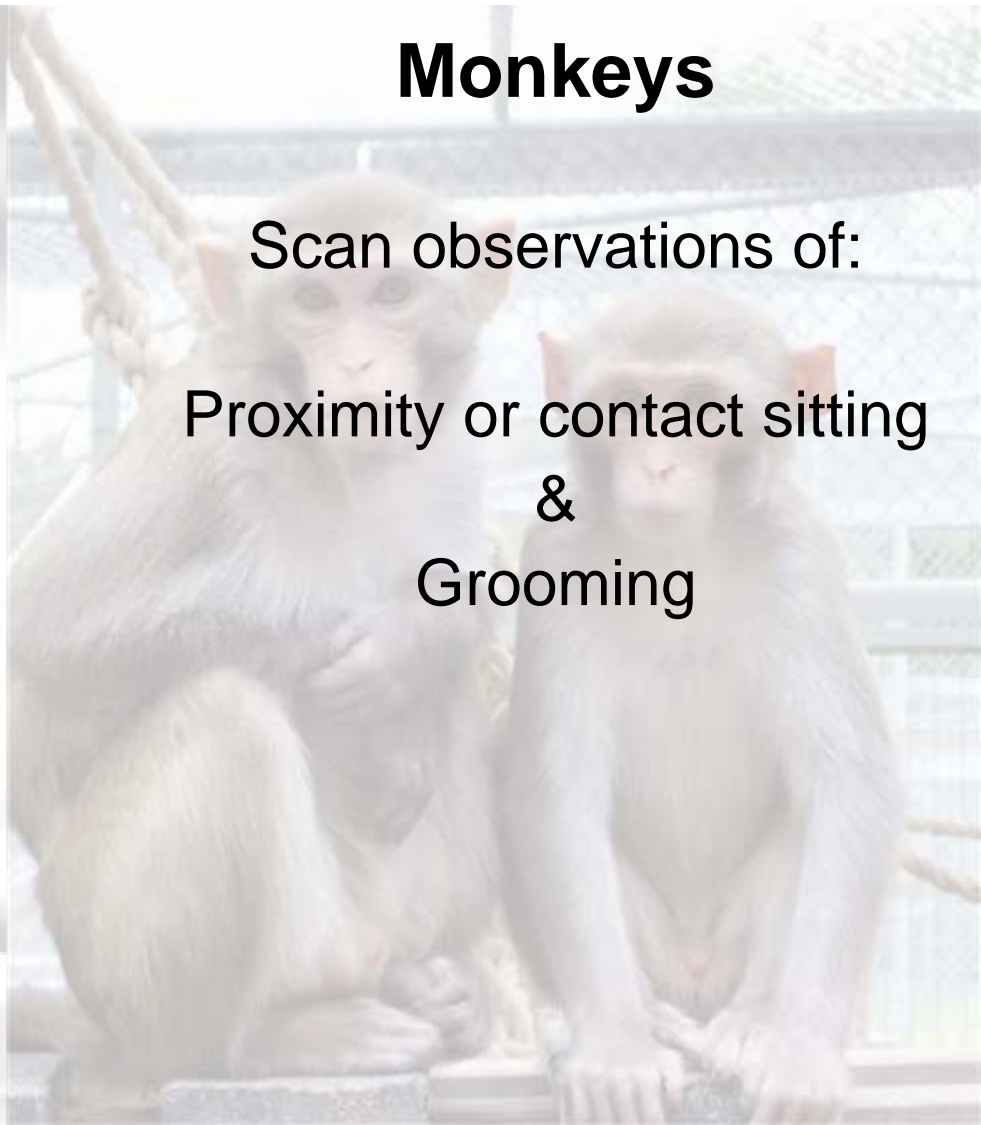
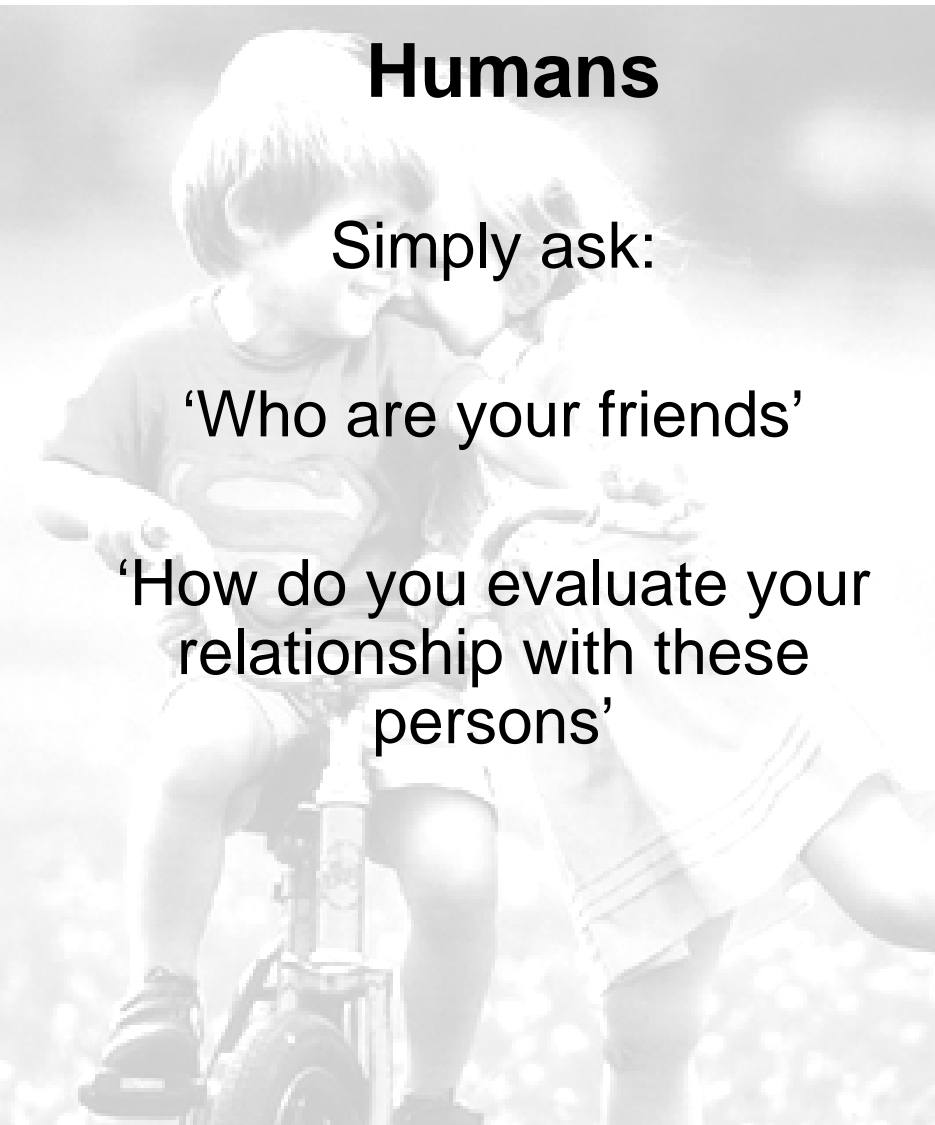
‘Who are your friends’

‘How do you evaluate your relationship with these persons’

Monkeys

Scan observations of:

Proximity or contact sitting
&
Grooming



Friendship in humans

- 1) Instruction:
select three persons.....have contact on a frequent basis, i.e. friend, acquaintance, or sports buddy. Don't select persons with whom your relationship is purely business.
- 2) Relationship quality scale (*based on Mendelson & Aboud 1999*):
5 statements; 7-point answering scale; 1=don't agree at all; 7=completely agree)
Examples:
I am satisfied with the relationship we have.
It feels good to be together with this person.

Friendship in rhesus macaques

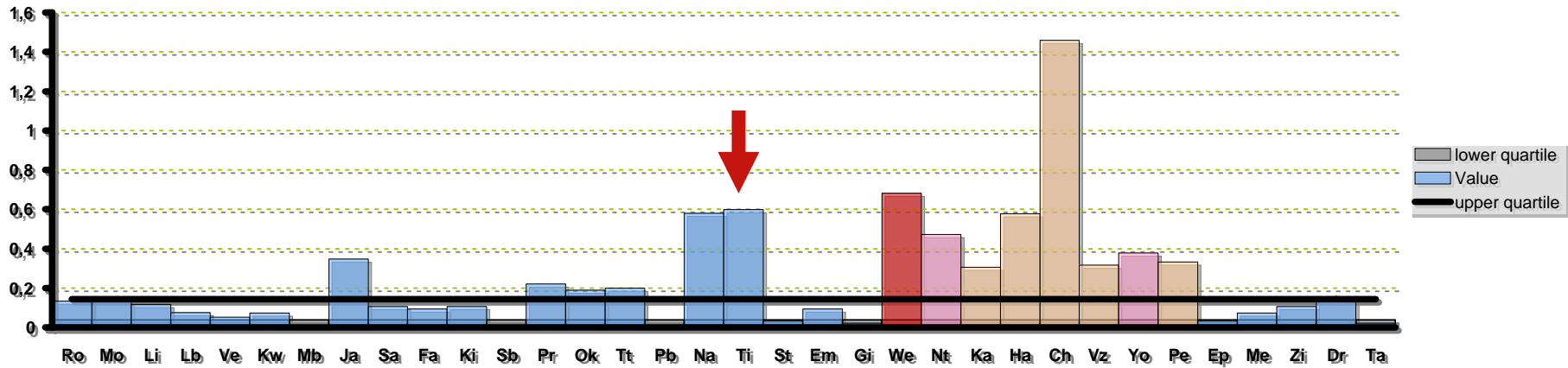
Grooming & Contact sitting

Correlation between:	Kendall τ_{rw} :	p:
^a . Contact-sitting & Grooming	0.35	< 0.0001
Contact-sitting & Kinship	0.37	< 0.0001
Grooming & Kinship	0.33	< 0.0001
Contact-sitting & Grooming, controlled for Kinship	0.26	< 0.001

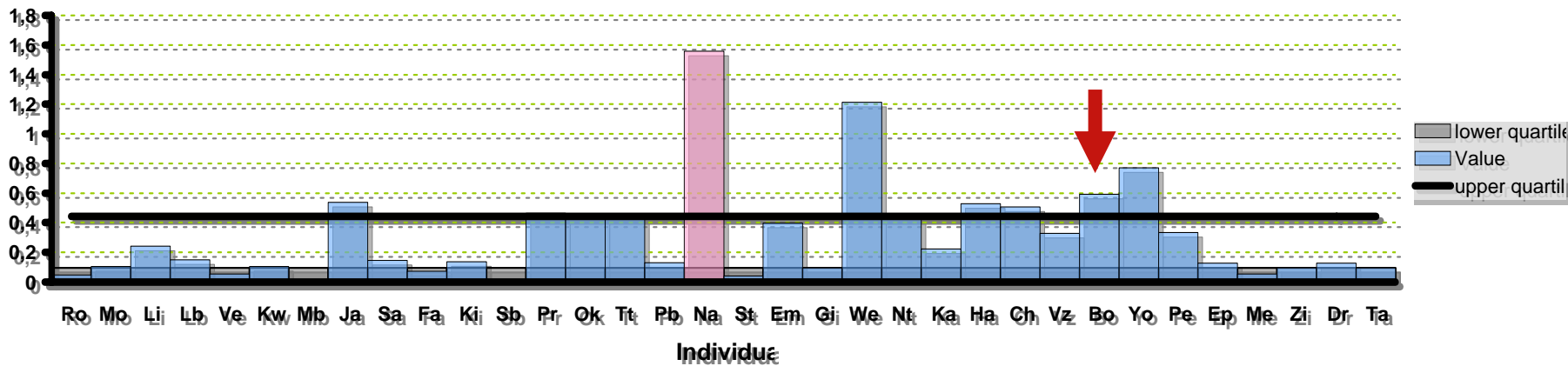
- Correlations with kin → Good proxy for relationship value
- Correlation with each other → Both measure a similar feature, namely a special relationship or friendship

Friendship in rhesus macaques

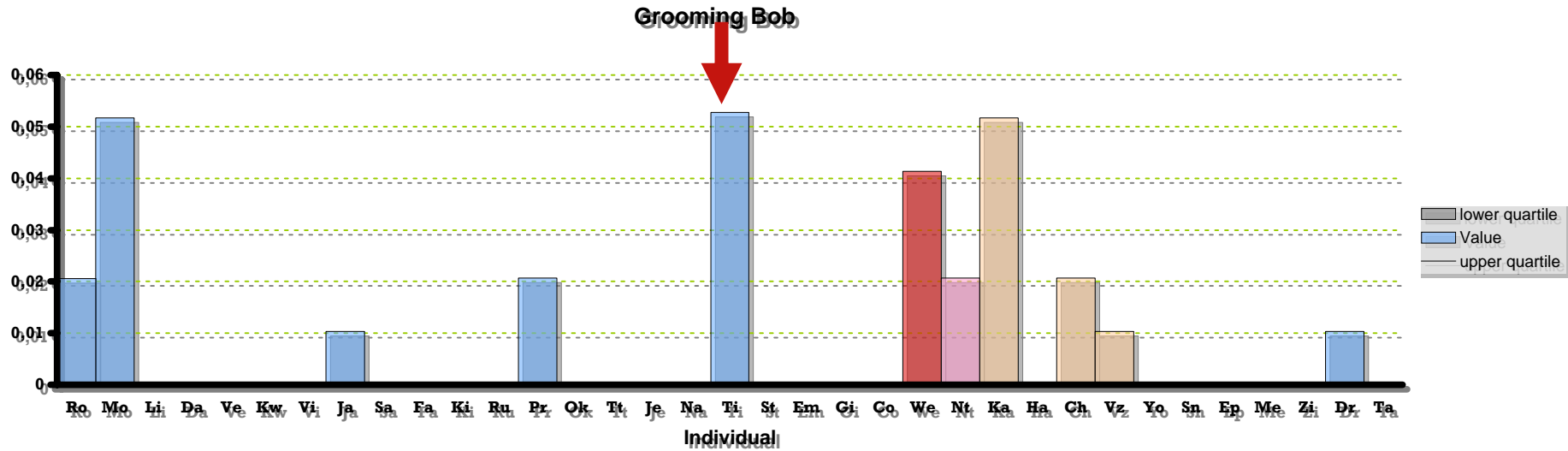
Contact Sitting Bob



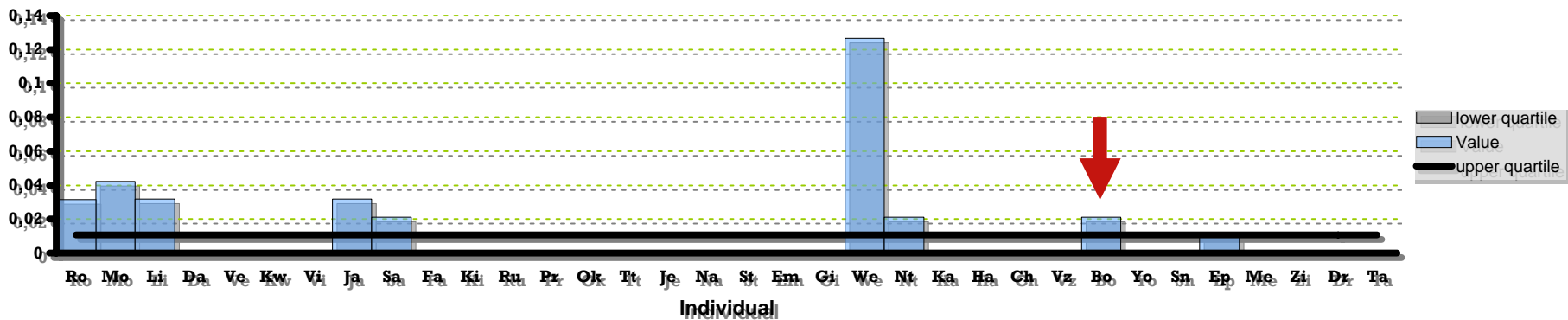
Individual Contact Sitting Tim



Friendship in rhesus macaques



Grooming Timon

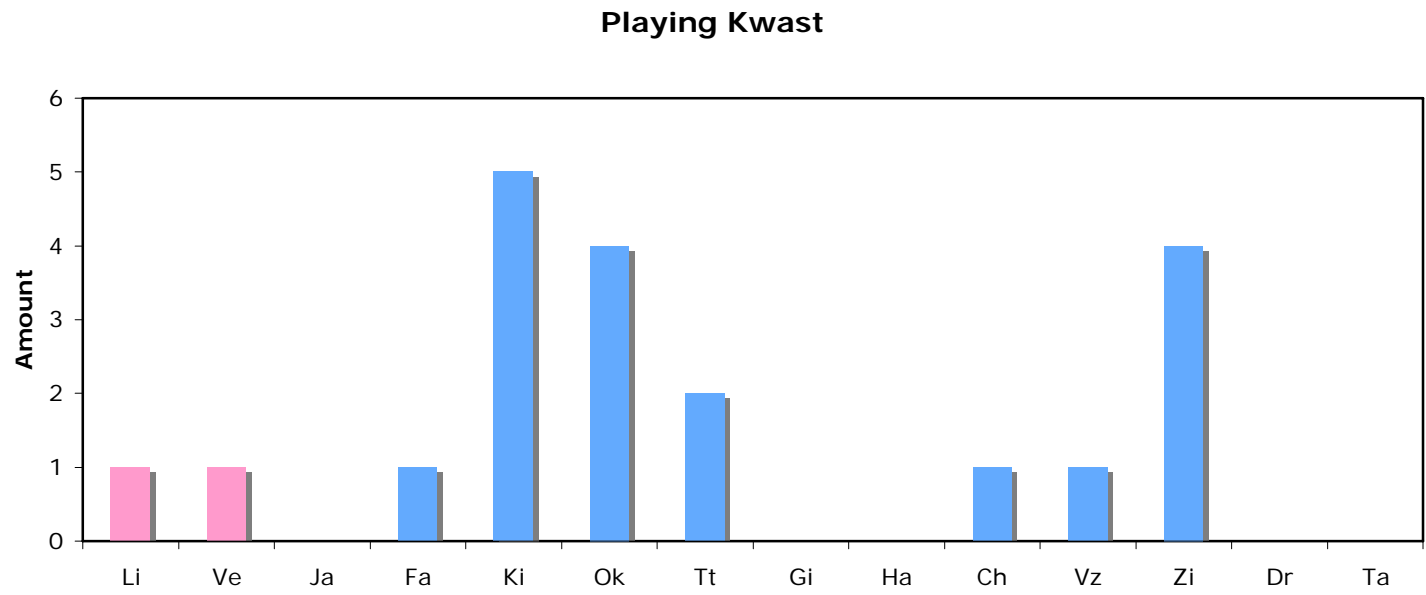


How do monkeys become friends

1. Ontogeny of friendship
2. Who become friends?

Ontogeny of Friendship

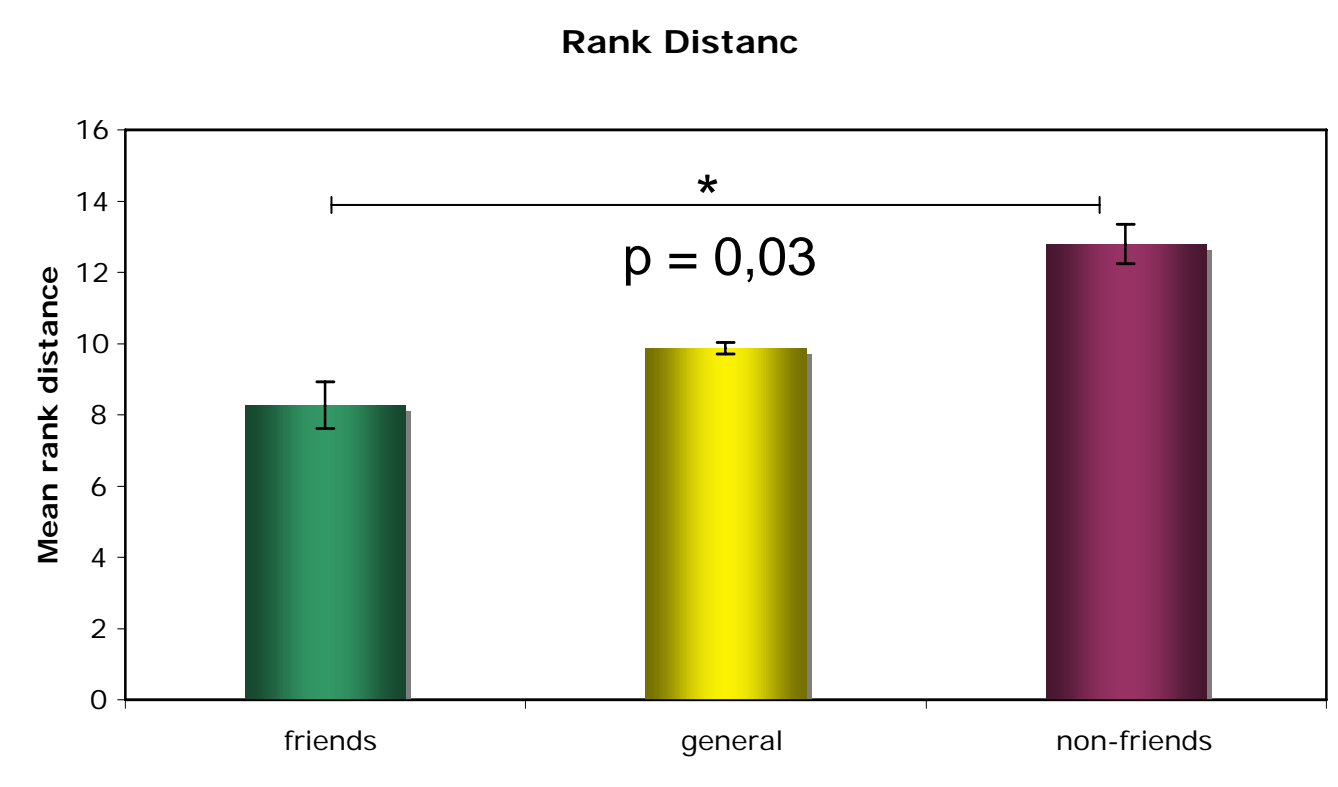
- Proximity
- Suggested by mother (de Waal 1990)
- Play(fighting) (Pellis 2002)



‘Choose your friends wisely’

-Friends with value (*Kummer 1978*)

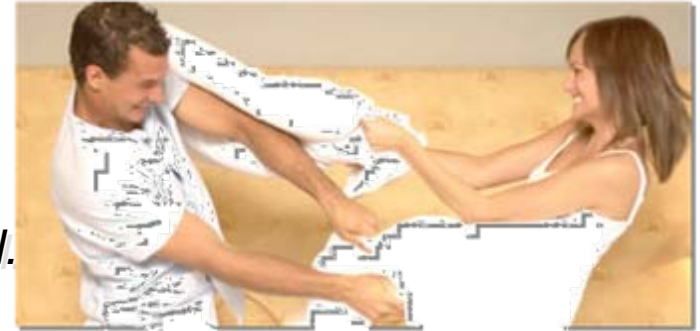
-Friendship is dyadic → small rank distances



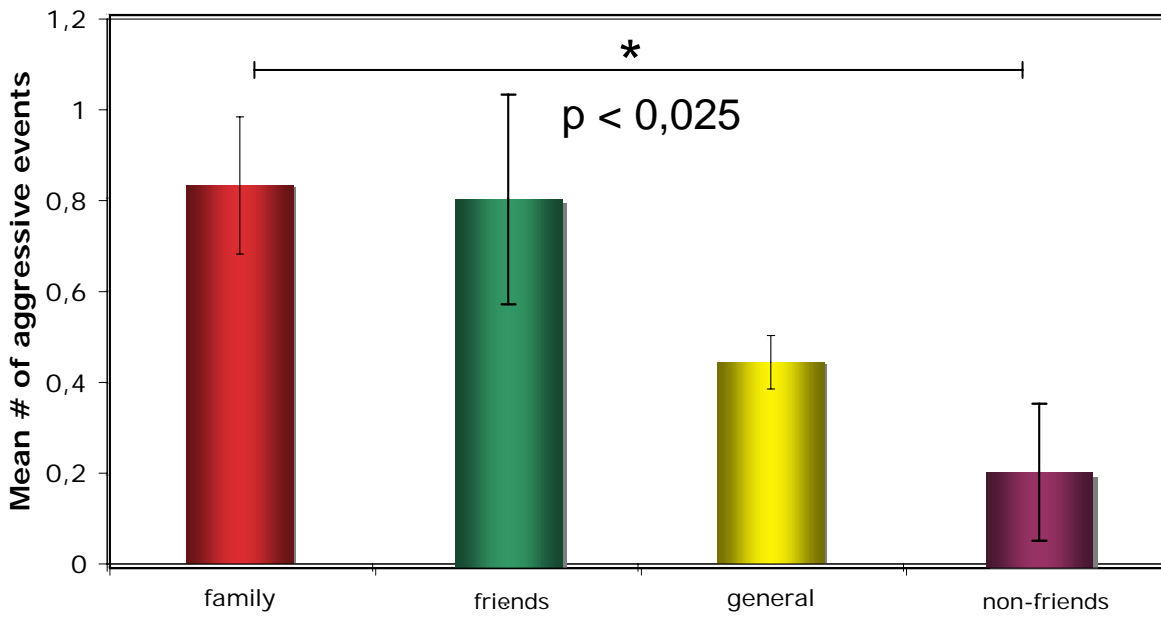
Friendship and Aggression

'Was sich liebt, das neckt sich'

Relatives show more aggression than non-relatives (*Bernstein et al. 1993*)



Aggression



!!Proximity!!

Friendship and Aggression

'Ame futte ji katemaru'
(old Japanese wisdom)

'After a rainfall, the ground gets firm'



More reconciliation among relatives than among non-relatives (*Aureli 1997*)

Several macaque species reconcile more with valuable partners (*Cooper et al. 2005; Cords & Thurnheer 1993*)

Measures



Humans

Diary method + initial and final questionnaires

Keep track of all interactions with the three persons during a period of one month.

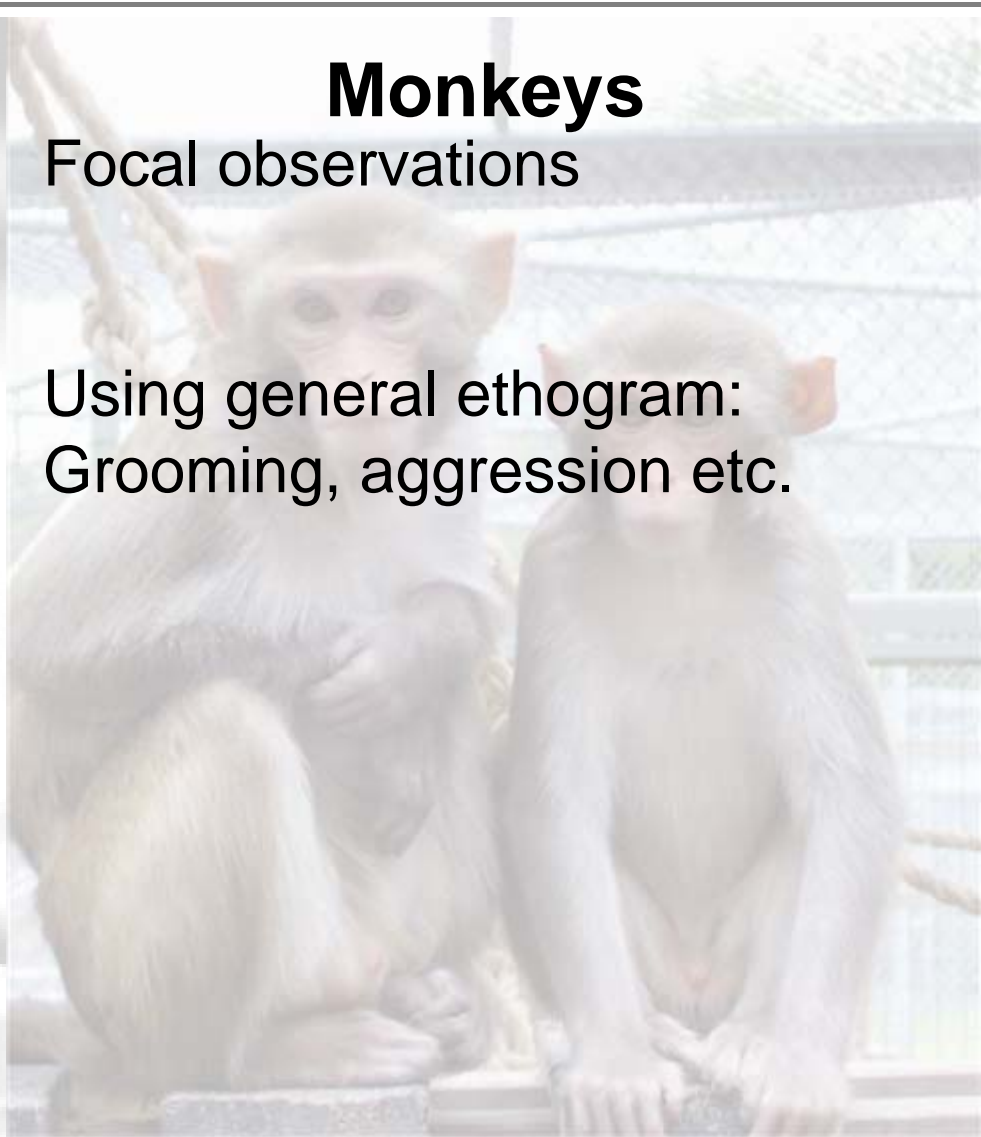
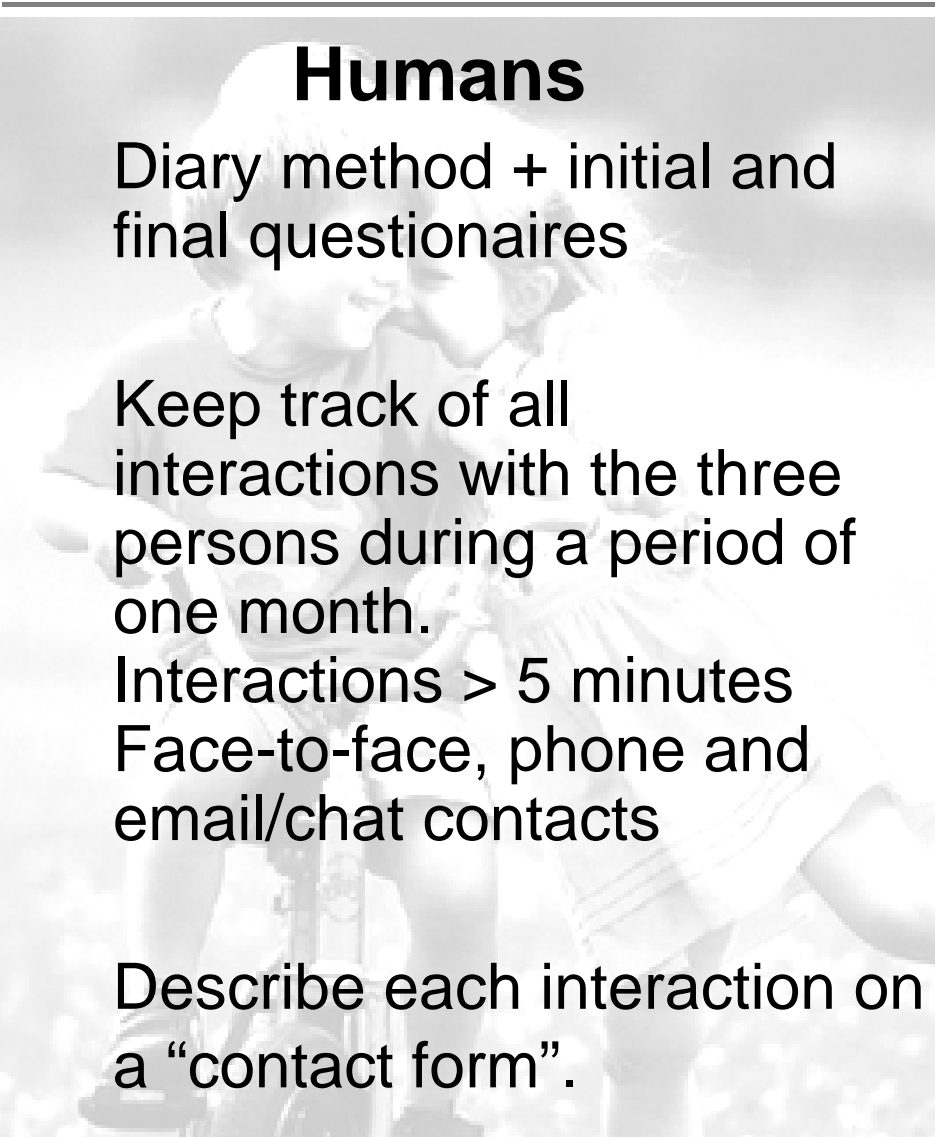
Interactions > 5 minutes
Face-to-face, phone and email/chat contacts

Describe each interaction on a “contact form”.

Monkeys

Focal observations

Using general ethogram:
Grooming, aggression etc.



CONTACTFORMULIER

Basic information about interaction: when, where, how, who?

Date: _____
Time: _____
Place (so precise as possible): _____

Describe what you did

1) Wat heeft u gedaan? Beschrijf zo precies mogelijk wat u heeft gedaan of wat de inhoud van het gesprek was.

Did the other person give something to you that costs money? What?

Nee.
 Ja, _____

Did you give something to the other person that costs money? What?

Nee.
 Ja, _____

Did the other person help you with something or do you a favor? What?

5) Heeft de andere persoon u ergens mee geholpen of een dienst verleend? (Zoals verhuizen, koken, dingen lenen). Zo ja, wat u zo precies mogelijk omschrijven wie wat heeft.
 Nee.
 Ja, _____

6) Hieronder staan enkele stellingen over het contact dat u met deze persoon heeft gehad.

Subjective evaluation of the interaction.

	1	2	3	4	5	6	7
Het contact was ontspannend/gezellig	1	2	3	4	5	6	7
Het contact heeft u geholpen met uw problemen	1	2	3	4	5	6	7
Het contact heeft u niet geholpen met uw problemen	1	2	3	4	5	6	7
Het contact heeft u niet geholpen met uw problemen	1	2	3	4	5	6	7
U heeft van de ander advies of informatie	1	2	3	4	5	6	7
Het contact was interessant	1	2	3	4	5	6	7
U heb wat geleerd van het contact	1	2	3	4	5	6	7
U verveelde me tijdens het contact	1	2	3	4	5	6	7
U ergerde me aan de ander	1	2	3	4	5	6	7
Het contact ging als verwacht	1	2	3	4	5	6	7
U was veel tijd kwijt aan het contact	1	2	3	4	5	6	7

Support Measures in humans

Examples of goods exchanged: Beer, food, lend money

Examples of services exchanged: A place to sleep, use of washing machine, doing the dishes

How to create a measure of balance of those commodities?

How to make those commodities comparable?

All were classified into 46 categories and rated by 12 raters, based on costs related to time, money, risk, and effort.

Based on these ratings, each commodity got an average score

Methods



Humans

- 1 Month
- Relationship Quality at t0 and t1
- According to RQ at t0 friendship classes:
1=best friend, 2=medium friend, 3=least best friend
- Only Friends

Monkeys

- 7 Months
- RQ at t1
- Friendship according to proximity & grooming
- Friends, Kin, General dyads & non-friends (foes)

Research Question

Are friends (close friends) more tolerant than non-friends (less close friends) towards imbalances in providing and receiving support, and can this imbalance be observed?

General reciprocity

Correlations given and received at group level

Humans

Goods: $R^2 = 0.61$ $p < 0.01$

Services: $R^2 = 0.60$ $p < 0.01$

Monkeys

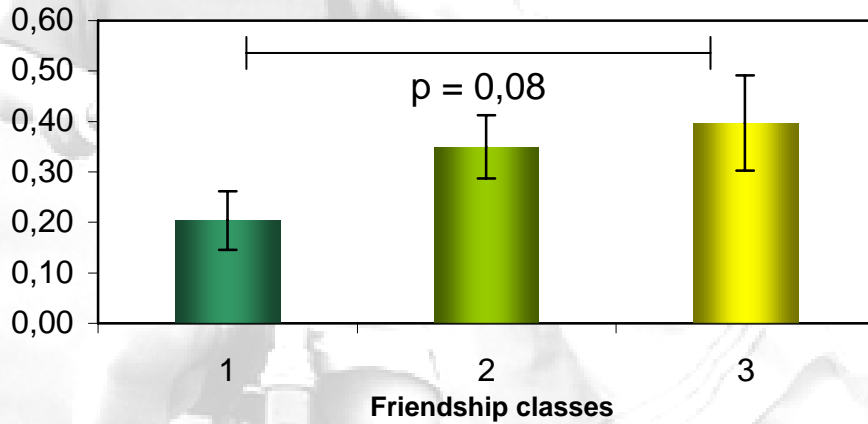
Grooming: Kendall's $\tau_{rw} = 0.37$ $p < 0.0001$

Balance and friendship

Absolute difference at dyadic level

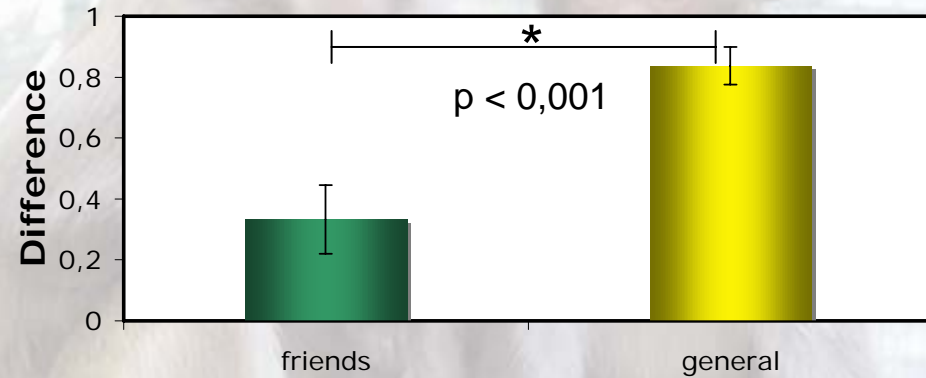
Humans

Absolute difference in resources exchanged
(corrected for total resources exchanged)



Monkeys

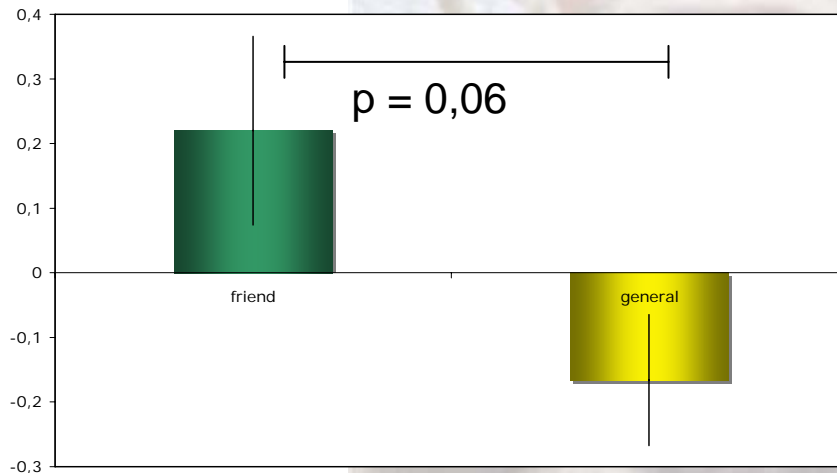
Absolute difference in grooming exchanged



Reciprocity and friendship

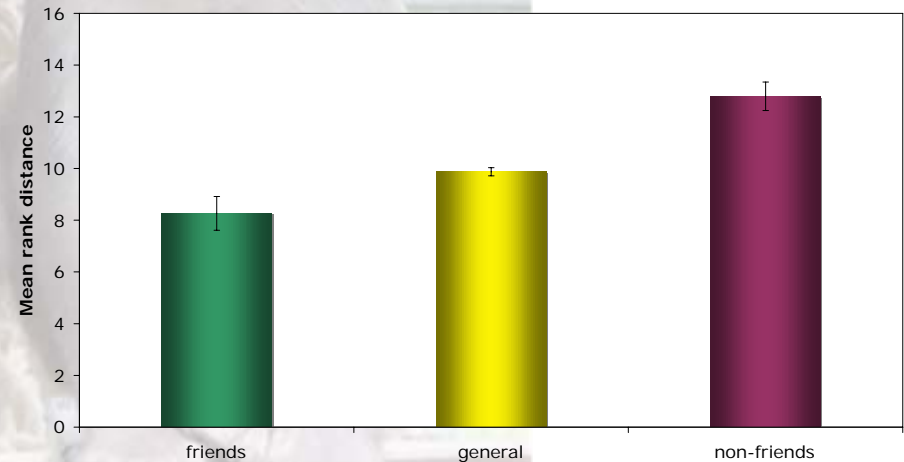
Monkeys and dominance effects

Grooming Dominant - Grooming Subordinate
(Corrected for total grooming exchanged)



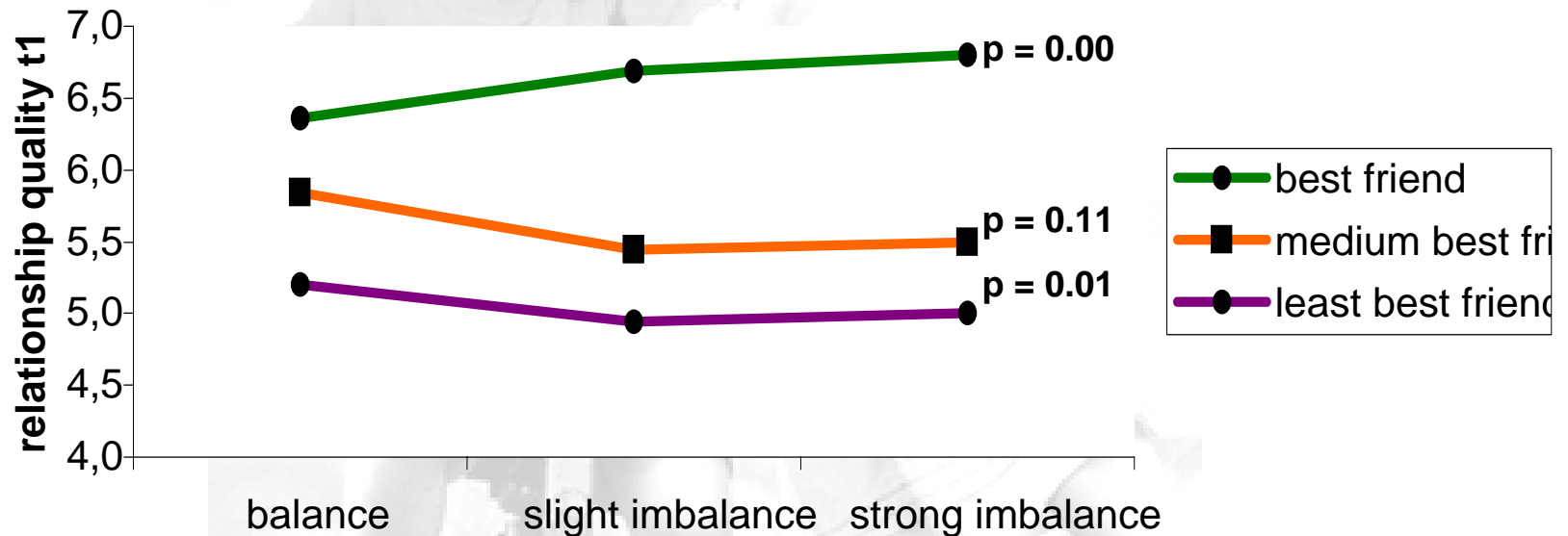
Grooming partners

Rank Distance



!!No effect if corrected
for rank distance!!

Human RQ at t1 as a function of balance



Preliminary conclusions

- Monkey 'friends' are close in rank
- Monkey 'friends' seem, just like kin, to show more aggression than non-friends, and consequently also more reconciliation.
- **(Best) Friends seem to have a more balanced relationships**
- In humans this might be due to a larger number of interactions
→ longer observations
- In monkeys this is due to smaller rank distances between friends

Preliminary conclusions

- People rate an imbalanced relationship higher
- Monkeys ?

- **Whereas the ulterior outcome of friendship seems to be a balanced exchange, the proximate mechanism behind it doesn't need to be the pursuit of this balance**

Comparative designs?



Humans

- Diary method
- Commodity: Material and non-material support
- Research population not a closed group
- Data of only one member of a friendship dyad
- Only Friends

Monkeys

- Observations
- Commodity: Grooming
- Research population is a closed group
- Data of both members of a friendship dyad
- All relations within a group

What's next?

Humans

- Need
- Data on elderly people

Monkeys

- Need
- Commodities: Sex, support e.o.
- Effect of Friendship on biological markets (Noë & Hammerstein 1994)
- Directed balance based on friendship rankings (RQ)?

Acknowledgements



Biomedical Primate
Research Center

Ruud Stas
Willem Ritter



Becso



Behaviour and
Cognition of Social
Systems

Han de Vries

The project group:

Henk de Vos (Sociology, Groningen)

Liesbeth Sterck (Behavioural Biology, Utrecht)

Abraham Buunk (Social Psychology, Groningen)

Rita Smaniotto (Sociology, Groningen)

Frans de Waal
Sarah Brosnan



Students:

Essi Kaartinen
Fleur

Hermanides Rick

Beugels

Questions or comments?



Friendship in Humans

Competitive altruism?

