



Trust and Resource Management:
How to Overcome the Detrimental
Effects of “Noise” and Misunderstanding

Paul A.M. Van Lange

VU University Amsterdam and Leiden University

(Collaborators: Johan Karremans, Anthon Klapwijk, Jaap Ouwerkerk,
Chris Reinders Folmer, Ann Rumble, Craig Parks, Mirjam Tazelaar, and Joel Vuolevi)



Groningen 1978





The generator (owned by a local smith) can provide energy for all ... if each household respects the following rules:

1. Max. temperature of 18 degrees (Celcius)
2. Max. One light per family
3. No television
4. No heated water

“Coziness does not know time”

(You lose track of time when it is cozy!)



Resource management

One of the key tasks for partners, friends, groups, organizations, nations, and groups of nations is to “manage” shared resources

e.g., Partners who only live to shop – paying no attention to overspending

e.g., Depleting natural resources (such as violating fish quota, consuming too much energy, as in Groningen)



Resource dilemma

1. Social dilemma:

Conflict between self-interest (take as much as you can) and collective interest (exercise restraint)

2. Temporal dilemma:

Conflict between short-term (often immediate) interest and long-term interest.

3. And the dilemma is experienced as a “take-some dilemma” (and not as a give-some dilemma)



Uncertainty in Resource Dilemmas

Social uncertainty

what do others do?

what do others intend to do?

Environmental uncertainty

what is the capacity of the resource?

how much harm causes my taking?

Future uncertainty

will there be technical solutions?

will the problem solve naturally?





Goal of this presentation

(1) to illustrate the importance of **noise** – which is strongly linked to uncertainty

(2) to illustrate the importance of “**representatives**” as decision makers: do they think as individuals?

Both issues have hardly been examined!

Uncertainty and Noise

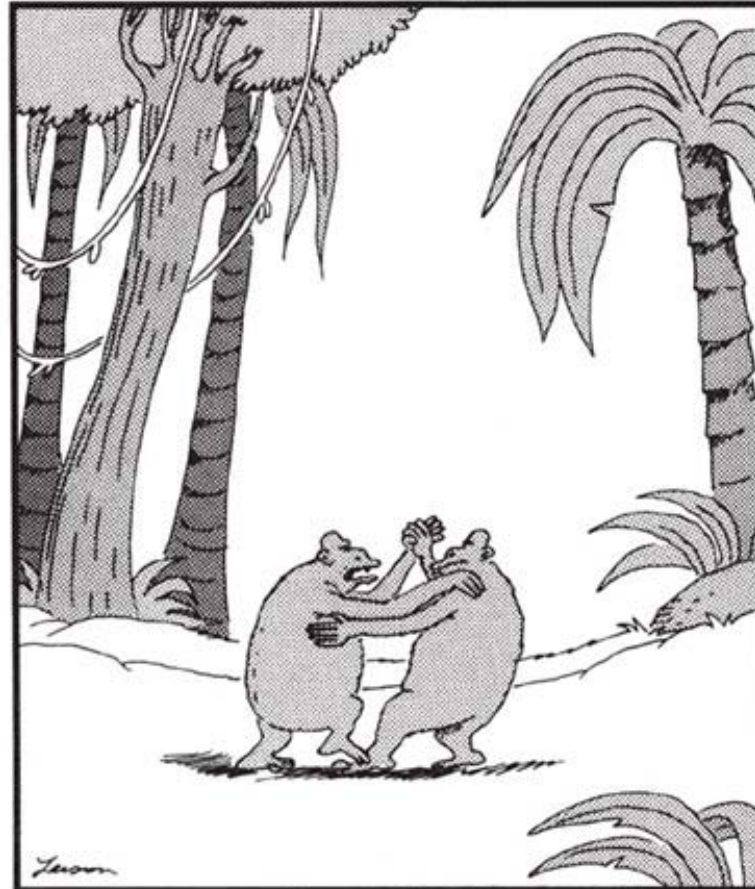
Noise refers to unintended errors that affect interaction outcomes.

Noisy situations are situations that are prone to unintended errors in interaction.



Outcomes for the other are perhaps less good than intended

(with mild consequences)



"I'm afraid you misunderstood. ... I said I'd like a mango."



Outcomes for the other are *certainly* less good than intended

(with somewhat more serious consequences)



Noisy situations often give rise to *misunderstanding* and *distrust* – especially when one provides another person with outcomes that are more negative than intended (negative noise).





The overall argument is that generosity is “functional” because most social dilemmas are *noisy*.

And in noisy social dilemmas, you need trust in order to reduce or eliminate the detrimental effects of noise – misunderstanding, distrust, and negative interaction.



Potential effects of (negative) noise:

- Confusion and misunderstanding:

“why didn’t she answer my email?”

- Distrust: “she does not care about me!”

- Negative Reciprocity:

“next time, I make her wait as well”



How do we examine the effects of noise?

Two paradigms – coins, parcel delivery

Noise = you want to give 5 coins but the computer changed your decision by subtracting 2 coins

Other's "strategy: Gives exactly as much as s/he received (reciprocity) or gives a bit more (generosity)



You have given the other 7 blue coins.

The other has given you 5 grey coins.

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

OK

Parcel Paradigm: Part A



The other is delivering your parcel. It depends on the other how much time this will take. A moment please!



Elapsed time:	2 seconds	(Total time is 25 seconds).
Earned by OTHER	1,20 euro	
Lost by YOU	2,80 euro	(Total budget of this round is 35,00 euro)

Parcel Paradigm: Part B



Click on the red arrows to move through the city

Seconds: 8

Earned by YOU 4,80 euro
Lost by OTHER 11,20 euro

Manipulation of Partner's Strategy

- TFT+1 behaves just a bit more cooperatively than the partner did (i.e., reciprocity with a bit of generosity) (or delivers on average 4 seconds quicker than the participants does)
- TFT reciprocates perfectly (no generosity).



Manipulation of Noise

Noise (absent versus present)

(Noise means that the computer is accidentally changing your decision; the actor is informed about noise, the recipient is not)

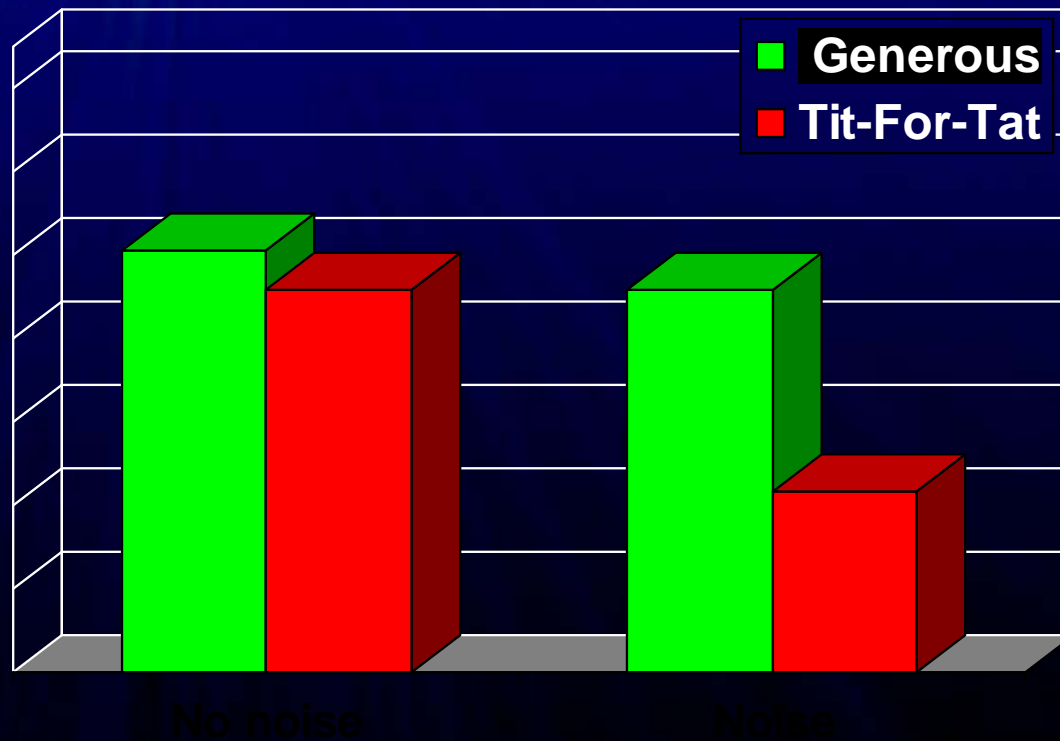
Noise valence (negative noise)

Noise intensity (minus 2 coins)

Noise frequency (8 of 53 trials, 15%)



Pattern of prior studies



- *
- Cooperation
- Trust
(Benign intent)

Does Retaliation Work?

- Only two choices: Cooperate vs Not Cooperate
- 50 interaction trials
- At trial 9, the preprogrammed partner always made a noncooperative choice
- Noise was not introduced – “trembling hand.”

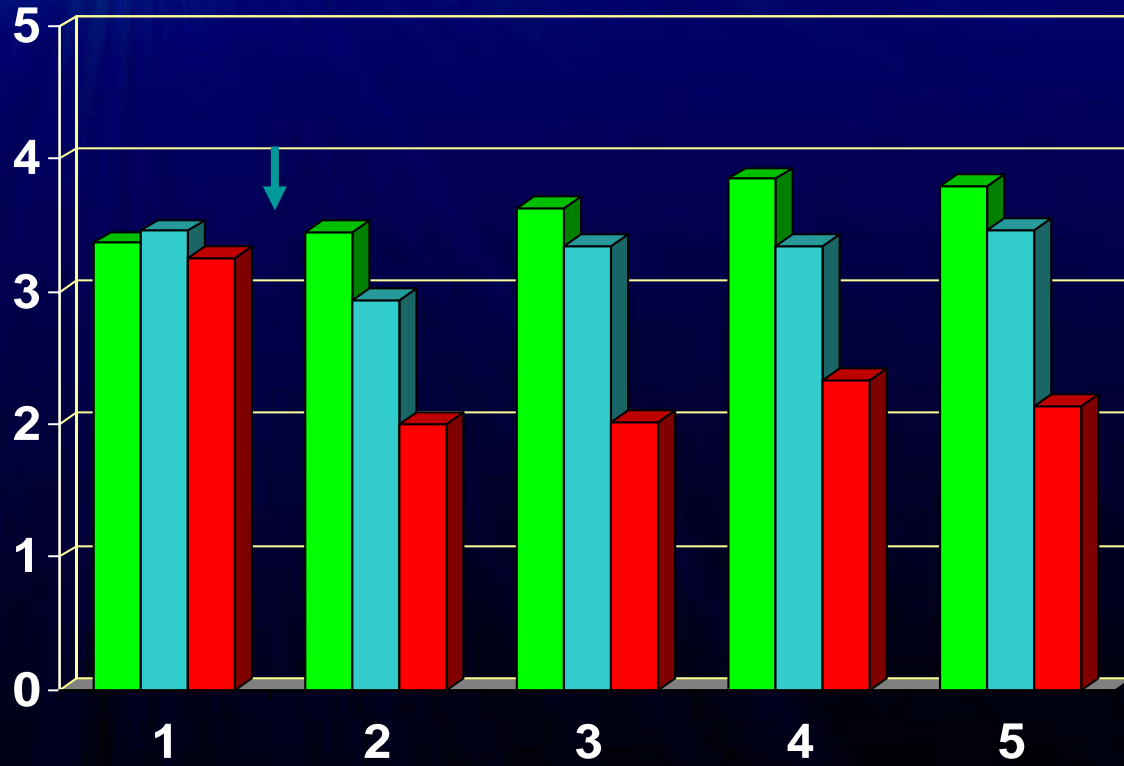


Forgive versus Retaliate



- Forgiving Tit-For-Tat:
responds noncooperatively only when the partner has made two noncooperative choices in a row
- Normal Tit-For-Tat:
responds noncooperatively after each noncooperative choice
- Retaliatory Tit-For-Tat:
responds noncooperatively twice after only one noncooperative choice by the partner

Cooperation



↓ Noise

■ Forgiving

■ Normal

■ Retaliatory





Noise is everywhere

(especially in resource dilemmas)

But often the relevant actors
Are not just individuals,
But representatives of groups

What kind of mindset do representatives have?

(This question has hardly been examined!)



Competitive mindset hypothesis

(1) reps hold stronger self-regarding and competitive goals

(2) reps believe that other reps hold stronger self-regarding and competitive goals



Manipulated *interaction type*

between representatives (VU vs UvA), individuals,
group members (VU vs UvA; control).

DVs: *interaction goals*

(MaxOwn, MaxRel, MaxJoint, MaxOther, MinDiff)

Interaction goals



Ring measure of social values:

24 choices
between two
divisions of
valuable points
between **self**
and **other**





Interaction goals (or social decision rules)

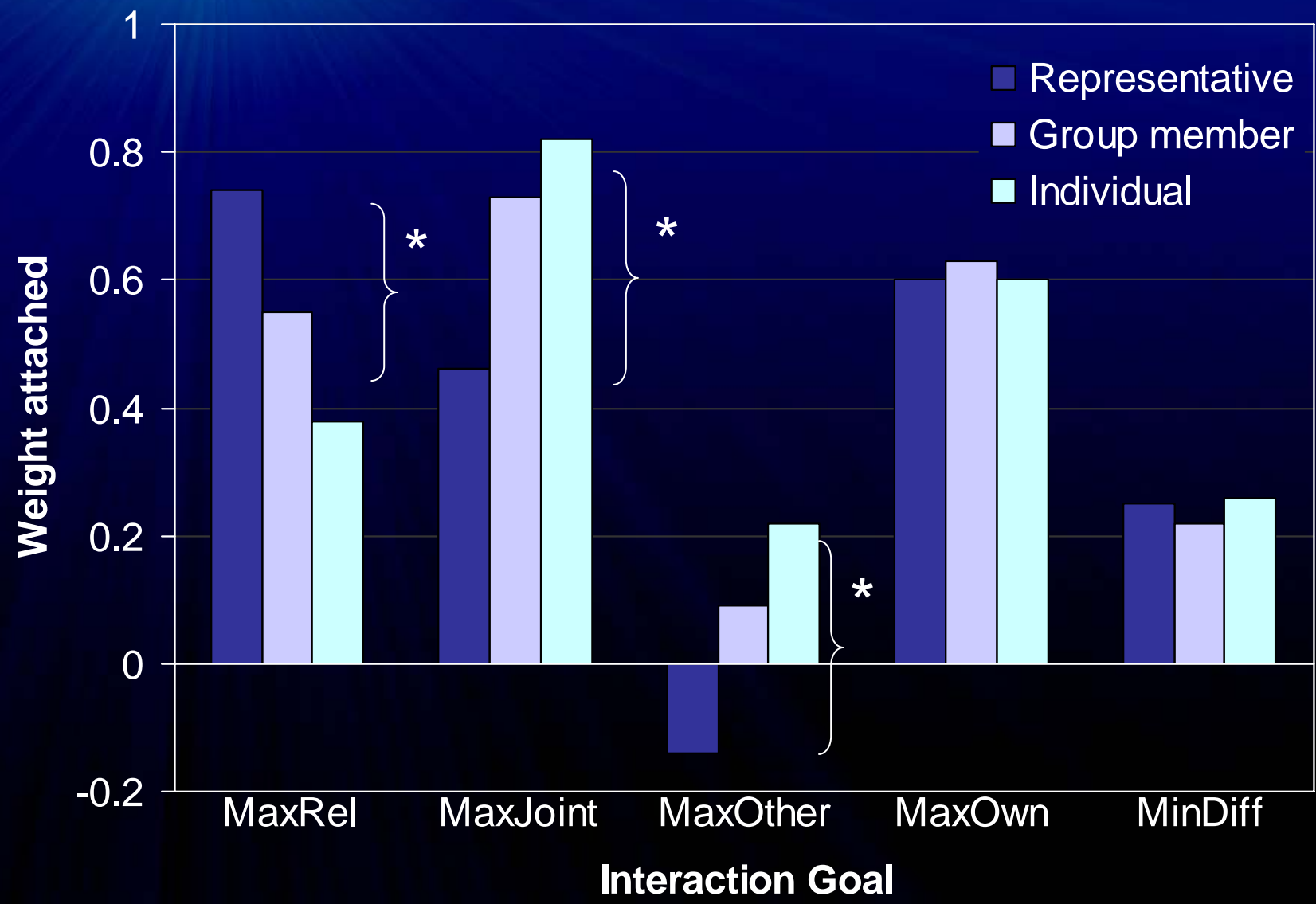
MaxOwn = weight assigned to OWN outcomes

MaxOther = weight assigned to OTHER's outcomes

MinDiff = weight assigned to equality in outcomes
(MINimization of absolute DIFFerences)

MaxJoint = weight assigned to JOINT outcomes
(MaxOwn + MaxOther)

MaxRel = weight assigned to RELative advantage over others
(MaxOwn – MaxOther)



Expectations

Do representatives hold more competitive expectations of one another?



Expectations

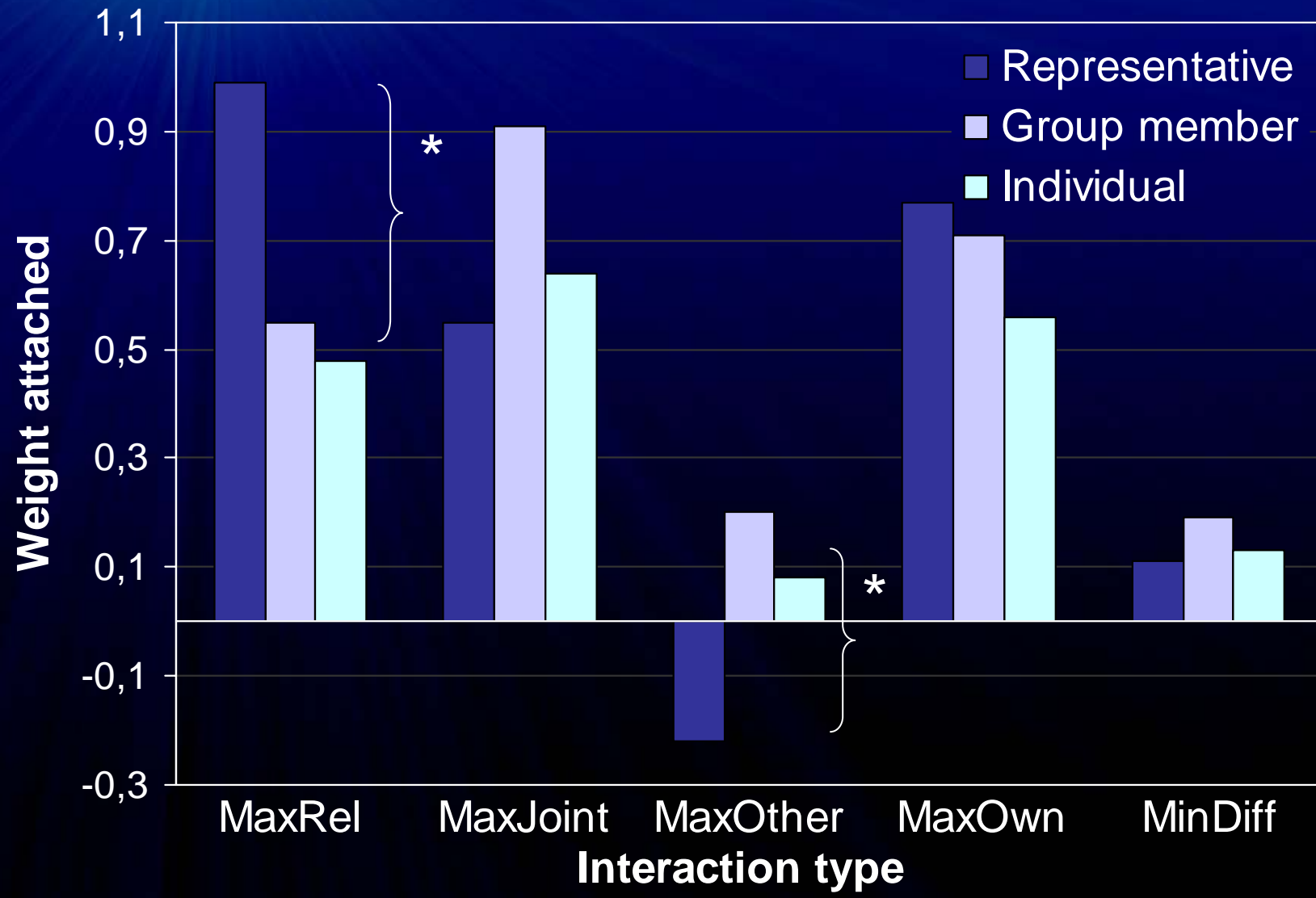
Adapted ring measure of social values

24 choices
between two
divisions of
valuable points
between **self**
and **other**



Participants choose the alternative they would expect their partner to choose in this situation





Cooperation

Interactions between representatives:
climate of distrust, competitive interactions?

Manipulated *interaction type*

between representatives (minimal group), individuals

Manipulated *noise or unintended errors*

present, absent

DV: *level of cooperation*

35-round social dilemma task

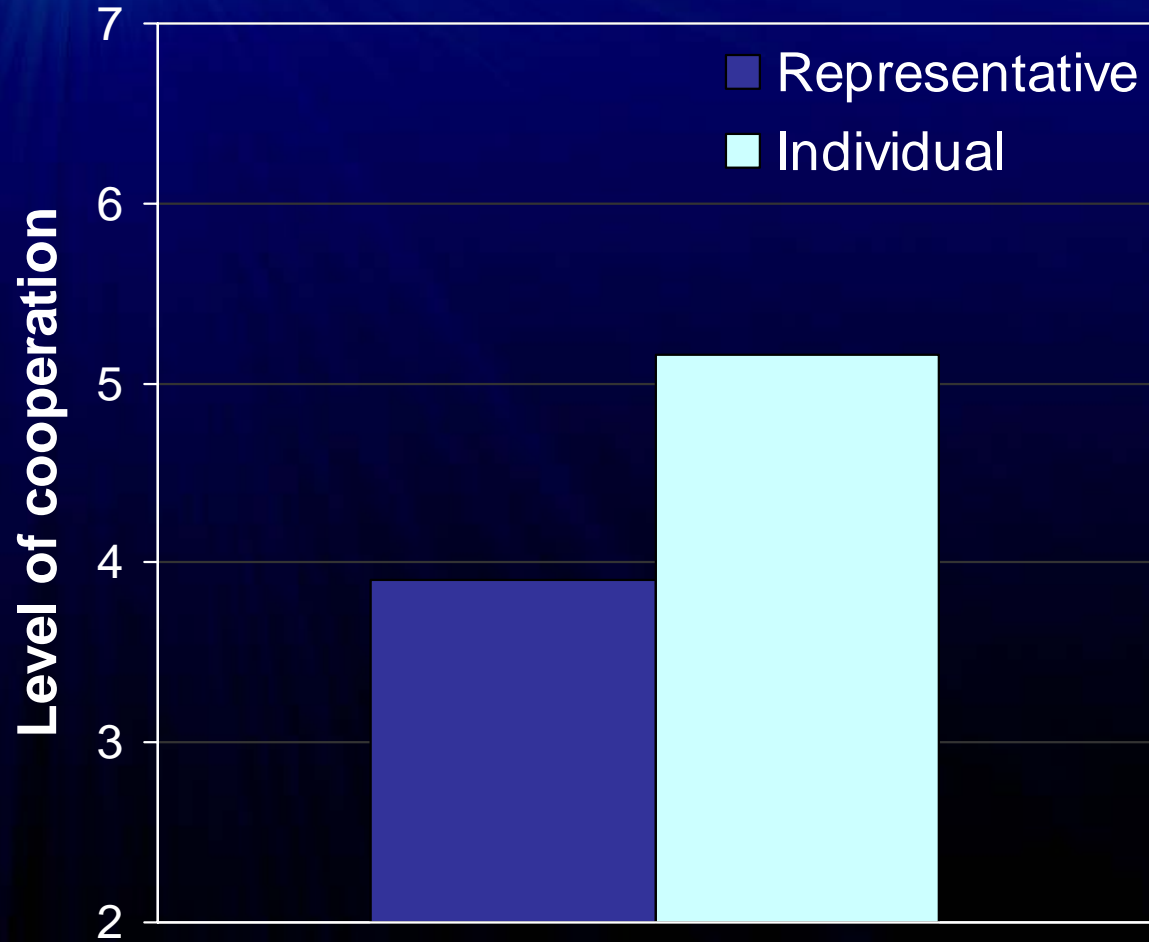




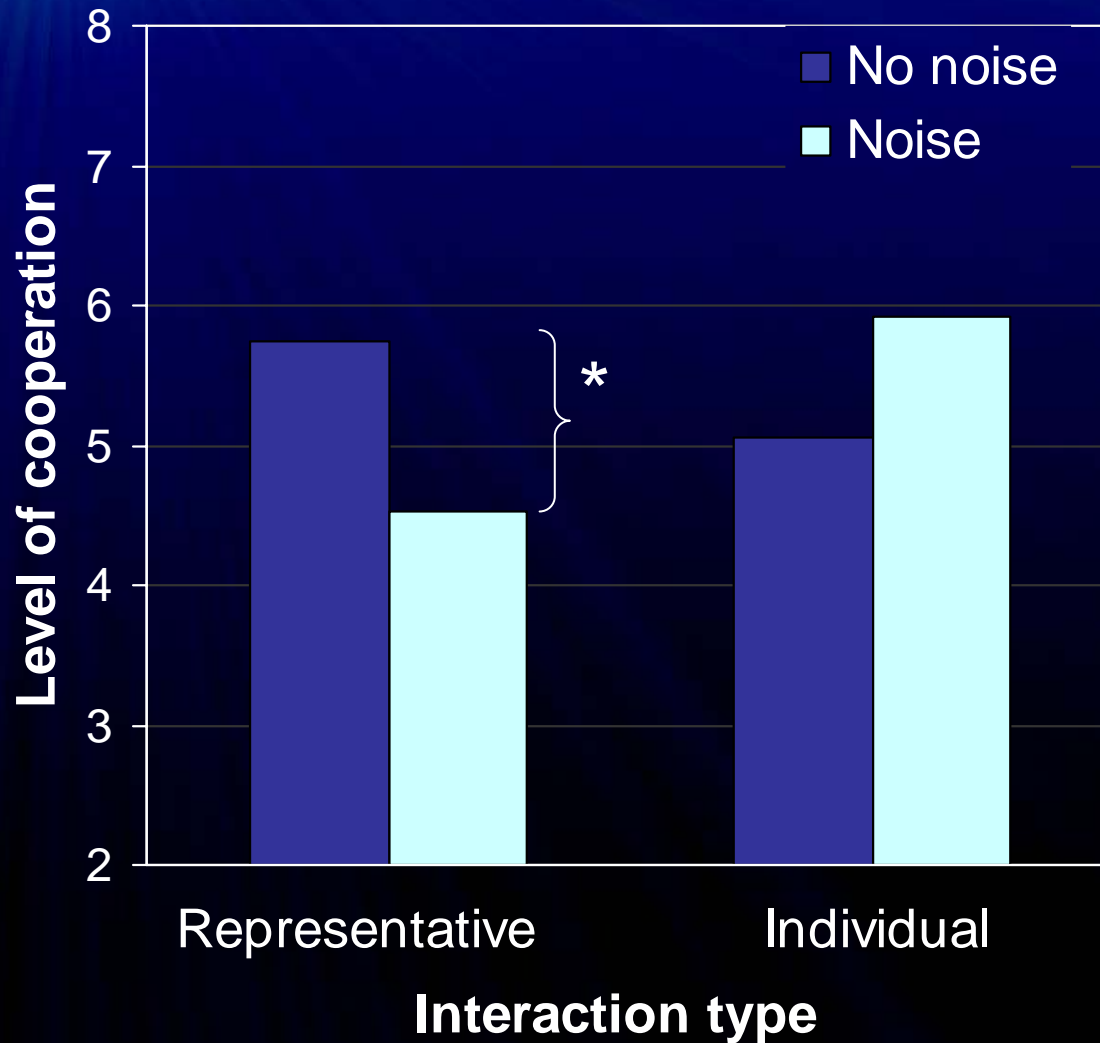
**Level of cooperation in first choice
(in the absence of noise and in the absence of
information about the other's choices).**

**Level of cooperation across the 35 trials as a
function of noise (versus no noise)**

First round – indicator of “trust”



Level of cooperation across 35 rounds





Conclusions

1. Resource management is complicated by noise (and uncertainty): noise undermines cooperation.
2. The undermining effect of noise is particularly relevant for representatives – who often make decisions “for us”.



Conclusions (continued)

3. Representatives are prone to hold a competitive mindset: I want to compete with the other rep., who is out to compete with me.

Potential mechanisms:

Accountability

Responsibility

Intergroup motivation/beliefs/morality

Major Challenge:

How can we enhance trust and cooperative motivation in representatives?

Competitive mindset may well be quite persistent.



Two Recommendations

1. Optimize clarity (open exchange of information) as it reduces noise.

(sometimes informal, “unusual” settings may help)





Two Recommendations (continued)

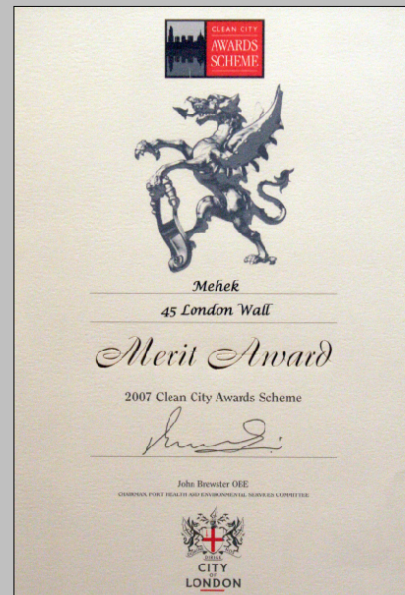
2. Competitive mindset sometimes can be “used” to the benefit of the society.

Install the Cleanest City Award!





After all: Wouldn't you be proud? Wouldn't your "group" be proud ... and proud of you?



Thank you!



Vrije Universiteit Amsterdam