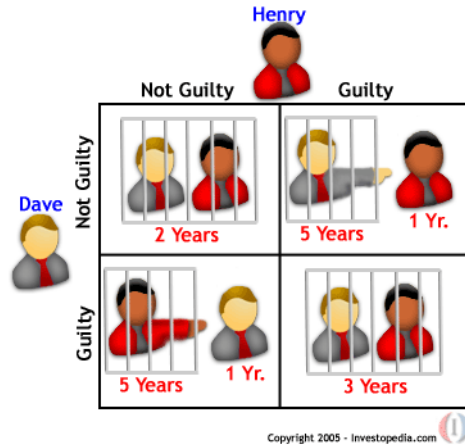


Emergence of Inefficient Social Norms

Andreas Diekmann, Felix Ries, Wojtek Przepiorka

VIU San Servolo, Venice, conference on
Analytical Sociology Nov. 2022

Social Dilemmas: Cooperation and Coordination Norms



3, 3	0, 5
5, 0	1, 1

Prisoner's dilemma

► Cooperation in social dilemmas: not „self-enforcing“, conflict of individual and collective interests. **Actor's interest is violating the norm (free rider problem).** Cooperation norm with sanctions will help attaining the efficient equilibrium.

Hobbes (Ullmann-Margalit 1977)

3, 3	0, 0
0, 0	3, 3

Pure coordination problem

3, 3	0, 0
0, 0	1, 1

Social trap (inefficient coordination)

e.g. Footbinding of women in ancient China (Mackie 1996)

3, 3	0, 1
1, 0	1, 1

Social trap (coordination failure, „Stag-hunt“)

► Coordination dilemma: „Self-enforcing“ (Nash-)equilibrium. Coordination norm „selects“ equilibrium. **Actor's interest is norm compliance.** There is no free rider problem.

Rousseau (Skyrms 2004)

- ▶ Coordination problems solved by conventions.
- ▶ **Conventions turn into social norms!** There is a strong tendency that behavioral regularities become social norms.
- ▶ The **degree of normativity** was strongest for turn-taking norms.

Previous study on
Norm emergence
with 3-VOD



for updates

SOCIUS



Original Article

How Norms Emerge from Conventions (and Change)

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Andreas Diekmann^{6,7}, and Luca Tummolini^{3,4}

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2022

„Sticky“ Norms*

Emergence of norms that are sub-optimal



Railroad crossing in Austria in 2021. Steam engines are not in service here for decades.

Foto Diekmann

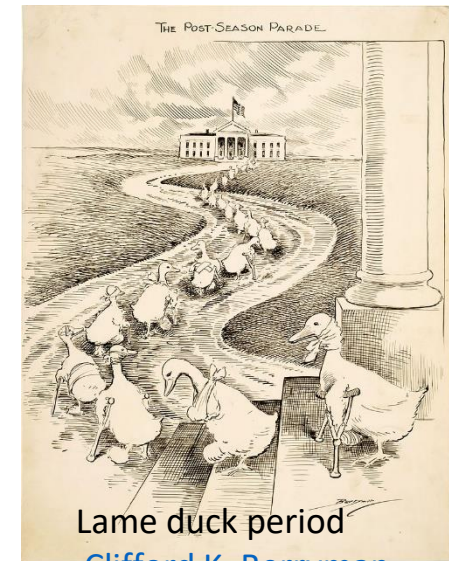
*Work in progress: Diekmann, Ries, Przepiorka; supported by DFG-grant to A. Diekmann

William Ogburn, Cultural Lag

A social norm is still in force although the purpose of the norm have long since ceased to exist.

Two examples from the US constitution:

- Four month „lame duck“ period (election day until inauguration of new president). This regulation was revised by the 20th amendment in 1933 (elections are held about six weeks before January, 20.) Why such a long „lame duck“ period? A representative had to travel by horseback or horse-drawn carriage to Washington in the 19th century. The rule survived railway travel by several decades.
- AMENDMENT [II.] A well regulated Militia, being necessary to the security of a free State, the right of the people to keep and bear Arms, shall not be infringed (Ratified December 15, 1791).
- ▶ **The second amendment is still effective despite an enormous change in weapon technology.**



Lame duck period

[Clifford K. Berryman](#),

Wikipedia Commons



British military musket 1812

By Tower [British Ordnance] - Missouri History Museum URL: <http://images.mohistory.org/image/89AD8CBB-7CC0-124A-FCD9-DB591F691D93/original.jpg> Gallery: <http://collections.mohistory.org/resource/82861>, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=61741662>



AR 15 rifle

Wikipedia By TheAlphaWolf - Derivative work of File:Stag2wi.jpg, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=16889739>

A different environment compared to 200 years ago

Repeated Prisoner's Dilemma, partner matching

Mutual cooperation

30

30, 30	10, 40
40 , 10	20, 20

30, 30	10, 40
40 , 10	20, 20

...

$T > R > P > S$

$(T + S)/2 < R$

Mutual cooperation

Is efficient (Pareto optimal)

Turn taking

$(60 + 10)/2$
= **35**

30, 30	10, 60
60 , 10	20, 20

30, 30	10, 60
60 , 10	20, 20

...

$T > R > P > S$

$(T + S)/2 > R$

Turn-taking is efficient

(Pareto optimal)

„Infinitely“ repeated PD, about 70 rounds, partner matching, 184 subjects in Leipzig Institute of Sociology Computer Lab, programmed in z-tree. Average payoff about 22 €.

Sequence 1 (about 35 rounds)

Sequence 2 (about 35 rounds)

Mutual cooperation efficient

Mutual cooperation efficient

A Control

30, 30	10, 40	30, 30	10, 40
40, 10	20, 20	40, 10	20, 20

...

30, 30	10, 40	30, 30	10, 40
40, 10	20, 20	40, 10	20, 20

...

Mutual cooperation efficient

Turn taking efficient

B Coop first

30, 30	10, 40	30, 30	10, 40
40, 10	20, 20	40, 10	20, 20

...

30, 30	10, 60	30, 30	10, 60
60, 10	20, 20	60, 10	20, 20

...

Turn taking efficient

Mutual cooperation efficient

C Turn-taking first

30, 30	10, 60	30, 30	10, 60
60, 10	20, 20	60, 10	20, 20

...

30, 30	10, 40	30, 30	10, 40
40, 10	20, 20	40, 10	20, 20

...

A = Mutual cooperation is efficient (Pareto-optimal) in both sequences.

B = Mutual cooperation is efficient in sequence 1, turn-taking is efficient in sequence 2

C = Turn-taking is efficient in sequence 1, mutual cooperation is efficient in sequence 2

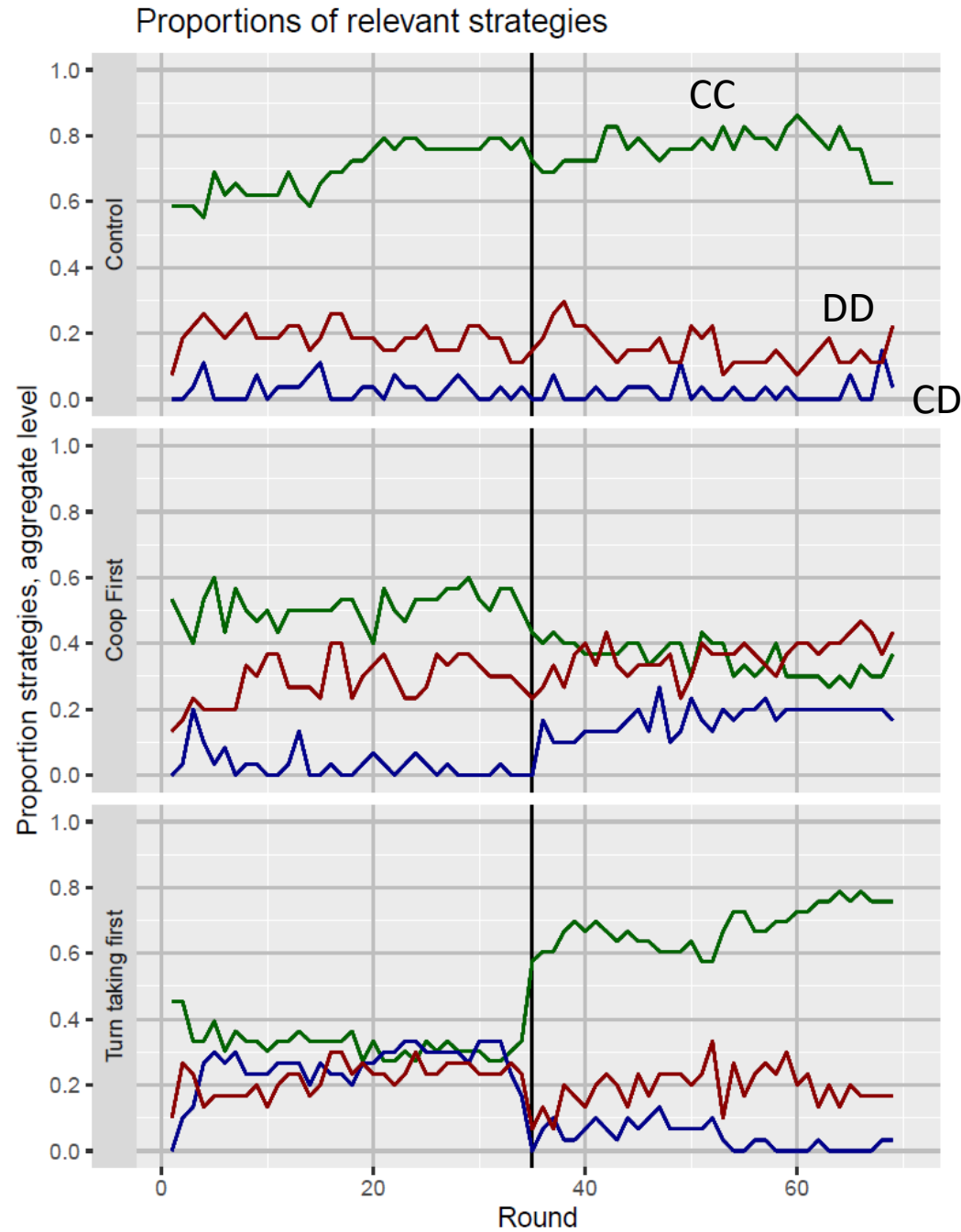
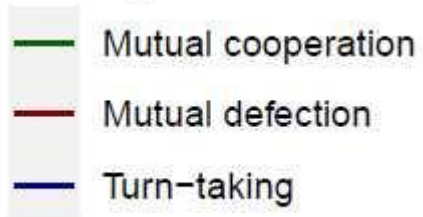
Stickiness of norms: Mutual cooperation despite optimal turn taking.
Or turn-taking despite optimal mutual cooperation. (Probanda keep the learned behavior even when the rule is no longer adapted to the environment).

Hypotheses

1. Evolution of mutual cooperation when cooperation is optimal (efficient Nash eq.).
2. Evolution of turn-taking when turn-taking is optimal (efficient Nash eq.).
3. Norms are sticky after the environment has changed.
4. The stickiness of norms is stronger for turn-taking norms compared to cooperation (turn-taking was the strongest norm in a previous experiment).

Preliminary results,
experiment conducted
in April 2022, N = 184,
Average earnings
about 22 €.

Proportion strategies,
aggregate level

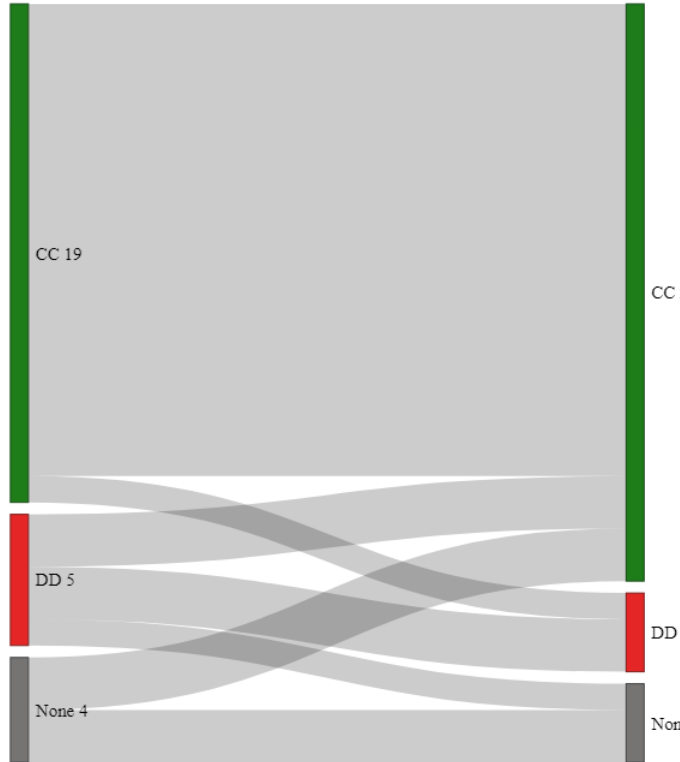


A Control

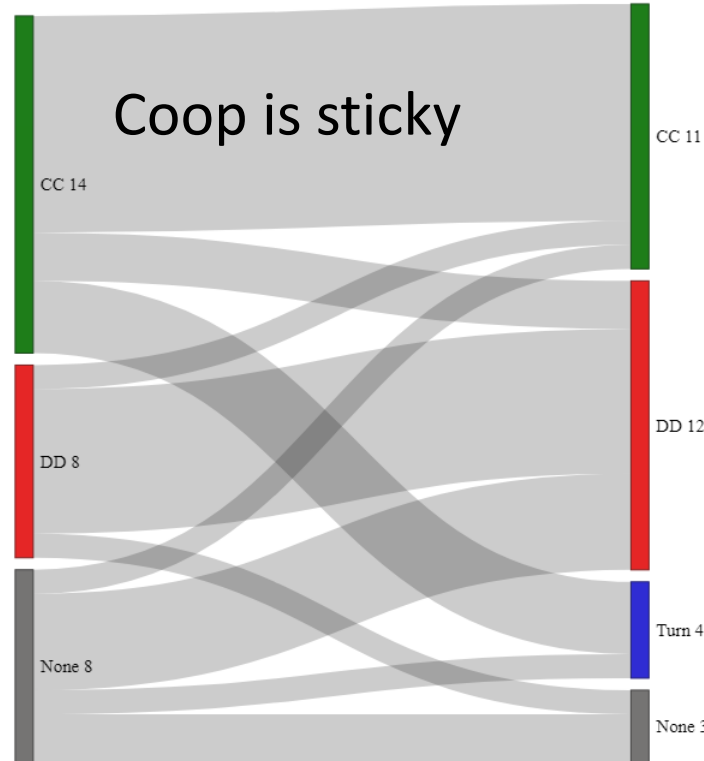
B Cooperation first

C Turn-taking first

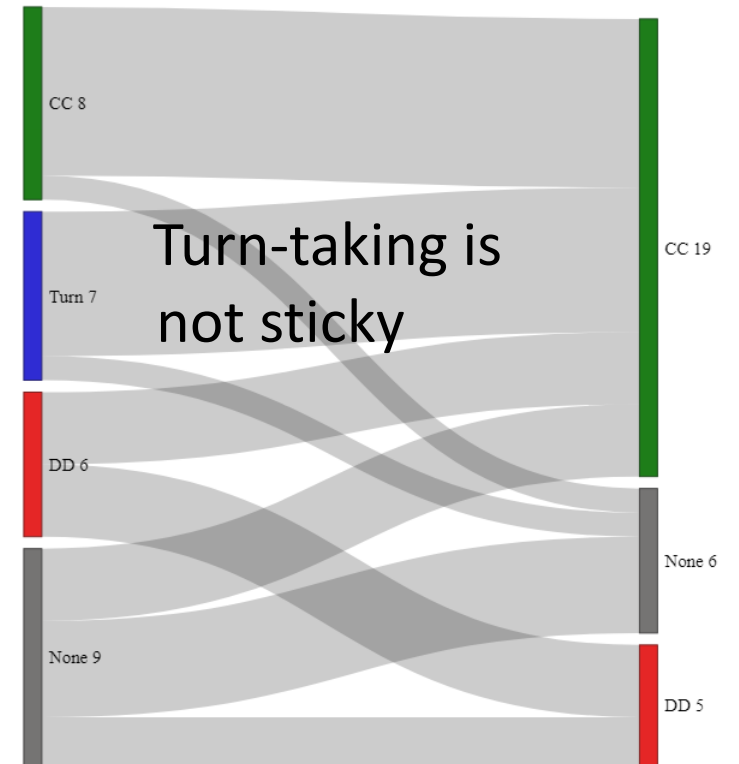
A Control



B Cooperation first

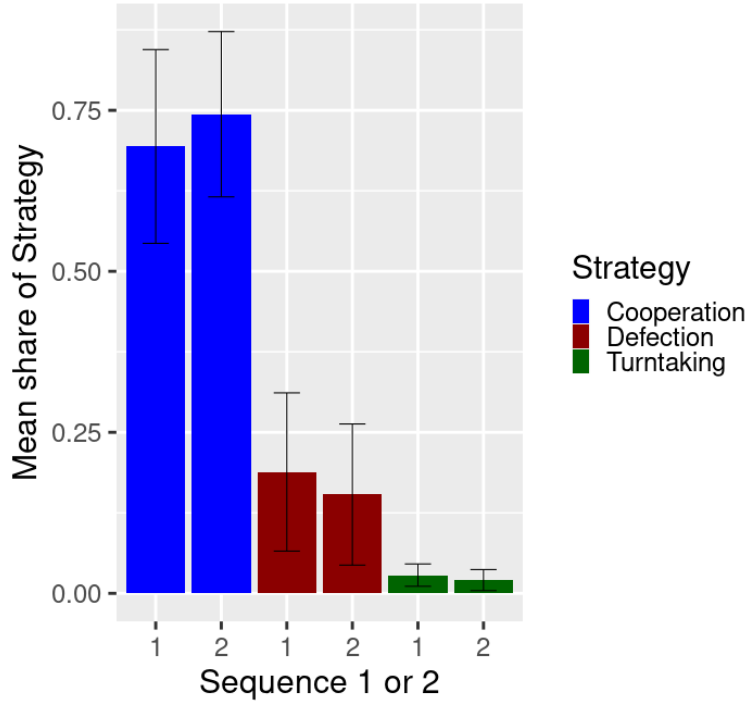


C Turn-taking first



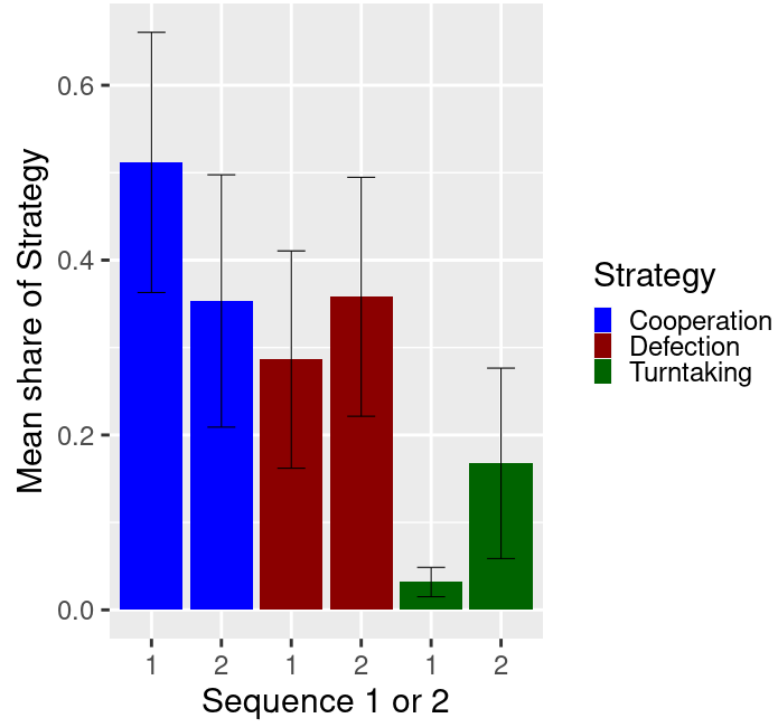
1. Evolution of cooperation in coop-sequences (highest proportion in control)
2. Turn-taking in C (turn-taking first) is 24 % (8 of 33) and 13 % (4 of 30) in B (Coop first, sequence 2)
3. Stickiness of norms is larger in coop first condition B than in turn-taking condition C! ($t = 3.5254$, $df = 29$, $p = 0.001426$).

Treatmentgroup: Control



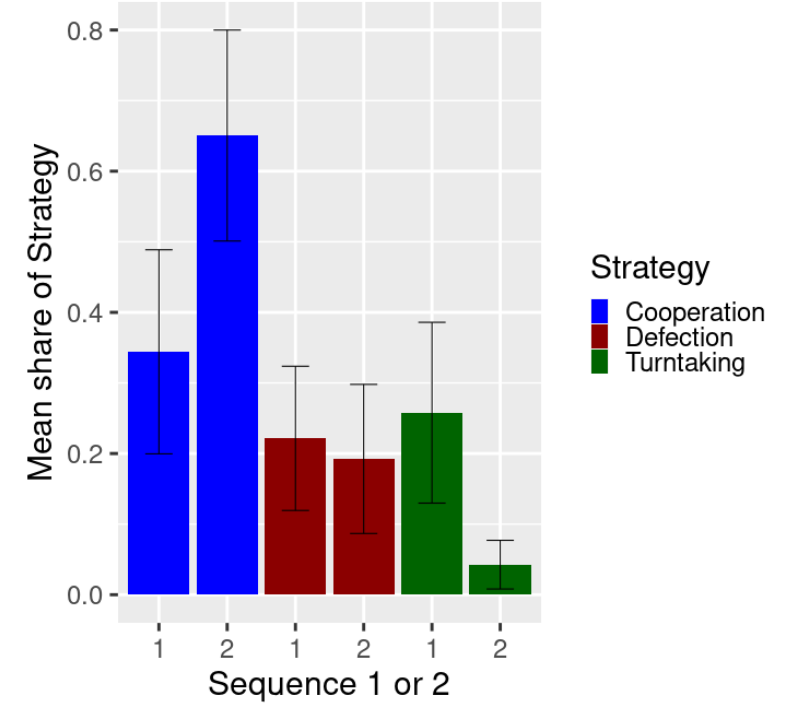
Efficient Nash-equilibrium strategy is predominant

Treatmentgroup: Coop First



Sticky norm (probandes stick to cooperation in phase 2, (blue columns))

Treatmentgroup: Turntaking First



Turn taking is less sticky!
Switch to efficient cooperation in phase 2

Is this research on social norms of practical use?

Examples:

- Mask wearing in pandemic (became a new social norm in the West)
- Changing FGM (female genital mutilation) in development projects
- Use of malaria nets
- Energy saving
- ...

See Bicchieri, 2016. Norms in the Wild, for examples.

► We also measured normative and descriptive expectations:
work in progress ...

Why is the „sticky norm“ issue important?

Climate Change is an example

- Mitigating climate change requires new social norms and institutions (CO2 pricing, emission certificates, ...).
- Many norms and institutions conserve the old fossil regime (from urban planning to gasoline to subsidies for commuters)
- A coordination problem with a „bad“ and a „good“ Equilibrium.
- The cooperation and free rider problem is prevalent during the transition period.

3, 3	0, 0
0, 0	1, 1

Old social norms stabilize a bad equilibrium