Something from nothing: Agency for deliberate non-actions

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Agency := “the feeling of control over one’s own actions and, through these actions, also over events in the environment.“
(e.g., Haggard, 2008, 2009, […] 2019)

Research question: Does agency also emerge similarly for the consequences of deliberate non-actions?
Agency for non-actions

- Quebec Charter of human rights and freedoms, chapter 1, art. 2
- Quebec’s Highway Safety Code, art. 168
- Criminal code, art. 216
- Civil code of Quebec, art. 1471

N/A
Failure to render assistance

§323c
Strafgesetzbuch

article 223-6
Code pénal

artículo 195
Código penal
Measuring agency (e.g., Dewey & Knoblich, 2014)

- Explicit, subjective ratings
  
  „How strongly did you feel to have caused the tone?“

  ![Visual Analogue Scale (VAS)]

- Temporal binding (implicit)
Design - Basics

Condition cue
Pre-activation

Free choice
Forced action
Forced nonaction

Start screen  Response  Ball movement

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Design – Details ($N=32$)

- Baseline
- ITI 2000 ms
- Pre-activation 500 ms
- Condition cue RT / $RT_{non}$
- Ball movement 375 ms
- Blank 500 ms
- Question (until feedback)

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Results

\[ \text{SE}_{PD} = \text{Standard Error of Paired Differences} \]
\[ \text{CI}_{SM} = \text{Confidence interval for effect sizes} \]

(Pfister & Janczyk, 2013)

(MBESS; Kelley, 2018)
Interim conclusions

- Participants indeed feel agency for non-actions and their consequences, as long as they can make a choice.

- Agency is less pronounced for non-actions as compared equivalent actions.
Measuring agency (e.g., Dewey & Knoblich, 2014)

- Explicit, subjective ratings

  „How strongly did you feel to have caused the tone?“

- Temporal binding (implicit)
Temporal binding

Haggard et al. (2002)

Baseline blocks

„Operant“ blocks
Temporal binding

- Action binding
- Effect binding
- Shifts

Baseline
Operant

Actual occurrence
Reported occurrence

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Experiment 2 – Design ($N=34$)

Operant condition

- 300 ms
- "Please wait for at least half a turn!"
- $RT_{\text{non-action}} = (\text{mean } RT + \text{mean } RT + \text{last } RT) / 3 + 600 \text{ ms}$

Baseline condition

- 750-5120 ms after clock onset
Agency Ratings

Operant condition

300 ms
adaptive

Baseline condition

Please enter time of tone:

Agony rating [%VAS] \pm SE_{pd}

Action
Nonaction

Δ ± SE_{M}
70
60
50
40
30
20
10
0
Temporal binding
Replications \(N_{\text{Exp. 3A}}=34; N_{\text{Exp. 3B}}=40\)
Conclusions

- Deliberate non-actions evoke agency not only on subjective but also on implicit measures (temporal binding).

- The degree of agency for non-actions and their consequences is consistently lower than for actions.
Relations

- „The action effect“ (Kahneman & Tversky, 1982): More regret for negative outcomes of an action as compared to negative outcomes of inactivity (at least on short timescales)

- „Principles of harm“ for moral decisions (Cushman et al., 2006; Greene et al., 2009): Harm caused by action is worse than harm caused by omission
Early interpretations: Temporal attraction between action and effect reflects „intentional binding“ of a willed action and its outcome (Haggard et al., 2002)

Emerging consensus: Intentions do not determine temporal binding in typical experimental setups (e.g., Kirsch, Kunde, & Herbort, 2019)

Current setup: Only intention differs between non-actions and baseline trials!
Onwards

**Action planning and initiation:**

- **Response-effect learning** (e.g., Elsner & Hommel, 2001; Kühn et al., 2009)
- **Response-effect compatibility** (e.g., Kunde, 2001; Pfister & Kunde, 2013)

**Perception in action:**

- **Sensory attenuation** (e.g., Weiss et al. 2011; Schwarz et al., 2018)
- **Agency & temporal binding** (e.g., Haggard et al., 2002; Ruess et al., 2017)
Thank you!


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