

On Recurrence and Stereotypy in Cultural Information

Kristoffer L. Nielbo

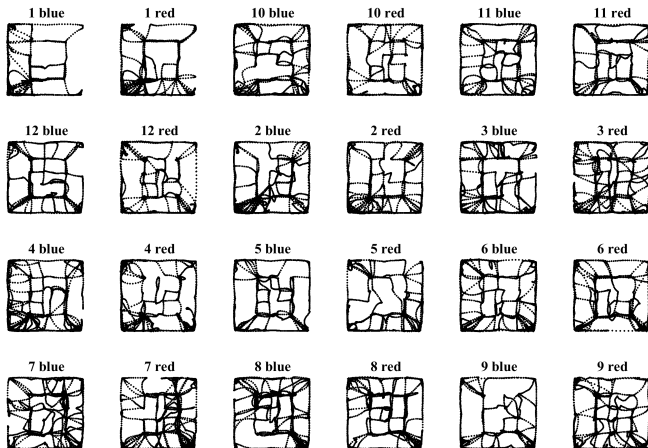
DTL|Digital Arts Initiative
Interacting Minds Centre|Aarhus University



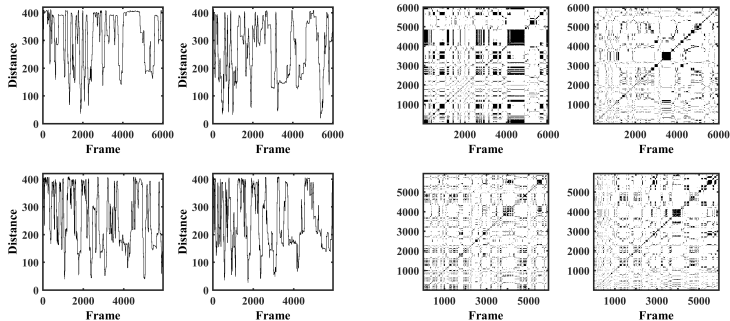
Stereotypy

- ▶ repetitive motor activity with no apparent goal
- ▶ motor stereotypies in posture, movement and speech can signal a **mental disorder**
- ▶ used creatively in **cultural displays** and arts
- ▶ quantification of **recurrence** in behavior and language can be used to track stereotypy

Rat movement

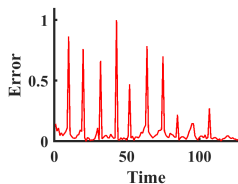
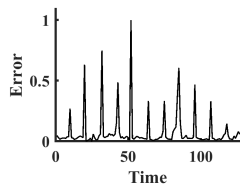
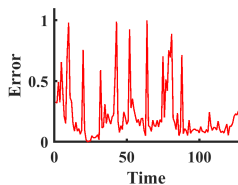
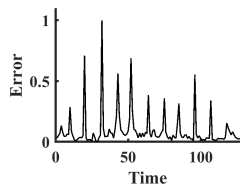


Rat coordination



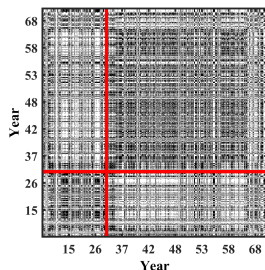
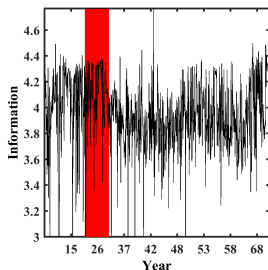
Dorfman, A., Nielbo, K. L., I& Eilam, D. (2016). Traveling Companions Add Complexity and Hinder Performance in the Spatial Behavior of Rats. *PloS One*, 11(1).

Cultural behavior



Nielbo, K. L., & Sorensen, J. (2015). Attentional resource allocation and cultural modulation in a computational model of ritualized behavior. *Religion, Brain & Behavior*, 1–18.

Change detection in historical writings



<http://www.grundtvigsværker.dk>

Baunvig K. F. & Nielbo, K. L. (accepted). Tidens Stroem – the flow of time: Temporal dynamics in N.F.S. Grundtvig's collected writings.

Jens Hansen havde en bondegård

Jens Hansen havde en bondegård

Lirum Larum Lej

Og på den gård der var en ko

Lirum Larum Lej

Det var muh muh her

det var muh muh der

det var muh her, muh der

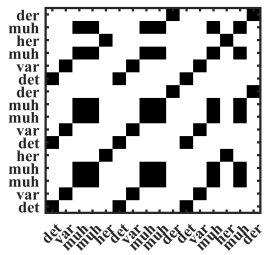
alle steder muh

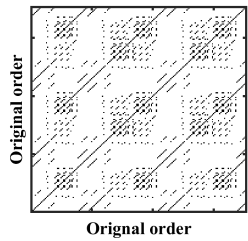
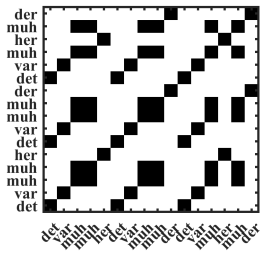
Jens Hansen havde en bondegård

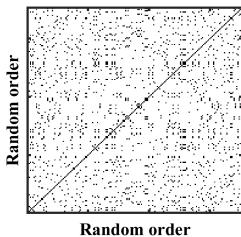
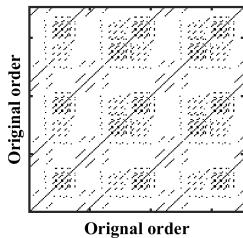
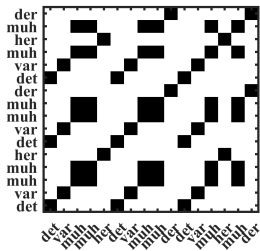
Lirum Larum Lej.

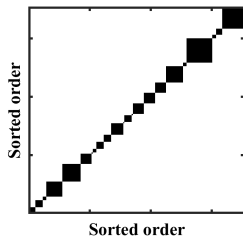
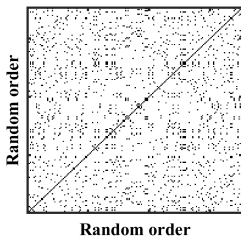
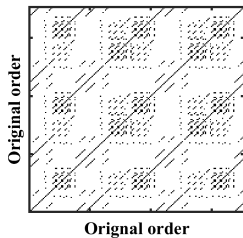
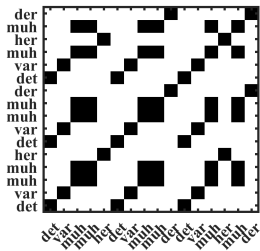
...

(text: Otto Leisner, melody: 'Old MacDonald Had a Farm')

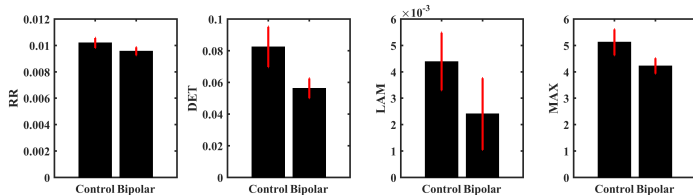




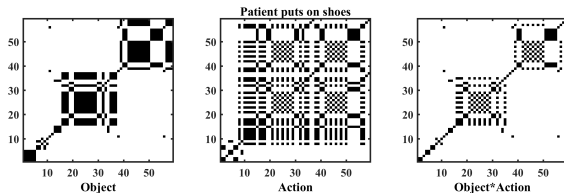
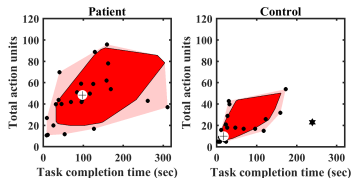




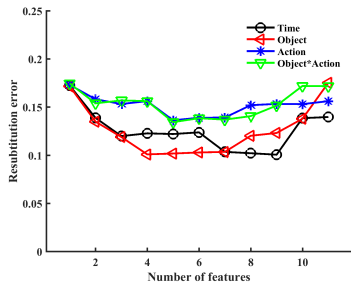
Bipolar disorder in historical writings



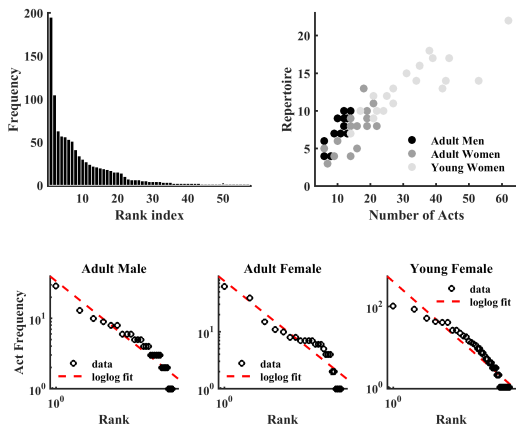
OCD behavioral features



OCD classifier



Cultural stereotype



Nielbo, K. L., Flux, M., Mort, J., Zamir, R. & Eilam, D. (submitted). Structural differences among generations as the key for ritual transmission, stereotype, and flexibility.