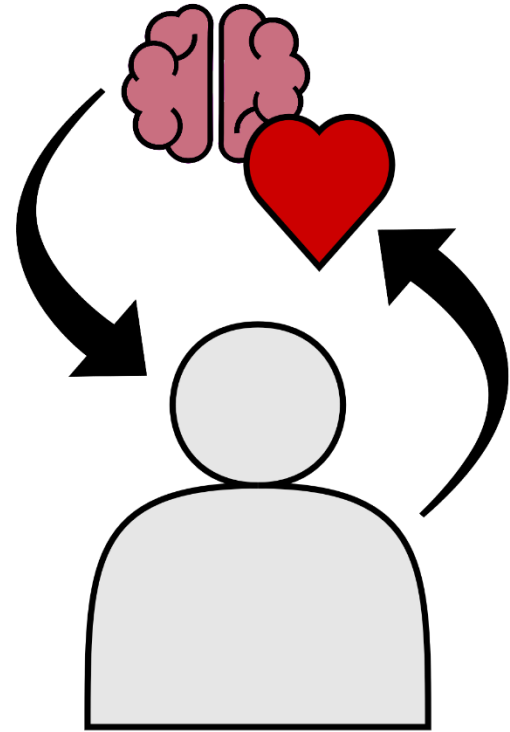


A contemporary perspective on
Biofeedback & Neurofeedback

Donders Session – November 16, 2023

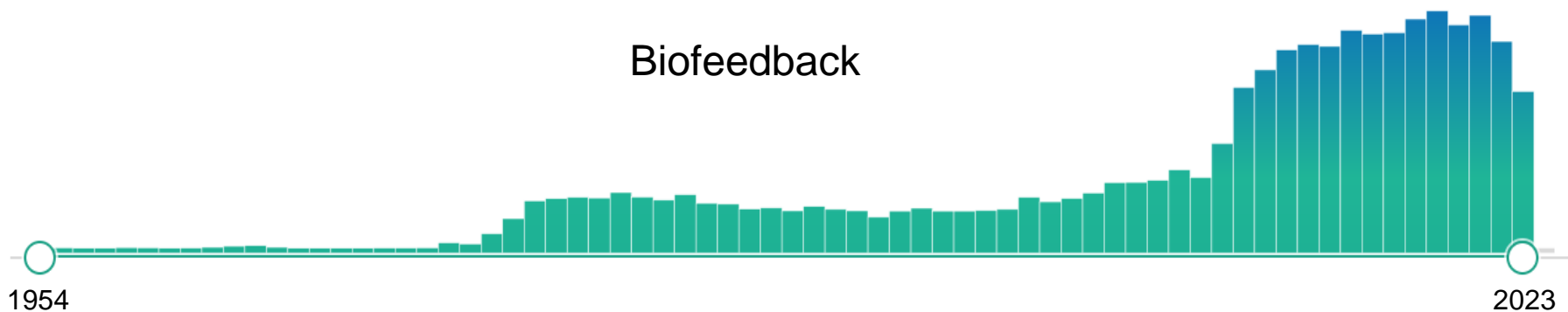




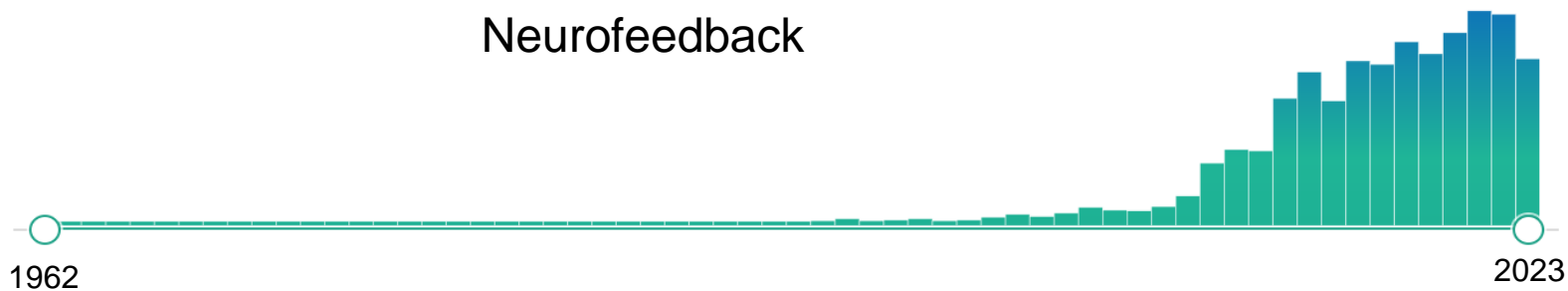
Introduction

Thriving methods

Biofeedback



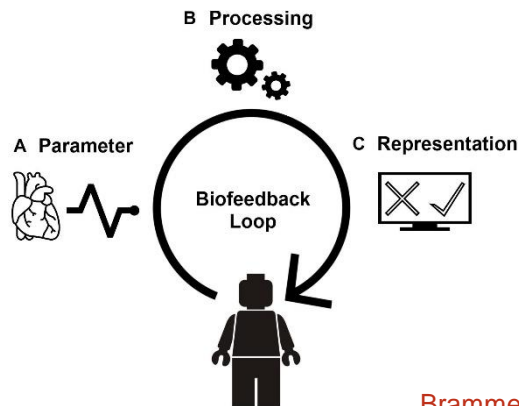
Neurofeedback



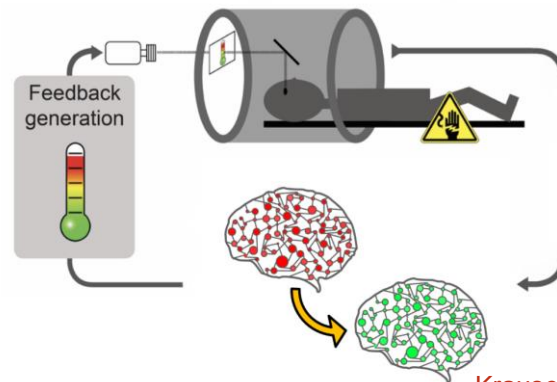
Introduction

What are biofeedback and neurofeedback?

- **Biofeedback:** “[...] the process of gaining greater awareness of many physiological functions primarily using instruments that provide information on the activity of those same systems, with a goal of being able to manipulate them at will” – Wikipedia
- **Neurofeedback:** “[...] a type of biofeedback that presents real-time feedback from brain activity in order to reinforce healthy brain function through operant conditioning” – Wikipedia



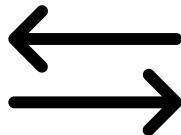
Brammer et al., 2021



Krause et al., 2022

Why?

- **Default experiment:** behaviour is the independent variable and physiological activity (e.g. brain activation) is the dependent one

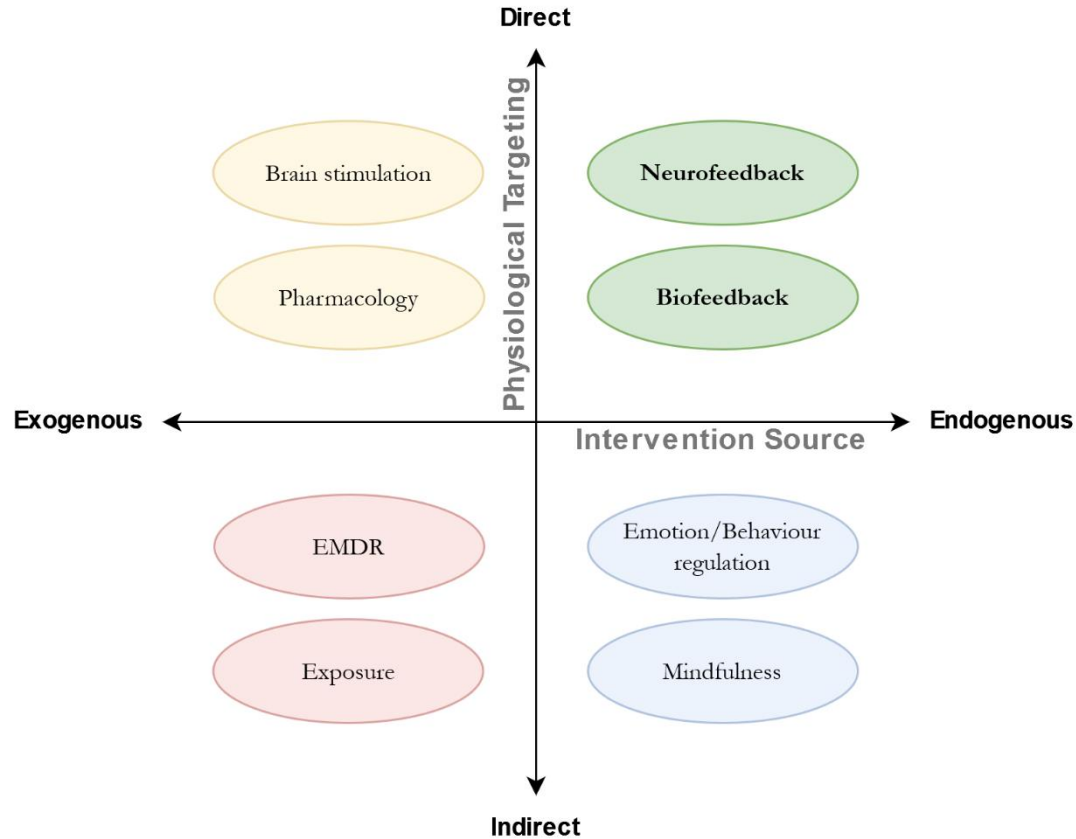


- **Bio-/Neurofeedback:** physiological activity (e.g. brain activation) is independent variable and behaviour is the dependent one



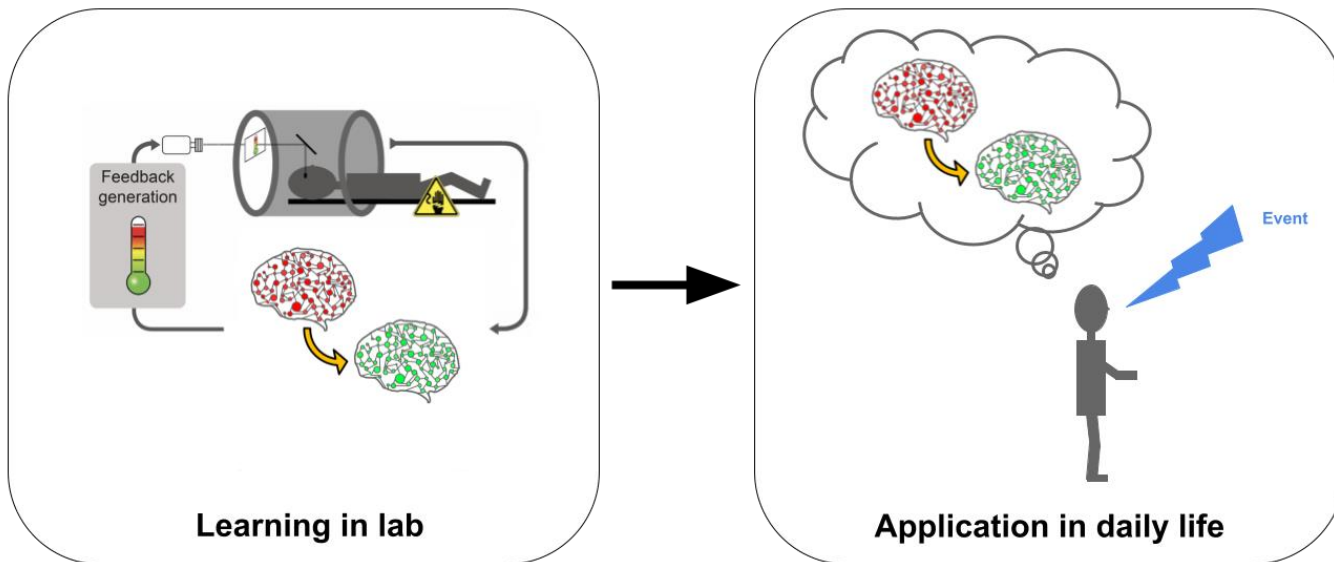
Introduction

Clinical relevance



Introduction

Real-life physio-/neuromodulation





Introduction

Programme

Clinical applications of fMRI-based neurofeedback

David Linden (Maastricht University)

Preparing The Heart for Duty – Gamified virtual reality biofeedback for police to train Heart Rate Variability Control while in arousing action

Floris Klumpers

Self-regulation of stress-related large-scale brain network balance using real-time fMRI neurofeedback

Nikos Kogias

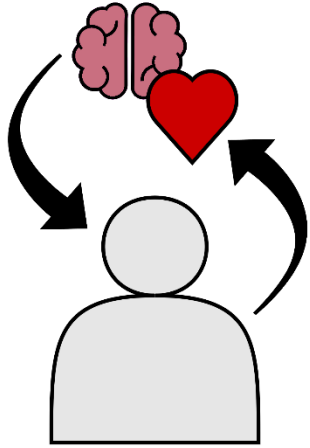
Biofeedback games and psychological mechanisms of change

Joanneke Weerdmeester

Plenary discussion

Karin Roelofs

Thank you!



Biofeedback & Neurofeedback Community Nijmegen



bncnijmegen.github.io