

MEASURING THE BUILDING BLOCKS OF MENTALIZING PERFORMANCE ACROSS MENTAL DISORDERS

Pr. Henryk Bukowski

IPSY, UCLouvain

Thanks to:

Alix Bigot (PhD student at IPSY, UCLouvain)

Pr. Philippe de Timary, Camille Amadiou, Dr. Sophie Leclercq (Cliniques Universitaires Saint-Luc / UCLouvain)

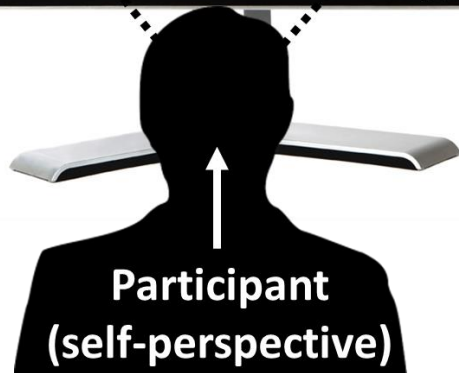
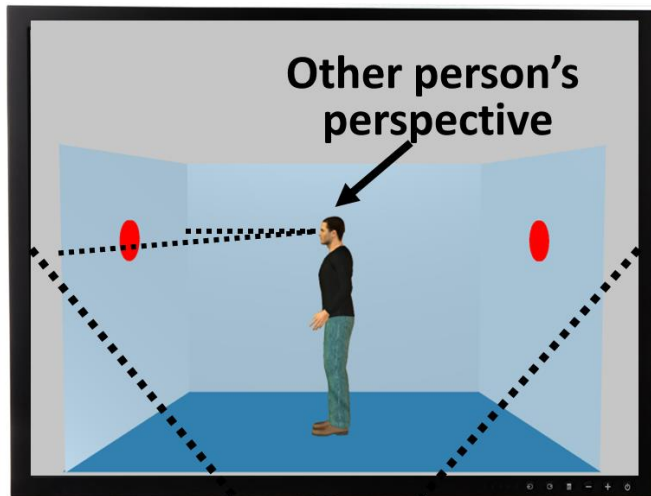
Pr. Thierry Pham, Luca Tiberi (Centre de Recherche en Défense Sociale – UMons)

Pr. Jean-Louis Nandrino, Dr. Xavier Saloppé (SCALAB, Université de Lille)

Jean-Charles Peeters (Hopital psychiatrique Vincent Van Gogh)

LEVEL-1 VISUAL PERSPECTIVE TAKING

= eye gaze being processed into knowledge about whether a person sees an object” :



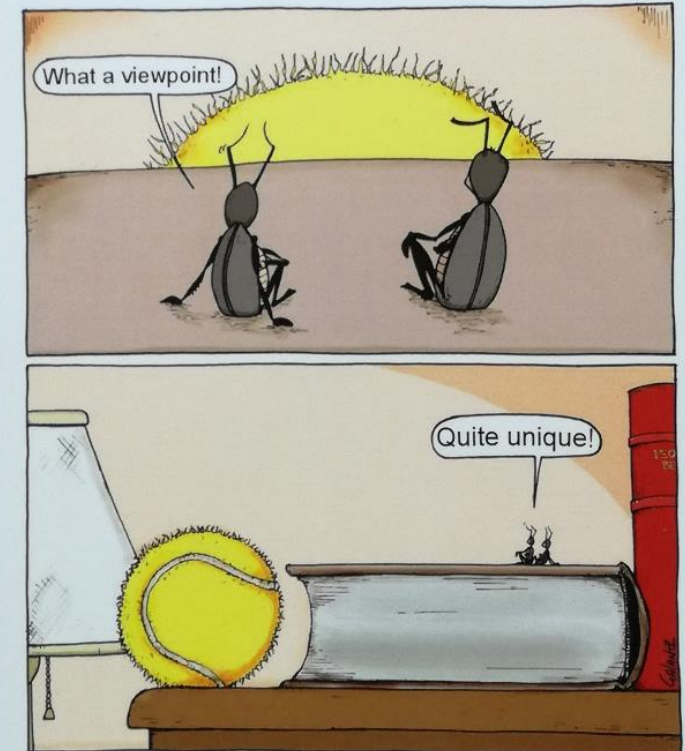
- ↓ **Guilt**
- ↓ **Shame**
- ↓ **Anger**
- ↓ **Sadness**
- ↓ **Joy**
- ↓ **Sleep deprivation**
- ↓ **Self-awareness**
- ↓ **Stimuli salience, task difficulty, SOA, ...**
- ↓ **Narcissism**

Henryk BUKOWSKI

WHAT INFLUENCES PERSPECTIVE TAKING?



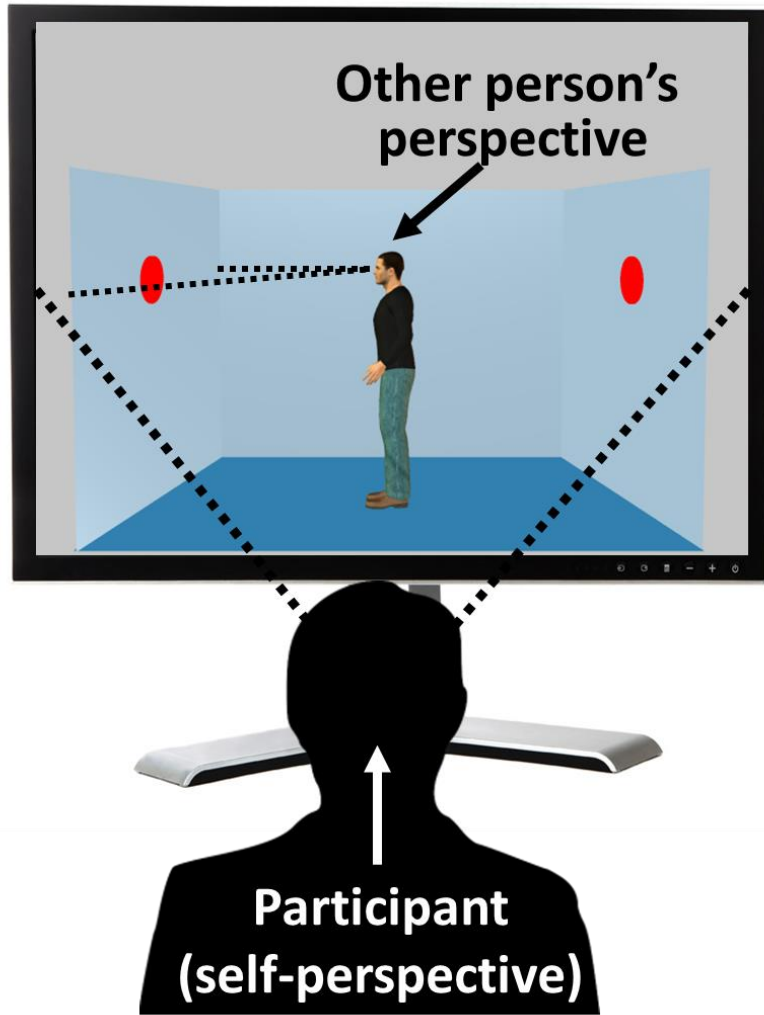
A dynamic and multidimensional approach



LEVEL-1 VISUAL PERSPECTIVE TAKING

*Related to something social ?
To real-life social cognition ?*

*Submentalizing ?
(recruit domain-general processes)*



- ↓ **Guilt**
- ↓ **Shame**
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- ↓ **Sadness**
- ↓ **Joy**
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- ↓ **Self-awareness**
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- ↓ **Narcissism**

*How other researchers are
measuring mentalizing ?*

MENTALIZING UNDERSTOOD AND MEASURED ACROSS DISCIPLINES (HISTORICALLY)

- **Theory of Mind** (cognitive & develop psych) : mainly about imputing mental states to others
 - About representational capacities
 - 1 dimension, 1 score : error rate at inferring the right mental state (most often conflicting with reality/self-perspective)
 - 2 levels of representation : implicit inference (spontaneous, efficient but limited) versus explicit inference (instructed, effortful but rich)
 - **Perspective taking** (psycholinguistics & social psych) : mainly about effortfully putting aside our egocentric view
 - About heuristic processing being adjusted by system 2 (effortful, controlled)
 - → 1 dimension, 1 score : error rate of egocentric error (not putting aside conflicting self-perspective)
 - **Empathy** (comparative & clinical psych) : mainly about sharing the emotion of another person
 - About sensitivity and perceptual social cues processing
 - 1 dimension, 1 score : extent of sharing/sensitivity to other person's emotion
 - 2 levels : affective empathy (described above) versus (cognitive empathy → affective ToM)
- ➔ Mentalizing is examined via 1-dimensional focus, 1 score (despite dual models)... and each field's focus is *different* !

NEWER ACCOUNTS OF MENTALIZING

- **Theory of Mind :**

- Not all about representational capacities
 - account for conflict between perspectives (E. Deschrijver)
 - account for individuation and accuracy in mental states description (J. Conway)

- **Perspective taking :**

- Egocentricity is not the baseline → focused on other in some contexts (D. Samson ; A. Bezuidenhout)

- **Empathy :**

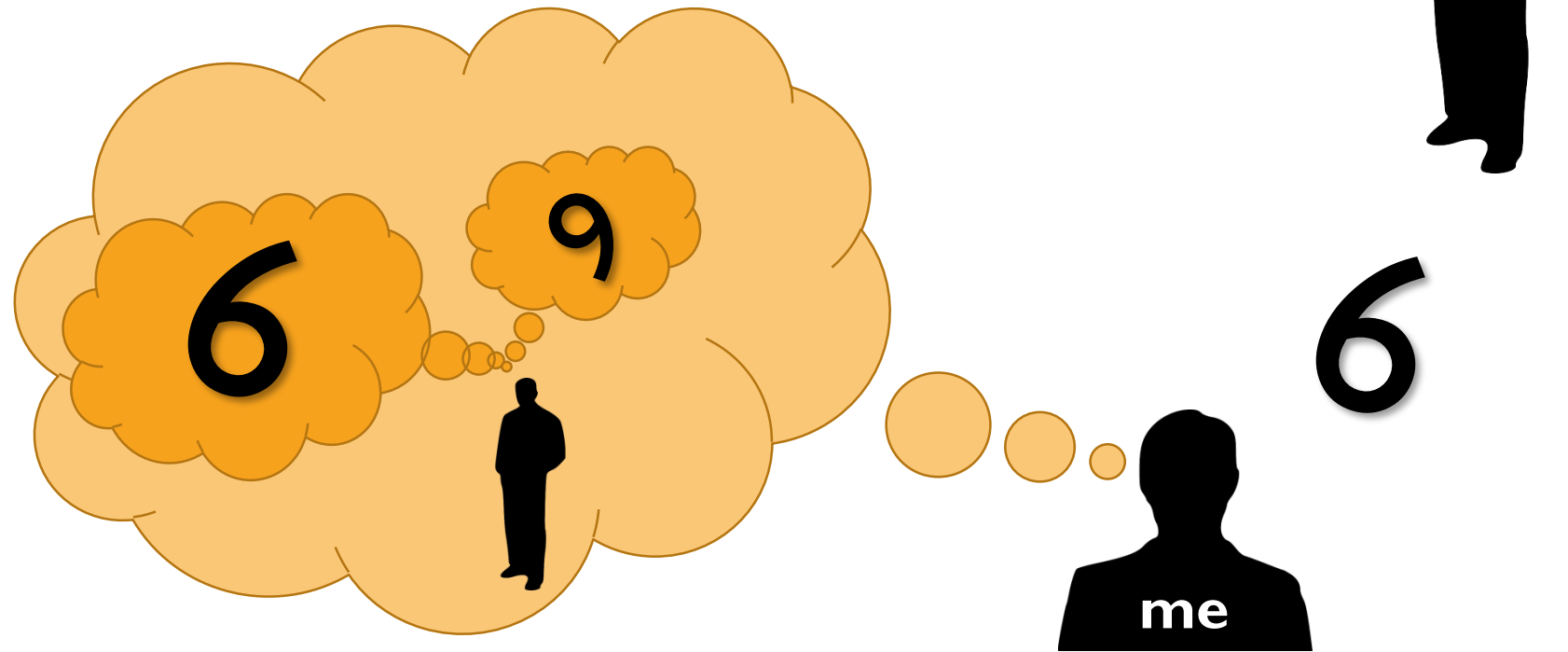
- Not all about self-other sharing → need of self-other distinction (especially if self-other conflict) (C. Lamm)

➔ **Two mentalizing dimensions** (at least) :

- Self-other distinction (or perspective **conflict handling**) : cost of handling (monitoring & inhibition)
- Self-other priority : **processing advantage for self- vs. other-perspective**

MY NEW ACCOUNT OF INDIVIDUAL DIFFERENCES IN MENTALIZING

- Failure to infer a mental state (mental rotation of “6”) → inferential process
- Low capacity to inhibit self-perspective (put aside “6”) → self-other distinction dimension
- Excessively focussed on self-perspective → self-other priority dimension



NEW ACCOUNT OF INDIVIDUAL DIFFERENCES IN MENTALIZING

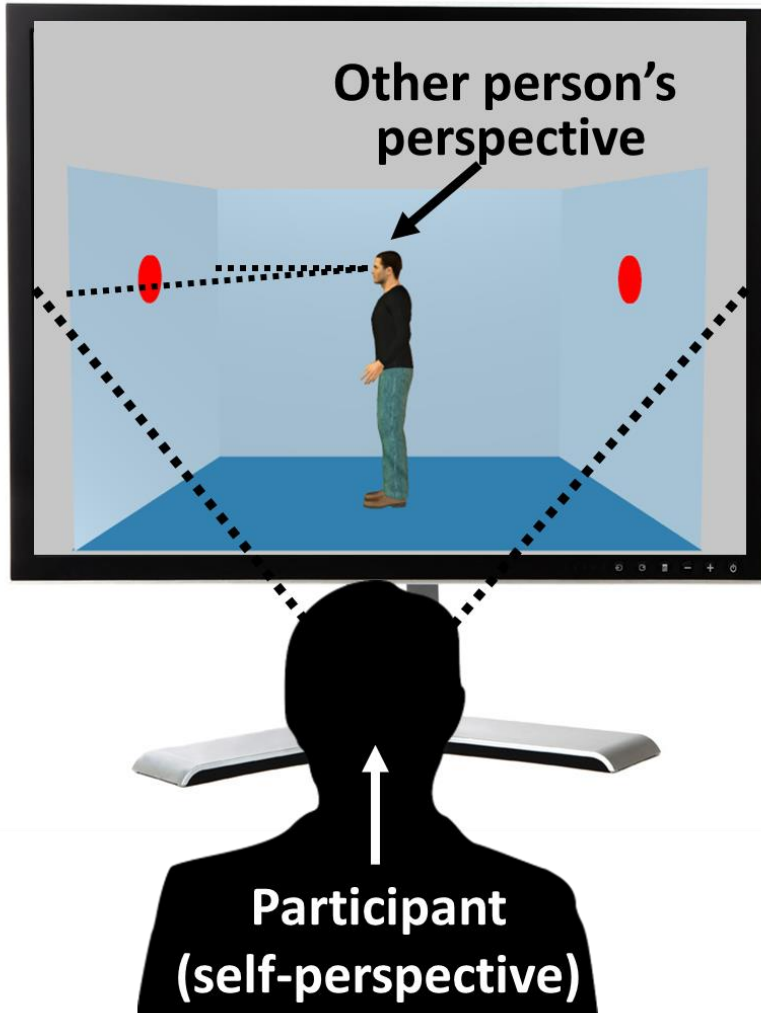
- Failure to infer a mental state (mental rotation of “6”) → inferential process / representation capacity
- Low capacity to inhibit self-perspective (put aside “6”) → self-other distinction dimension
- Excessively focussed on self-perspective → self-other priority dimension
- Advantages of self-other distinction & self-other priority :
 - Assumed to be the same processes irrespective of the mental state
 - Measures individual differences expected to generalize to other type of mentalizing
- Problem with the inferential process / representational capacities :
 - Many distinct processes : understanding others’ beliefs, desires, sarcasm, humor, faux-pas, ...
 - Risk of inconsistent findings because measuring individual differences on different processes !
 - → let’s minimize individual difference in the inferential process → most basic inferential process !



6



LEVEL-1 VISUAL PERSPECTIVE TAKING



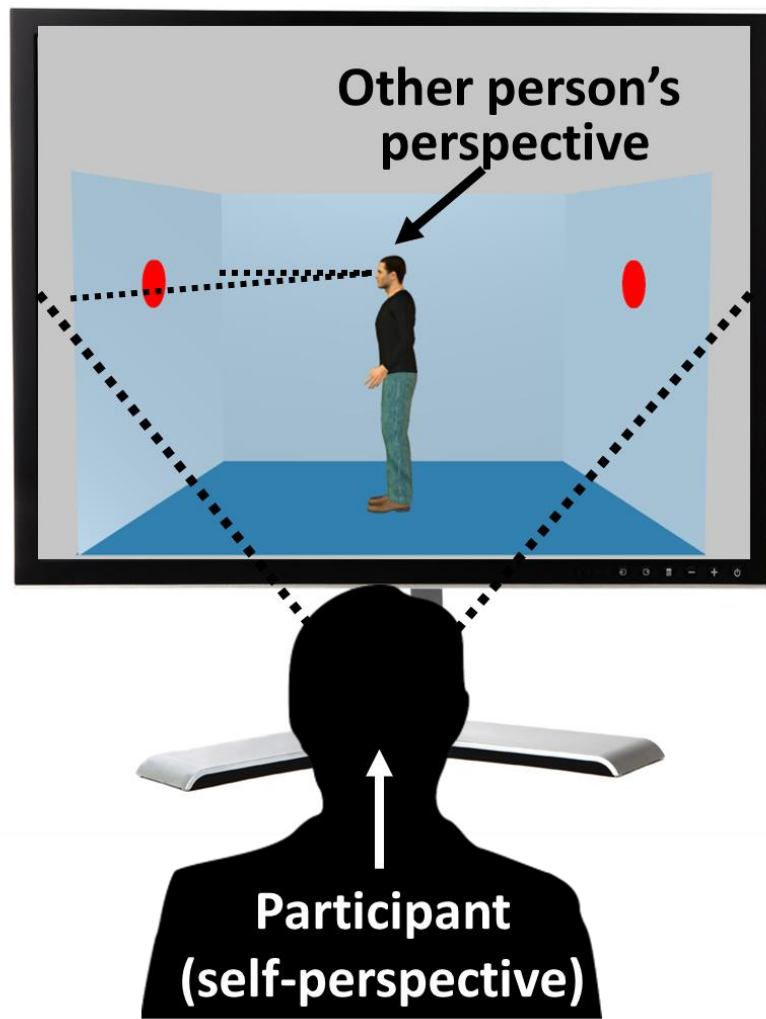
- **level-1 visual perspective taking :**

- = eye gaze being processed into knowledge about whether a person sees an object” :
 - Year 1: start to follow where others’ eyes are looking (Hood, Willen, & Driver, 1998)
 - Year 2: follow less when the person cannot see the object (Brooks & Meltzoff, 2002; Butler, Caron, & Brooks, 2000)
 - Present in non-human animals (Moll & Tomasello, 2006 ; e.g., dogs, marmosets, goats, some birds species)
- considered as the most basic, modular, first-developed mentalizing process (Flavell, 2004; Baron-Cohen, 1995)

→ **Most basic inferential process**

→ **Lowest individual differences expected**

2-DIMENSIONAL MENTALIZING PERFORMANCE



Self-other distinction

CONGRUENCY

Consistent vs. Inconsistent

Self-other priority

PERSPECTIVE

Self

vs.

Other

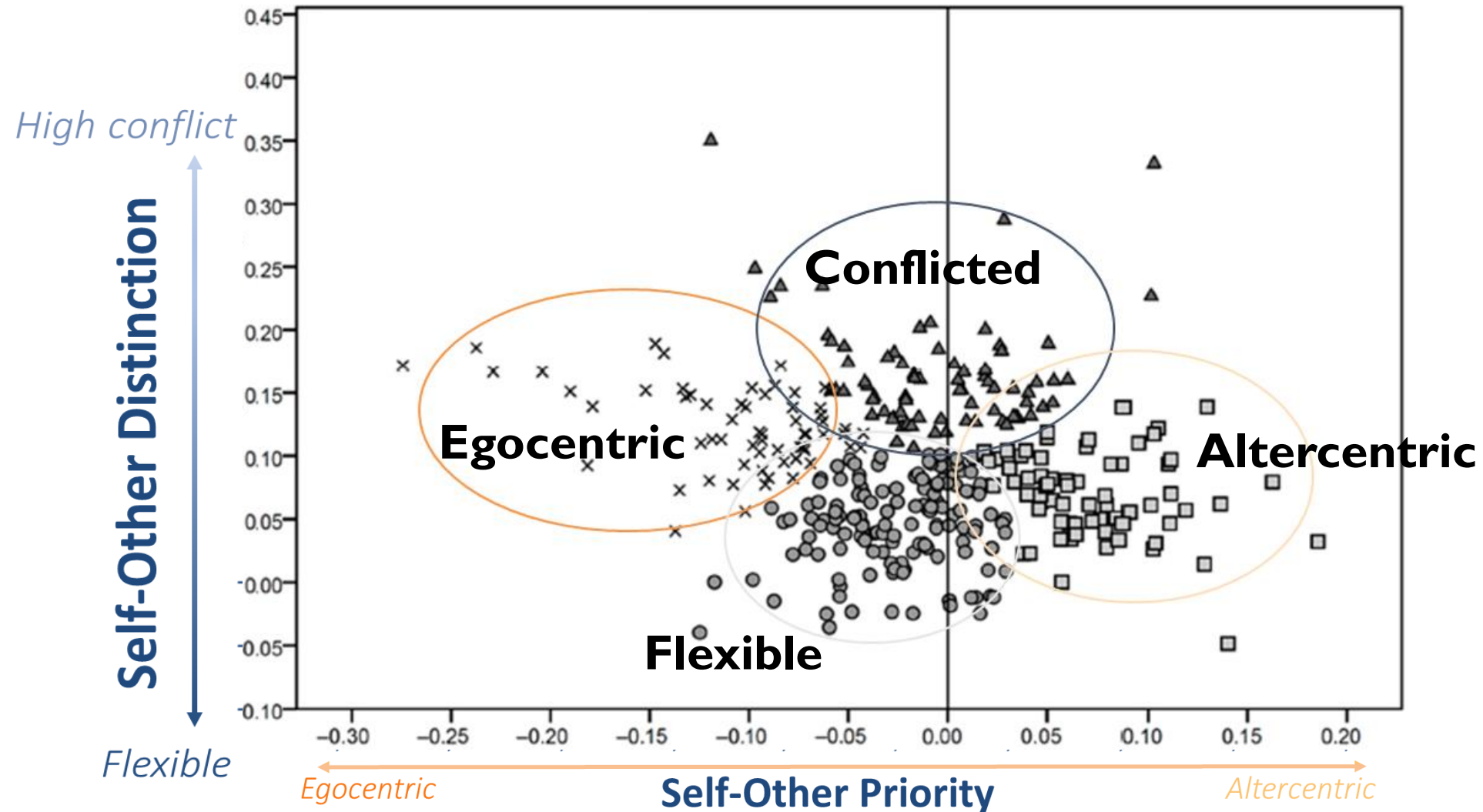
Do YOU see 2 discs ?

Does SHE see 2 discs ?

Do YOU see 2 discs ?

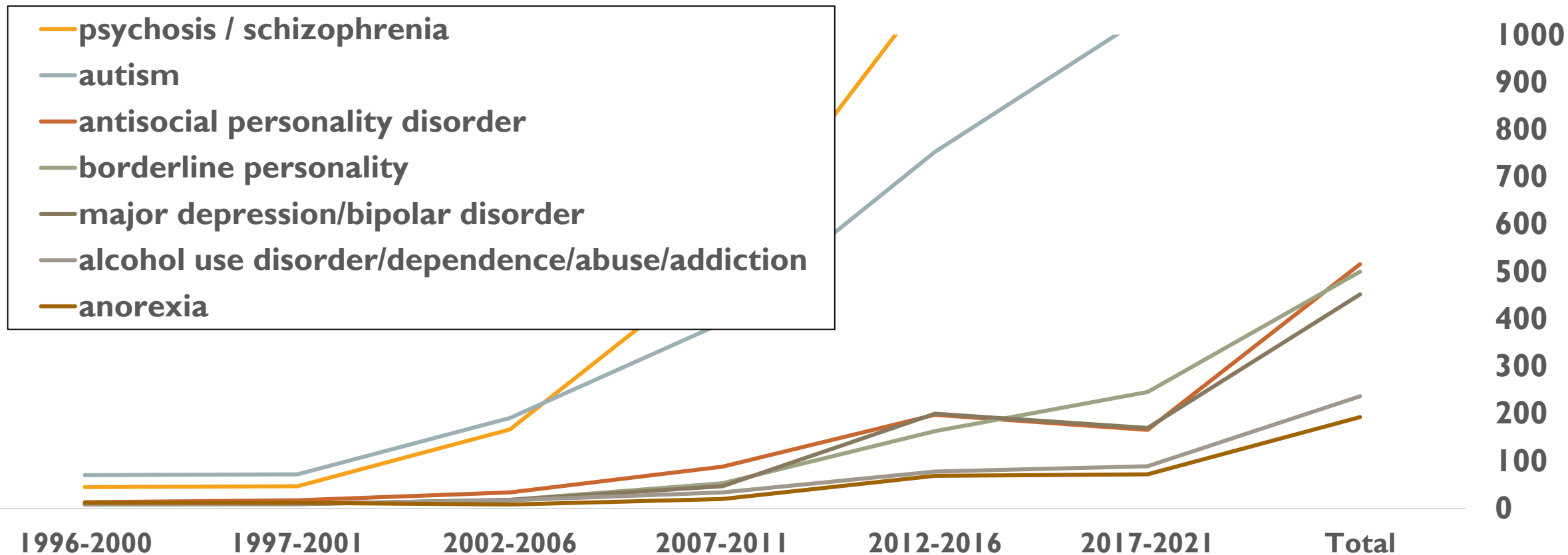
Does SHE see 2 discs ?

MAPPING MENTALIZING INDIVIDUAL DIFFERENCES ACROSS 2 DIMENSIONS



MENTALIZING PERFORMANCE ACROSS MENTAL DISORDERS

Number of articles with « *social cognition / mentalizing / Theory of Mind / empathy* »
(Pubmed 26/5/22)



WHY BUILDING BLOCKS OF MENTALIZING PERFORMANCE ACROSS MENTAL DISORDERS ?

- Socio-cognitive research can help transdiagnostic research by finding transdiagnostic dimensions

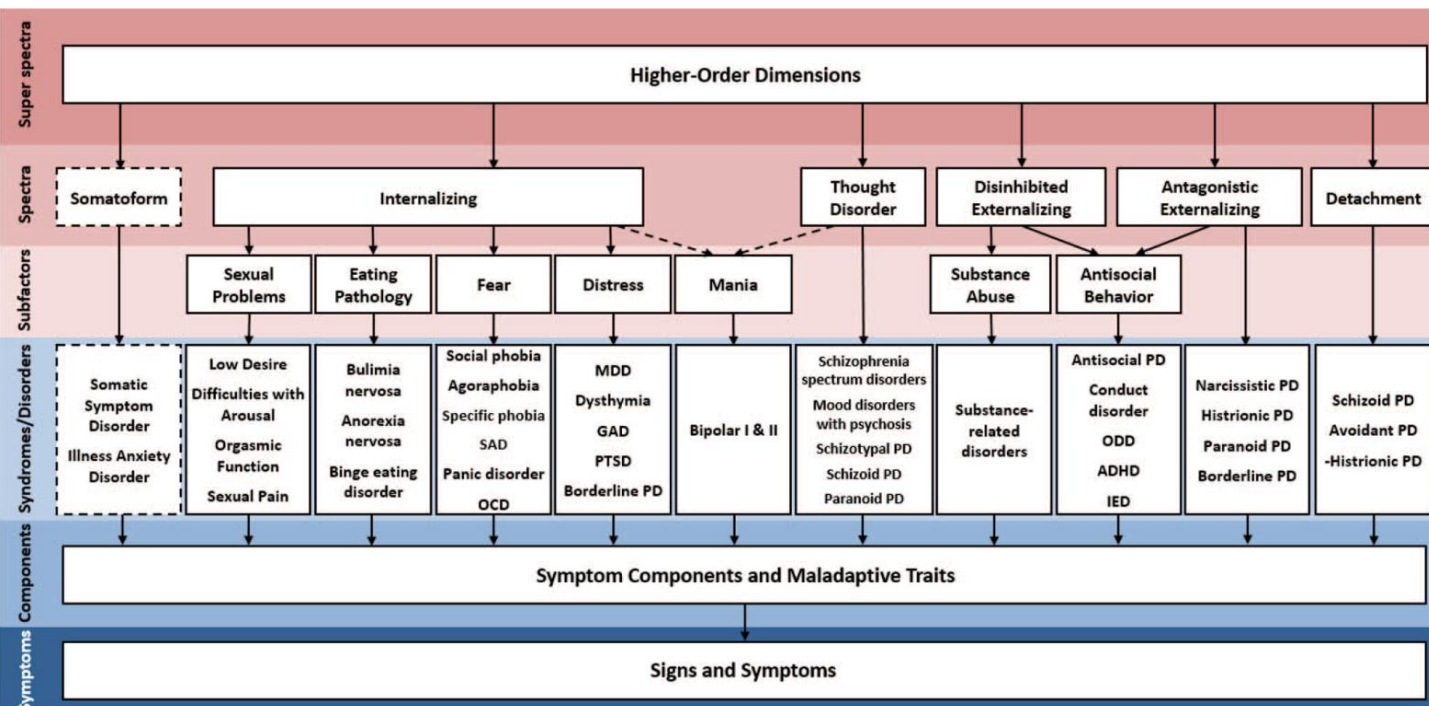
The Hierarchical Taxonomy of Psychopathology (HiTOP): A Dimensional Alternative to Traditional Nosologies

Roman Kotov
Stony Brook University

Robert F. Krueger
University of Minnesota

Clashing Diagnostic Approaches: *DSM-ICD* versus *RDoC*

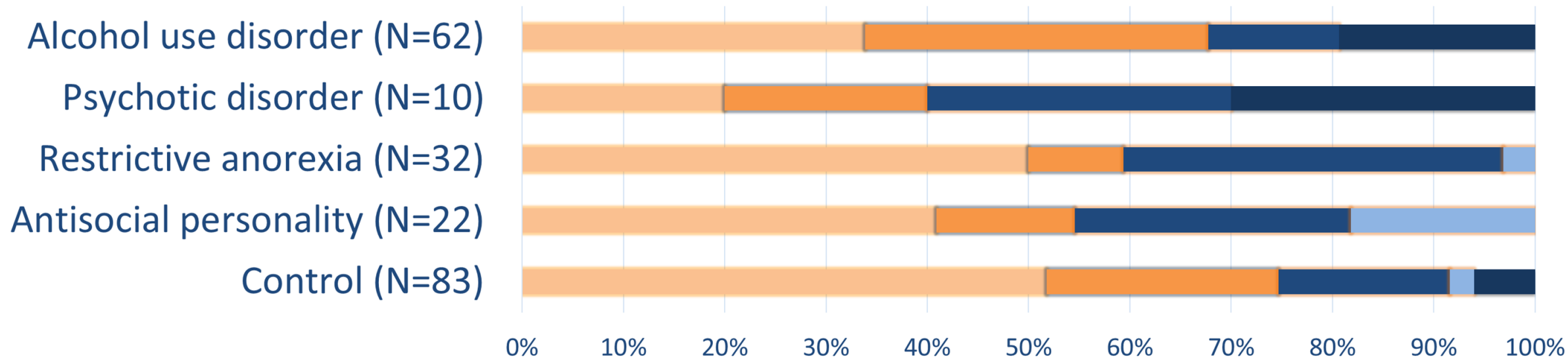
Scott O. Lilienfeld, Ph.D. and Michael T. Treadway, Ph.D.
Emory University



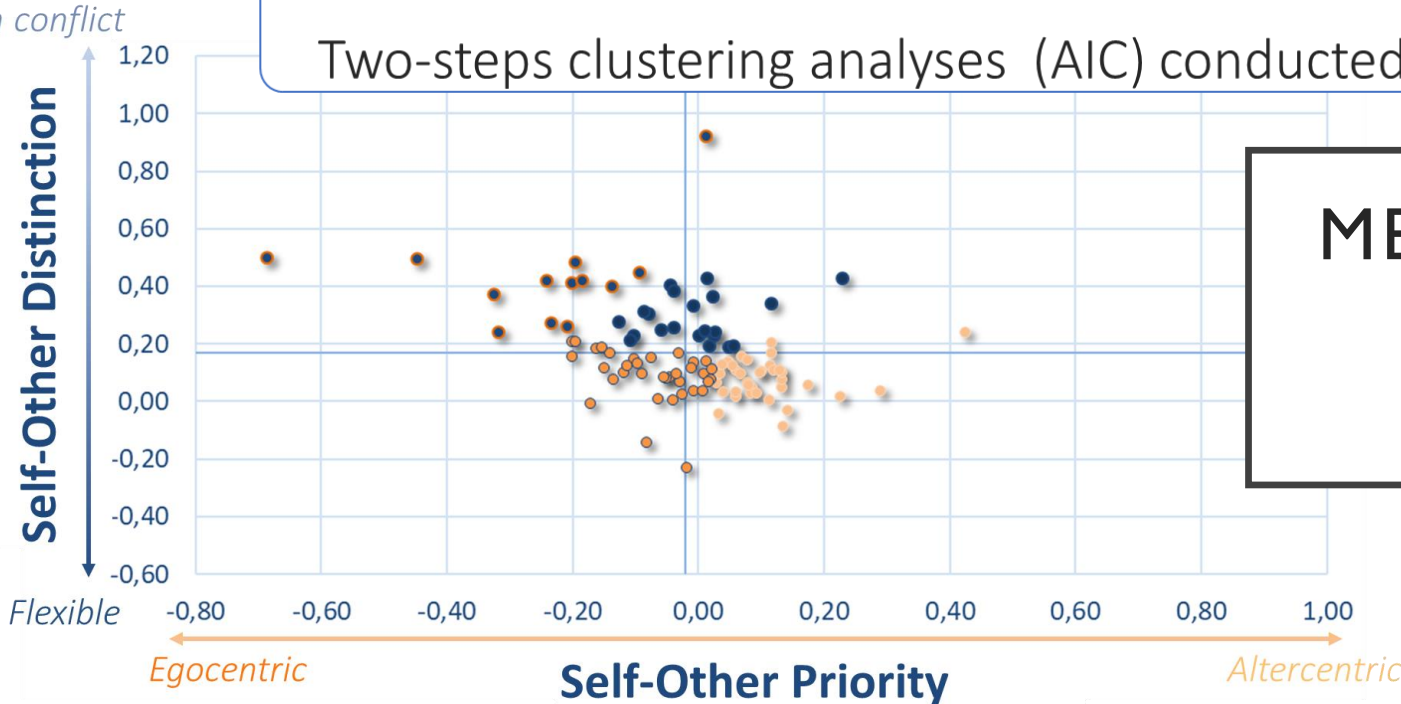
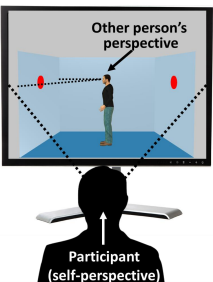
DOMAINS/CONSTRUCTS	UNITS OF ANALYSIS							Paradigms
	Genes	Molecules	Cells	Circuits	Physiology	Behavior	Self-Reports	
Negative Valence Systems Acute threat ("fear") Potential threat ("anxiety") Sustained threat Loss Frustrative nonreward								
Positive Valence Systems Approach motivation Initial responsiveness to reward Sustained responsiveness to reward Reward learning Habit								
Cognitive Systems Attention Perception Working memory Declarative memory Language behavior Cognitive (effortful) control								
Systems for Social Processes Affiliation/attachment Social communication Perception/understanding of self Perception/understanding of others								
Arousal/Modulatory Systems Arousal Biological rhythms Sleep-wake								

MENTALIZING PROFILES ACROSS MENTAL DISORDERS

- Flexible and altercentric
- Flexible and egocentric
- Conflicted and egocentric
- Conflicted
- Conflicted and altercentric



VPT1
N=105



MENTALIZING PROFILES ACROSS MENTAL DISORDERS

- Flexible and altercentric
- Flexible and egocentric
- Conflicted and egocentric
- Conflicted
- Conflicted and altercentric



VPT2
N=129

CONCLUSION

- (1) Transdiagnostic socio-cognitive profiles via 2-dimensional assessment : Self-Other Priority and Self-Other Distinction.
- (2) Document heterogeneity of profiles despite same diagnosis across 4 clinical populations
- (3) Three socio-cognitive profiles irrespective of PT task
 - **Self-Other Priority and Self-Other Distinction as building blocks underlying individual differences.**
- (4) Subtypes of 'mentalizing deficit' (instead of present/absent) : Excessively egocentric, excessively altercentric, conflicted, or a combination of deficits...

LIMITS: preliminary data, unmatched controls, different VPT tasks for different populations

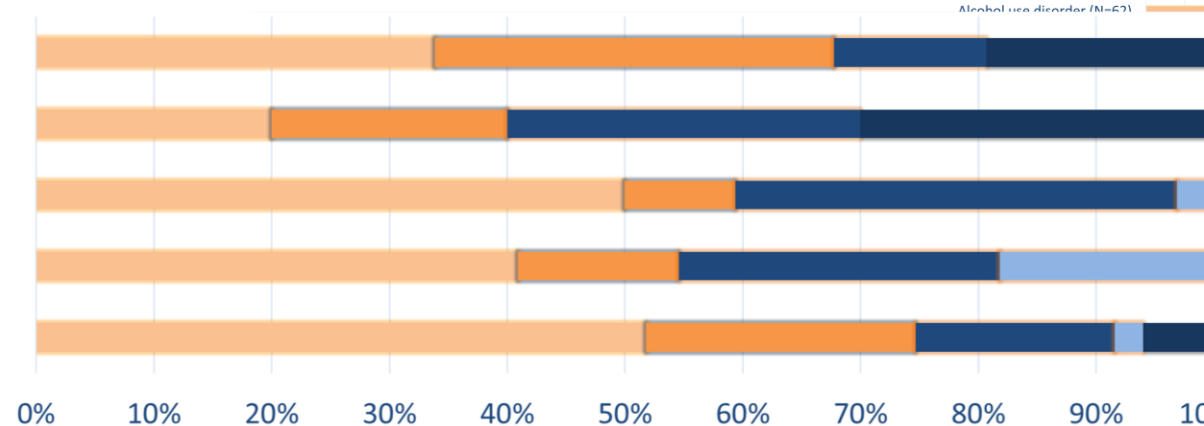
PERSPECTIVES: **collaborations wanted** (13 min online/offline task; soon up to 8 sub-dimensions)

THANK YOU

• Visit Alix Bigot's poster (session 3) for more info

- Flexible and altercentric
- Flexible and egocentric
- Conflicted and egocentric
- Conflicted
- Conflicted and altercentric

Alcohol use disorder (N=62)
 Psychotic disorder (N=10)
 Restrictive anorexia (N=32)
 Antisocial personality (N=22)
 Control (N=83)



Identifying transdiagnostic socio-cognitive profiles across 4 clinical populations

Bigot, A. *, De Timary, P., Amadiou, C., Leclercq, S., Pham, T., Saloppé, X., Tiberi, L., Nandrino, J.L., Peeters, J.C., Bukowski, H. (2022)

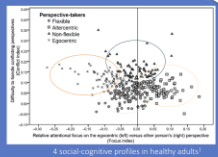
UCLouvain IPSY IONS

UMONS Université de Lille

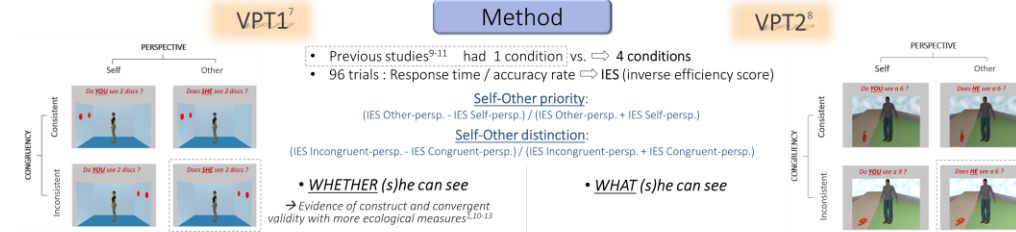
*alix.bigot@uclouvain.be

Introduction

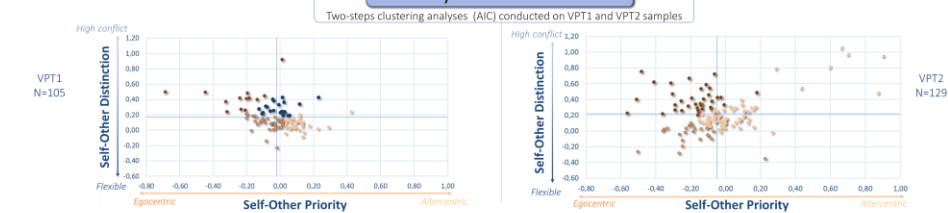
- Distinct profiles of *perspective-takers* found in healthy participants^{1,2}.
- Socio-cognitive impairments and interpersonal difficulties are frequently observed in various mental disorders^{4,5}.
- But inconsistent findings: possibly due to overreliance on single-score and self-report measures, and unaccounted heterogeneity within populations sharing the same diagnosis ➔ *Multidimensional and transdiagnostic assessment of social cognition*^{4,6}.
- ➔ We examined socio-cognitive performance across two dimensions⁶ posited to underpin mentalizing skills across all populations
- **Self-Other Priority**: the tendency to *focus* more (or attentionally prioritize) on one perspective compared to the other.
- **Self-Other Distinction**: the ability to handle *conflicting* perspectives and inhibit the interference.



Method



Analyses and results



Transdiagnostic socio-cognitive profiles:

Flexible and altercentric Flexible and egocentric Conflicted and egocentric Conflicted Conflicted and altercentric

- 3 main results:**
- High individual differences along both dimensions
 - 3 similar clusters across VPT1 and VPT2
 - Heterogeneity of profiles within same-diagnosis populations

Discussion

Identified via 2-dimensional assessment: Self-Other Priority and Self-Other Distinction, tested on healthy students in cognitive and affective PT^{1,2}.

is across 4 clinical populations (alcohol use disorder, psychotic disorder, restrictive anorexia, antisocial personality).

task (flexible and altercentric, flexible and egocentric, conflicted and egocentric)

ing individual differences.

sent/absent): Excessively egocentric, excessively altercentric, conflicted, or a combination of deficits...

Conclusions

Small sample sizes
 Relative samples (for now)
 Controls: no comorbidities currently included
 eg. personality disorders

via distinct tasks for distinct populations
 socio-cognitive variation (parameters and indexes), as reported in previous study⁽¹⁾

References

1. Bigot, A., De Timary, P., Amadiou, C., Leclercq, S., Pham, T., Saloppé, X., Tiberi, L., Nandrino, J.L., Peeters, J.C., Bukowski, H. (2022) Identifying transdiagnostic socio-cognitive profiles across 4 clinical populations. *Journal of Experimental Social Psychology*.
 2. Bigot, A., De Timary, P., Amadiou, C., Leclercq, S., Pham, T., Saloppé, X., Tiberi, L., Nandrino, J.L., Peeters, J.C., Bukowski, H. (2022) Identifying transdiagnostic socio-cognitive profiles across 4 clinical populations. *Journal of Experimental Social Psychology*.
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