

You are kindly invited to the public defense to obtain the degree of

DOCTOR OF PSYCHOLOGY

of Mr. Tom Bylemans

Which will take place on **October 4, 2023 at 5 PM** CET
Building I, room **1.2.02** at VUB Main Campus Brussels
Pleinlaan 2 – 1050 Brussel
Or if you wish to attend online, [click here to join the meeting](#)

LITTLE BRAIN, BIG IMPACT: INSIGHTS FROM THE CEREBELLUM INTO AUTISM, MENTALIZING, AND NARRATIVE COHERENCE

JURY

INTERN:

Prof. dr. Natacha Deroost, Vrije
Universiteit Brussel (chair)
Prof. dr. Chris Baeken, Vrije Universiteit
Brussel
Prof. dr. Martijn Van Heel, Vrije
Universiteit Brussel

EXTERN:

dr. Annabel Nijhof, Universiteit Gent

Prof. dr. Bart Boets, Katholieke Universiteit Leuven

PROMOTOR(S)

Prof. dr. Kris Baetens, Vrije
Universiteit Brussel
Prof. dr. Frank Van Overwalle, Vrije
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Coming by car? Please [register your licence plate](#) in advance to have access to the campus.

You are also invited to the reception afterwards.

Please confirm your attendance before 29/09 via mail: Tom.bylemans@vub.be.

How to reach the VUB? Click for [directions](#).

SUMMARY

Adults with autism often experience difficulties in mentalizing (inferring thoughts and emotions) and narrative coherence (structured storytelling). The cerebellum (“little brain”) is a brain region involved in autism development with a key role in the detection, generation, and prediction of motor and non-motor sequences (i.e., chronological order of behavior). The goal of this doctoral research was to provide a coherent theoretical overview regarding the role of the cerebellum in autism, mentalizing, and narrative coherence, and use these insights to help clarify behavioral observations and develop a novel training program.

A first theoretical paper underscored that adults with autism experience difficulties during non-figurative (e.g., sarcasm) and automatic mentalizing. Narrative coherence, in general, was lower as well. In addition, these skills are related at a behavioral level and subserved by sequences in the cerebellum. A second theoretical paper highlighted that autism is characterized by various neural imbalances in which functional relations between widespread brain areas/networks are important to keep in mind, with a key role for the cerebellum. Such imbalances might lead to imbalanced attention and prediction processes. Uncovering specific imbalance patterns might, in the future, lead to a better understanding of different presentations of autism, more sensitive diagnosis, and tailored support.

A series of studies revealed that (1) adults with autism narrate less coherently about negative life events and people tend to mentalize less when listening to such incoherent narratives, (2) males with autism are faster and more accurate compared to females with autism on a mentalizing task subserved by cerebellar functionality, and (3) a training program based on cerebellar insights proved effective in improving mentalizing and narrative coherence skills.

Combined, these results highlight the importance of including cerebellar insights in neurobiological autism theories and of future research on the interrelation between mentalizing and narrative coherence.

CURRICULUM VITAE

Tom Bylemans received his master’s degree in clinical psychology in 2018 from KU Leuven. Currently, he is finishing a postgraduate degree in autism coaching. During his Ph.D., he published theoretical neuroscientific work on autism, as well as on sex differences and a novel neuroscience-based training program. In addition, he has given several talks for academic and non-academic audiences, taught courses on the neurobiology of autism and behavioral statistics, and guided adults with autism as an experience expert.