

KATHOLIEKE UNIVERSITEIT  
**LEUVEN**

# Making sense in a fragmentary world

## Perception in autism spectrum disorders

Ilse Noens

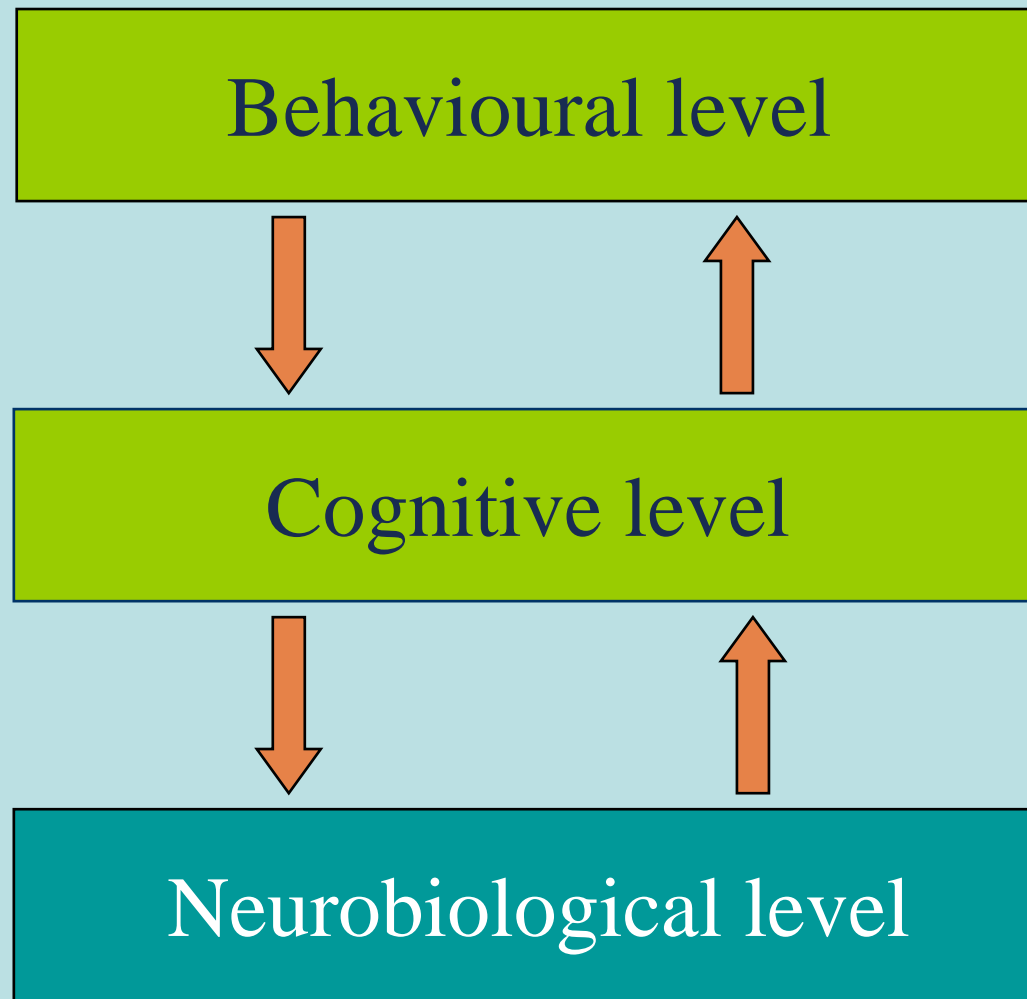
UDDA – October 3<sup>rd</sup> 2008

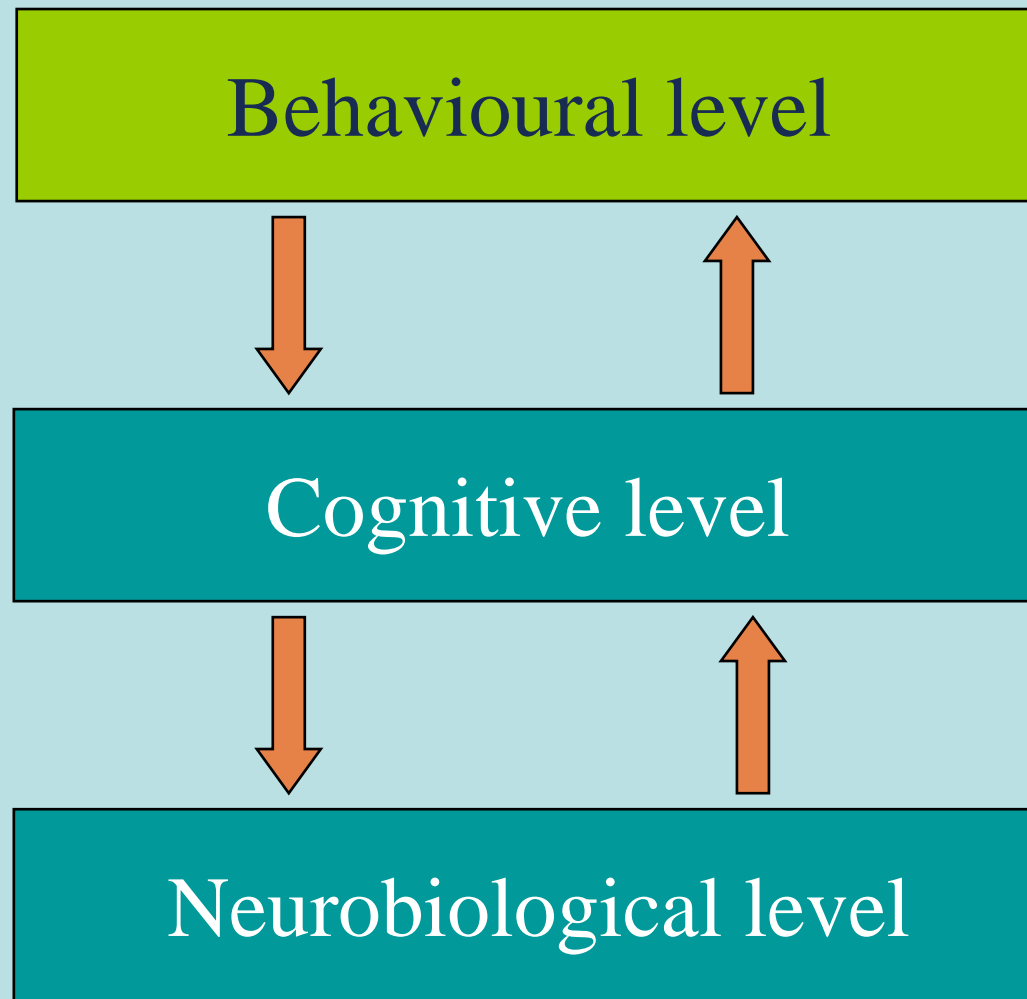




# Program

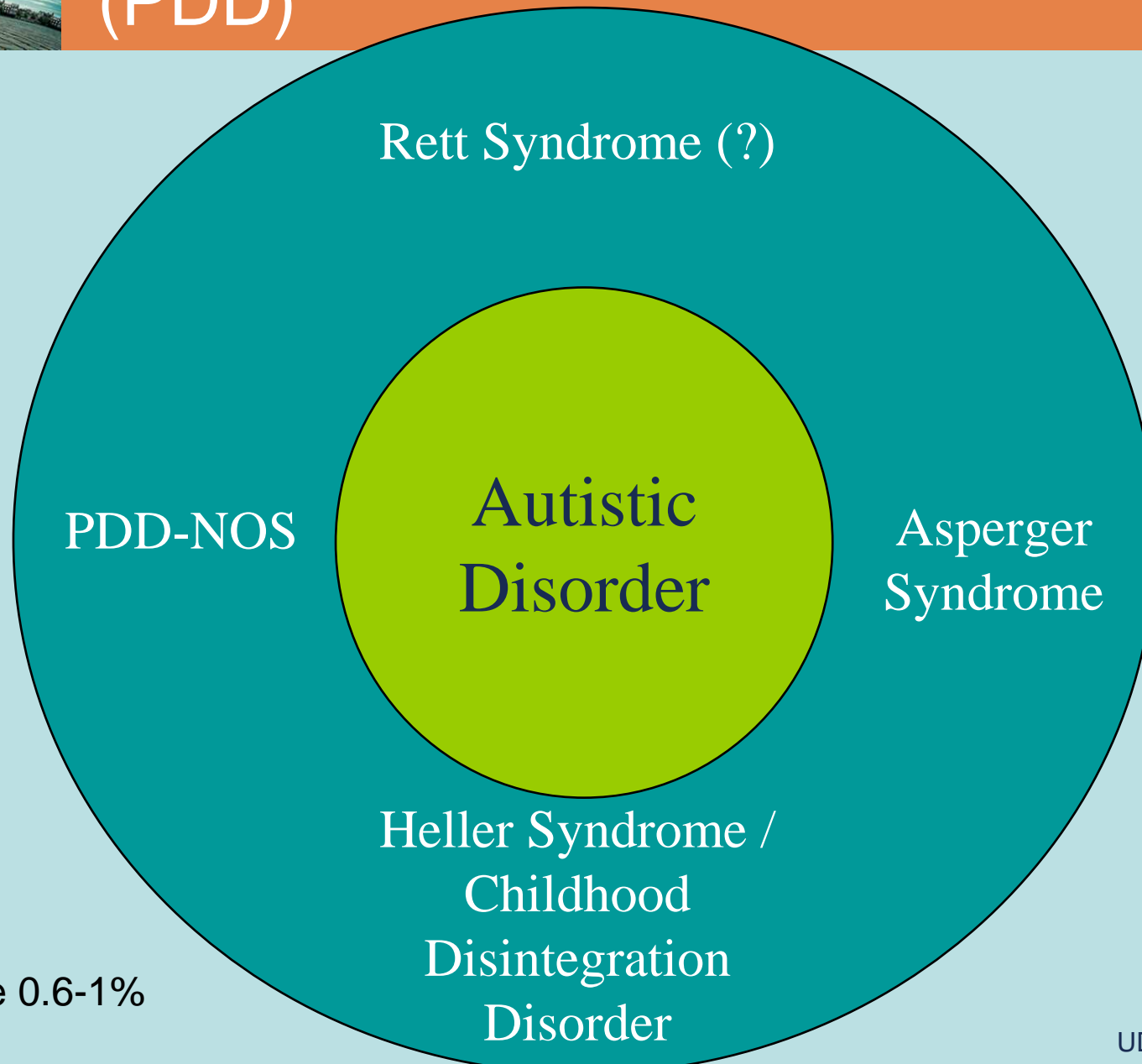
- Autism Spectrum Disorders (ASD)
- Sensation and perception
- Sensory processing
- Sense-making
- ASD and architecture: the challenge...







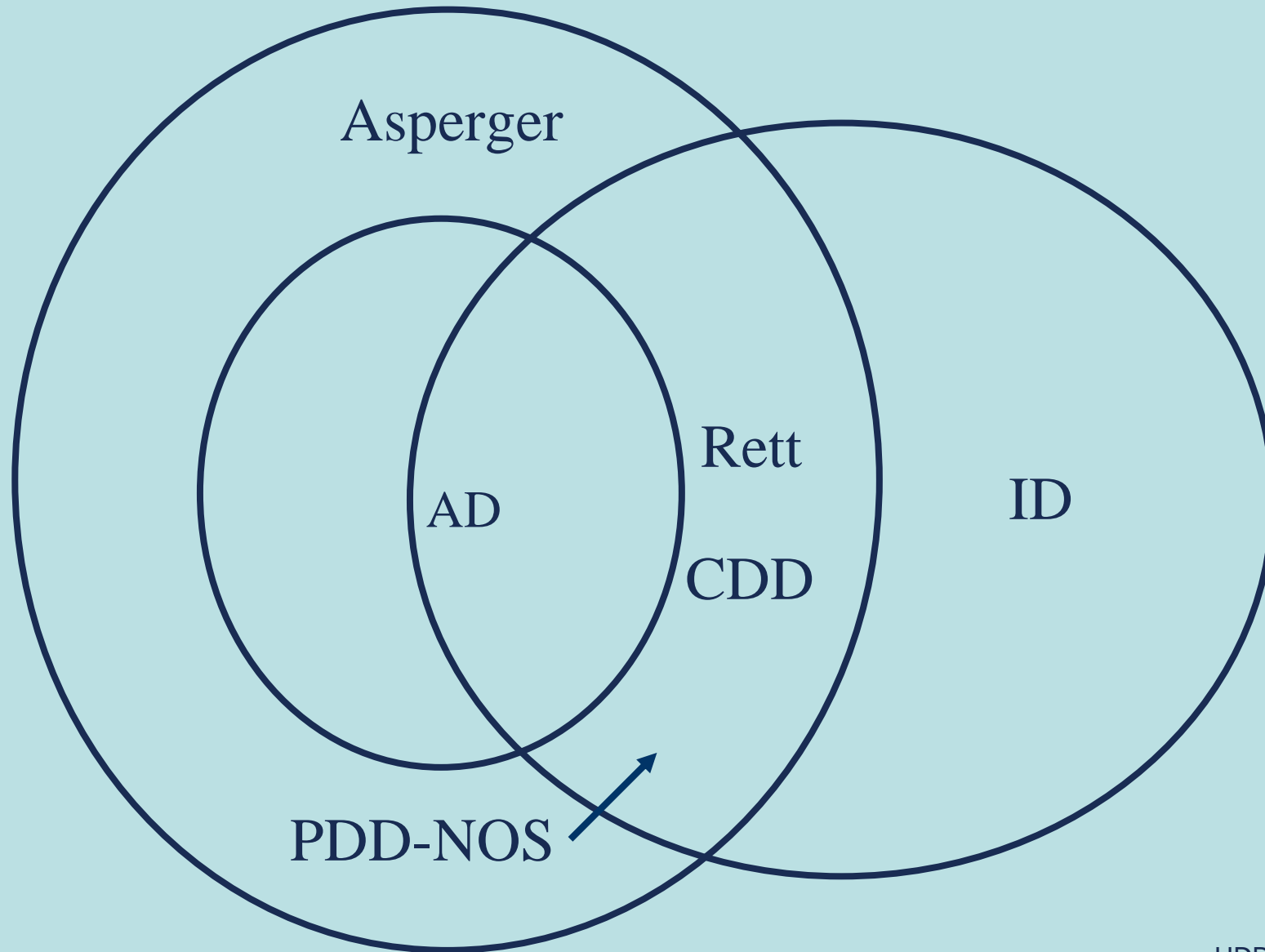
# Pervasive Developmental Disorders (PDD)



Prevalence 0.6-1%



# ASD and Intellectual Disability





# Autism Spectrum Disorders (ASD)

*(Wing, 1996)*

## TRIAD of impairments in

social interaction

communication

imagination

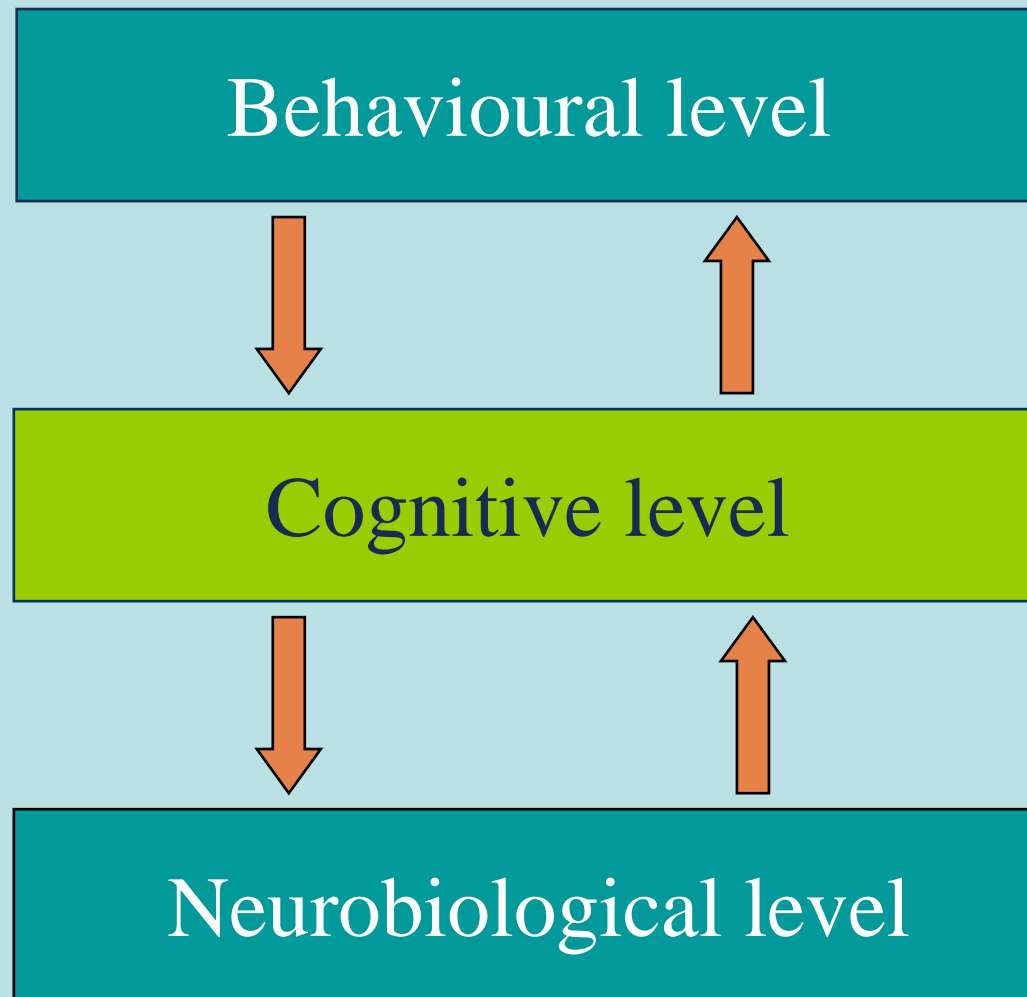


limited repertoire of  
interests and activities



# Associated / co-occurring problems

- Motor issues
- Sensory processing issues
- Behavioural issues
- Attention difficulties
- Anxiety
- Tics
- ...
  
- Intellectual disability
- Medical problems, syndromes, sensory impairments





# Cognitive constructs

central coherence

*(Frith, 1989, 2002)*

executive functions

*(Denckla, 1996; Pennington & Ozonoff, 1996)*

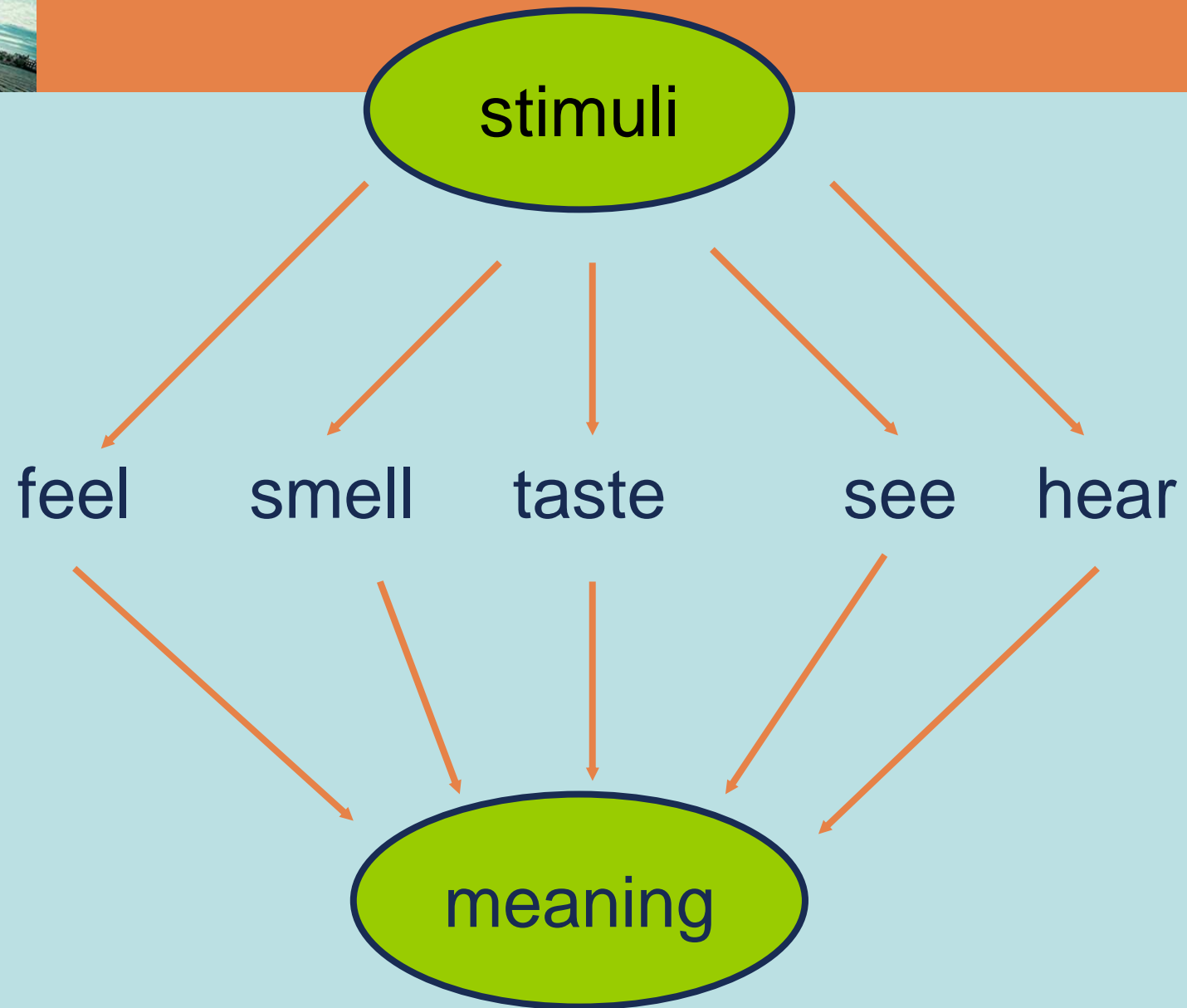
theory of mind

*(Baron-Cohen, 1995)*

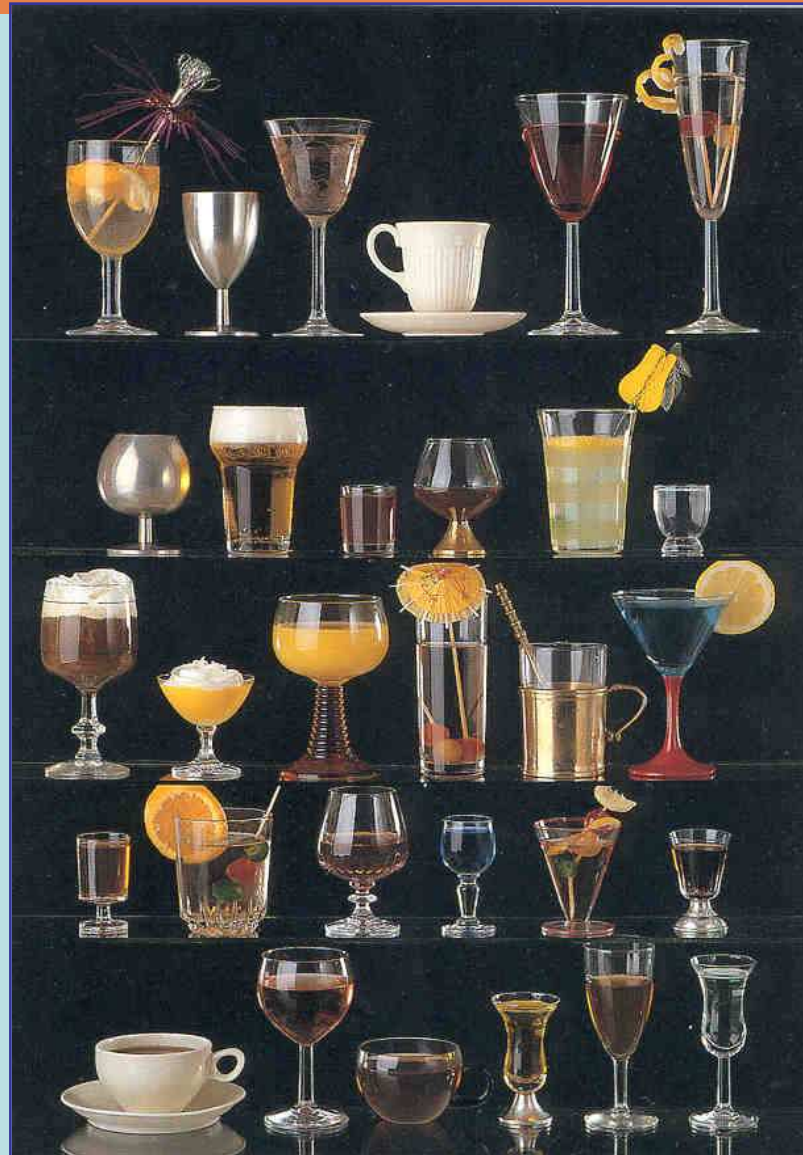


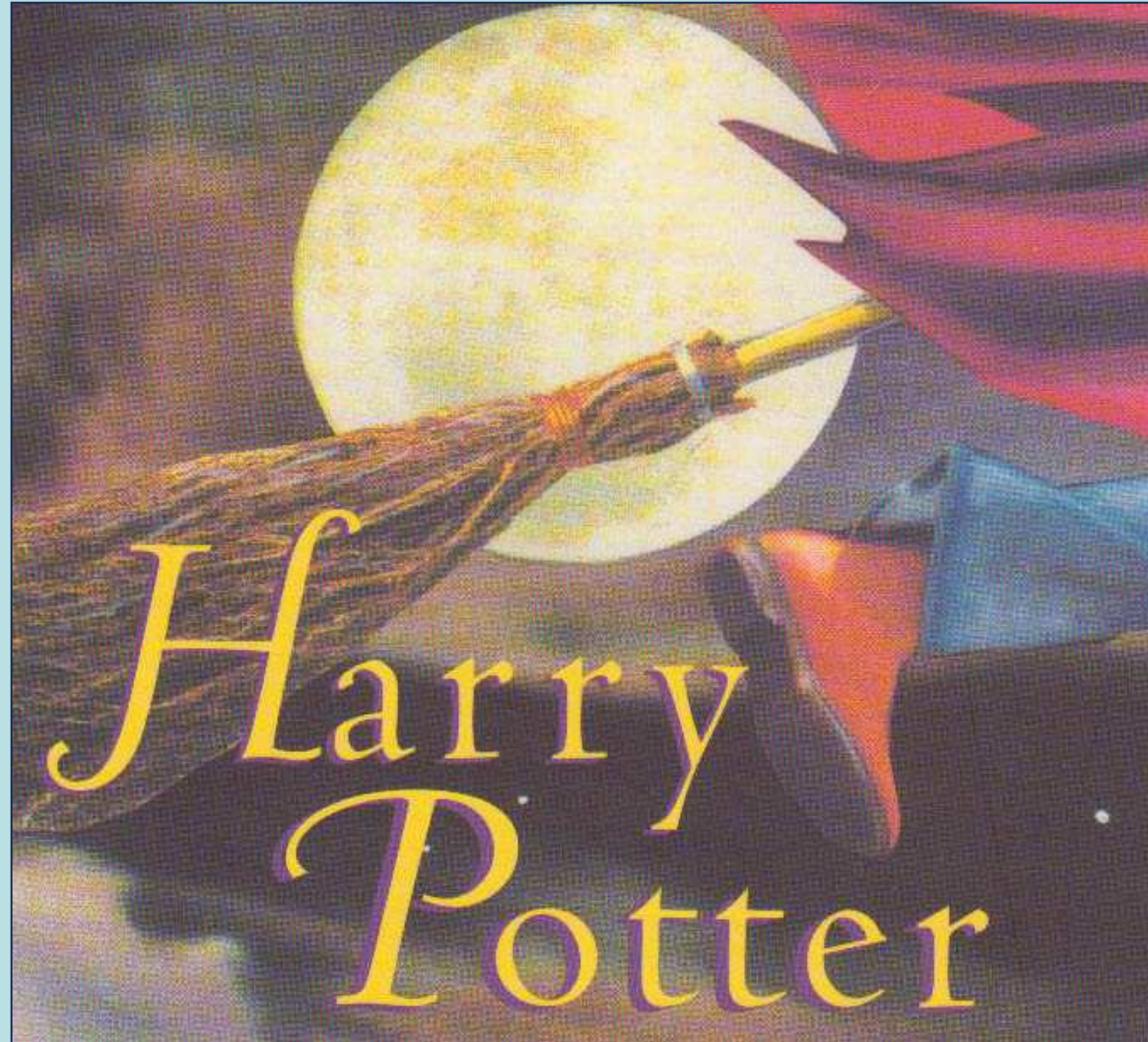
# Central coherence

- Tendency to process incoming information globally and in context, pulling information together for higher-level meaning
- At the expense of attention for details











**FINISHED FILES ARE THE RESULT OF YEARS OF SCIENTIFIC STUDY COMBINED WITH THE EXPERIENCE OF YEARS**



stimuli

feel

smell

taste

see

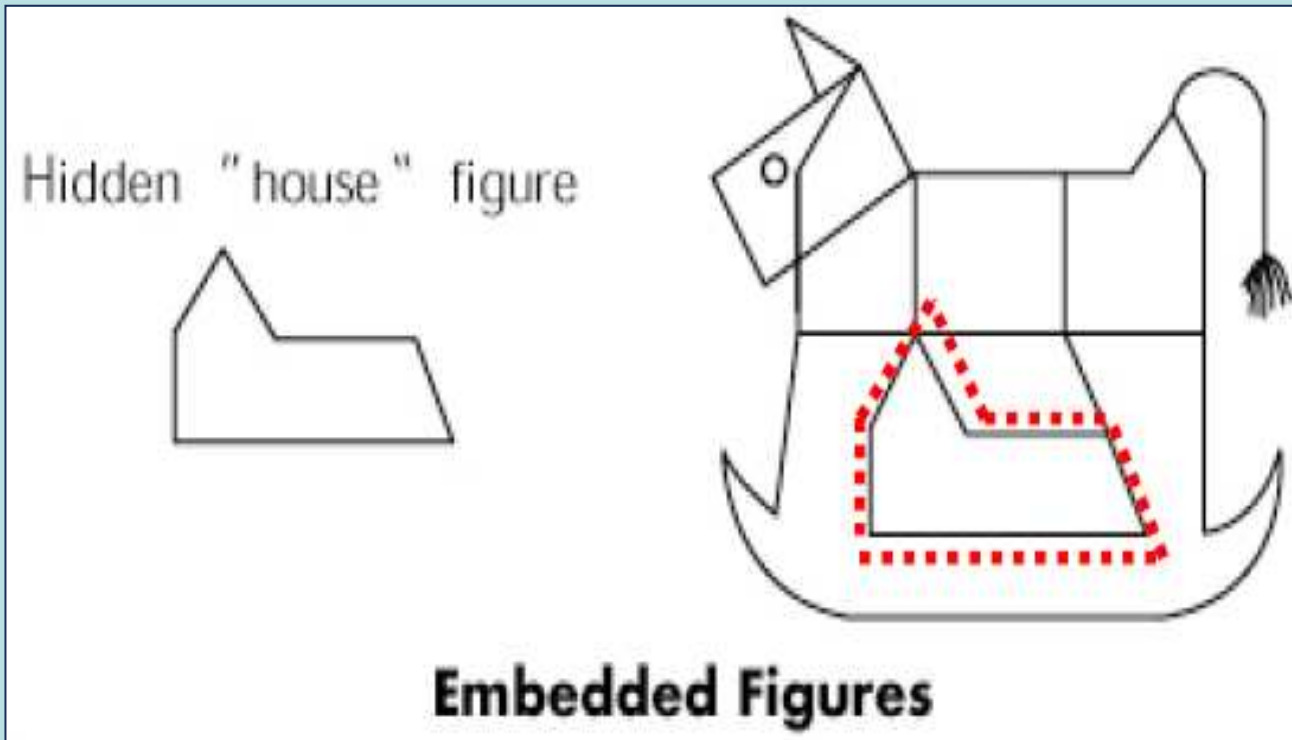
hear

literal and fragmentary meaning



# ASD: weak central coherence

- Tendency to process incoming information locally and piecemeal
- At the expense of attention for “gist”
- 2 aspects:
  - Enhanced local processing
  - Reduced global processing





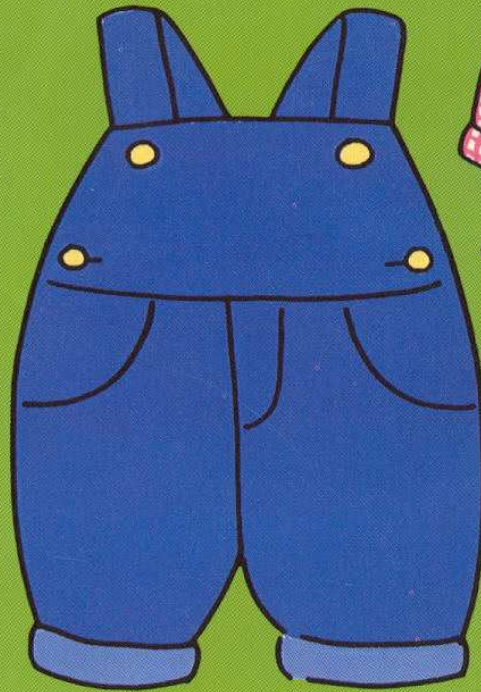
een bloemenrok



een streepjesbroek



een ruitjesbroek





# Sensation and perception

- Sensation
  - Detection of a stimulus in the environment (*Levine, 2000*)
- Perception
  - Interpretation of information gathered by the senses (*Goldstein, 1999*)



# Sensation and perception in ASD

- Sensation
  - Problems in sensory processing
- Perception
  - Problems in sense-making

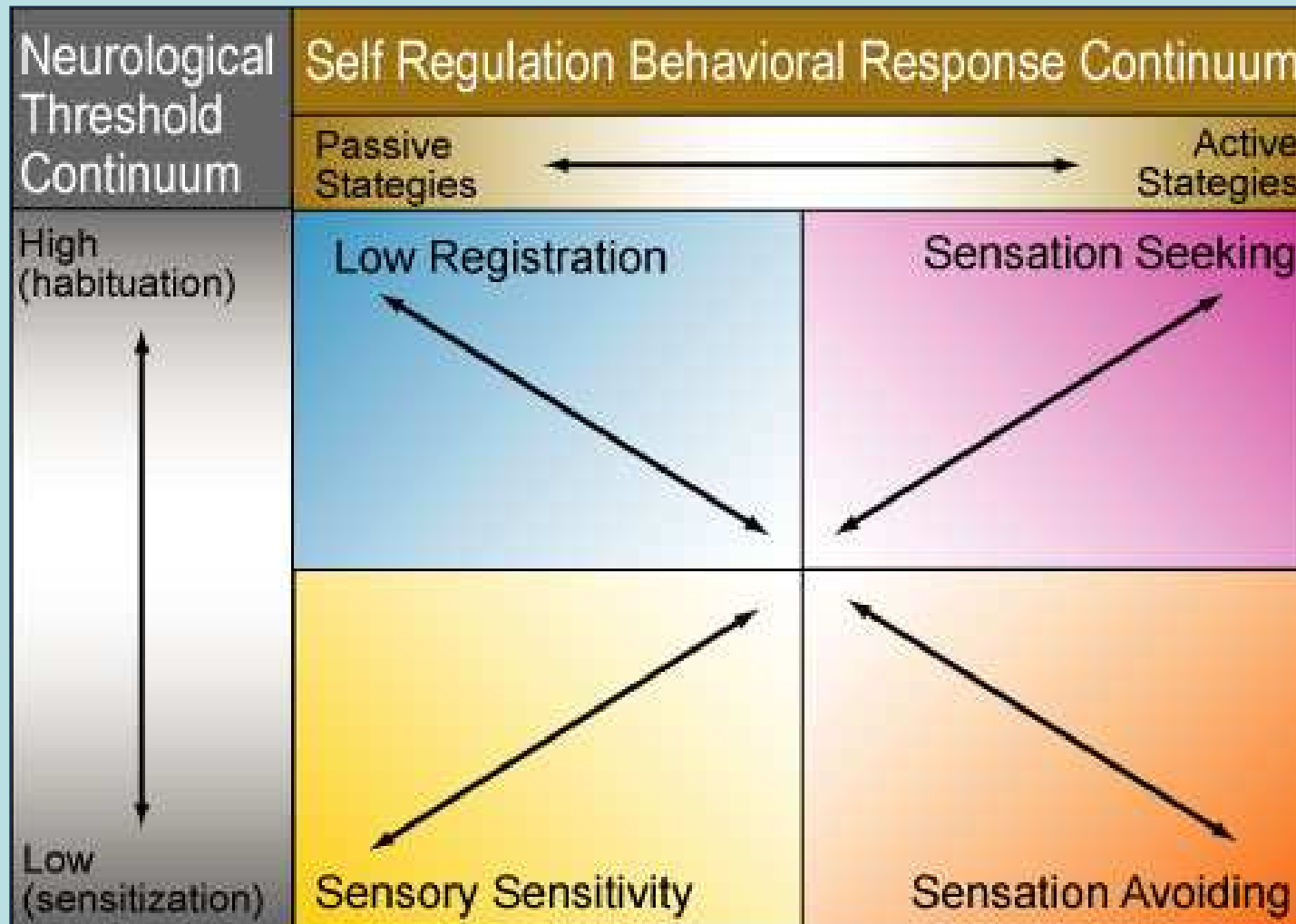


# Sensory processing: the senses

- **Distance**
  - Vision
  - Hearing
- **Proximity**
  - Smell
  - Taste
  - Touch
- **Internal**
  - Proprioception
  - Vestibular sense



# Sensory processing *(Dunn, 1997, 2001)*





# Problems in sensory processing

- Hypersensitivity - hyposensitivity
- Hyperreactivity - hyporeactivity
- Modulation problems
- Sensory integration problems



# Sense-making

*(Verpoorten, 1996; Verpoorten, Noens & Van Berckelaer-Onnes, 2004, 2007)*

- Level of sensation
- Level of presentation
- Level of representation
- Level of metarepresentation





# ASD and architecture

## THE CHALLENGE...

Making sense  
in their fragmentary world



# Making sense of the environment

Use design to augment communication of **CONCEPTS**

- **what** / when / **where** / who / how / how long ???
- With individualised augmentative communication adapted to the level of sense-making



## 3 take home messages ...

- Individualise “Design for Autism”
- Take problems in sensory processing into account
- Offer opportunities to make sense of the environment