Background
- Studies on behavioural phenotypes often match participants on their cognitive abilities.
- Since persons with Down syndrome (DS) commonly present relatively preserved non-verbal reasoning abilities associated to larger difficulties in verbal skills, general IQ is not an adequate matching variable.
- This cognitive dissociation is better controlled by matching participants on a non-verbal reasoning task and by statistically controlling the influence of verbal skills (Straccia, et al., 2014).
- The Raven’s Coloured Progressive Matrices (CPM, Raven et al., 1986) is often used to match participants with DS to controls.
- While several studies suggest that children with DS present a specific error pattern (Gunn & Jarrod, 2004), other studies find inconsistent results (Facon & Nuchadee, 2010).

Aim
Since no studies have analyzed this topic among adults with DS, we aim to examine the usefulness of the CPM in matching adults with and without DS.

Results: all participants (I)
- Participants: 48 adults with DS and 184 adults with non-specific ID (NS) took part in the study.
- Material: the CPM is a non-verbal reasoning task in which participant have to choose the piece which correctly complete the presented pattern (36 items, Cf. Figure 1).
- Matching: the analyses were firstly conducted on the two complete group and secondly by individually matching participants with DS and NS on the CPM raw score.

Results: matched groups (II)
- Error Analysis: the CPM provides four types of error. We compared the two groups on the proportions of each type of error.
- Items Analysis: this method consists in computing a delta (D) score for each item and a principal axis (y = ax + b, Cf. Figure 2). A difference greater than 1.5 delta units between the principal axis and a delta point indicates a significant differential functioning between the two groups for a given item.

Results (III) and Discussion
- Comparing means: The adults with NS showed higher scores than the adults with DS (498) = 3.545, p = .001.
- Error Analysis: The two groups did not show any difference in the error pattern, neither in matched nor in no matched conditions (Figures 3 and 5).
- Items Analysis: The group with DS showed more difficulties to complete all items, although this difference was not significant (< 1.5 delta units, Figure 4).

References