

Neuropsychological features of comorbidity high functioning autism and psychotic disorders.

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Background: Schizophrenia (SZ) and high functioning autism (HFA) are two severe neurodevelopmental disorders that might share common features at biological and behavioural levels. If the international classifications restrict criteria concerning dual diagnosis, they do not exclude comorbidity for these two disorders [1]. Neuropsychological characteristics, and executive functioning assessment in particular, could enable a deeper investigation of the specific nature of comorbidity.

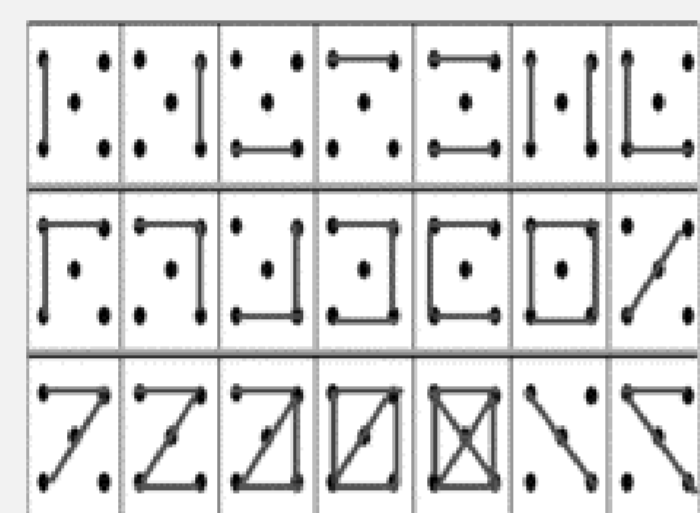
Method:

Participants

Nine subjects (8 boys/1 girl) with HFA diagnosis (IQ>70) and eight subjects (7 boys/1 girl) who were first diagnosed with HFA and later developed schizophrenia spectrum disorders matched in terms of gender, age, age at diagnosis and IQ.

Material and procedure:

- Stroop test (interference management)
- Go/NoGo (simple inhibition/motor restriction)
- Non verbal fluency: the 5PT test [2]



Example of a 5PT resolution.
The original grid is composed of five lines of seven boxes.

- Verbal fluency:
 - Literal task: P & R
 - Semantic task: animals, fruits & vegetables and action (verbs) + qualitative analyses

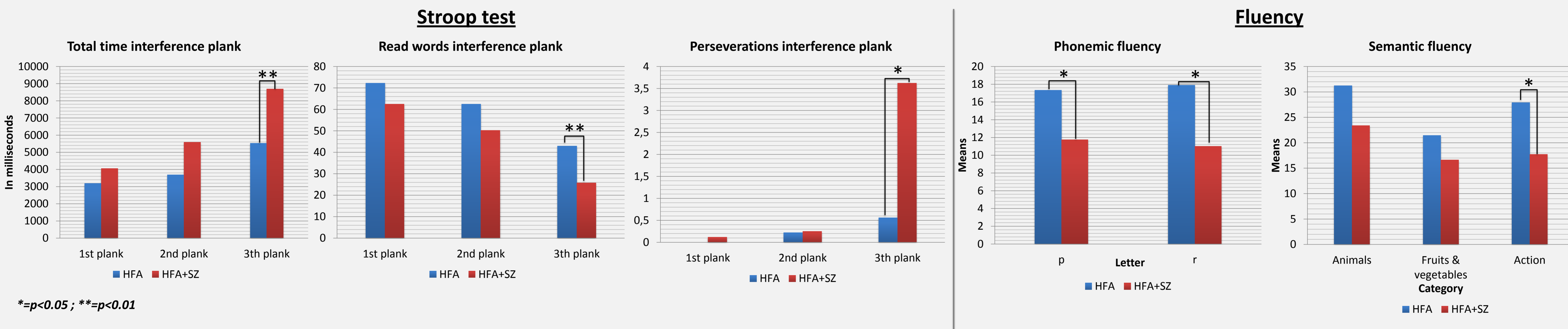
Aim of the study:

We sought to address the question of the *specific neurocognitive and neuropsychological features of SZ/HFA dual diagnosis* by focusing on three main cognitive and executive areas. Based on a literature review of similarities and discrepancies of cognitive functioning in both disorders, we choose to focus on *inhibition, non-verbal fluency* (both preserved in HFA and impaired in SZ) and on *verbal fluency* (impaired in SZ and showing more shaded impairments in HFA).

Results

Intergroup analyses

Results on non-parametric intergroup analysis show that firstly interference management through the Stroop test, and secondly executive management through phonemic and verbs fluencies are the most likely variables to differentiate simple diagnosis from dual diagnosis group irrespective of the age, IQ or medication.



Others significant results

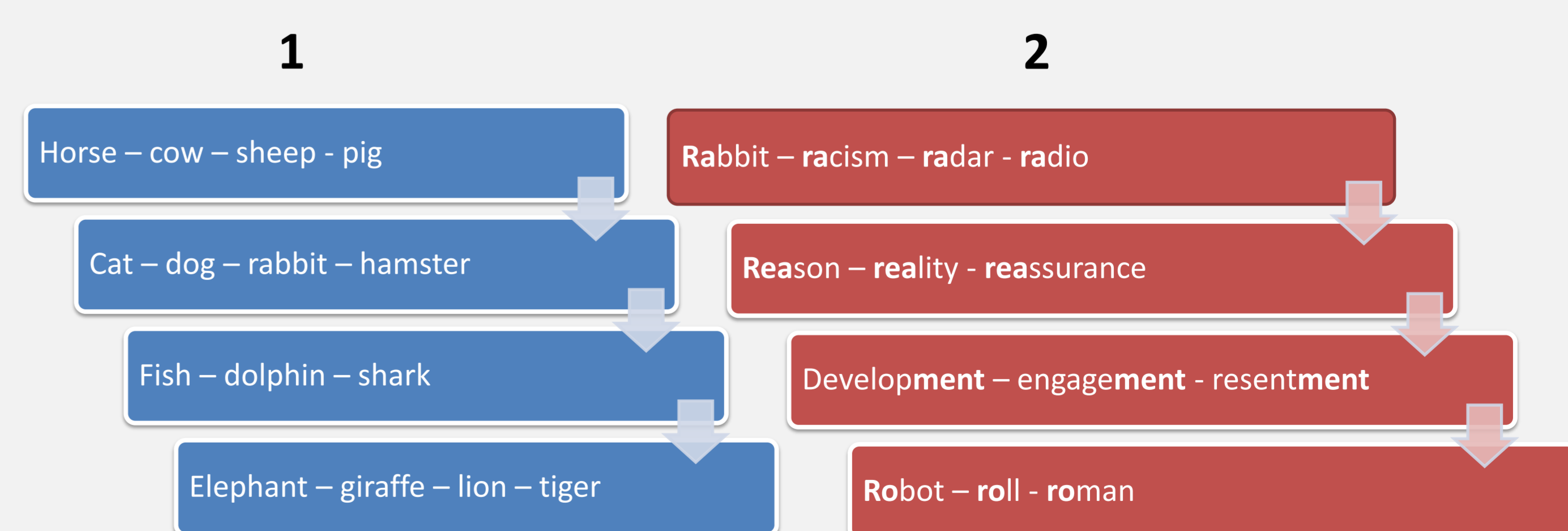
Other qualitative indices were also analyzed: clusters and switches, perseveration and latencies.

We found some significant results for those in fruits and vegetables fluency (table 1).

	HFA	HFA+SZ	Mann-Whitney	
			U	p
Total of words	21.44	16.62	20.50	0.139
Clusters	5.44	3.75	26.50	0.370
Switches	15.33	9.75	8.00	0.006**
Perseverations	1.56	0.12	14.50	0.036*
Latency (ms)	1221.11	2681.25	14.50	0.046*

Table 1 : Others qualitative indices for fruits and vegetables fluency *= $p<0.05$; **= $p<0.01$

- Clustering: generating words within semantic (1) or phonemic (2) subcategories ;
- Switching: shifting between subcategories [3].



Discussion

Our data suggest that some specific neuropsychological features could characterize subjects with dual diagnosis high functioning autism and schizophrenia. Those characteristics seem to follow the logic of an impairment of frontal and dopaminergic-dependent abilities. These impairments could be either resulting from the psychotic symptoms, either representing a special vulnerability features in subjects with HFA who will later develop schizophrenia spectrum disorders. Further analyses on developmental aspects will be carried on in order to address this question.

[1] American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders*. Fifth Edition. Arlington: American Psychiatry Association.
[2] Rinaldi, R., Trapenniers, J. & Lefebvre, L. (2013). Shall we use non-verbal fluency in schizophrenia ? A pilot study. *Psychiatry Research*. 216 (3) : 314-9.
[3] Troyer, A., Moscovitch, M., Winocur, G., Alexander, M. & Stuss, D. (1998). Clustering and switching on verbal fluency : the effect of focal frontal and temporal lobe lesions. *Neuropsychologica*. 36(6): 499-504.