Figurative terms, such as metaphors, are pervasive in daily language use. To become a competent speaker of a language a child must learn to interpret correctly metaphorical expressions never heard before (e.g., “After her bath, Ann is a hedgehog” when Ann has spiky hair). To do so, the child needs first to recognise the syntactic structure where the metaphorical term appears, understand its literal meaning, then make a full-fledged pragmatic inference, identifying the relevant metaphorical features in context (e.g., spikiness), and ignore the inappropriate literal meaning. Early research suggests this is a slow process, yet recent findings indicate even pre-schoolers are competent at understanding metaphors when tested with paradigms controlling for the child’s vocabulary, the type of metaphor (novel or conventional) and the cognitive demands of the task (Pouscoulous 2011). But, what happens when the child is autistic or part of another atypically developing population?

Children with Autism Spectrum Disorder (ASD) experience noticeable difficulties with figurative speech (Rundblad & Annaz 2010), possibly linked to their impaired theory of mind (Happé 1993) or to their overall linguistic and especially semantic abilities (Norbury 2005). Yet, immature linguistic skills might affect the comprehension of figurative language regardless of autistic symptomatology (Gernsbacher & Pripas-Kapit 2012).

We intend to compare their performance with that of children with Down syndrome (DS). Despite known heterogeneity of linguistic and cognitive skills in the two disorders, vocabulary delays and grammatical impairments are reported both in DS and low-functioning autism (Perovic 2006; Perovic et al. 2012). Although pragmatics is generally reported to be spared in DS, research on figurative language is very sparse, calling upon an investigation of metaphor in DS both for comparative purposes and in its own right.

This study investigates comprehension of novel, rather than conventional metaphors, the latter of which require previously acquired knowledge, in 21 English-speaking children with ASD (Chronological Age: 5;5-15;3; non-verbal IQ KBIT SS:40-127; M=76.7; BPVS-2 SS:40-121, M=82), matched to younger typical controls (CA: 2;4-7;3) on non-verbal Mental Age (MA) (KBIT raw: ASD M=16.57; TD M=15.8); and verbal MA (BPVS-2 raw: ASD M=65;TD M=57).

We used a task minimising cognitive demands to determine where the difficulties with metaphor comprehension arise – i.e., insufficient vocabulary knowledge, difficulty with taking context into account, or inability to make a pragmatic inference. In an act-out reference assignment task, children were shown pairs of minimally different toys and asked to choose the one matching the metaphorical description (e.g., ‘a car with a sick foot’). Children were subsequently also tested on their knowledge of the key vocabulary used in the metaphorical items.

A regression analysis model showed no statistically significant difference between groups, with both performing near ceiling on all 6 experimental items. Performance of the ASD group was not linked to their chronological age, but was highly correlated with non-verbal and verbal mental age. In the control group, chronological age was somewhat relevant to their success in interpreting novel metaphors, but again non-verbal and verbal mental age played a
more important role. Contrary to the literature showing that metaphor comprehension is significantly impaired in ASD, our results indicate that a methodology that controls for vocabulary knowledge and minimizes the cognitive demands of the interpretation process helps children with ASD correctly interpret novel metaphor on par with younger controls.

We are currently testing DS children and further typically developing children as controls on the same paradigm in order both to probe precisely how DS children fare with novel metaphors and to compare their performance with that of the ASD group. Furthermore, ASD, DS and control participants are being tested on a picture selection-task developed to check the interference effect from literal meaning (based on Deamer 2013). Data collection will be completed by the summer and we should therefore be able to present an overall picture of novel metaphor understanding in ADS and DS.

References: