Activity 9: Do children with Williams syndrome have an intact language module?  
(Chapter 9, also relevant for chapter 8)

**AIM**
- To further students’ knowledge of Williams syndrome and the issues it raises about the relationship between language and cognition.
- To provide students with an understanding of how scientific debates, played out in print, can advance our understanding of how children learn language.

**BACKGROUND**

Williams syndrome is a genetic disorder that leaves children with sometimes severe learning disabilities. However, children with Williams syndrome can have excellent conversational skills. Thus, children with Williams syndrome seem to have impaired cognitive functioning but intact language abilities.

Specific language impairment (SLI) is a genetic disorder that leaves children with huge difficulties in learning and using language. However, children with SLI have IQs within the normal range. Thus, children with SLI seem to have intact cognitive functioning but impaired language abilities.

Many researchers point to these two disorders as evidence for Pinker and Jackendoff's (2005) view that language is governed by mechanisms that are separable and distinct from the mechanisms governing other cognitive functions. In other words, the existence of children with Williams syndrome and with SLI is seen as evidence for a double dissociation between language and other cognitive functions. For example, Pinker writes ‘Overall, the genetic double dissociation is striking ... The genes of one group of children [specific language impairment] impair their grammar while sparing their intelligence; the genes of another group of children [WS] impair their intelligence while sparing their grammar’ (Pinker, 1999, p. 262).

However, this claim is hotly disputed. There are many who argue that this picture is an over-simplification of the evidence. They suggest that, when we look closer, the evidence of dissociation between language and cognition is far less clear. For example, Karmiloff-Smith (2009, p. 56) has posed the following questions to those who argue for a dissociation:

‘(a) Do significantly better scores in one domain necessarily indicate an intact module? (b) What do scores in the normal range suggest? ... (d) Why is the notion of an intact module unlikely? (e) Do developmental disorders suggest associations rather than dissociations? (f) Is the environment the same for atypically developing individuals?’

In particular, Karmiloff-Smith and her colleagues have argued that the existence of a distinct module for language is highly unlikely given what we know about how the brain develops.

**REFERENCES**


**YOUR TASK**

Read Chapter 9, section 9.4 in the textbook and the following two articles that take diametrically opposed viewpoints on the issue of dissociation.


Then answer the questions below.

**PAPER 1: Ring & Clahsen (2005)**

1. Ring and Clahsen have a slightly different take on the issue to Pinker (1999, see above). On page 480 Ring and Clahsen summarise their core argument. What is it and how does it differ from Pinker’s?

2. Ring and Clahsen summarise a number of linguistic theories on pages 481 and 482. The basic message is that the same linguistic mechanism governs the use of passives (e.g. *the fish is eaten by the man*) and reflexives (e.g. *John believes that Mary likes herself*): A-chain formation. On this account, children should be impaired on both reflexives and passives or neither. What does the evidence on neurodevelopmental disorders (summarised in section 3) suggest?

3. What prediction did Ring and Clahsen test?

(It is important here to know the difference between a hypothesis and a prediction. A hypothesis is a statement (or a possible answer to a question) that makes predictions that are testable, either by observation or experiment. A prediction is a statement about the expected outcome of that observation/experiment. For example, if we want to evaluate the hypothesis that teenage girls are better at maths than boys we might test the prediction that ‘Girls aged 16 will score more highly on a high school maths test than boys of the same age’.)

4. Who were the participants in the study?

5. Summarise the test they used for a) reflexives and b) passives.

6. Overall, do the results for the children with Down Syndrome support the prediction? Explain your answer.

7. Overall, do the results for the children with Williams Syndrome support the prediction? Explain your answer.
8. Summarise the 'take home' message of Ring and Clahsen’s study.

**PAPER 2: Karmiloff-Smith et al (2003)**

9. The authors begin by criticising the claims made by Clahsen and Almazan (1998). Clahsen and Almazan’s argument is the same as that of Ring & Clahsen (2005). They found that children with WS have problems forming irregular past tense verbs (e.g. creep-crept) but not regular past tense verbs (e.g. walk-walked). They argued that this supported their view that the computational (rule-based) system of language – the one governing the formation of regular past tense forms – is separate and dissociated from general cognitive abilities. What criticisms do Karmiloff-Smith and colleagues have of Clahsen and Almazan’s study?

10. What is the authors' preferred explanation of the development of language in children with WS? Why do they prefer this explanation?

11. The authors state ‘it is in our view theoretically misleading and empirically inaccurate to claim that grammar is spared in this clinical population’ (page 232). What evidence do they put forward to support their view?

12. The debate about WS is not restricted to their language. There are also debates about face processing skills, which the authors summarise. What is the authors' position on the face processing skills of children with WS?

13. Karmiloff-Smith and colleagues argue that one cannot make claims about innateness (e.g. that the brain is organised into innate, separable modules) just by studying the end-state (e.g. adults with Williams syndrome) without studying the developmental trajectories. They cite a study by Paterson (2000) in support of her view. Why does this study support Karmiloff-Smith and colleagues’ view?

14. On balance, after reading these two papers, do you think the evidence supports the idea of a dissociation between language and cognition? Explain why you think this. Is there any evidence you think we are missing? What further studies need to be done to help settle the debate?