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Lillie F Crowley* (lillie@pop.uky.edu), 138 Moloney Building, Lexington Community College, Cooper Drive, Lexington, KY 40506-0235. *Procedures, Cognitive Units and Cognitive Structure.*

Much is known about what algebra students can and cannot do, and many ongoing projects attempt to improve success rates and reduce the need for remediation in college. Why do some students succeed while others do not? Why do two students who each made a "B" in the same Intermediate Algebra course have very different experiences in the subsequent College Algebra course? Why does one succeed with little difficulty, while the other struggles and may ultimately pass, but with much hard work and serious anxiety? This study examined the cognitive structure exhibited by two such students asked to work problems involving lines, their equations and graphs, topics studied in Intermediate Algebra and reviewed again in College Algebra. They showed very different strategies, evidence of cognitive units and links between them. The successful student showed cognitive structure rich with flexible links to alternate procedures. The less successful student demonstrated access only to a set of disjoint procedures, lacking in links and flexibility, prone to breakdown as a result of any computational error, in short, a set of procedures in a cognitive "kit bag". This study may help explain why grades are not necessarily a good predictor of future success. (Received October 03, 2000)