Reading Guide for “Energetics and Mechanisms of Carbon-Carbon and Carbon-Iodide Reductive Elimination from a Pt(IV) Center,” Goldberg, K. I.; Yan, J.; Breitung, E. M. *J. Am. Chem. Soc.* **1995**, *117*, 6889-6896. **DOI:** 10.1021/ja00131a010

1. Why did the authors want to study the mechanism of C-X reductive elimination?
2. Looking at Figure 1b, calculate the percent change in mass for the complete conversion of reactant to products shown in Scheme 1, assuming 82% path 2 and 18% path 1. Does the data reported match your calculations?
3. What are the major experimental differences between the reactions described in Figures 2 and 3. Why did they make those changes? How do both of these reactions differ from that shown in Figure 1?
4. Based on your estimate of the reading on the early reaction times in Figure 3, what is the value of the equilibrium constant between (dppe)PtMe3I and (dppe)PtMe2 + MeI?
5. How is the enthalpy and entropy of the reaction obtained from the data in Figure 4? In other words, what is a Van ’t Hoff plot?
6. If the enthalpy of the C-I RE (Reductive Elimination) reaction shown on the bottom right of page 6891 is correct, show how the authors obtained the value of -105 kJ/mol for the value of the C-C RE reaction.
7. Explain in more detail how the authors determined the Pt-CH3 and Pt-I bond strengths on page 6892.
8. The Pt-I bond strength is higher than the Pt-C bond strength. Does this make sense given the experiments described in Figures 1-3?
9. Explain Figure 8. a) what does it show? b) where does every numerical value on the figure come from in the paper?
10. Are the reactions from 2 to “A” to 1 in Scheme 2 the microscopic reverses of the reactions from 1 to “A” to 2? Why or why not? Does the data in this paper rule out a possible mechanism for oxidative addition? Consider the paragraph below Table 2 in your answer.
11. Use a steady state approximation for “A” to derive equation 4.
12. What additional experiments did the authors do in order for them to draw Figure 9?
13. Challenge question: show how eq. 3 can be derived from eq. 2.