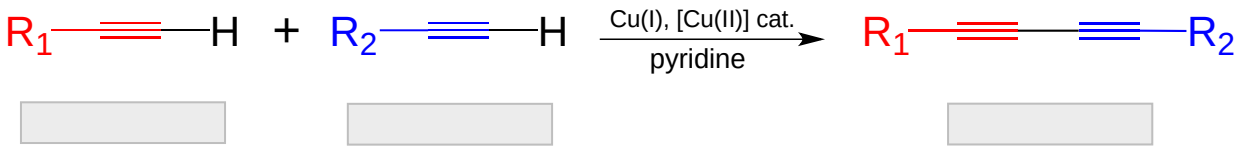
CONCEPT: EGLINTON REACTION

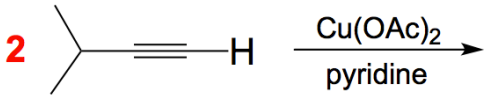
- The Eglinton Coupling Reaction involves the coupling between 2 identical terminal alkynes with a Cu catalyst and base.
  - □ The reaction uses a Cu catalyst in the formation of a _____ product.
  - □ Like coupling reactions, the driving forces are forming of _____ products and the catalyst's electron count.
  - □ Unlike the other coupling reactions, it doesn't use a catalytic cycle and instead _____.

Eglinton Coupling Reaction



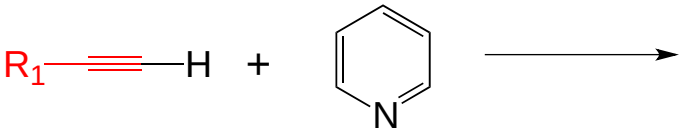
- □ The R_1 group of the terminal alkyne is represented by a(n) *vinyl*, *aryl* + _____ or _____ group.
- □ The R_2 group of the terminal alkyne is represented by a(n) *vinyl*, *aryl* + _____ or _____ group.

EXAMPLE: Determine the product from the following Eglinton Coupling Reaction.

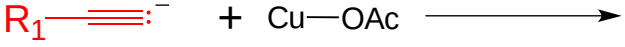


Coupling Mechanism

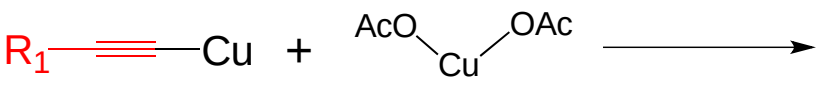
1) **Deprotonation**: The slight acidity of the terminal alkyne hydrogen allows it to be deprotonated by the pyridine base.



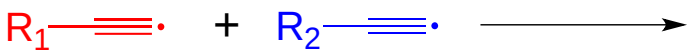
2) **Substitution**: The alkylnide ion formed during deprotonation undergoes a substitution with CuOAc.



3) **Radicalization**: The newly formed C—Cu bond undergoes homolytic cleavage in order to form an alkylnide radical.

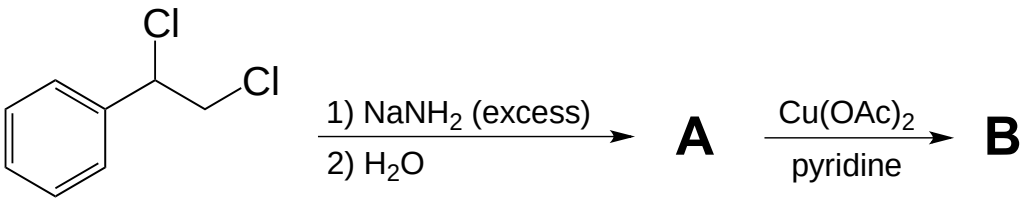


4) **Dimerization**: The final step involves the dimerization of the two alkylnide radicals that have been formed.



CONCEPT: EGLINTON REACTION

PRACTICE: Determine compounds **A** and **B** from the following reaction sequence.



PRACTICE: Predict the product formed from the following intramolecular Eglinton reaction.