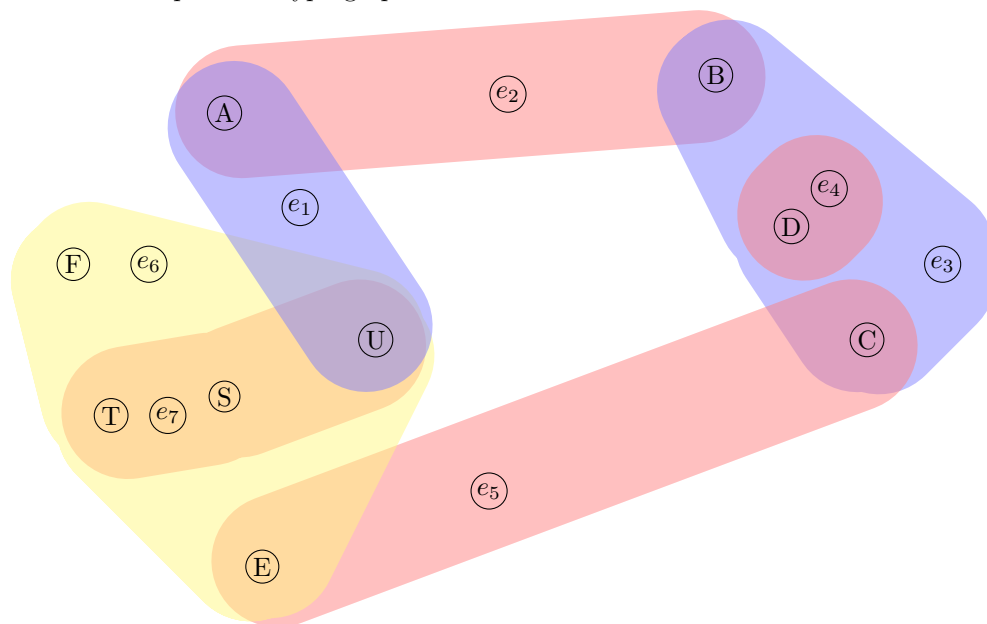# Graph Theory Homework

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February 20, 2015

Worksheet

1.) Create a 3-regular, 3-uniform hypergraph. Is it possible to create an k-regular, k-uniform (simple) hypergraph? Prove or disprove.

2.) Let H be the pictured hypergraph.

(a) Create the associated bipartite graph to H.
   I've labelled the edges, so $e_1 = \{A, U\}$, $e_2 = \{A, B\}$, $e_3 = \{B, D, C\}$ and so on.
   (A)   (B)   (C)   (D)   (E)   (F)   (T)   (S)   (U)

(b) What is the adjacency matrix of H?

(c) What is $H*$?

3.3

4.1