


## Reminder VIII

- Eulerian trail and Eulerian tour : simple  
characterization.  $\leftarrow$  visit all edges once  $\leftarrow$  closed trail  
7 bridges of Königsberg.
- Postman tour (all edges visited, more than once allowed)  
Weights on edges  $\rightsquigarrow$  optimal postman tour  
If weights = 1  $\rightsquigarrow$  shortest closed walk through all edges.
- Matching, perfect matching, complete graph  $K_n$
- Algorithm for optimal postman tour. 
- Hamiltonian path and cycle  $\leftarrow$  visit all vertices
- Traveling salesman problem : Hamiltonian  
with minimum total edge weight. sTSP or aTSP
- $\exists$  solution : Bellman-Held-Karp algorithm ...  $O(n^2 2^n)$   
 $\rightsquigarrow$  look for faster, less optimal solution.  $\rightsquigarrow$  heuristic  
 $\rightsquigarrow$  double tree algorithm . If triangle inequality  
imposed, not worst than 2 times optimal. Many improvements.