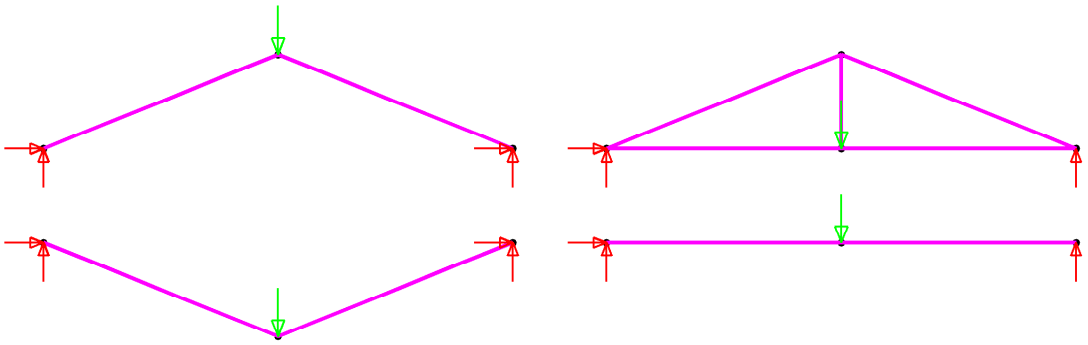
Homework 2
Perspectives on the Evolution of Structures
Part A: Analysis 1, Part B: Eiffel Tower Structural Study Assignment

Part A: Analysis 1

Two short instructional videos have been created to help you with this homework
http://youtu.be/AR-jSuM8dKw
http://youtu.be/MKKXDvXu8BY

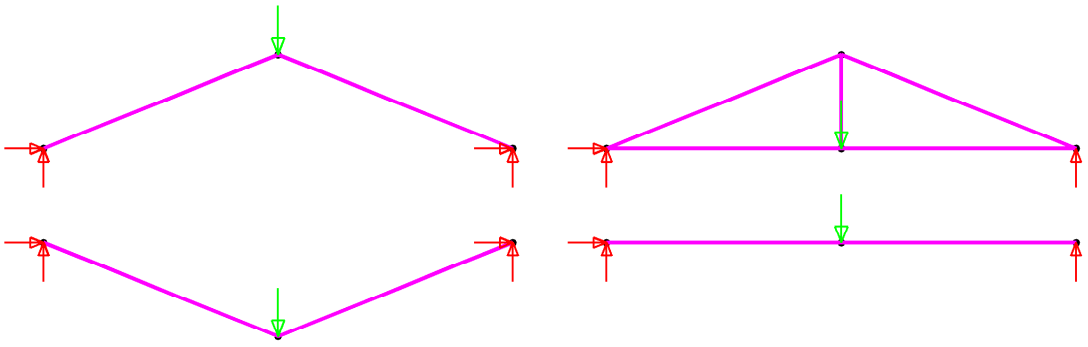
1. Load Path and Internal Forces

For the four small structures given below (arch, cable, truss, and beam), show the load path for how the applied vertical load (green arrow) gets to the supports (red arrows). Indicate whether the members are in tension (T), compression (C) or bending (B) by writing directly on the members.



2. Reactions

In the following four pictures the support reactions (red arrows) have been drawn in the default direction. For the structure under the applied (green arrow) load some of the red support reaction arrows are in the correct direction – some are not. Circle all red support reaction arrows that are in the correct orientation and put an X through all red support reaction arrows that are in the wrong orientation.

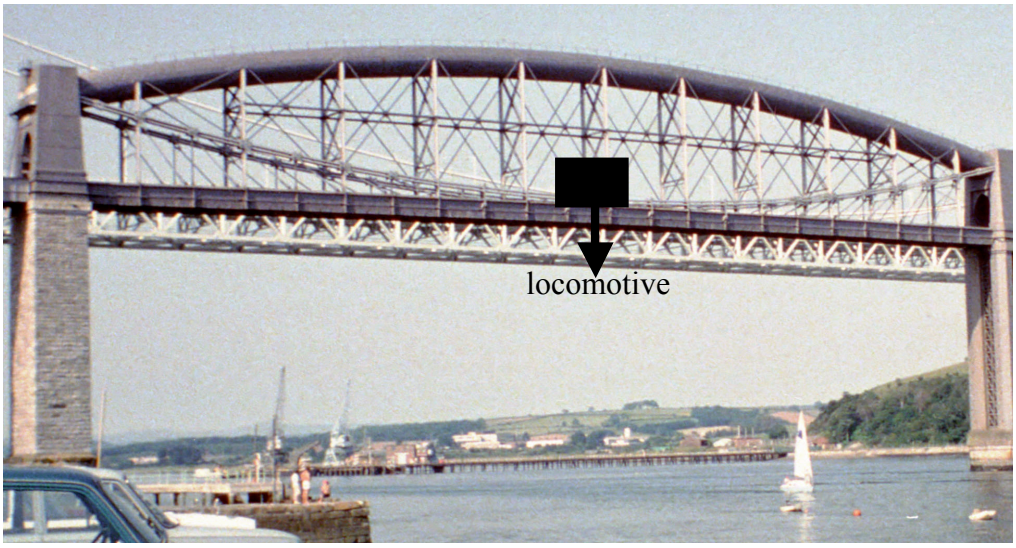


3. Reactions More

Explain how the horizontal reactions in the arch influence the stiffness of the structure.

4. Load Path and Internal Forces

(a) Draw the load path for the indicated locomotive load on Brunel's Saltash bridge.
(b) Explain your selected load path(s) (below).
(c) Label which members are in tension (T) compression (C) and bending (B) as best you can.



Load path explanation for part (b):