Mach - I

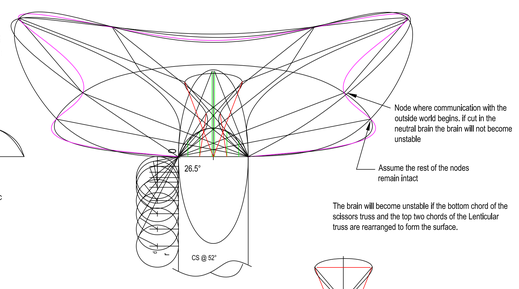
As far as regions of structural stability of the tensile specimen are concerned, we proceed from a "Neutral" state to the "Stable" and then to the "Unstable" state.

So one can visualize a piece of string which is straight (neutral) , then bend concave down (stable) and concave up (unstable).

3:1 Leverage

Neutral to Elastic brain structure

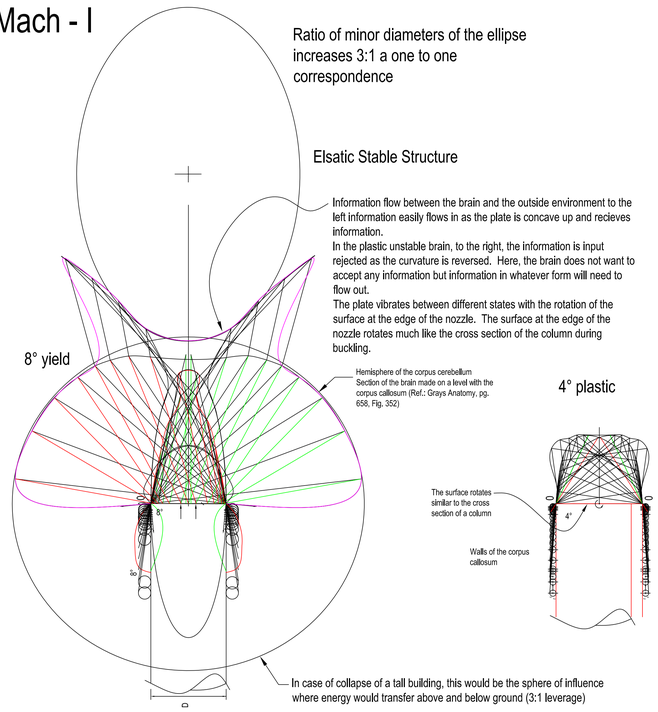
26.5° elastic - Neutral



Ratio of minor diameters of the ellipse increases 3:1 a one to one correspondence

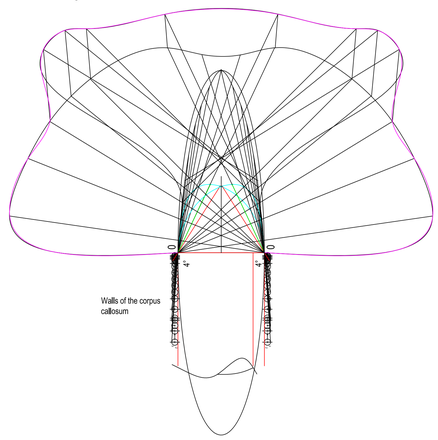
Elsatic Stable Structure

Information flow between the brain and the outside environment to the left information easily flows in as the plate is concave up and recieves information.
In the plastic unstable brain, to the right, the information is input rejected as the curvature is reversed. Here, the brain does not want to accept any information but information in whatever form will need to flow out.
The plate vibrates between different states with the rotation of the surface at the edge of the nozzle. The surface at the edge of the nozzle rotates much like the cross section of the column during buckling.

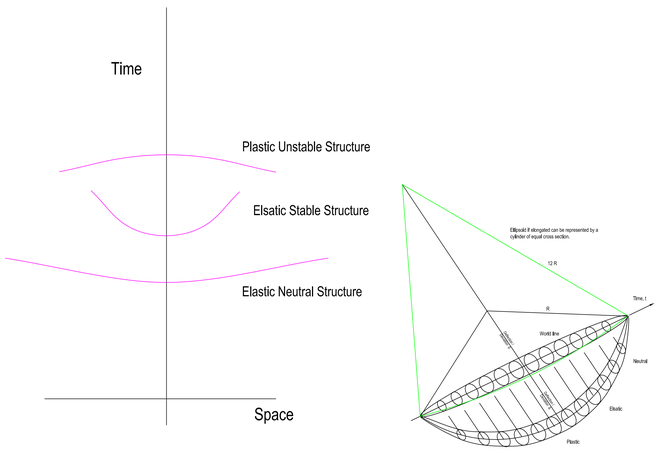


Un-Stable - Plastic brain structure
Even the unstable brain can become more unstable !

3:1 Leverage

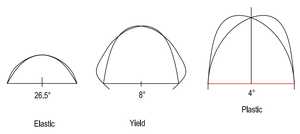


Space Time Diagram of a Bent Beam



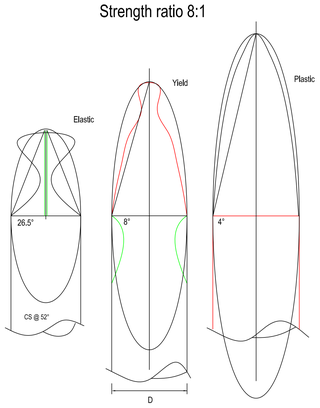
$mv^2 = k\,x^2$ = Area under the energy curve differentiate:
$mv = k\,x = F$
Take the area under the energy curve and devide by x to get the force for that portion of the curve.

Height to base ratio of Low Rise buildings designed for different limit states



Height to base ratio of high rise buildings designed for different limit states.
The height could be increased 25% if nonlinear effects (due to spherical excess) have been taken into consideration in the design
Strength ratio 8:1

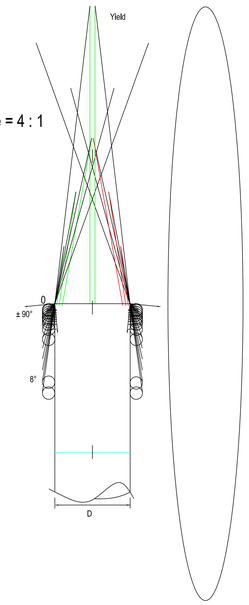
Strength ratio 8:1



Mach-III

Height : Base = 4 : 1

Height to base ratio of high rise buildings designed for yield limit state
(The height could be increased 25% if nonlinear effects)
Strength ratio 2:1



When a shock wave reflects from a free surface, such as that at the boundary of a jet, the boundary conditions require that the pressure be constant and equal to its ambient value in the surrounding space. If the surrounding pressure is less than the pressure at the lip, the wave will expand.