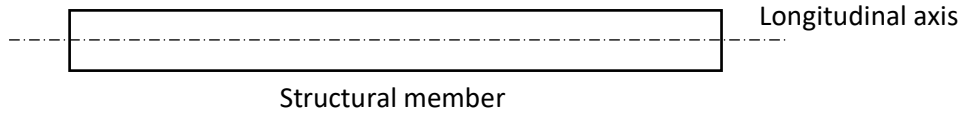




Forces at the ends of axially loaded members

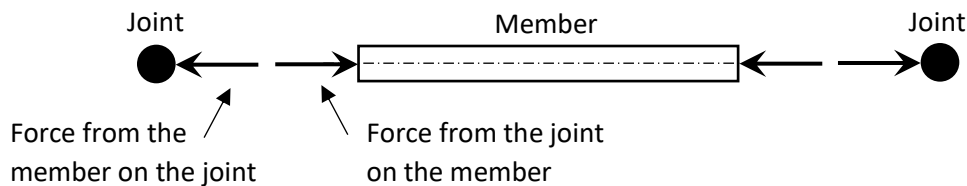
An axially loaded member is a structural component that is only subjected to loading along its longitudinal axis (i.e. forces act along the length of the member). The direction of the loading determines whether the member is in tension or compression.



A truss is a structure consisting of a series of axially loaded members joined at each end with pin connections. Understanding how the applied loading is distributed through the members and joints of the truss is an important factor in its design. A member that is subjected to an external axial force will exert an equal and opposite force on the joint it is connected to.

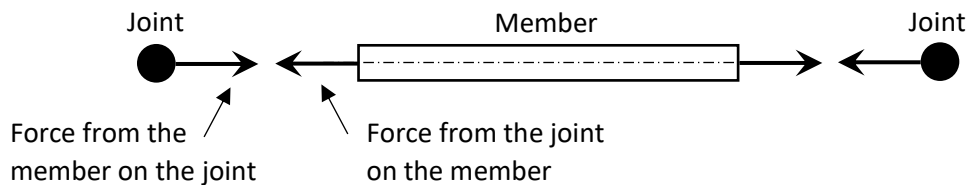
Member in compression

A member in compression will exert a force that is directed towards the joint.



Member in tension

A member in tension will exert a force that is directed away from the joint.



When the nature of a member is unknown, a useful convention can be employed by assuming it is in tension. If the force in the member is calculated to be positive, then the assumption was true, and the member is in tension. However, if the force in the member is calculated to be negative, then the assumption was false, and the member is in compression.

Metadata

Keywords: Axial load, tension, compression

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