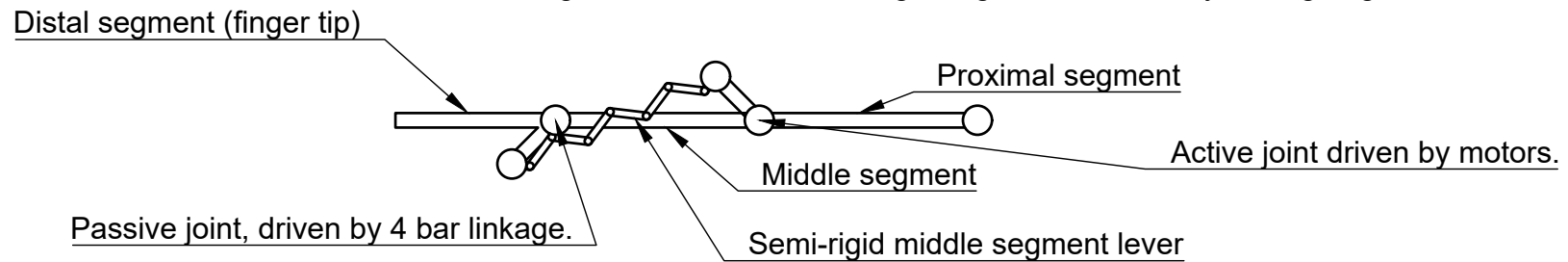
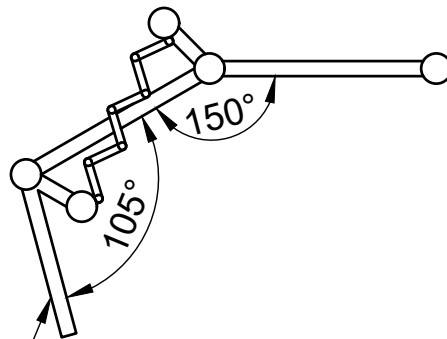


Fingertip mechanics, straight pose

The finger tip is a 4 link bar assembly that constrains the movement of the distal joints. The 4 links comprise 3 rigid segments and a 4th semi-rigid segment denoted by the zig-zag line.

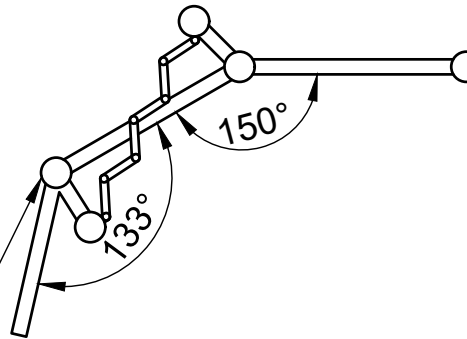


Tip compression (force on nail area)



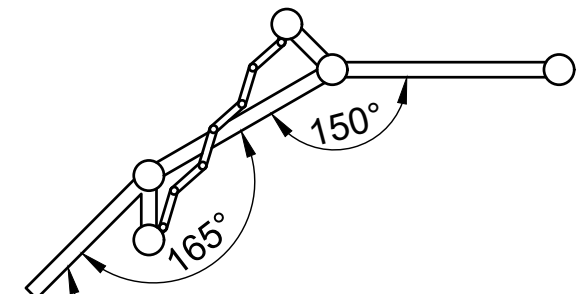
Force applied on the top of the finger compresses the lever segment. We can compute the torque applied by measuring both joint angles relative to the no-load condition.

No load case, bent pose



When no load is applied to the fingertip the angle of the passive joint can be computed from the angle of the driven joint and the segment lengths.

Tip extension (force on fingerprint area)



Force applied on the fingertip base causes the semi-rigid lever to stretch allowing the passive joint to extend further while the active joint is fixed.

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