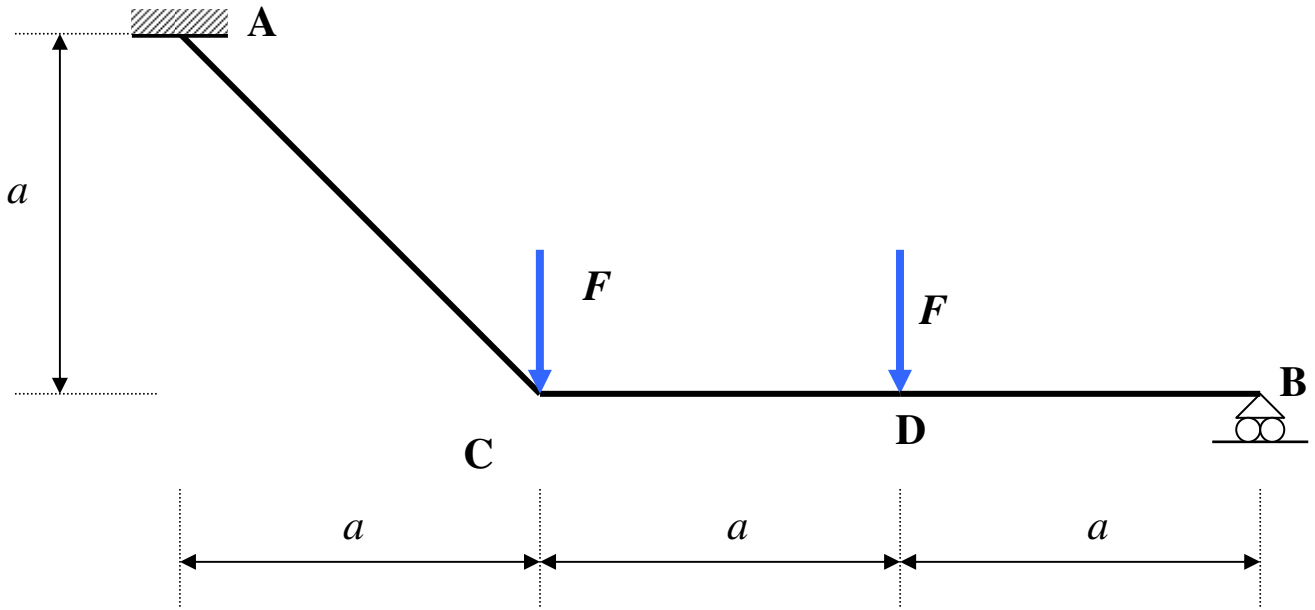
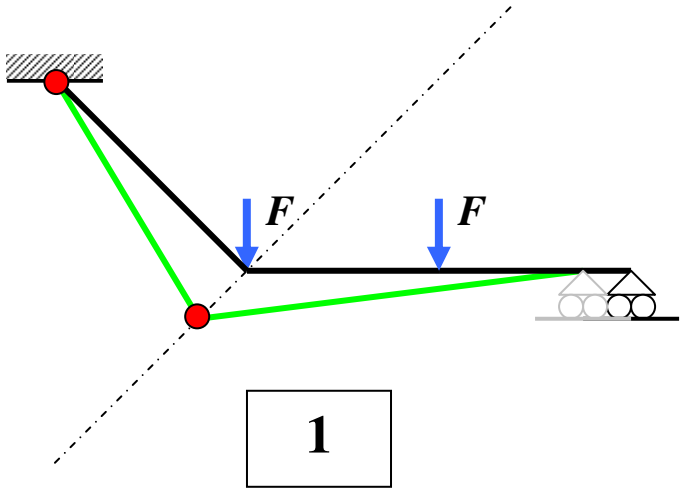
BEPAAL DE BEZWIJKBELASTING F_p

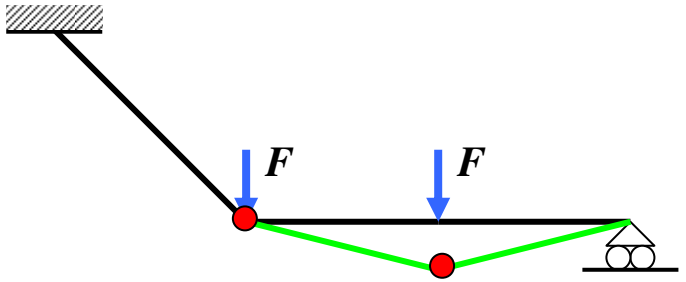


Analyse :

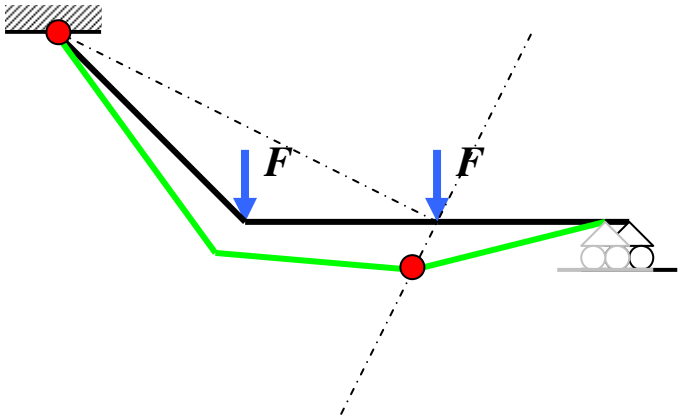
- Enkelvoudig statisch onbepaald n=1
- Ten hoogste 2 scharnieren nodig om een mechanisme te vormen
- 3 mogelijke plaatsen waar scharnieren kunnen ontstaan (A,C,D)
- 3 mogelijke bezwijkmechanismen



1

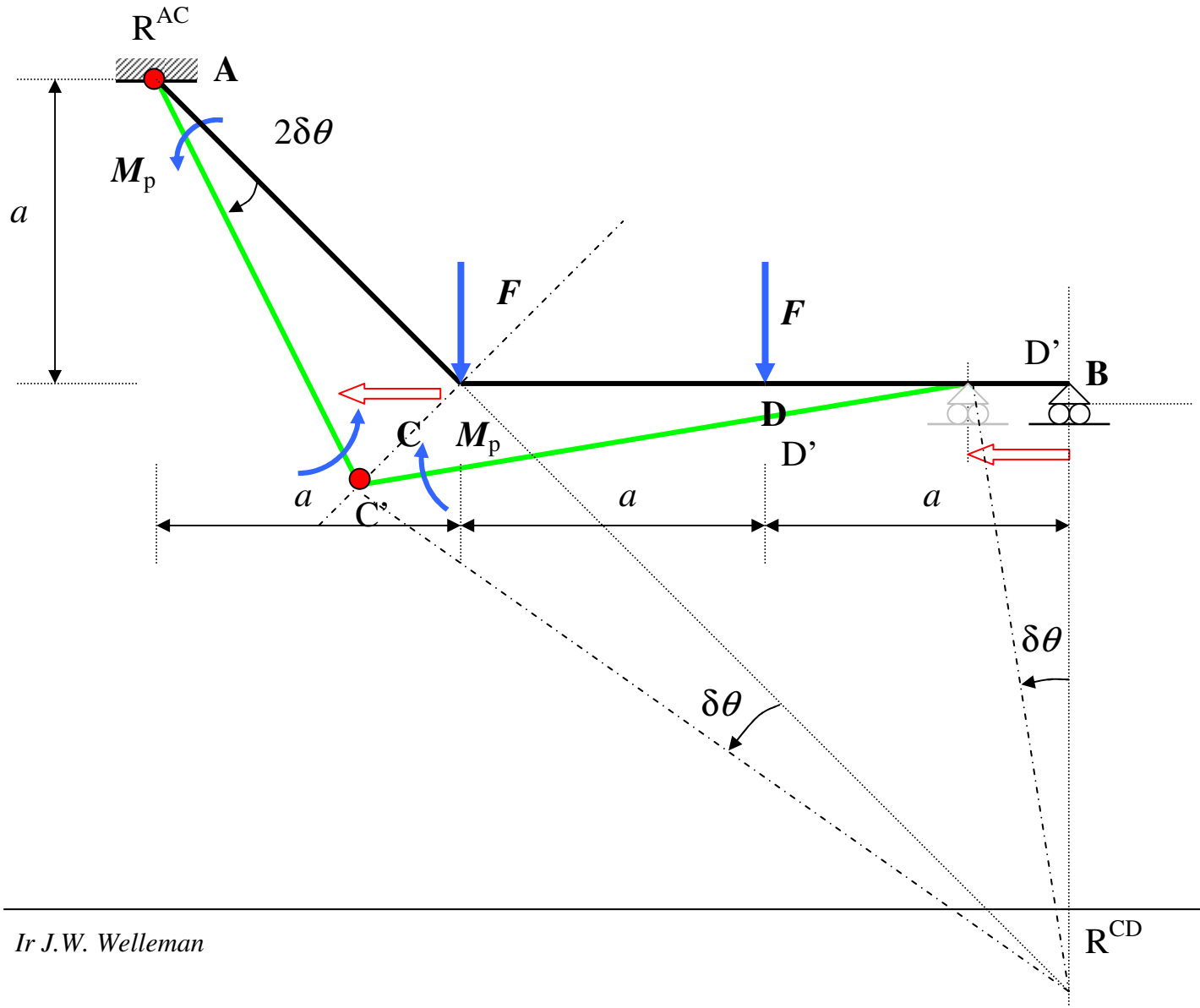


2



3

1e mechanisme



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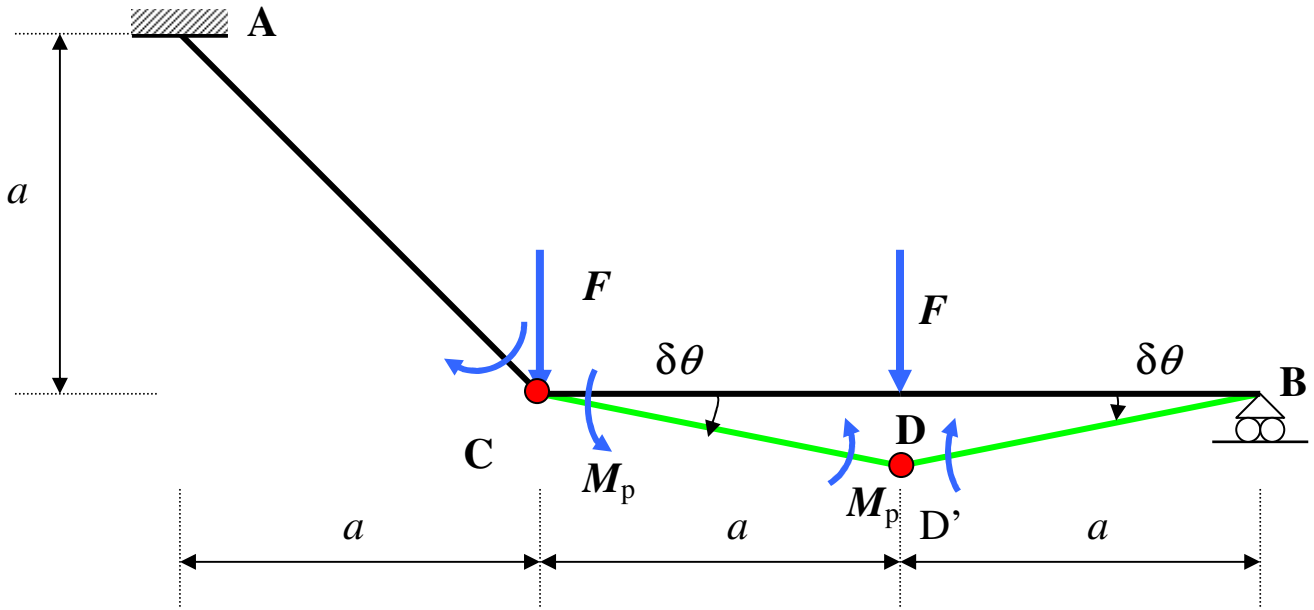
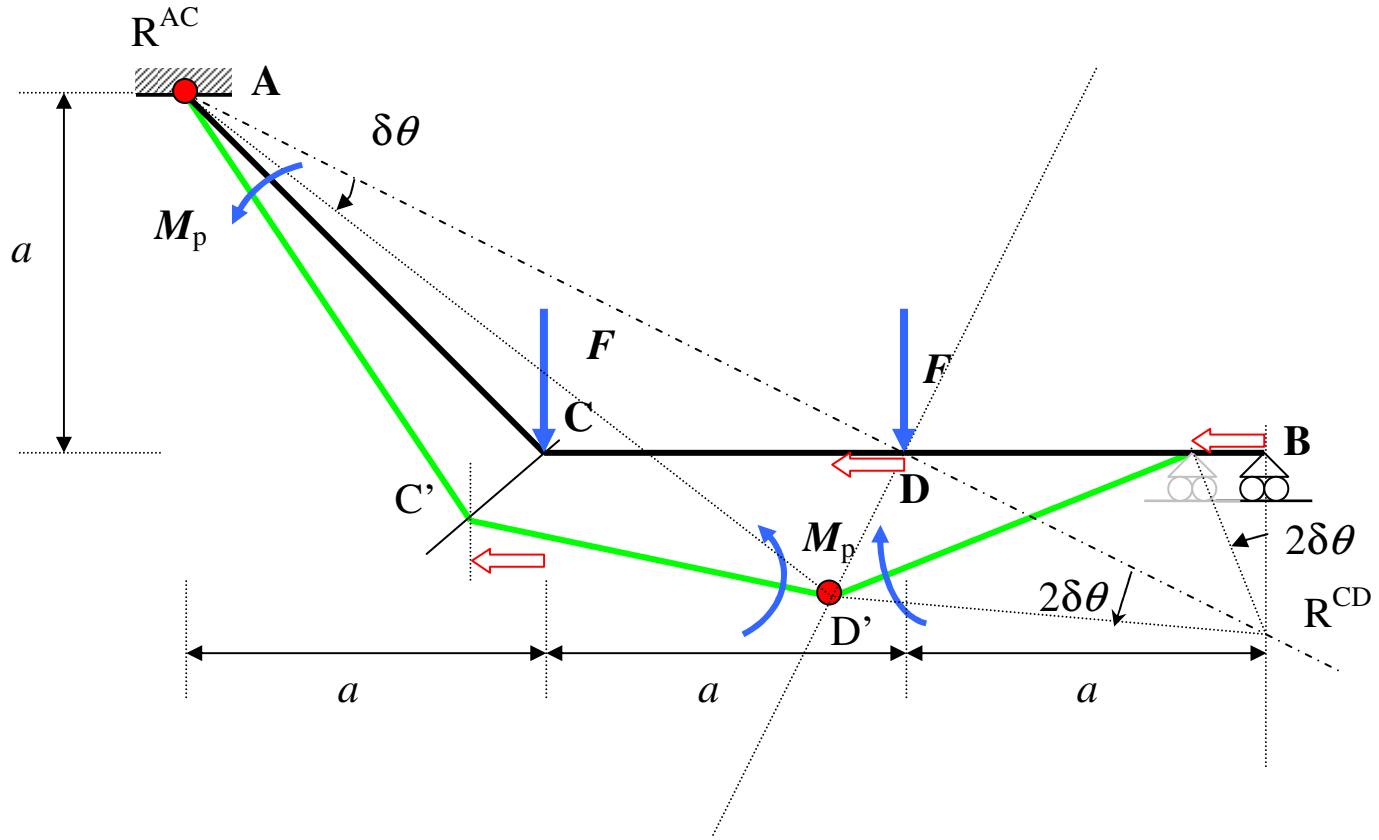
2e mechanisme



3e mechanisme



TU Delft

Virtuele arbeidsvergelijkingen

Mechanisme 1

$$\delta A = -M_p \times 2\delta\theta - M_p \times 2\delta\theta - M_p \times \delta\theta + F \times 2a \times \delta\theta + F \times a \times \delta\theta = 0$$

$$F_{p\text{-}1} = \frac{5M_p}{3a}$$

Mechanisme 2

$$\delta A = -M_p \times \delta\theta - M_p \times 2\delta\theta + F \times a \times \delta\theta = 0$$

$$F_{p\text{-}2} = \frac{3M_p}{a}$$

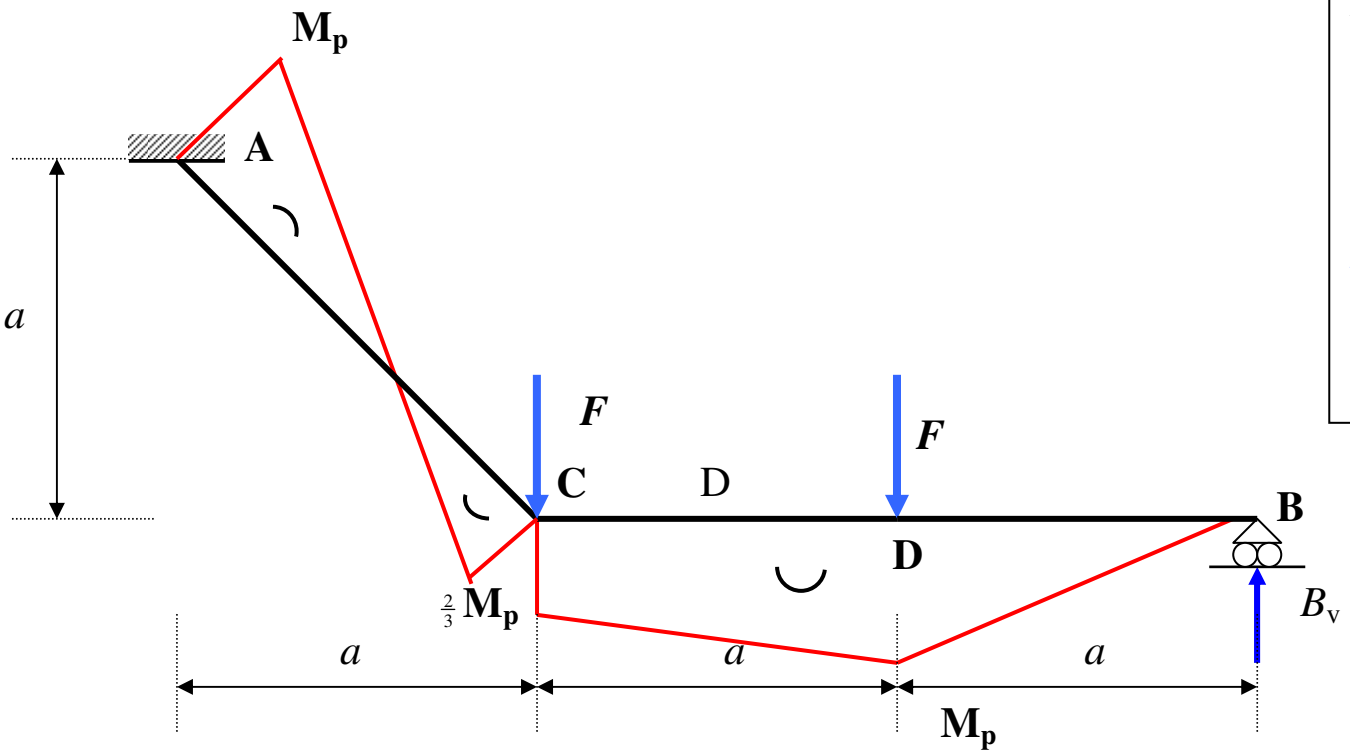
Mechanisme 3

$$\delta A = -4M_p \times \delta\theta + F \times \delta\theta \times a + F \times \delta\theta \times 2a = 0$$

$$F_{p\text{-}3} = \frac{4M_p}{3a}$$

LAAGSTE BEZWIJKLAST !

MOMENTENLIJN VOOR MECHANISME 3 $F_p = \frac{4M_p}{3a}$



Het moment in **C** ?

1 De verticale oplegreactie in B:

$$\sum T\,|D = 0 \quad \Rightarrow \quad B_v \times l = M_p \quad \Rightarrow \quad B_v = \frac{M_p}{a}$$

2 Bepaal moment in C (linksom positief):

$$-M_C - \tfrac{4}{3}\frac{M_p}{a} \times a + 2a \times \frac{M_p}{a} = 0 \quad \Rightarrow \quad M_C = \tfrac{2}{3}M_p$$