Butterworthfilter

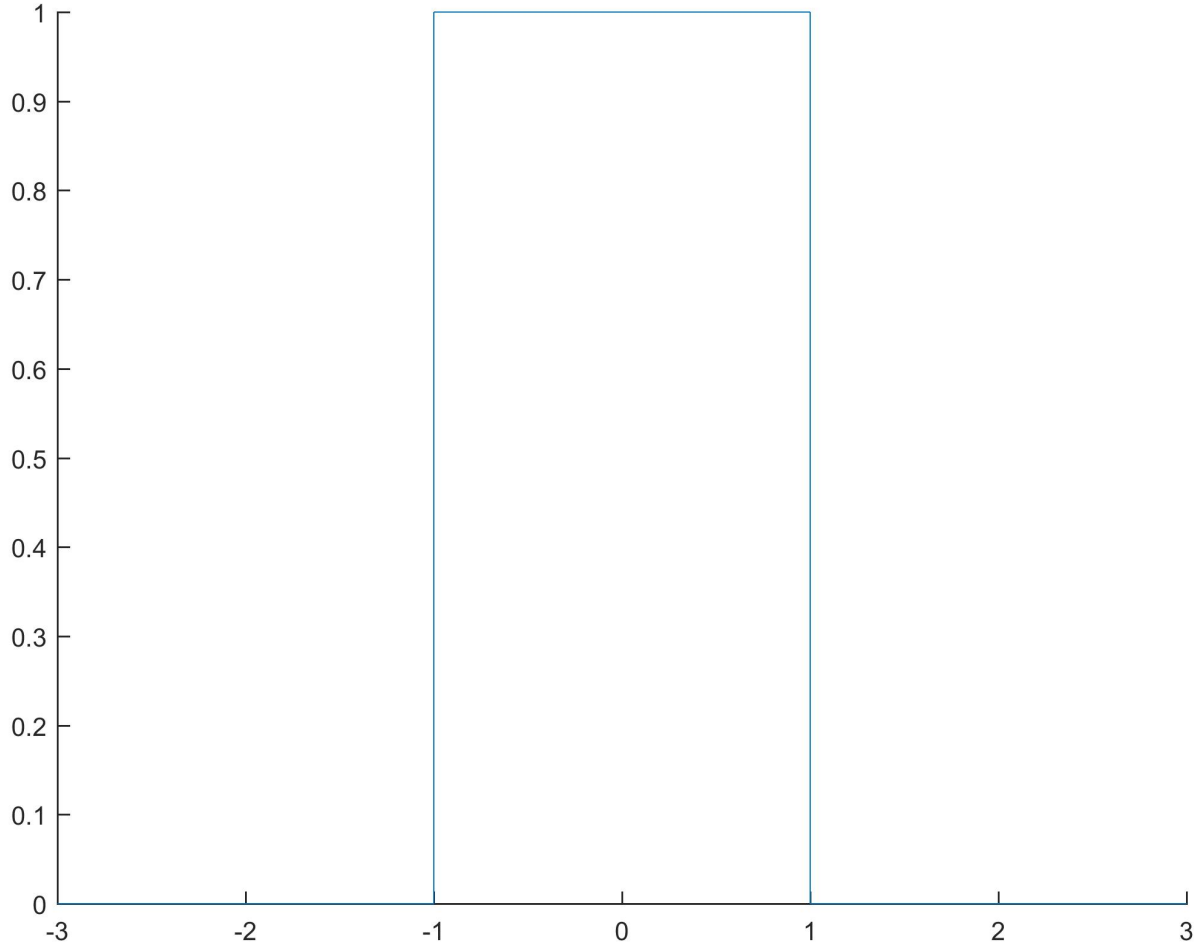

Figure: Ett idealt lågpassfilter med $W = 1$.

Butterworthfilter

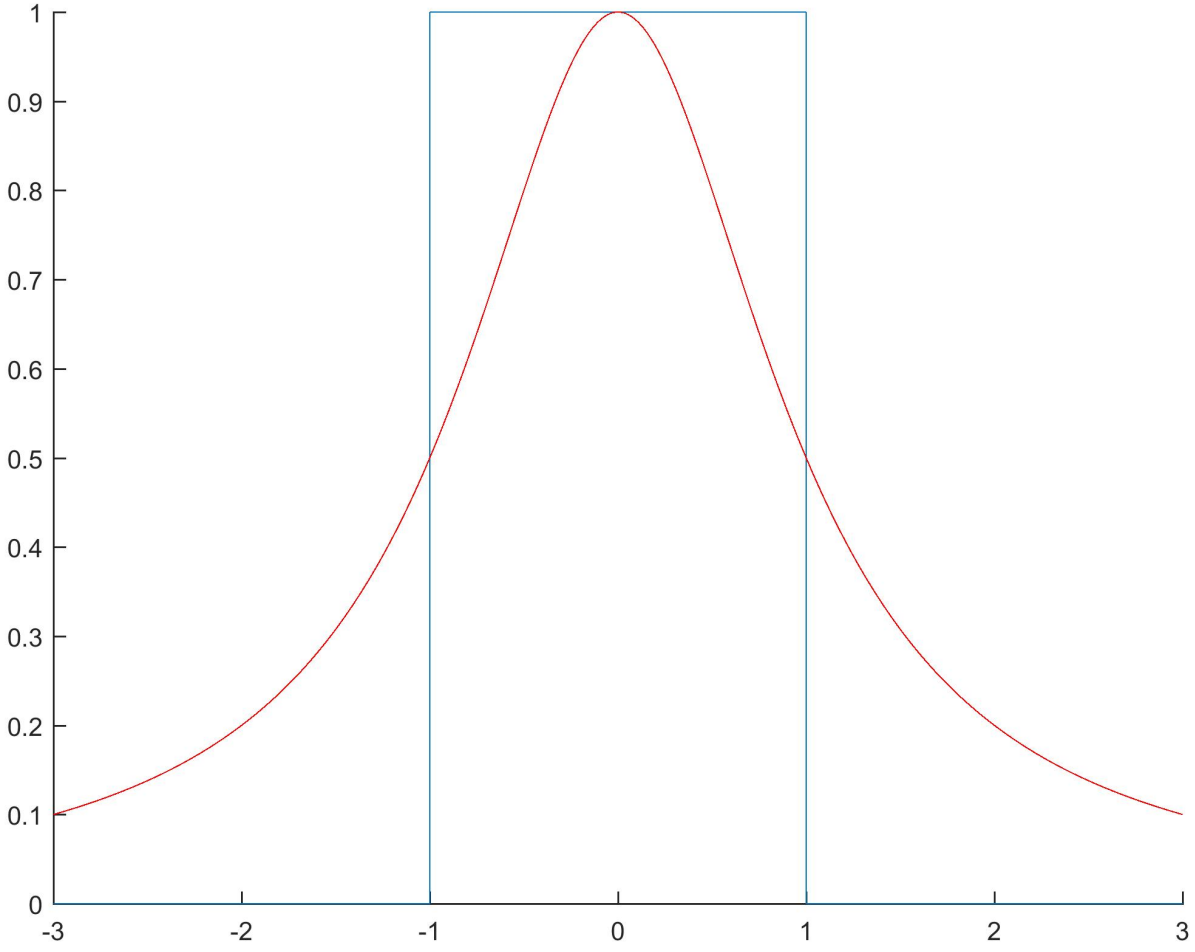

Figure: Ett första ordningens Butterworthfilter $n = 1$.

Butterworthfilter

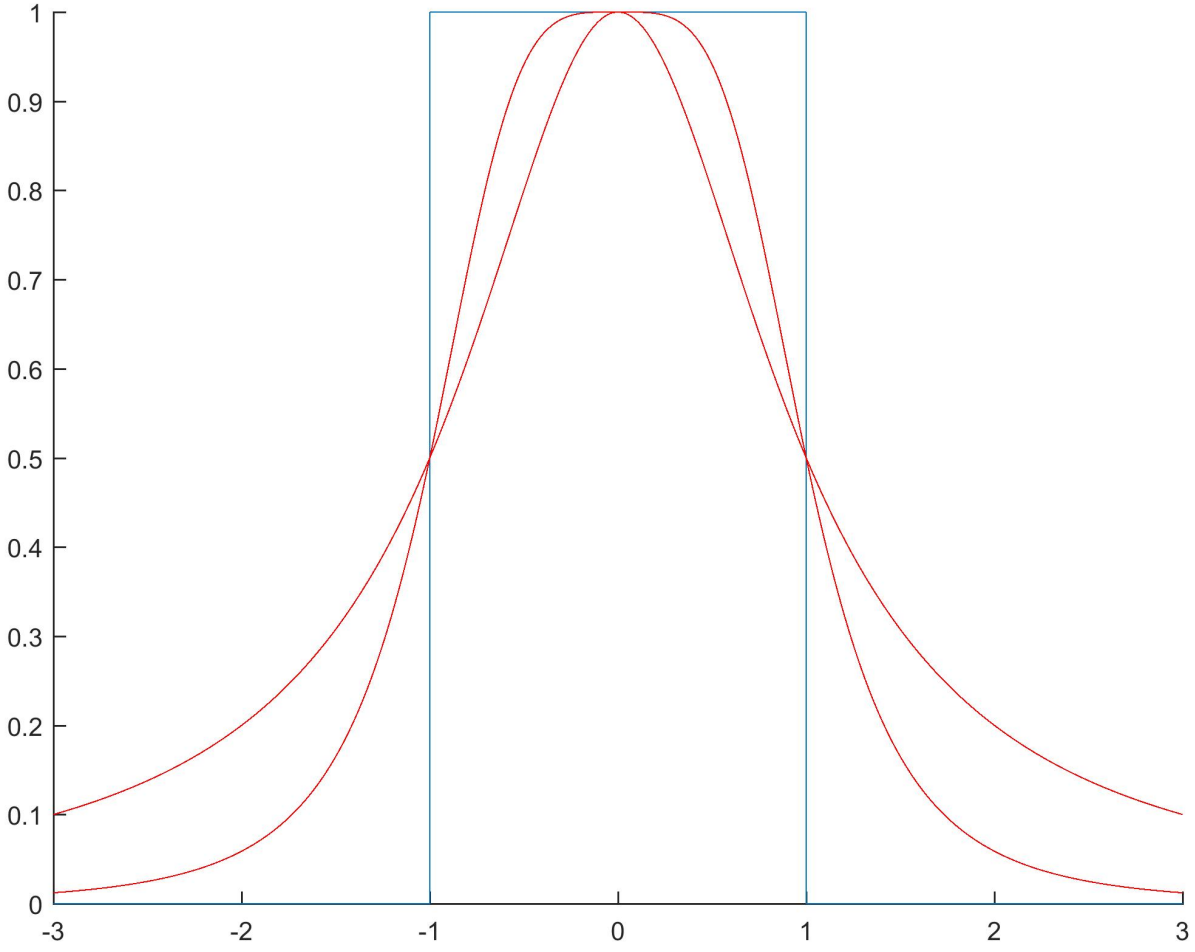

Figure: Ett andra ordningens Butterworthfilter $n = 2$.

Butterworthfilter

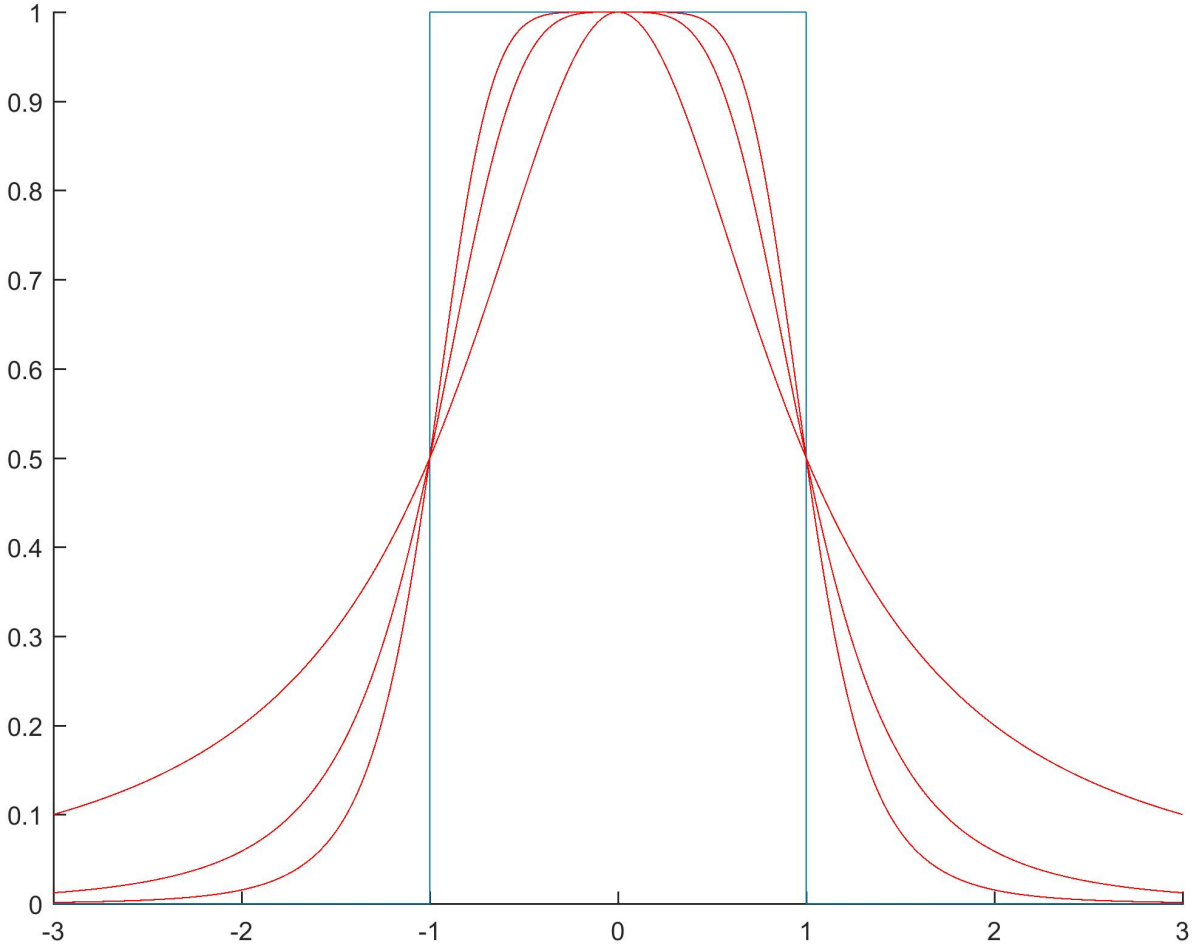

Figure: Fler filter av högre ordning $n = 3$.

Butterworthfilter

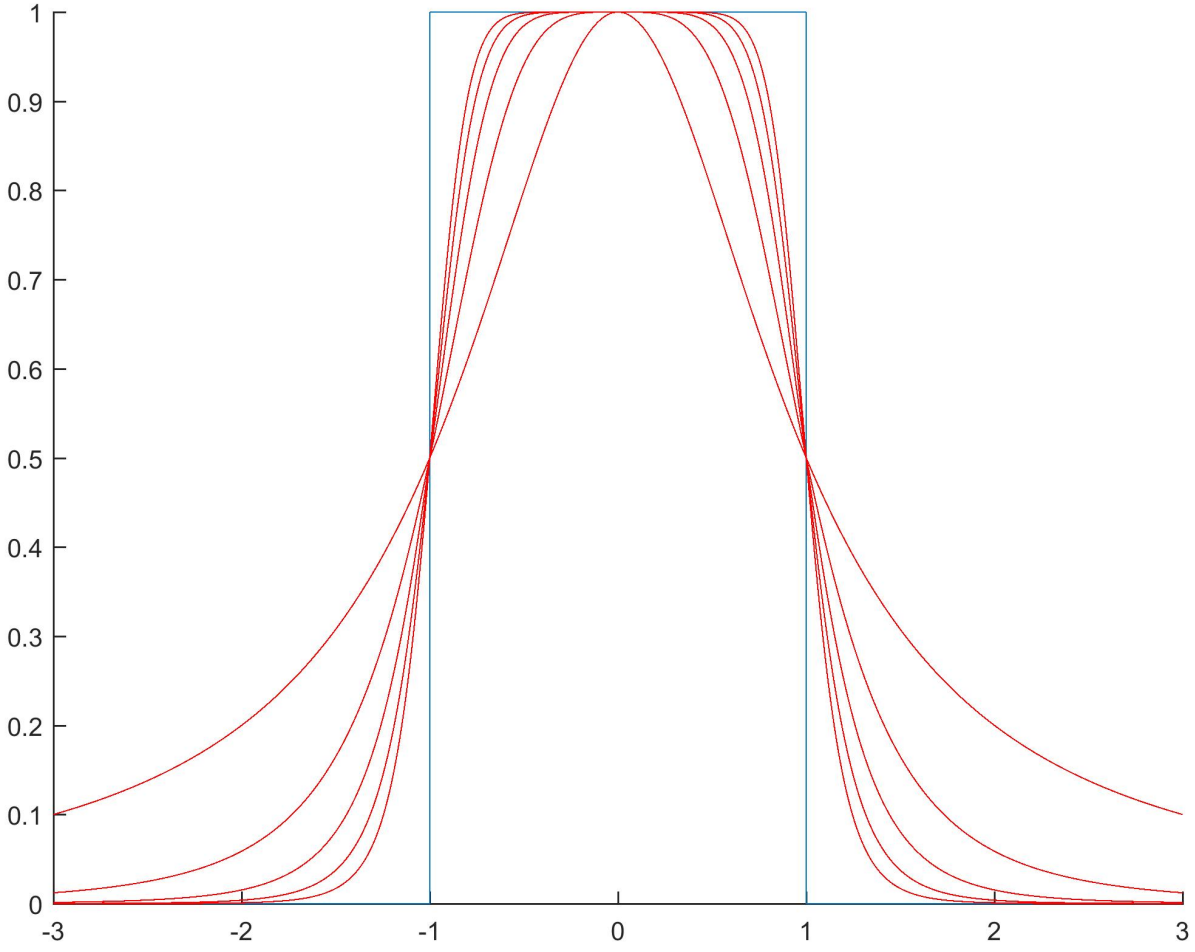

Figure: Fler filter av högre ordning $n = 5$.

Butterworthfilter

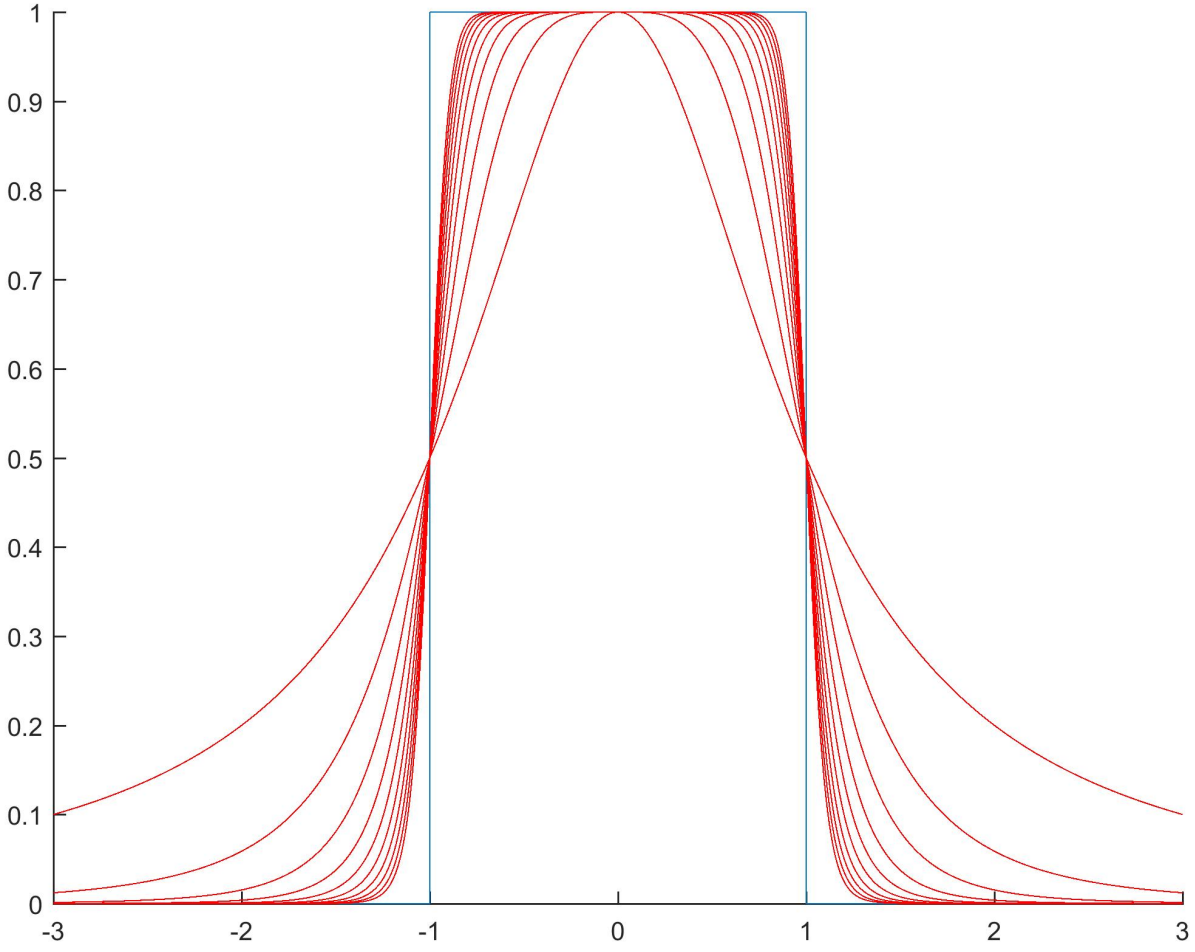

Figure: Fler filter av högre ordning $n = 10$.

Butterworthfilter

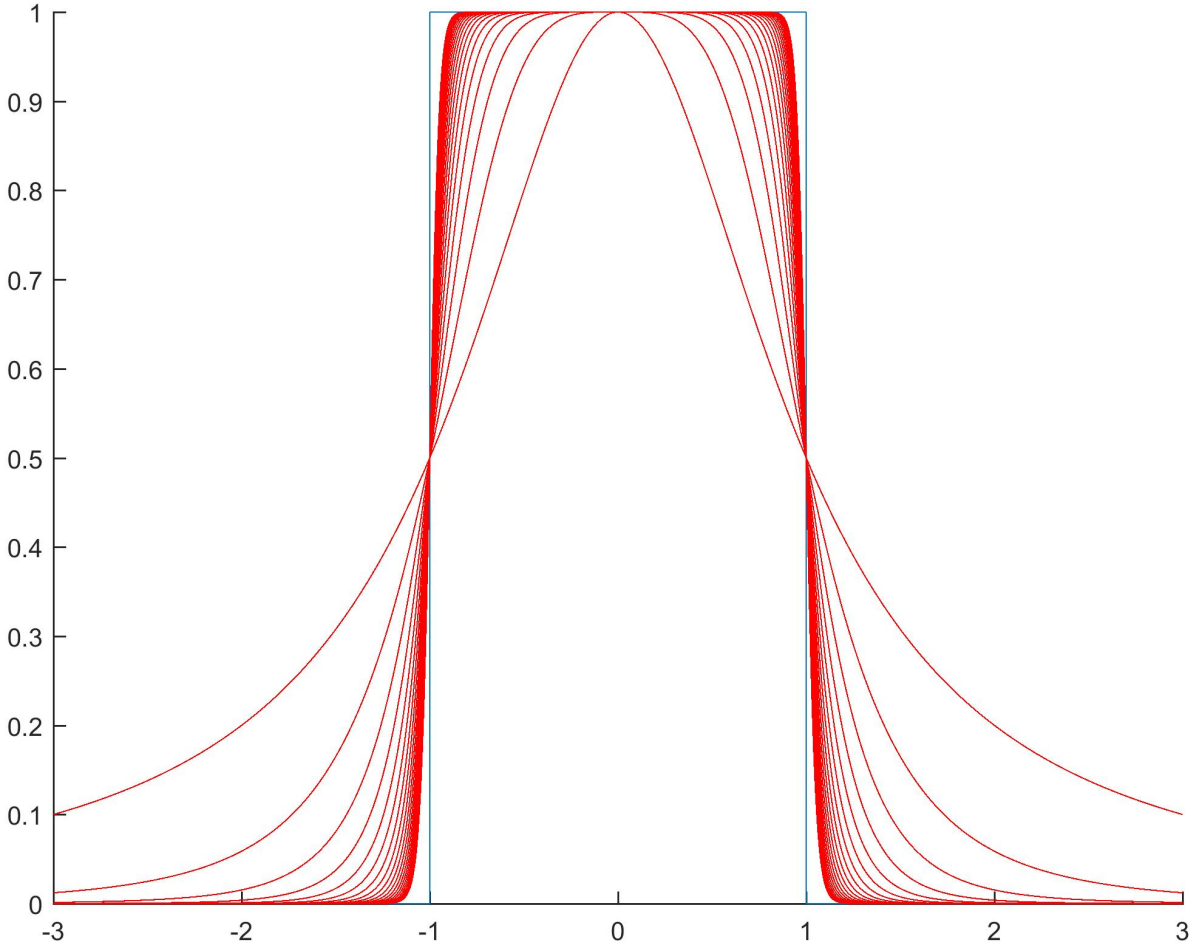

Figure: Fler filter av högre ordning $n = 20$.

Butterworthfilter

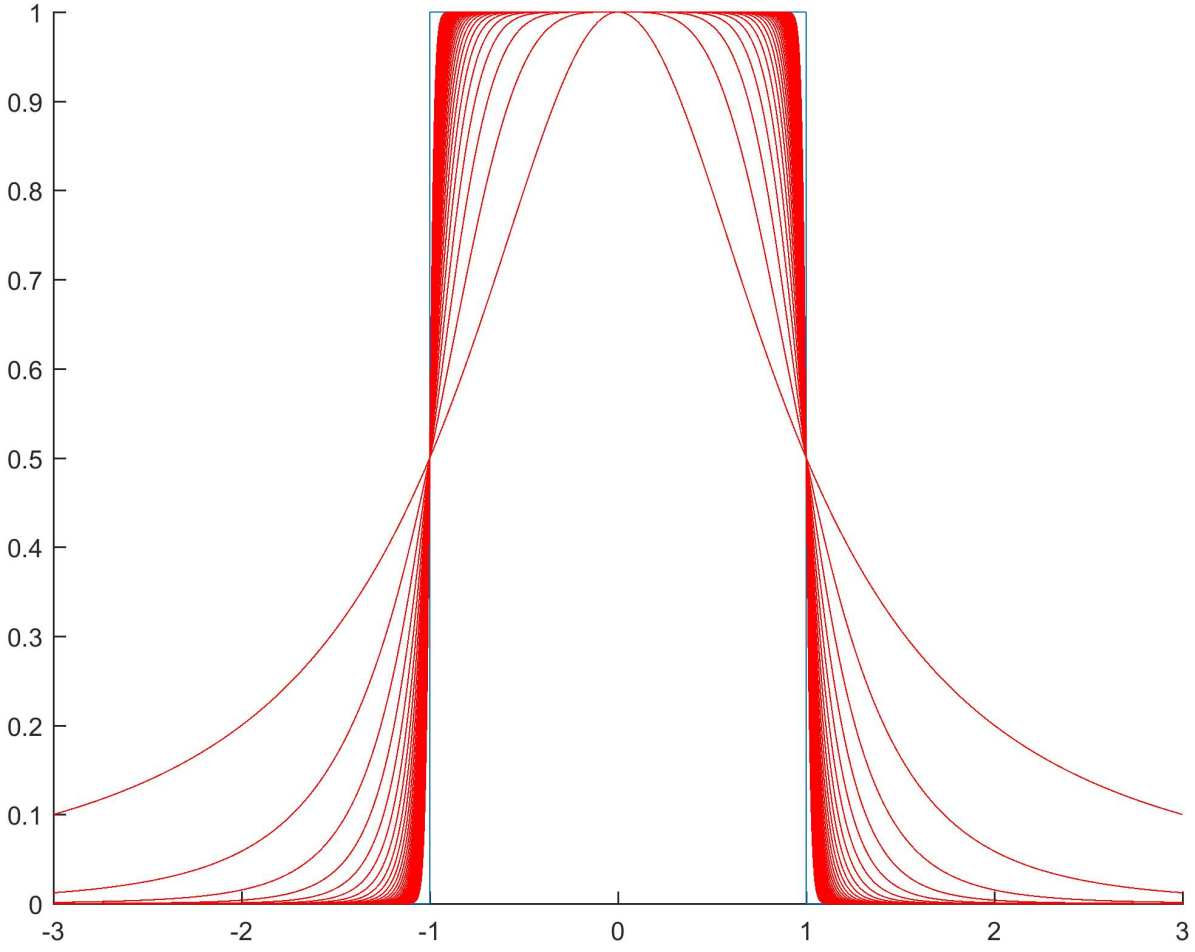

Figure: Fler filter av högre ordning $n = 40$.

Butterworthfilter

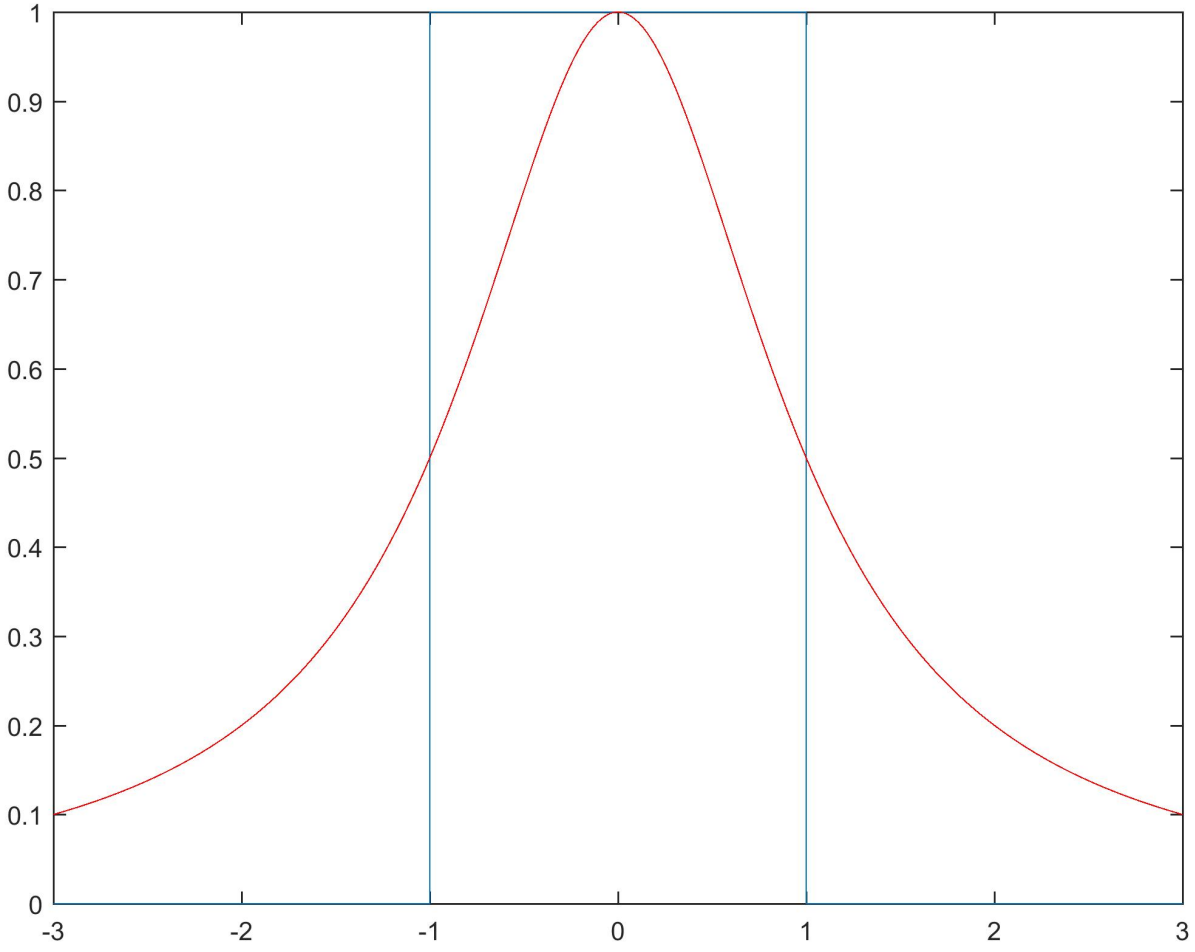

Figure: Filter $n = 1$.

Butterworthfilter

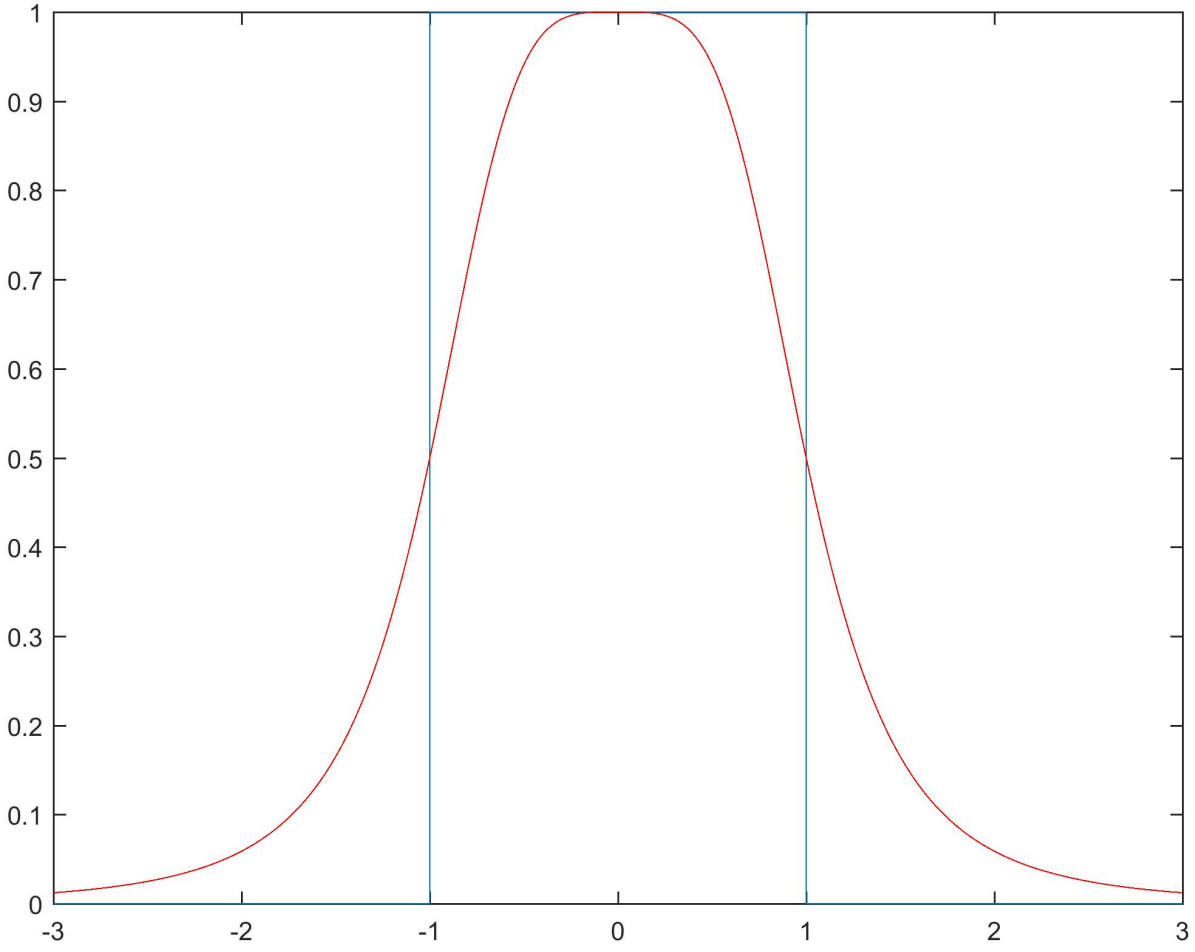

Figure: Filter $n = 2$.

Butterworthfilter

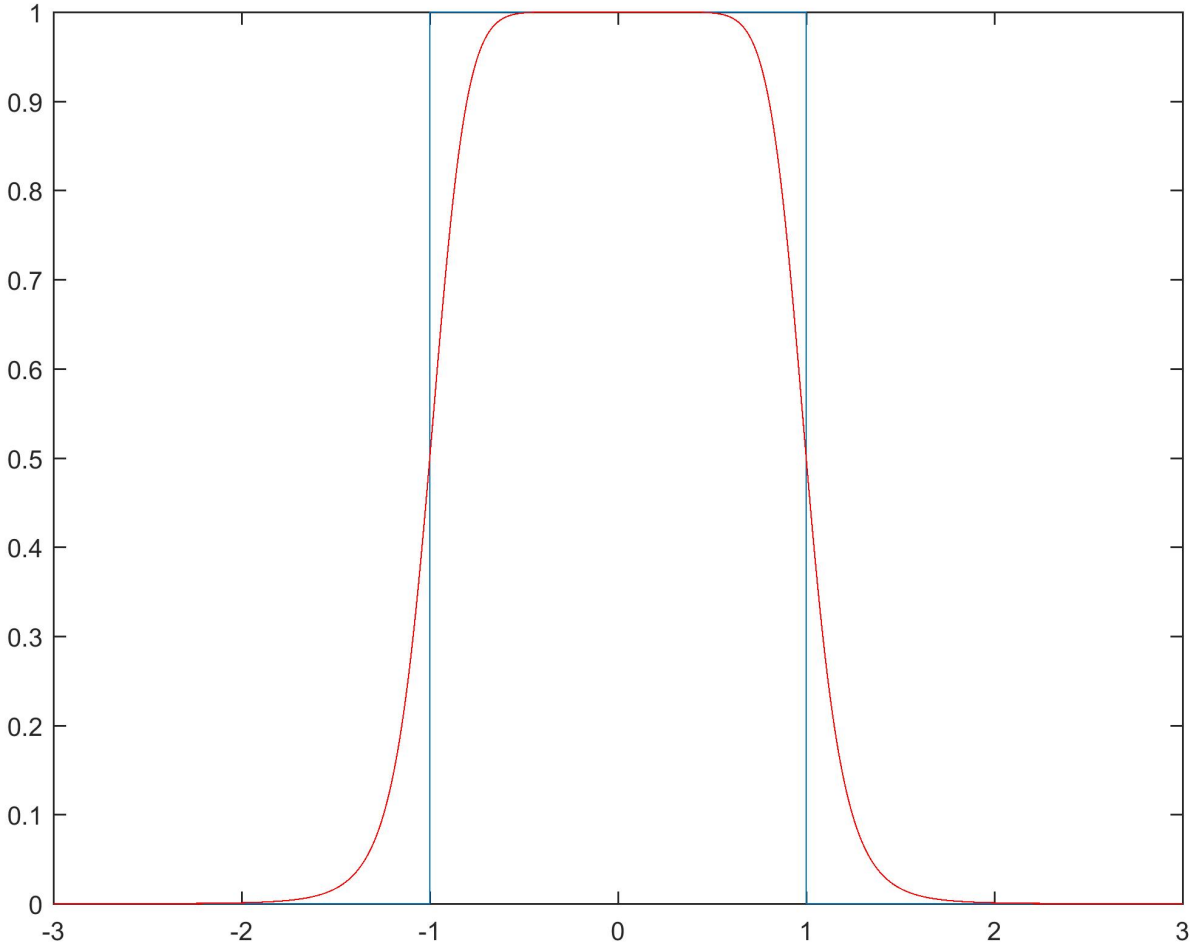

Figure: Filter $n = 5$.

Butterworthfilter

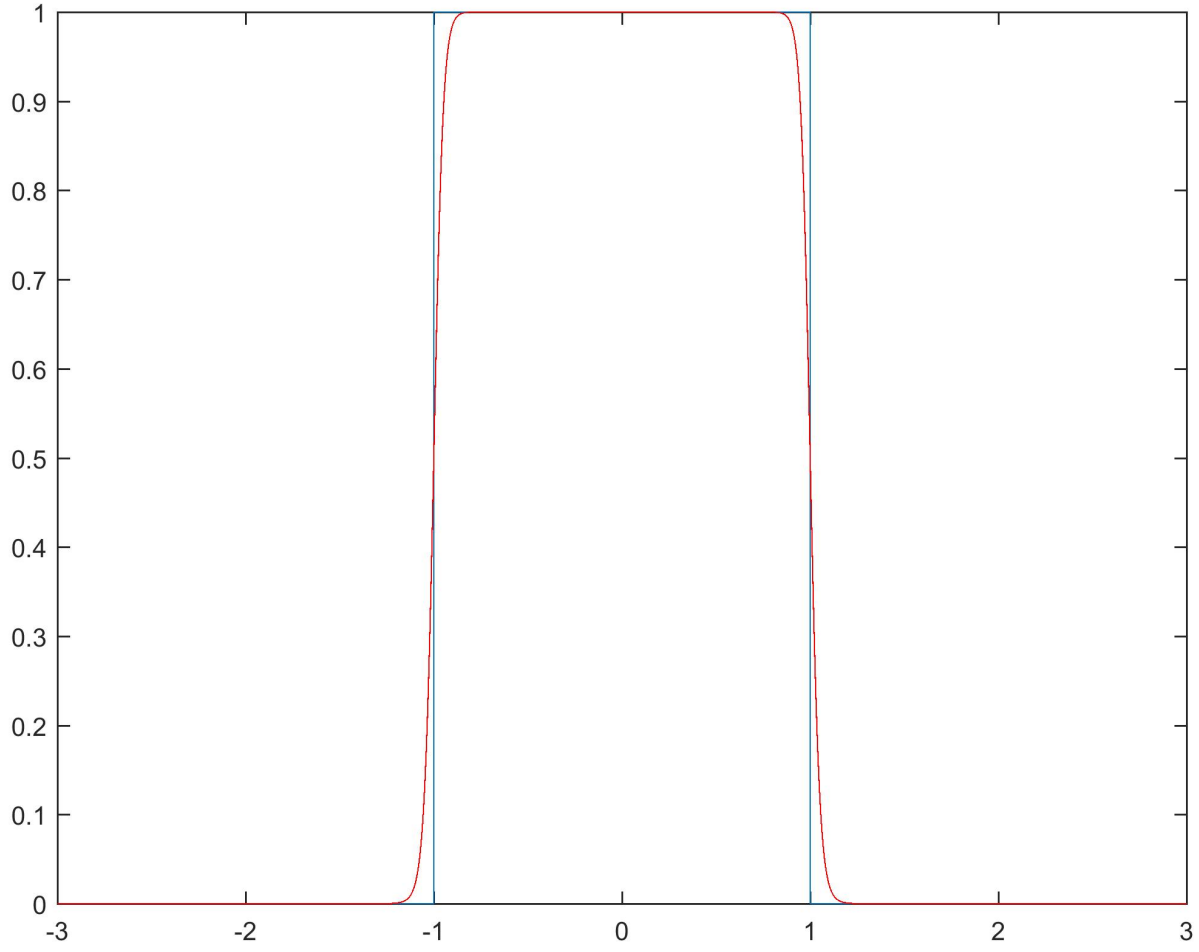

Figure: Filter $n = 20$.

Butterworthfilter

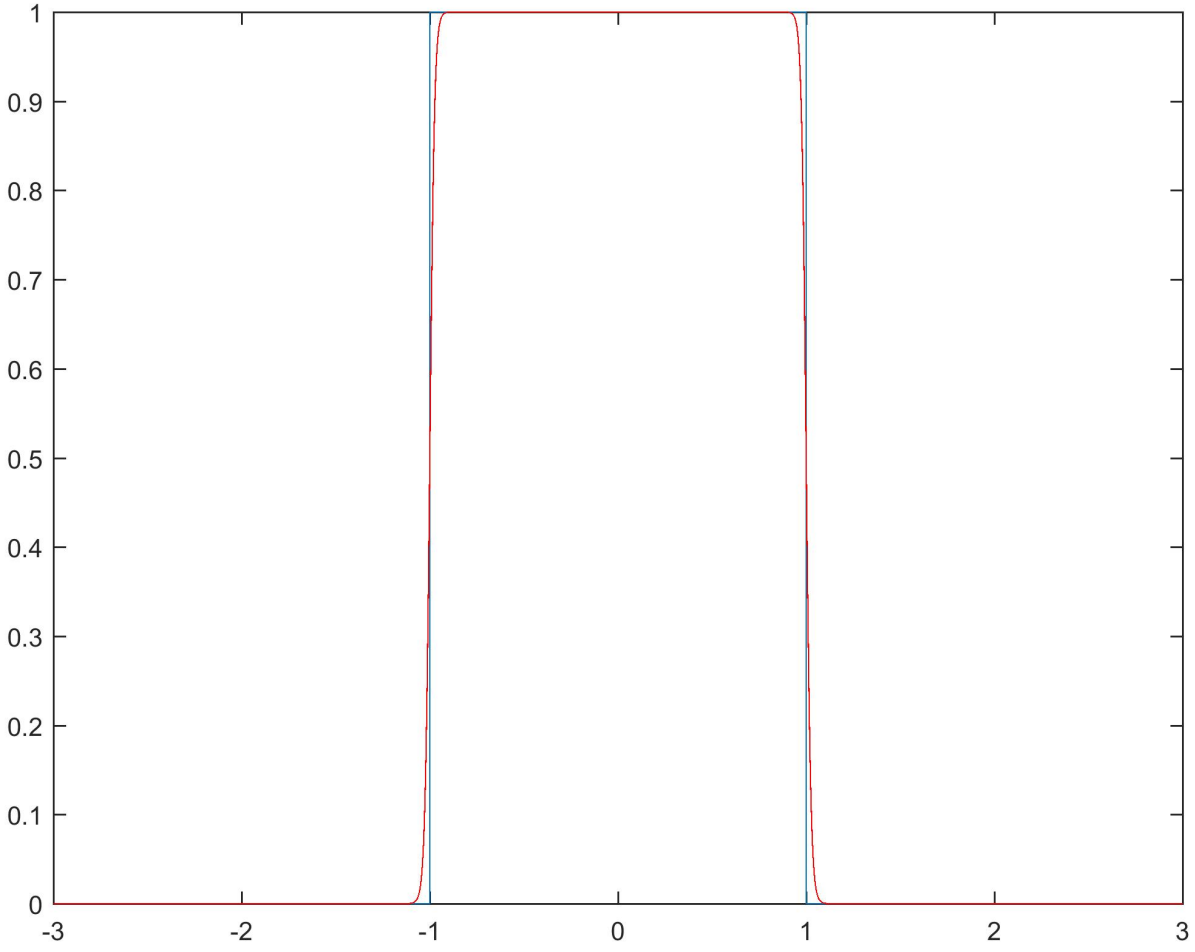

Figure: Filter $n = 40$.

Butterworthfilter

Ett andra ordningens Butterworthfilter med $W = 2$ ges av

$$G_B(j\omega) = \frac{4}{-\omega^2 + \sqrt{2}j2\omega + 4},$$

vilket är överföringsfunktionen för diffekvationen

$$\frac{1}{4}(\ddot{x} + \sqrt{2}\dot{x} + 4x) = u.$$