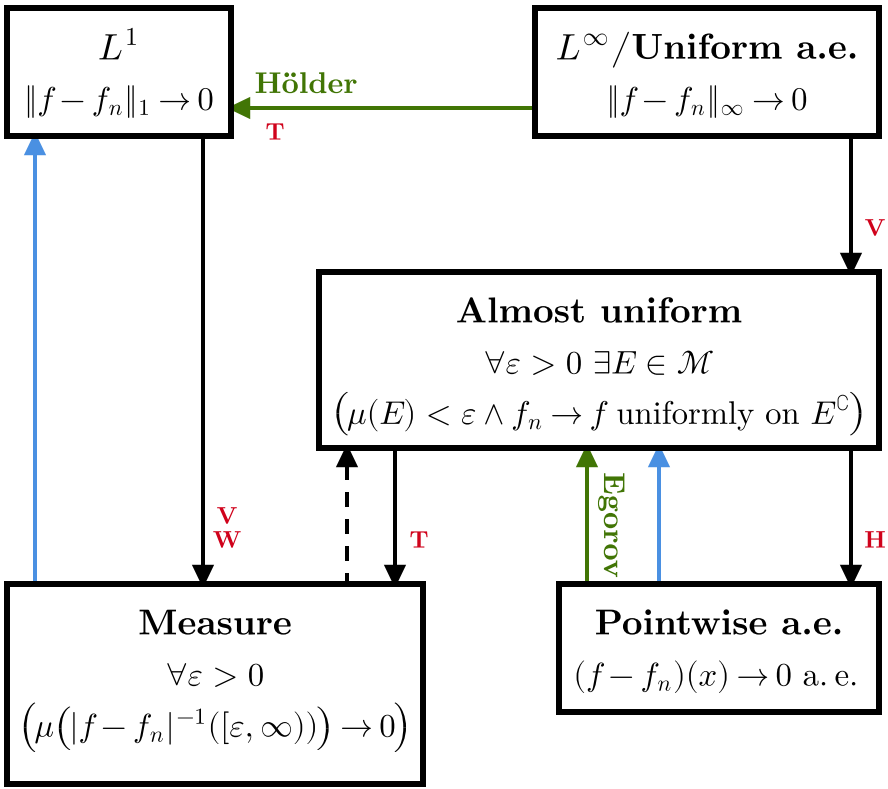
Modes of convergence

in a measure space $(X, \mathcal{M}, \mu)$

Dashed implications hold after passing to a **subsequence**
Green implications hold in **finite** measure spaces
Blue implications hold for **dominated** sequences



Red letters denote **counterexamples** to the **converse** implication

Horizontal: $f_n = 1_{(n,\, n+1)}$

Typewriter: $1_{(0,\, 1)}, 1_{(0,\, 1/2)}, 1_{(1/2,\, 1)}, 1_{(0,\, 1/4)}, 1_{(1/4,\, 2/4)}, 1_{(2/4,\, 3/4)}, \ldots$

Vertical: $f_n = n 1_{(0,\, 1/n)}$

Wide: $f_n = n^{-1} 1_{(0,\, n)}$

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