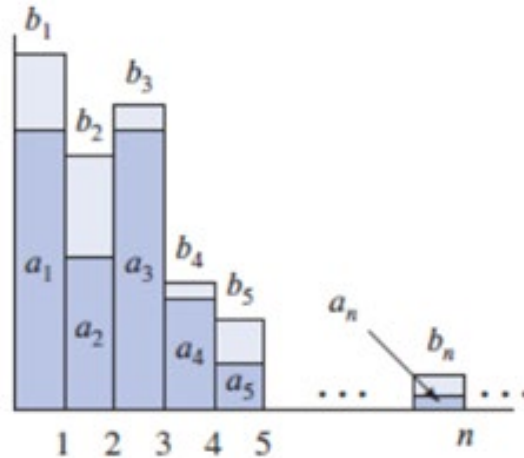# Direct Comparison Test for Series

Suppose $0 \leq a_n \leq b_n$ for all n beyond a certain value.

- If $\sum b_n$ converges, then $\sum a_n$ converges.
- If $\sum a_n$ diverges, then $\sum b_n$ diverges.

Each a_n is represented by the area of a dark rectangle.

Each b_n is represented by the area of a dark plus a light rectangle.

$$0 \quad \leq \quad a_n \quad \leq \quad b_n$$

If $b_n \to M$

then $a_n \to L$

$$0 \quad \leq \quad a_n \quad \leq \quad b_n$$

If $a_n \to \infty$

then $b_n \to \infty$