14-C5

排序

希尔排序：Sedgewick序列

邓俊辉

deng@tsinghua.edu.cn

Sedgewick's Sequence

❖ **Pratt's sequence requires too many iterations and hence**

  is not good for pre-sorted sequences

❖ **Sedgewick's sequence: a combination of PS's sequence with Pratt's**

$$\{\ 1\quad 5\quad 19\quad 41\quad 109\quad 209\quad 505\quad 929\quad 2161\quad 3905\quad 8929\quad 16001\quad 36289\quad 64769\quad \cdots\ \}$$

$$\{\ 9 \times 4^k - 9 \times 2^k + 1\ |\ k \geq 0\ \}\quad \cup\quad \{\ 4^k - 3 \times 2^k + 1\ |\ k \geq 2\ \}$$

- **worst** $\mathcal{O}(n^{4/3})$ **& average** $\mathcal{O}(n^{7/6})$

- **best performance in practice**

❖ **Is there a step sequence with** $\mathcal{O}(n \cdot \log n)$ **worst-case performance?**