Delaunay Triangulation

RIC Analysis

- Expectation

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❖ **The total expected number of rebucketings is then given by**

$$\frac{3}{1} \times (n-1) + \frac{3}{2} \times (n-2) + \cdots + \frac{3}{i} \times (n-i) + \cdots + \frac{3}{n-1} \times 1 + \frac{3}{n} \times 0$$

$$= \quad \sum_{i=1}^{n} \frac{3}{i} \times (n-i)$$

$$\leq \quad \sum_{i=1}^{n} \frac{3}{i} \times n$$

$$\leq \quad 3n \times \sum_{i=1}^{n} \frac{1}{i} \quad = \quad \text{3nlogn} + \mathcal{O}(1)$$

❖ **Thus, we conclude that**

the total expected time spent in rebucketing is $\boxed{\mathcal{O}(\text{nlogn})}$

❖ **However, there is one place in the proof that we were sloppy ...**