The Frogs Game

- Given
  - n pairwise disjoint sets of size δ
- Task
  - Merging consecutive pairs of sets until there is only one set left
  - Every time cost is the sum of the sizes of κ consecutive sets, left or right, whatever turns out cheaper
- Prove
  - The total cost an adversary can generate here is $O(\delta\kappa n \log n)$

The Frogs Game

- Algorithm
  - Iteratively merge adjacent sets, choosing pairs where the minimum sum of k left/right neighbors exists
  - Calculate merge cost as the minimum between left k elements before or right k elements after the merge position
  - Repeat greedily until one set remains, accumulating minimal total merging cost
  - Pre-Compute left sum and right sum for each index to reduce the time complexity