

Setup

- Define the Bernoulli convolutions.
- Bring up the major question & a quick review of the progress. (Erdős, Garsia, Solomyak, Hochman, Shmerkin. . .)
- State the major results & explain the parameters.

Overall

- Briefly state the intuition about entropy and the Garsia link.
- Define basic notions ({Shannon, differential, average, difference/delta, step} entropies).
- Draw a logic diagram at the highest level.
- (Optional) State the CEB & PHEP with (not essentially) improved constants.
- Chapters in this series of seminars: (0) Intro. (1) Entropies. (2) CEB. (3) PHEP. (4) AC.
- Notation conventions & the intuition graph.

Entropy facts

- *Trans-inv* advantage; Scaling property; Density observation & *differential-entropy expression*.
- Recall delta entropy; *Integral-ratio formula* & UB on *step entropy*
- *Submodularity*; *Convolution increases integral-ratio entropies*.
- *Discretization lemma* (or use it to ‘smooth/blur’)
- $r \mapsto H(X; r)$: log-Lipschitz & non-increasing.
- Discuss about the convention for the entropies of non-prob. measures & compare with another natural convention and emphasize the crucial difference; Positive homogeneous; Supadditivity of Shannon-entropy and average entropy; *Supadditivity of integral-ratio entropy*.
- *Moving window formula*.
- *Discretization-Integration formula*.
- *One-cut entropy expression*.
- (Depends on available time) Establish the Garsia Link.