

Mathematics 1550H – Probability I: Introduction to Probability
TRENT UNIVERSITY, Summer 2020 (S62)

Assignment #1
Is it really random?
Due on Friday, 26 June.

Consider the following three sequences of one hundred heads and tails each:

Sequence #1:

HTTHHHTTHTTTHHTTHTTHTTTTTHHHTTTHHTHTTHTTTTHTTTTTHHT
HTHTHHHTTTHTTHTTHTTHTTHTTTTHTTTHHHHHHTHHTTTTTHHHH

Sequence #2:

HHTHTTTTHTTHTTTHHTTTTTHHHTTHTTTHTHHHTHTTHTTTTHTTTTHHHT
THTTTHTTTHHHTHTHHTTTTHHHTTTHTTHTTHTTHTTTTHTTHTHHTTTT

Sequence #3:

THTHTHHHTHHHTTTTHHHTTTTTTTTTTHHHTTTHHHTHTHHHTHTTTHTHH
THTTHHHTTTTTTTHHTHHHHHTHHHHHHHTHHHHHTTHHHTTHTTTHT

At least one of these sequences was generated by actually tossing a quarter one hundred times, and at least one was generated by a human sitting at a computer and hitting the “H” and “T” keys one hundred times between them and trying (possibly not very hard) to make it seem random.

1. Try to figure out which of these sequences were generated by actually tossing a coin and which were generated a human trying to be random. Give your reasoning! [10]