

**MATH-CCTH 1080H – Mathematics for Everyday Life**  
TRENT UNIVERSITY, Winter 2018  
**Which is random?**

Consider the following two sequences of one hundred heads and tails:

*Sequence #1:*

TTHHHTHTHHHTTHHTTTTTTHHHTHHHTHTTTHTHTHTHHHTHTHTTTTTHTHHHHHTTTHHTHTHHHHHTHTHHHTTTTTTHHHHHHTHHHTTHTTHTT

*Sequence #2:*

TTHHTTTHTHTTTTTTHHTHHHTTTHHHHTHHHTTHTHHHTHTHTTTTTTHHHHTHTHTHTTTTTHTHHHTHHHTTTHHHHTTHTTTTTHHHTHHHTTHTTHTT

One of these sequences was generated by actually tossing a quarter one hundred times; the other was generated by your instructor sitting at his computer and hitting the “H” and “T” keys one hundred times between them and trying to make it seem random.

**Problem.** Try to figure out which sequence was generated by tossing a coin and which was not. Give your reasoning!

JENNET ... Poor father. In the end he walked  
In Science like the densest night. And yet  
He was greatly gifted.  
When he was born he gave an algebraic  
Cry; at one glance measured the cubic content  
Of that ivory cone his mother's breast  
And multiplied his appetite by five.  
So he matured by a progression, gained  
Experience by correlation, expanded  
Into a marriage by contraction, and by  
Certain physical dynamics  
Formulated me. And on he went  
Still deeper into the calculating twilight  
Under the twinkling of five-pointed figures  
Till Truth became for him the sum of sums  
And Death the long division. My poor father.  
What years and powers he wasted.  
He thought he could change the matter of the world  
From the poles to the simultaneous equator  
By strange experiment and by describing  
Numerical parabolas.

From *The Lady's Not For Burning*, by Christopher Fry.  
(Sadly, this is most of the math in the play ... :-)