

URGENT SPIRITUAL LESSONS FROM SCIENTIFIC CHAOTIC FIG TREES

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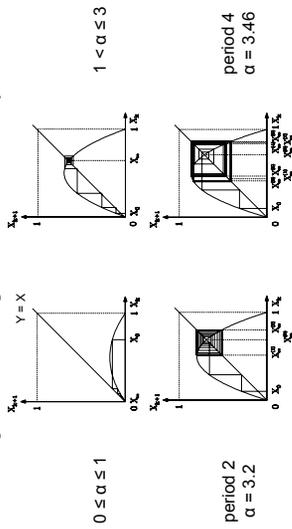
Abstract. During the past few decades a host of ideas have been established in order to study natural complexity, including the identification of pathways that progressively degrade "order" into the specific disorder of "chaos" and that define a host of chaotic trees, as epitomized by the iconic Feigenbaum tree or "fig tree." This poster explains how such notions help us visualize the essential options we all face regarding order and disorder and shows how the ideas point us to the straight roots of such trees as the only common ground (i.e., "under the fig tree") where we all may achieve true order and peace. It is argued, citing a host of Biblical passages, that the modern concepts provide a rich symbolism consistent with ancient Scripture that, in particular, allows us to further appreciate, in a strikingly coincidental fashion, why Jesus may have, seemingly out of character, cursed and withered a fruitless fig tree as he rebuked the wind (evil in of itself in both instances) and why he may have asked us to learn a lesson from a fig tree and other trees (even from those chaotic ones budding in science twenty centuries later) as a mysterious and urgent precursor to his second coming. The implications of the notions regarding our need to be always watchful are emphasized, including our prescribed conversion by coming down our own "fig trees."

The Exquisite Dynamics of the Logistic Parabola

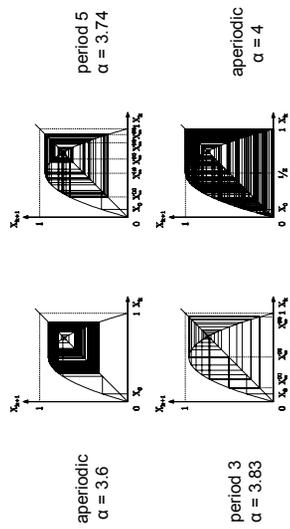
$$X_{k+1} = \alpha X_k (1 - X_k), \quad 0 \leq \alpha \leq 4$$

Iterations yield a plethora of behaviors as a function of α . Let's review.

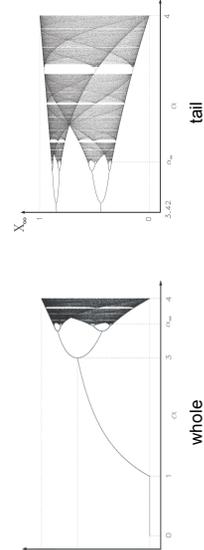
- From convergence to the origin to bifurcations of any order:



- Chaos and periodicity intertwined after all powers of 2 at $\alpha_n = 3.5699$:



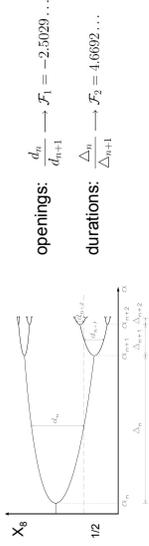
- A summary of behaviors is the bifurcations diagram:



- Remarkably, there are values of α that give periodic behavior for any natural number, and many values for which the dynamics do not repeat.
- Aperiodic behavior is termed **chaotic** as such cases exhibit extreme sensitivity to the initial condition X_0 . Such dynamics wander forever in "strange attractors" that have the structure of **dust**.

The Extraordinary Properties of the Chaotic Fig Trees

Rotating the bifurcations diagram yields the **Feigenbaum tree** (fig tree in German) after Mitchell Feigenbaum who proved in 1978 that bifurcations happen in an orderly and universal fashion:



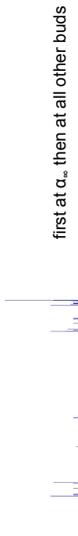
openings: $\frac{d_{n+1}}{d_n} \rightarrow \mathcal{F}_1 = -2.5029 \dots$
 durations: $\frac{\Delta_{n+1}}{\Delta_n} \rightarrow \mathcal{F}_2 = 4.6692 \dots$

- The notions have relevance in physics as the logistic map via Feigenbaum's second constant describe how **convection** happens.
- The tree contains infinitely many copies of itself:



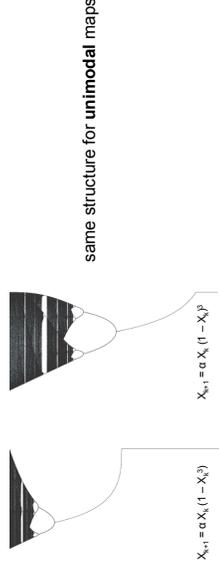
from middle bud of period 3

- The tree is filled with multifractal **thorns**:



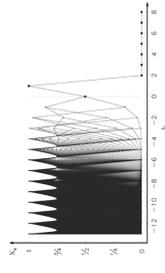
first at α_n , then at all other buds

- Behold the fig tree and all the other trees:



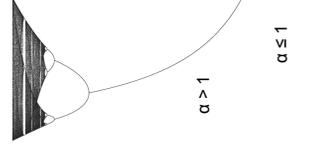
same structure for **unimodal** maps

- A vital escape from high heat by the middle:



not all is chaos when α is maximum preimages of **zero** always find the **root**

A Prophetic Fig Tree from Modern Science?



- The shoot of the tree is rightfully **accursed** as such corresponds to our disobedient states that, by amplifying beyond the gate $Y = X$, take us away from our peaceful and ordered essence.
- The tree has a rather **tender branch**, it clearly sprouts dust leaves, and its great many **buds burst open**, but it lacks any fruit.
- The straight **root** is **blessed**, as convergence to **zero** reflects our diminishing and subsequent **surrendering** to God's will.

- Adam and Eve covered themselves with **fig leaves** that correspond to the same **dust** associated with the **devil's** fate.
- Our pathways to sin result in many **thorns** and lead us to bite the **dust**.
- The key threshold is **Jesus Christ**, seen geometrically in $Y = X$ and in the fact that only through him we can make it to the **Father**, the **Origin**.
- Jesus' invitation to **conversion** is reflected in the **root**, when he says "Unless a grain of wheat falls to the ground and **dies**, it remains just a grain of wheat; but if it **dies**, it produces much **fruit**."
- The scenarios in the fig tree also parallel the parable of the sower and Jesus' consistent words "people do not pick **figs** from **thornbushes**."
- The fig tree is cursed as Jesus rebuked the wind, that is, evil and the ruler of the power of the air, the **devil**, in both instances.
- Wandering forever in high heat is **hell**, and how wonderful it is to see an entry point to peace and God's protection in the plenitude of chaos.
- The trees herein show consistency with Scripture and in particular with Jesus' eschatological discourse.
- Are these connections happy coincidences or consistent pleas for our conversion?
- Although a precise time for the Parousia may not be drawn, the ax is at the root of the trees, and hence it is best to **come down** a chaotic tree as little Zacchaeus did.
- Righteousness is associated with being **under the fig tree**, at the **root**, as experienced by Nathanael the apostle.



References:

Please visit <http://puente.lawr.ucdavis.edu/peace.htm>