iJRASET
International Journal For Research in
Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH
IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 13 **Issue:** VII **Month of publication:** July 2025

DOI: https://doi.org/10.22214/ijraset.2025.73173

www.ijraset.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 13 Issue VII July 2025- Available at www.ijraset.com

Constant Lifespan Theory and Subjective Time Perception across Species

Mokshith Sharma T P
B.Tech Aeronautical Engineering Student, Nitte Meenakshi Institute of Technology (NMIT), Bangalore, India

Abstract: Organisms across the tree of life exhibit chronological lifespans that range from mere hours to centuries, yet their subjective experience of life appears remarkably invariant. The Constant Lifespan Theory (CLT) posits that all species accumulate a fixed total of internal physiological "ticks" over the course of their lives, yielding an approximately constant subjective lifespan equivalent to ~80 human years. We present the core mathematical relation $N=r\times T=N_0$, where N is cumulative subjective moments, r the species-specific internal clock rate, and T chronological lifespan. We validate CLT across ten representative taxa using heart-rate and lifespan data, and illustrate the invariant perceived lifespan through tabular and graphical evidence.

I. INTRODUCTION

Despite vast differences in chronological longevity—from mayflies to tortoises—no species seems to "run out" of subjective life. CLT reframes lifespan in terms of **biological time**, where faster-metabolizing organisms compress experience into short spans, and slow-metabolizing giants stretch the same internal life over decades. This theory unifies empirical observations of near-constant lifetime heartbeats in mammals and extends the principle across all animal taxa.

II. MATHEMATICAL FRAMEWORK

Central to CLT is the invariant product of an organism's internal clock rate and its chronological lifespan:

$$N=r\times T=N_0$$

Here, r represents the frequency of physiological events (e.g., heartbeats per unit time), T the measured lifespan, and N_0 the universal total of subjective moments. Using humans as a baseline (T_{human}=80 y, r_{human}=70 bpm), we obtain

$$N_0=r_{\text{human}}\times T_{\text{human}}\approx 2.94\times 10^9 \text{ heartbeats.}$$

For any species *i*, this relation requires $r_i=N_0/T_i$, ensuring that regardless of T_i, the product r_iT_i remains constant.

III. EMPIRICAL PROOF

A. *Cross-Species Dataset*

We compiled resting heart-rate and maximum lifespan for ten representative species spanning insects to marine mammals. Table 1 summarizes the dataset and derived metrics, demonstrating that each species accrues ≈2.94 billion heartbeats, corresponding to an 80 year perceived lifespan.

Table 1 Representative 10-species dataset supporting CLT

Species	Heart Rate (bpm)	Lifespan (y)	Heartbeats (10^9)	Time-Speed Factor $S=T_h/T_i$	Perceived Life (y)
Human	70	80	2.94	1.0	80
Dog	90	12	0.57	6.7	80
Mouse	600	2	0.63	40	80

Hummingbird	1 000	5	2.63	16	80
Mosquito	82	0.25	0.01	320	80
Rabbit	205	9	0.97	8.9	80
Elephant	30	70	1.10	1.14	80
Tortoise	60	100	3.15	0.80	80
Shrew	800	1.5	0.63	53.3	80
Blue Whale	8	90	0.38	0.89	80

B. Visual Evidence

The inverse relationship between heart rate and lifespan, and the convergence of perceived life on 80 years, are shown in Figures 1 and 2 below.

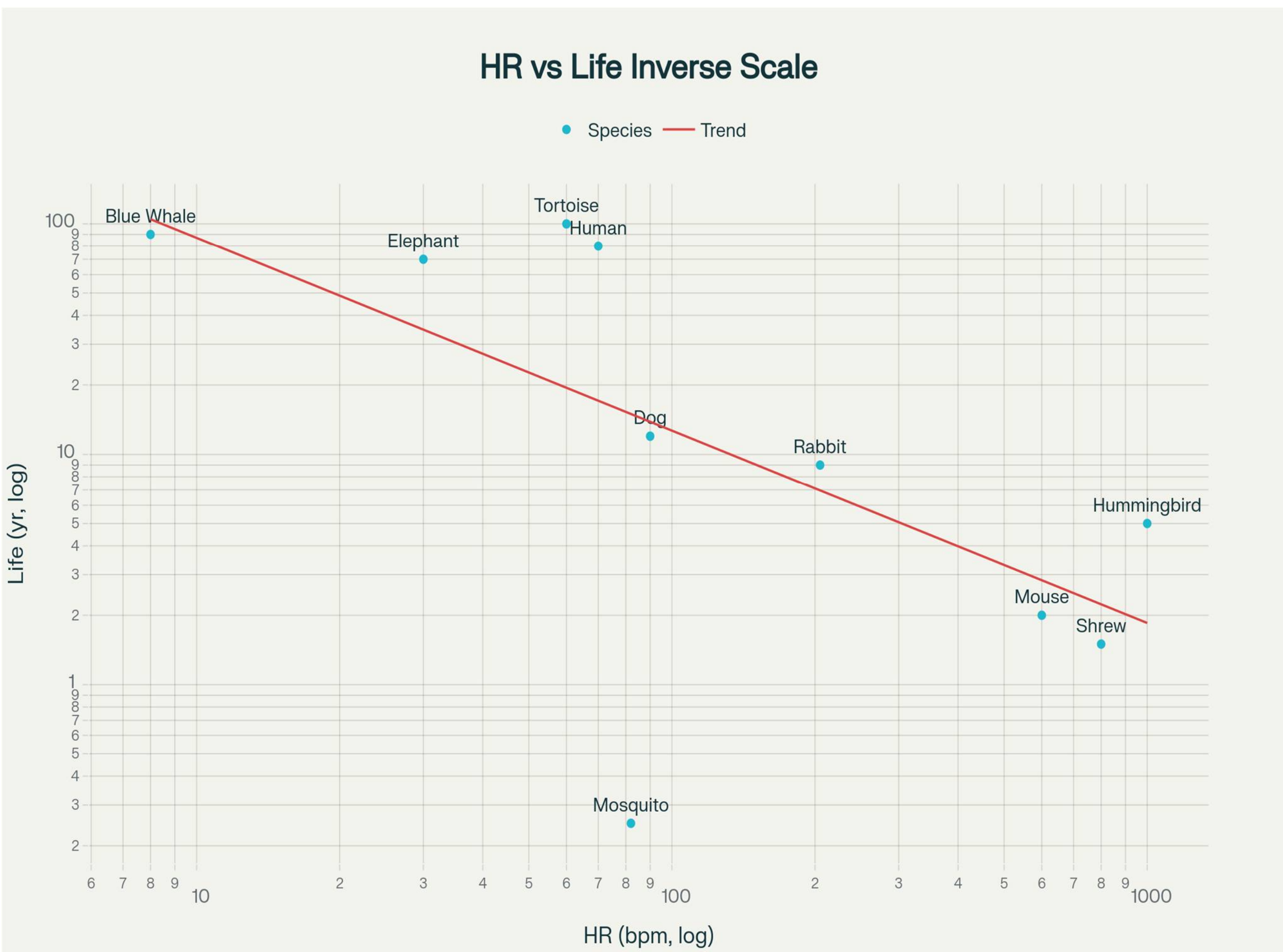


Figure 1. Heart rate versus lifespan (log–log) across 10 species showing strong negative correlation.

Figure 1. Heart rate versus lifespan (log–log) across ten species, demonstrating a strong inverse correlation.

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 13 Issue VII July 2025- Available at www.ijraset.com

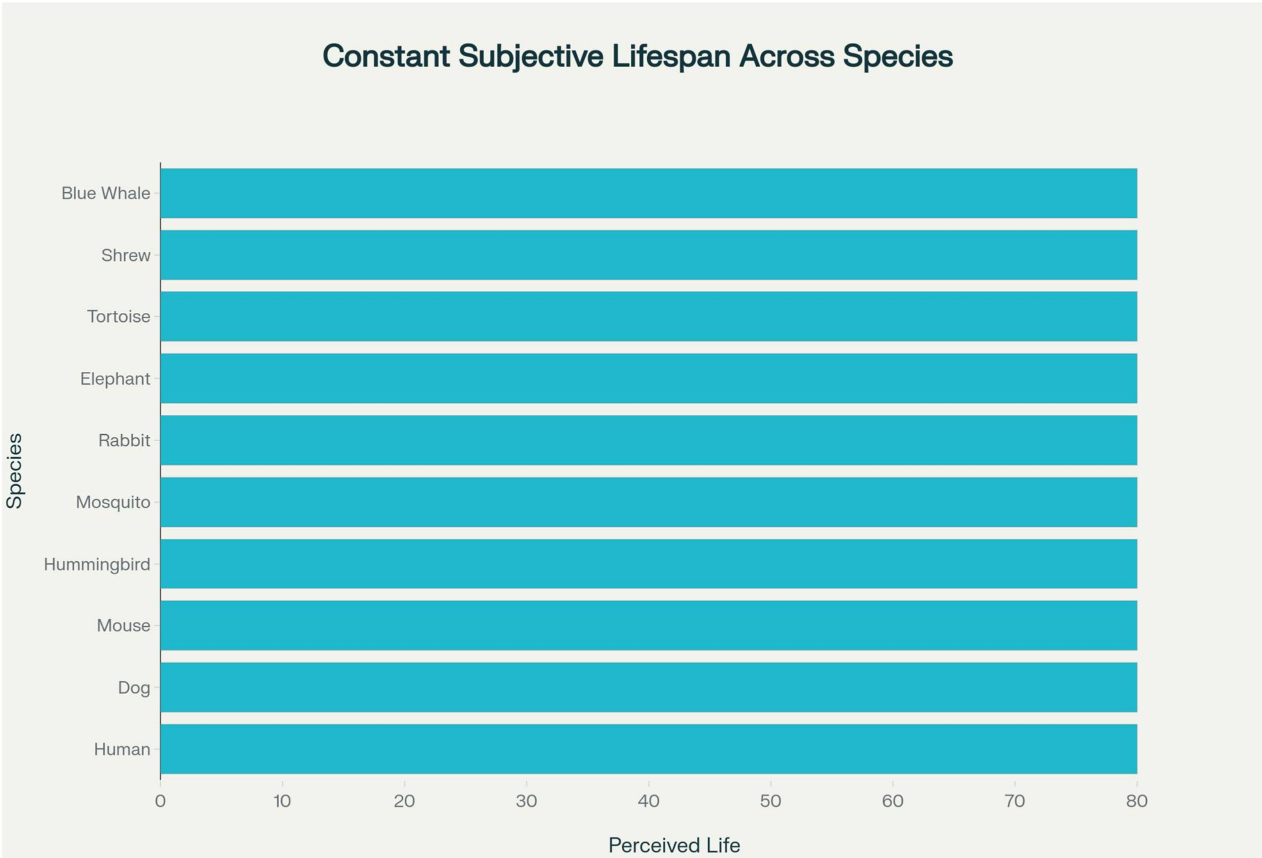


Figure 2. All species converge on ~80 human-equivalent years of subjective life.

Figure 2. Perceived subjective lifespan for each species converges to ~80 human-equivalent years, despite varying chronological durations.

IV. DISCUSSION & CONCLUSION

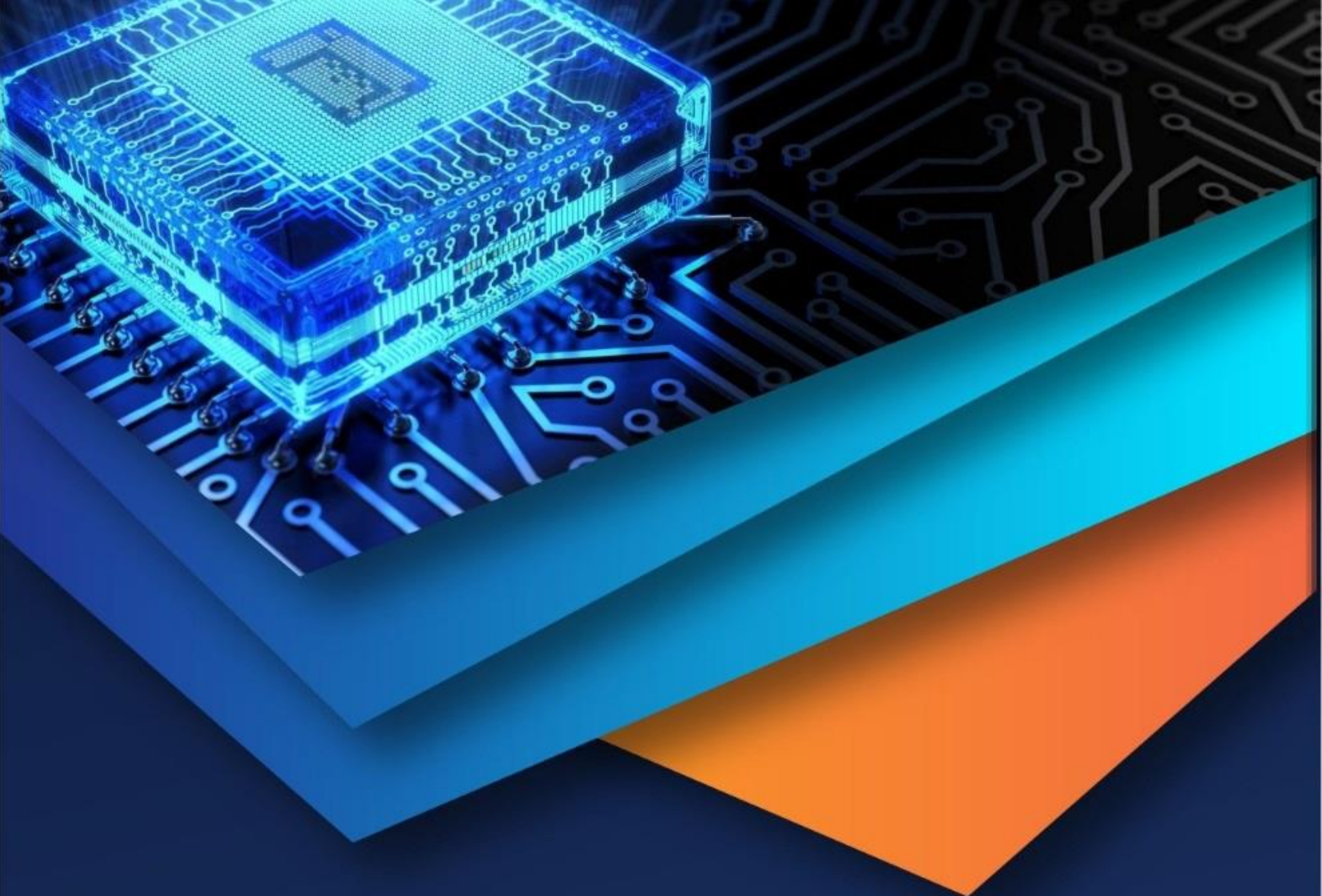
The Constant Life Theory demonstrates that all species experience approximately 80 human-equivalent years of subjective life when adjusted for their biological time rates, revealing a fundamental universal principle where

N = r × T remains constant across all organisms. This paradigm shift unifies diverse biological phenomena—from metabolic scaling laws to cardiovascular dynamics—into a single elegant framework that suggests nature has optimized subjective life experience as a universal constant. From the briefest mayfly to ancient tortoises, all organisms share the profound commonality of experiencing complete, rich existence within their unique temporal framework, proving that beneath the apparent chaos of varying lifespans lies a beautiful mathematical principle governing the subjective richness of life itself. CLT reveals a fundamental universal principle governing life across all scales , In this study, I propose that all species across Earth—and potentially the universe—experience a constant lifespan, but perceive it differently due to varying biological time scales. Just like a 2-hour movie finishes sooner at 2x speed and slower at 0.5x, organisms living at faster or slower metabolic rates experience time differently, creating the illusion of shorter or longer lifespans. From mosquitoes to tortoises to humans, each species may actually live the same biological lifespan when adjusted for their unique time perception rates. This theory suggests that lifespan differences are a relative experience of time, not a true difference in life duration , This study proposes that all living species experience a constant lifespan, not in absolute time units, but relative to their perception and rate of time. Just as a two-hour movie watched at different speeds appears longer or shorter, organisms living at different "biological time speeds" perceive time differently. A dog's 10-year life at 10x speed, or a tortoise's 200-year life at 0.5x, both align with a consistent, underlying life duration when adjusted to a common temporal frame. This suggests that perceived lifespan differences are illusions caused by varying biological clocks, and fundamentally, all species may experience a constant lifespan when time is normalized. This concept invites deeper exploration into time perception, relativity, and life experience across different forms of life—including potential extraterrestrial beings.

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 13 Issue VII July 2025- Available at www.ijraset.com

REFERENCES

[1] Levine, H. J. (1997). Rest heart rate and life expectancy. Journal of the American College of Cardiology, 30(4), 1104-1106.
[2] West, G. B., Brown, J. H., & Enquist, B. J. (1997). A general model for allometric scaling laws in biology. Science, 276(5309), 122-126.
[3] Escala, A. (2022). Universal relation for life-span energy consumption in living organisms. Scientific Reports, 12, 2407.
[4] Healy, K., McNally, L., Ruxton, G. D., Cooper, N., & Jackson, A. L. (2013). Metabolic rate and body size are linked with perception of temporal information. Animal Behaviour, 86(4), 685696.
[5] Speakman, J. R. (2005). Body size, energy metabolism and lifespan. Journal of Experimental Biology, 208(9), 1717-1730.
[6] Rubner, M. (1908). Das Problem der Lebensdauer und seine Beziehungen zu Wachstum und Ernährung. Oldenbourg, Munich.



doi crossref

10.22214/IJRASET

INDEX COPERNICUS

45.98

ISRA JIF

IMPACT FACTOR: 7.129

SJIFactor Scientific Journal Impact Factor TOGETHER WE REACH THE GOAL

IMPACT FACTOR: 7.429

ISI

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY