Turtles All the Way Down

Stephen Hawking opens his book "A Brief History of Time" with the concept of "turtles all the way down" to illustrate the problem of infinite regress in cosmology and philosophy[3]. This idea stems from an anecdote about a scientist (often attributed to Bertrand Russell) giving a lecture on astronomy[1].

In the anecdote, after the scientist explains the Earth's orbit around the sun and the sun's position in the galaxy, an elderly woman challenges him, claiming that the Earth is actually a flat plate supported on the back of a giant tortoise. When asked what the tortoise stands on, she replies, "It's turtles all the way down!"[1]

This concept serves as a metaphor for:

1. Infinite regress: It illustrates the philosophical problem of explaining the foundation of reality, where each explanation requires a further explanation, potentially ad infinitum[4].
2. Cosmological foundations: In the context of Hawking's book, it represents different views on the fundamental laws of the universe[3].
3. Epistemological challenges: It highlights the difficulty in establishing a firm foundation for knowledge or belief systems[2].

Hawking uses this anecdote to introduce complex cosmological concepts in an accessible way, suggesting that while the idea of "turtles all the way down" might seem absurd, it can be seen as a metaphor for increasingly fundamental laws of physics[3]. This opening sets the stage for discussing the search for a unified theory of the universe and the challenges in understanding its origins and structure.

The famous answer "42" as the meaning of life, the universe, and everything originated in Douglas Adams' science fiction novel "The Hitchhiker's Guide to the Galaxy," first published in 1979[1][2]. In the story, a supercomputer named Deep Thought is asked to calculate the answer to the ultimate question of life, the universe, and everything[1]. After 7.5 million years of computation, Deep Thought provides the answer: 42[1][3].

The origin of this concept in the book is as follows:

1. A group of hyper-intelligent beings create Deep Thought to find the answer to the ultimate question[1].
2. Deep Thought takes 7.5 million years to compute and check the answer[1].

3. When the answer is revealed to be 42, it becomes apparent that while they have the answer, they don't actually know what the question is[13].

It's important to note that Adams intended this as a joke, highlighting the absurdity of seeking a simple, definitive answer to such a profound and complex question[13]. Adams himself stated that he chose the number 42 arbitrarily, saying, "I sat at my desk, stared into the garden and thought '42 will do.' I typed it out. End of story."[6]

The concept has since become a cultural phenomenon, sparking numerous theories and interpretations. However, Adams consistently maintained that there was no hidden meaning behind the number 42, emphasizing that it was simply a random choice meant to be humorous[6].