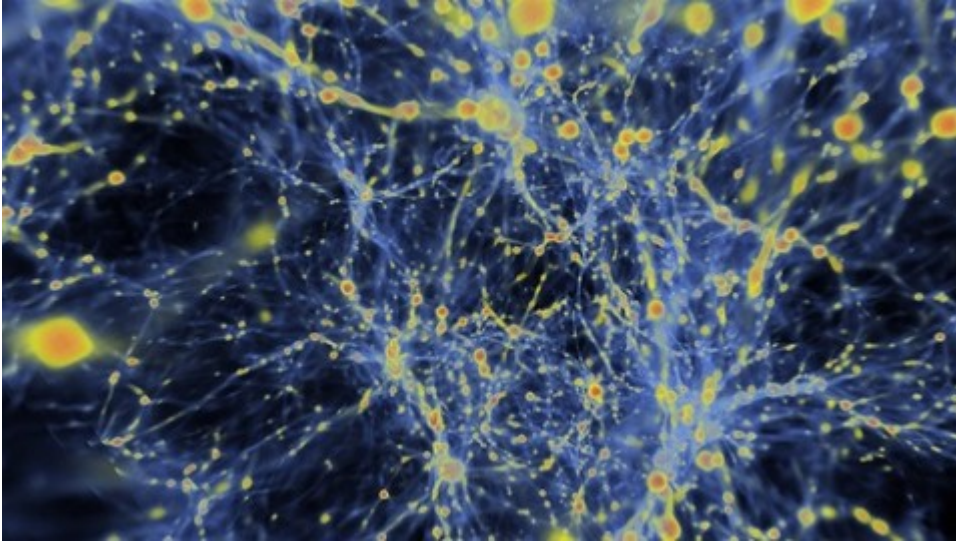


# Trillionths

By [Martin E. Marty](#)

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In a [review](#) of Stephen Hawking's *The Grand Design* (subscription required), physicist Steven Weinberg criticizes Hawking for concluding that "we have no free will":

*[Hawking] attributes the illusion of free will to the fact that a human being contains about a thousand trillion trillion particles, so that as a practical matter it is impossible to predict what people will do.*

This is a sign, says Weinberg, that Hawking "overestimates the ability to answer deep philosophical questions." (Meanwhile, practical souls may wonder how many particles will disappear in a good weight-loss program--"I am down to 999 trillion trillion particles," etc.)

[Elsewhere](#), fellow physicist Brian Greene, while being interviewed about his book on "multiverses," suggests that "our 'everything' [i.e., our universe] may be just one enormous expanding bubble in a gigantic cosmic bubble bath of universes." Some find this uncomfortably large and seek refuge in our own cozy universe, our neighborhood. NASA helped us in January [with reference](#) to an object that traveled 13.2

billion light years to reach the Hubble telescope. It is "the most distant object ever seen in the universe."

Just as Weinberg, an assertive atheist, believes that science cannot answer deep philosophical questions, Gelernter observes this:

For many in the world, religion can provide meaning. Why are we here? What's our purpose? But for explaining physical processes, science alone has proved to be our most trustworthy guide.

If all the numbers from Weinberg and Gelernter are staggering, we might go in a cozier direction and look in on an infant--or *part* of an infant, her brain. David

Brooks, [writing](#) on the conscious and unconscious mind, gives us a little peek inside one. Quoting a Caltech scientist, Brooks reports the following:

We have a hundred billion neurons in the brain; infants create as many as 1.8 million neural connections per second; a mere sixty neurons are capable of making ten to the eight-first possible connections, which is a number ten times as large as the number of particles in the observable universe.

Give that kid a second second and you will start getting into real numbers, real possibilities.

Brooks goes on to explain how "flourishing" takes place in the face of all the complexity:

It happens sometimes while you're . . . listening to music or lost in a story, or to some people when they feel enveloped by God's love. And it happens most when we connect with other people.

Many religious people believe that their response to challenges should be proving the existence (or disproving the nonexistence) of God. But on the crucial bridge where scientists and religious thinkers meet--a place in which we all have a stake--the most promising dialogue occurs when all sides know their limits and thus are able to transcend them, being humbly lost in wonder, content with but curious about mystery, and ready to re-engage what

the provinces of scientists and theologians have in common.