

Language: Down to the last attosecond

William Safire NYT
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WASHINGTON ‘Do you have a minute?’ That’s what we used to say when the person we were accosting was in a rush. That notion of a very short time was reduced, not long ago, by the split second, which was defined by New York Traffic Commissioner T.T. Wiley in 1950 as “the time between the light turning green and the guy behind you honking.”

Of late, the word used to denote an extremely short time — something that takes place quick as a flash, faster than a speeding bullet, with greater alacrity than greased lightning and far faster than the old, slow blink of an eye — is a nanosecond. With its prefix rooted in the Greek nanos, “dwarf,” that word zipped past millimicrosecond in 1958 as the metric system became dominant, to become the word that filled the desperate need for “billionth of a second.”

Then the numeral billion lost its zing. To federal budgeters and to media-merger moguls, a billion dollars ceased to be a big deal. In the same way, a billionth ceased to be so infinitesimal to squinting scientists. In both directions, up and down, prefixes for 10 to the ninth power didn’t quite do it.

Which brings us to this item from a press release put out by Nature magazine. “Scientists have measured the shortest time interval ever,” the magazine reported that researchers had reported. “Ferenc Krausz and colleagues used short pulses of laser light to watch an electron moving around inside an atom, and were able to distinguish events to within 100 attoseconds — that’s a 10-million-billionth of a second.” For those of us unable to grasp hairsplitting that thin, Nature explained: “Imagine stretching 100 attoseconds until they lasted for one second — on the same scale, one second would last for about 300 million years.”

Do we really need this measurement? You bet we do. “It takes an electron about 150 attoseconds to ‘orbit’ around the proton at the center of a hydrogen atom,” noted Nature. “Opening up the attosecond timescale could therefore provide new insights into the incredibly fast processes of the atomic world.”

The greatest geniuses on earth apparently inundated the Nature boys with a collective “Hunh?” Soon after that there came this clarification: “In the press release sent out by Nature on Thursday entitled ‘How Long Is an Instant?’ there was some ambiguity concerning the wording re: the length of 100 attoseconds. To clarify: ‘100 attoseconds’ is equivalent to a 10-million-billionth of a second.”

I can’t hang around counting up to 100 of those lethargic little dinguses, but I take my hat off to the magazine’s editors for moving briskly to prevent the extrapolation of error.

Here we are down to the very instant of instantaneous. To nuclear scientists, the language must be tasked to keep pace with their progress: ltsy-bitsy, teeny-weeny doesn’t cut it anymore.

What large point am I making in this measurement of the infinitely small or incomprehensibly huge? It is that the language is ready for anything. No breakthrough in genetics or astronomy or math or physics is too big or small or complex to resist nomenclature. You find it or invent it or measure it, we’ll name it. With Walt Whitman, the language sings, “I am large — I contain multitudes.”

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