

Dealing with evidence of time, distance and speed

By: F. Dennis Saylor IV and Daniel I. Small ○ July 26, 2018



Human beings are notoriously poor judges of time, distance and speed — for example, how long something took to happen, how far away something is, or how fast something was moving. Did the event take two seconds, or 10? Was the witness 25 feet away, or 50? Was the car going 30 miles per hour, or 20?

The difference may be critically important to the case. But often witnesses don't really have an accurate idea, or are simply guessing. And even if the witness gets it right, the jury may not

fully understand the meaning of the number.

If any of these issues matter, think long and hard about how you're going to go about proving your point (or attacking your opponent's, as the case may be). Don't assume anyone will get anything right, or that the jury will understand it if they do.

One approach is to use a demonstrative aid, such as a stopwatch or tape measure, with a witness. Suppose, for example, the victim in a prosecution for a street robbery testifies that the whole episode lasted "only a minute or two." In all likelihood, the robbery didn't take anywhere near that long.

How can you establish that? Using a clock or a watch, ask the witness to follow along with you as you watch the seconds tick by. Even a single minute is an agonizingly long period of time in a silent courtroom. You might get the witness to acknowledge readily that the length of the encounter was more like 10 or 15 seconds.

Or suppose a witness says she was 10 feet away from an accident that happened in the middle of intersection. Ask the court for permission to have the witness hold one end of a tape measure, while you slowly walk away. Again, you might get the witness to acknowledge quickly that the distance was at least 20 or 25 feet, and probably a lot more.

Of course, it's even better if you can go to the location beforehand with a measuring device and record the results. (Safety tip: don't stand in the middle of a busy intersection with a tape measure.) And it's always helpful to set the scene with maps, photographs and the like.

Other approaches include analogies ("the size of a toaster") or references to everyday places or things ("a typical city street with parked cars along the curb").



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Creating your own demonstrative aid can also be effective. You may remember seeing graphics in middle school showing the relative size of the earth to the sun, or the distance of the planets from the sun. A graphic showing a witness's distance from an event may be just as effective. Of course, such a graphic must be created scrupulously to scale, or it will be unfair and likely draw a sustained objection.

Any "measurement" fact is likely to present similar issues. For example, an estimate of the weight of something may be just a guess unless the witness was using a scale. An estimate of the size of something is really just an estimate of distance in three dimensions.

Estimates of speed are particularly problematic. Unless the witness was actually looking at a speedometer, or a radar gun, it's almost always a rough estimate, pretty close to a guess. If you don't have a video or something scientific (like an accident reconstruction based on skid marks), you probably won't have much to work with. Still, it can be helpful to get the witness to acknowledge doubt, or a range rather than an absolute number.

As a related aside, it is particularly difficult for jurors to understand numbers of any size or complexity if they are not written down. And by "complexity," we mean just about anything more complicated than "1+1=2."

For example, if you're putting in evidence of the plaintiff's annual earnings before and after an accident, you should always use a written chart. No one will be able to follow what the evidence is if you simply have the witness rattle off numbers from the stand.

The relative size of numbers, particularly very large numbers or very large discrepancies, is even more difficult to grasp. That is why graphs were invented.

One of the most famous graphical portrayals of numerical values is a 19th century depiction of Napoleon's 1812 invasion of Russia by the French engineer Charles Joseph Minard. Napoleon invaded with an army of 422,000 men, of whom only 10,000 returned alive. Reciting the numbers alone does not do justice to the scale of the catastrophe — but it is immediately apparent from the plunging line of the graphic.

In short, "measurement" evidence is often wrong and sometimes difficult to grasp. The right demonstrative aid will go a long way toward helping the jury understand the truth.

Previous installments of Tried & True can be found here. Judge F. Dennis Saylor IV sits on the U.S. District Court in Boston. Prior to his appointment to the bench, he was a federal prosecutor and an attorney in private practice. Daniel I. Small is a partner in the Boston and Miami offices of Holland & Knight. He is a former federal prosecutor and teaches CLE programs across the country.

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10 Milk Street, Suite 1000,

Boston, MA 02108

(617) 451-7300