

## Bisecting a Line

R. Russell Rhinehart

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A line goes to infinity in both directions. Stand anywhere on the line; since you can't see the ends, your perspective makes it feel like the middle. Another person on the line, but over there, also feels to be in the middle, looks where you are, and says, "You are too far that way". And you say to them, "Not so. You are the one too far off-center."

One might ask, "Where is the middle ground?" The right place on the line is where the balance of opposing ideals best provides function. The right place is not determined by distance from extremes or proximity to some ingrained comfort.

The extremes, the opposing ideals, might be the tension between full rigor in knowledge or an intuitive leap to an explanation. A reel- or rotary-type lawnmower? Science or technology? A batch or a continuous process? Theoretical rigor or empiricism?

As a rigor-empiricism example, consider the ideal gas law,  $PV = nRT$ . If that is a mid-point on the line; from there, progressive rigor goes to the van der Waals equation, to the virial equation of state (EOS), to the Benedict-Webb-Rubin equation, to statistical mechanics, to particle physics, to Monte Carlo simulations of energy configurations, ... Back to the ideal gas law as a mid-point; in the other direction, empiricism goes to a monograph, to a data table with functional interpolation, then with linear interpolation, to an eye-ball estimate of interpolation, to extrapolation of process data, to a mental estimate from a similar experience, .... When you think you've arrived at the end, the line always seems to reveal the next level toward the extreme.

If you are a Myers-Briggs Sensor type,  $PV = nRT$  may be too scientific; not adequately data based. If you are a Myers-Briggs Intuitive type, it may be too simplistic; not true enough.

There are a multitude of reasons that individuals acquire preferences to be near or far from one extreme. However, the right tool is not based on distance from the favored extreme on the line, but by the utility, functionality, and propriety within the needs of the situation. Identify the enterprise vision of desirables and undesirables, then find the place, perspective, or balance of concepts that provides action that optimizes the benefit, the impact.

The right place changes with situation, and the times. The right place is not one person's view, but the collective view of all stakeholders and constituencies, of both today and tomorrow. The right place is not related to your family heritage, school spirit, religious doctrines, regional origins, or other sources of brain-washing your young self was subjected to as institutions sought to control you (for your own good, you understand, certainly not for their convenience or increase).

Back to the rigor-empiricism example: If a rough estimate of mass of a gas is required when the pressure is not too high, then the ideal gas law may be the right tool. However, if the pressure is high and the gas is well studied, a B-W-R EOS may be appropriate for internal computer calculations. However, if the gas is not well characterized, interpolation from data may be expedient. The right choice is not related to perfection; it should be made considering utility within the situation.

People argue about the superiority of colleges, athletic teams, car styles, lawn mower manufacturers, scale of model trains, number of children, taboo foods, and such. When an argument about what is right is grounded in a defense of the individual's legacy, and the consequential choice of position on the line, the debate leads to 'Us vs. Them' relations. The need to win in such debates can become divisive and polarizing. This diminishes organizational effectiveness. Mostly, position is just a personal choice. Accept that you make your personal choices, others make different ones, and that this is OK. Accept that your brainwashed past would like you to defend your former spot on the line with the scripts they made you memorize. Today, however, evaluate your position on the continuum by its effectiveness within the situation context.

I learned this through management training during my industry years, and am grateful to my employer for providing the experiences. Since, I have found this understanding is just as applicable to the academic, community, and family arenas as to an industrial career. I have presented this message to engineering students for many years, and I drafted this article long before the current political era. Certainly, I am not writing this to defend or discredit any political party! I am hoping that readers can better understand their own behavior and use this to develop their potential in both career and personal life.