

Diabologic: Off by One

by Frank Dolinar

At the risk of being perceived as a curmudgeon, I do wish people would learn to count.

Unless you are a software geek working in a programming language that starts counting with zero (0) – to take advantage of how the computer’s hardware actually stores numbers – pretty much everyone begins counting with the number one (1), e.g. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

If you understand this, you probably get a little confused, frustrated, or perhaps even stupefied when you hear people say, for example, that the year 2009 was the end of the decade.

Allowing for the fact that different calendars have different year numbers going for them and that not everyone on the planet has adopted the Gregorian calendar used in much of the western world, decades still have ten (10) years. Therefore, the last year in a decade would end in a zero (0), signifying the tenth, i.e. the last, year of the decade. Looking at the calendar, this means to me that the year 2010 is the last year of the current decade.

This nonsense isn't new, we saw it on a somewhat larger scale in 1999, which people worldwide mistook as the last year of the decade which included 1991, the last year of the 20th century, and the last year of the second millennium of the common era (CE), when the correct year in each case was 2000.

As for the beginning of the new decade, century, or millennium, there’s a reason why Arthur C. Clarke titled his book *2001: A Space Odyssey*.

In computer parlance, we call this an off-by-one error, and it can cause a lot of problems when you reference the wrong item in the data because you counted wrong. When that happens, you don’t get back the information (or the value, sometimes the monetary value) you were expecting.

This is an example of a larger problem, which I’ll call “Cultural Innumeracy”. There is a disturbing trend in the population toward innumeracy – the general inability to understand and perform mathematical tasks.

And yet a large and increasing number of high school and university students seem to avoid math and science because they think these subjects are “too hard”. Problems worth solving often are difficult. We don’t get to be physicists, mathematicians, computer programmers, medical doctors, or rocket scientists without learning how to solve difficult problems.

It looks like the 21st century is going to be dominated by science and technology even more than the 20th century was. If we in the United States are unable or unwilling to tackle the difficult problems, we will become second-class citizens – illiterates in a world of science.

Should that happen, we will discover the world’s economics and politics dominated by those who are willing to address such problems and who may not respect our intelligence, efforts, or constitutional Bill of Rights.

If you don't like that outcome, do something about it. Encourage your children to study the difficult subjects and praise them for their efforts as much as (or perhaps even more than) for their successes. Encourage your local school system to develop more challenging curricula. And while you're at it, don't expect this task to be easy.

If we don't do something to end this slide, we'll end up with a populace that can't even do simple arithmetic – to make change in a store, for example – and have to have a calculator to derive the correct value.

It’s your choice, of course. But I encourage you to think about it seriously before opting for the lowest common denominator, because that path leads to extinction.