Water, Horse, Drinking

2023 11 15

Dear Krassimir,

Thank you for your remark:

 *2. Karl, you lost the bet before it was even made!*

*Thousands of math and computer science students study combinatorics, which means that permutations and cycles (loops) are part of first-year studies and exercises.*

*Nothing new will be gained if we call them by another name.*

Let me answer it, firstly in the style of eristic dialectics (Schopenhauer):

Imagine that you speak to young James Watt and you say:

*Listen, you keep troubling us with your insistence that you have some contraption that is worth looking into. Your imagined improvement deals with steam (in the parable: permutations) which you want to connect to the turning of potters’ wheels (in the parable: partitions). You should know that both the production of steam and the turning of potters’ wheels are well-known, established techniques. Every housewife in England has a deep knowledge of boiling water, and over the whole world potters know how to turn their wheels. There is absolutely nothing you can contribute to these techniques. Calling steam and potters’ wheels any other name will not bring any conceivable increase in knowledge, because all details are already fully known.*

My retort to your argument is:

Indeed, my invention is neither in the field of creating steam, nor in that of forcing a wheel to turn. My invention is a complicated machine, which is in between the two well-known techniques. The complicated machine connects the two well-known techniques by inserting a system of valves, levers, regulators and belts. If you wish to understand the machine, may I suggest to look in more details at the belts, which symbolize the cycles. Please self-educate yourself on the matter of belts, cycles, strings, paths, liaisons. Here is how you can educate yourself on this important detail [points to 12 books]: reorder these and write an essay about your experiences.

Aside the rhetoric, let me offer to you some improvements that have been made to the subject of partitions interacting with permutations:

1. We all know that a limited number of objects can not be included in an unlimited number of distinct groups. There is an upper limit to the number of distinct groups a limited number of objects can be a member of.
2. This upper limit is called “upper limit for coexistent group structures on assemblies of a limited number of objects”. This upper limit has not been determined by mathematics, because the last time I asked, mathematicians said that the concept is not defined.
3. This person has not defined the concept but has accepted its realizations as a reality and established the relation of that upper limit to the number of objects in the assembly. (This method follows the recognized pattern of gaining knowledge by measuring the apparition, even without exactly knowing what it is caused by. The Babylonians did such, by establishing the predictability of eclipses of Sun and Moon, next to predicting solstices.);
4. This numeric value of saturation of a collection with symbols that depict commutative relations is named ‘*n?’* and has a value of *n? = exp(part(n)ln part(n)),* at times written as *exp(part(n)2),* where *part(n)* refers to the number of partitions of *n,* A000041**, thus n? = exp(ln(A000041)2);**
5. This we contrast to *n!, A000142.*
6. The resulting inconsistencies are what the invention is all about. Let me hope that the FIS server will accept an embedded picture. If the picture appears unreadable, please visit *oeis.org/A242615* and navigate down to the Chart. The important detail to understand is that *n?, n! {=,*<,=,>,=,<,<<} for *n {1,11,32,66,97,136,140}*.

The point to make in answering your rhetoric challenge is that the **existence** of an inbuilt (inner, intrinsic, immanent) discongruence (inconsistency, discrepancy, deviation) is hardly ever mentioned amongst the good (god-fearing, orthodox, traditional) people of the profession of mathematics, because it is against the canon to think that such an inner discongruence exists.

Even more resistance is encountered when specifying the extent of the inbuilt incongruence. (Not only does the Queen of Spain have legs, but she shaves them regularly.)

This resistance has caused a search for didactic steps to introduce the idea that the symbol set is in itself superficially inconsistent, which do not take recourse to such complicated matters as partitions and permutations. Not everyone is willing to count the different forms appearing of something that has no definition. Psychologists love to do that, checking and measuring something one has no idea what it is deeply down.

To make didactical and rhetorical inroads and half-steps, one has sought to find examples of inner discongruences that are easy to recognize. Like the value of π, the extents and values of inner discongruence pop up at several places, and several definitions coexist for the mental construct π.

The general principle that there exists an inner dis-calibration within the symbol system needs to be accepted at first. If it is impossible to think that all symbols that we can think related to each other can show tolerance limits when shaken, then no rhetoric will ever be sufficient to explain the values and extents of the inner tolerance ranges for values of the symbol set.

For those who are fascinated by dialectic, who imagine two halves that interact and the like, one may propose to use the general name of **information** for the fact that the symbol set does not fight tightly (there is aways somewhere a bulk and somewhere else something is lacking). Information is presented here as comparably integral to the world view to ideas about big bang and the like. There has always been many, different parts of the whole, and these parts do not fit seamlessly with each other. The extent of non-fitting-exactly does need an overall name, and that name shall be information.

To demonstrate the idea of inner controversies within the symbol set, one has evolved the great sorting and resorting education tool. It is transportable, as it needs nothing else than your hands and 12 books, and later a computer, which can be sourced locally. The most important ingredient of the education, namely to have an open and inquisitive mind, is of course a given with the excellent learned friends in this group.

According to a Hungarian proverb, you can drag the horse to the well, but you can not force it to drink.

Thank you for enlivening the discussion with high-level rhetorical exercises.

Karl