The Unified Beer Theory of the Universe

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Introduction:

For centuries, people have always thought that beer (or alcoholic drinks) were somehow connected with the centre of the universe. The argument usually goes something like this:

> Objects rotate around the centre of the system.
> For example, the planets rotate around the sun.
> When you consume beer, things spin around you.
> Hence, when you consume beer, you become the centre of the system.
> There exists a centre of the universe.
> When you drink beer, the centre of the universe rotates around you.
> Hence, beer is the centre of the universe.

When Einstein was nearing his death bed, he was working on the Unified Force Theory of the Universe. It simply stated that when you took the universe to "n" dimensions, then there would be a simple force that would combine all the forces we know (ie: Magnetic, Gravitational, etc..). I really don't understand it myself, and if I did, I wouldn't be working on THIS project. Most people only pretend to understand it after a few beers (aha! note the beer theme).

This document is here to set everyone straight. I've discovered the connection between beer and the universe and it is quite simple (I'm surprised that I'm the first to develop it). I call it the "Unified Beer Theory of the Universe".

General Description:

The SI (Système International) system of units contains 6 (six) fundamental units, that can be used to describe (measure) any system. They are the meter (length), the kilogram (mass), the second (time), the Kelvin (temperature), the ampere (electrical current) and the candela (luminous intensity). *Note: why is the candela always listed last? Does anyone ever use this unit?*

It is the main component of the "Unified Beer Theory of the Universe" that all six of these units can be converted to the fundamental unit of the universe: the beer. Hence, any physical property of the universe can be described in beers.

Nomenclature:

There is no quaint symbol for the beer. That is stupid. It is the beer. Previous to the beer conference of 1994 (I hosted it: should've been there man - it was a BLAST!) the symbol beers was used in specific contexts (ie: 124.5 beers). The beers is still an acceptable (but less preferred) symbol. All of the standard prefixes that exist in the SI system can be applied to the beer. For example, the kilobeer = kbeer, the megabeer = Mbeer, and the picobeer = pbeer. Special care must be taken with the kilobeer, as previously to the beer conference of 1994, kbeer was the "keg of beer". The new prefix for "keg of beer" is the kegbeer, which will be discussed in the variations section. Like most units, the beer can exist as fractional dimensions. For example, 124.1 beer$^{3/2}$ is a valid unit.

Variations:

It became apparent very early in my research that there are many difficulties associated with using the beer unit. All beers are not created equal. To solve this problem, I introduced a "base beer" system. Therefore, before any calculation, you must state the base beer. For example, the much weaker American beer system uses the 355ml can as the base unit of volume, but in Canada, we use the 341ml bottle. Europeans would use a drastically different system based on much stronger and thicker ales. Things that would be determined by the beer: unit volume, package volume (case, keg), density, energy (calories), resistivity, specific heat and opaqueness. It is crucial that some standards be implemented to use but a few different beers: "the standardization of beer" (I propose a conference real soon). Conversion between systems of beers is nontrivial, nonlinear, and a HUGE pain in the butt (that will become quite evident when dealing with calculations later).

For the rest of the document the base unit of beer will be 1 bottle of Labatt Genuine Draft [LGD] (it is also currently my favorite beer).

Details:

I will discuss how to convert each of the 6 SI units into beers.

LENGTH

Length is by far the easiest of the six units to convert. We know the volume of the beer, and so it is a simple matter to convert a beer to metres.

To calculate the length of a beer, the unit volume in m^3 of the beer is required. This is represented by the variable μ.

In general terms, $1\ m = \mu^{-1} beer^{\frac{1}{3}}$

(In Ontario, 1 beer = 341 mL. 1 casebeer = 24 beer. 1 kegbeer = 58.6L = 171.85 beer)

$$1\ beer = 341\ ml = 3.41 \times 10^{-4} m^3 \qquad \therefore 1\ m = 2.933 \times 10^3 beer^{\frac{1}{3}}$$

Many newcomers have trouble understanding how this works, and to put it in the words of one of my pupils, “I just can’t wrap my head around it, sir”. Unfortunately, this is one of the easiest of the units to understand, and can only truly be grasped with experience. It’s just one of those things. To help you understand better, here are a few handy conversions:

$$1\ acre = 1.187 \times 10^7 beer^{\frac{2}{3}} \qquad 1\ cm^3 = 2.933 \times 10^{-3} beer \qquad 1\ mile = 4.719 \times 10^6 beer^{\frac{1}{3}}$$

MASS

The conversion of beers to mass is also quite simple. In addition to knowing the volume (μ) of the beer, the density (ρ) of the beer is required. ρ is measured in $kg{*}m^{-3}$.

In general terms, $1\ kg = \frac{1}{\mu\rho} beer$

For Labatt Genuine Draft [LGD], $\rho = 1.069 \times 10^3$ $kg{*}m^{-3}$. *[Hey -- I actually measured it !!]*

$$1\ beer = \left(1.069 \times 10^3 \frac{kg}{m^3}\right) \times \left(3.41 \times 10^{-4} m^3\right) = 0.365\ kg \qquad \therefore 1\ kg = 2.74\ beer$$

The mass of a beer is usually much easier for people to grasp and understand. (and much easier to grasp and drink).

TIME

Most skeptics will concede the conversion of both length and mass to beers, but draw the line when in comes to time. This narrow mindedness and skepticism is common amongst people that truly don’t understand things, and don’t get anywhere in life. They probably need to drink more beer.

The key to understanding the conversion of time and beer is the energy of the beer. The variable for Energy is E and is measured in Joules ($kg{*}m^2{*}s^{-2}$) or sometimes calories.

In general terms, $1\ s = \sqrt{\frac{\mathrm{E}}{\mu^3 \rho}} beer^{\frac{1}{3}}$

TIME (con't)

For LGD, 1 beer is 140 calories *[Yes, this also is actually true!]* or 5.86x10^2 J.

$$1\ \ beer = 5.86\times10^{2}\,kg\frac{m^{2}}{s^{2}} = \left(5.86\times10^{2}\right)\times\left(2.74\ \ beer\right)\frac{\left(2.933\times10^{3}beer^{\frac{1}{3}}\right)^{2}}{s^{2}} = \frac{1.38\times10^{10}beer^{\frac{5}{3}}}{s^{2}}$$

$$\therefore 1\ \ s = 1.175\times10^{5}beer^{\frac{1}{3}}$$

(Wow! - A committee has been formed to determine the average number of beers drank in one second in Canada. But, those of us that believe in the interconnectedness of all things already know the answer is written above.)

Now the combination of Length, Mass and Time can produce several different combinations of derived units, so some useful conversions are provided for you:

$$g = 9.81\frac{m}{s^{2}} = 9.81\frac{2.933\times10^{3}beer^{\frac{1}{3}}}{\left(1.175\times10^{5}beer^{\frac{1}{3}}\right)^{2}} = 2.168\times10^{-7}beer^{3}$$

$$100\ \ kph = 27.7\frac{m}{s} = \frac{2.933\times10^{3}beer^{\frac{1}{3}}}{1.175\times10^{5}beer^{\frac{1}{3}}} = .707\ \ beer^{0}$$ Pronounced - ".707 beer-nots"

$$1\ \ N = 1\frac{kg\cdot m}{s^{2}} = \frac{\left(2.74\ \ beer\right)\times\left(2.933\times10^{3}beer^{\frac{1}{3}}\right)}{\left(1.175\times10^{5}beer^{\frac{1}{3}}\right)^{2}} = 5.94\times10^{7}beer^{4}$$

TEMPERATURE

The measure of Temperature was the most 'heated' debate at the beer conference of 1994 (It just barely edged out the "Tastes Great" "Less Filling" debate). My original draft of this theory had the Beer temperature scale based upon the Celsius scale, where 0 beer would be the freezing point of beer, and 100 beer would be the boiling point. However, I was never satisfied with this system of assigning Temperatures as (and hopefully you've been following along here) intuitively, the temperature should be in beer^{-1} . In Laymen's terms, this represents the way that beer becomes less desirable when it gets warmer. Finally it came to me. While waiting for my beer to get cold in the fridge, I realized that the specific heat of beer was the way to go. I made the presentation at the conference, but found many mixed reactions. Apparently, quite a lot of money had already been spent re-calibrating thermometers and re-writing textbooks. However, after I bought a few rounds everyone saw my point of view.

The unit involved for calculating temperature is the specific heat of beer (c), measured in J*kg^{-1} *K^{-1}.

In general terms, $1\ \ K = \frac{c\rho\mu}{\mathrm{E}}beer^{-1}$

I don't actually know the c value for LGD, so I'm estimating a value of 3748 J*kg^{-1} *K^{-1}. *[Hey -- when YOU do your theory then you can make up your own value too!]*

$$1\ beer = 3748\frac{\left(kg\frac{m^2}{s^2}\right)}{kg\cdot K} = 3748\frac{m^2}{s^2\cdot K} = 3748\frac{\left(2.933\times10^3 beer^{\frac{1}{3}}\right)^2}{\left(1.175\times10^5 beer^{\frac{1}{3}}\right)^2\cdot K} = 2.43\ \ K^{-1} \qquad \therefore 1\ \ K = 2.43\ \ beer^{-1}$$

So some temperatures would be:
273.15 K = 0°C = 664 $beer^{-1}$ 300 K = 26.85°C = 729 $beer^{-1}$ 373.15 K = 100°C = 907 $beer^{-1}$

ELECTRICAL CURRENT

The conversion from Amps to Beers should be somewhat trivial for you now that you've seen my methods, and as an exercise you may want to do it on your own before continuing.

The measured quantity that I will base the current calculation on will be Resistivity (P) in Ω*m or kg*m^3 *A^{-2}*s^{-3} (measured at the temperature of 727 $beer^{-1}$)

In general terms, $$1\ \ A = \sqrt{\frac{P}{\sqrt{\frac{\mathrm{E}^3}{\mu\rho}}}beer^0}$$

For LGD, the value of P is pretty close to 500 kg*m^3 *A^{-2}*s^{-3} *[Using my non-precision home instruments]*

$$1\ beer = 500\frac{kg\cdot m^3}{A^2\cdot s^3} = 500\frac{(2.74\ \ beer)\times\left(2.933\times10^3 beer^{\frac{1}{3}}\right)^3}{A^2\cdot\left(1.175\times10^5 beer^{\frac{1}{3}}\right)^3} = 2.26\times10^2\ \frac{beer}{A^2} \qquad \therefore\ \ 1\ \ A = .150\ \ beer^0$$

The interesting development with the current calculation is that the dimension of beer is zero. This of course makes sense when you really think about it. The correct term for the $beer^0$ term is the "beer-not". So instead of "Hey Charlie, pass me a 10 Amp fuse", it would be "Hey Charlie, pass be one of those 1.5 beer-not fuses". Simple, eh?

LUMINOUS INTENSITY

Has anyone ever actually used Luminous Intensity? Ever? If you have, then please send me information on it and perhaps a suggestion on how to convert it to beers. I'm sure that it is only a trivial exercise that has to be done. However, until someone complains about the absence of Luminous Intensity I will save the energy (I mean beer) and ignore it.

Conclusion:

Well, after you see it in print, then it makes you kind of wonder why you never figured it out for yourself, doesn't it?

For any given Beer B, we have a set of 5 measurable quantities of B (μ,ρ,P,E,c) that can be then used to define a unified unit system, with the single unit being beer. Note that the monetary system, a system often neglected by SI, can be easily accommodated with the beer system with a simple linear formula (don't forget the G.S.T.).

This theory is by far the easiest known method to solve large problems with many inconsistent units. All that is necessary is to convert all values to beer, and then everything falls into place.

Try it on your next exam (tell them Belushi Sent you):

Q: A ball is thrown at 21 m/s at 30° above the horizontal from the top of a roof 16m high. Find the Time of Flight.
A: Easy: 372.5 $kbeer^{1/3}$ (real solution!)