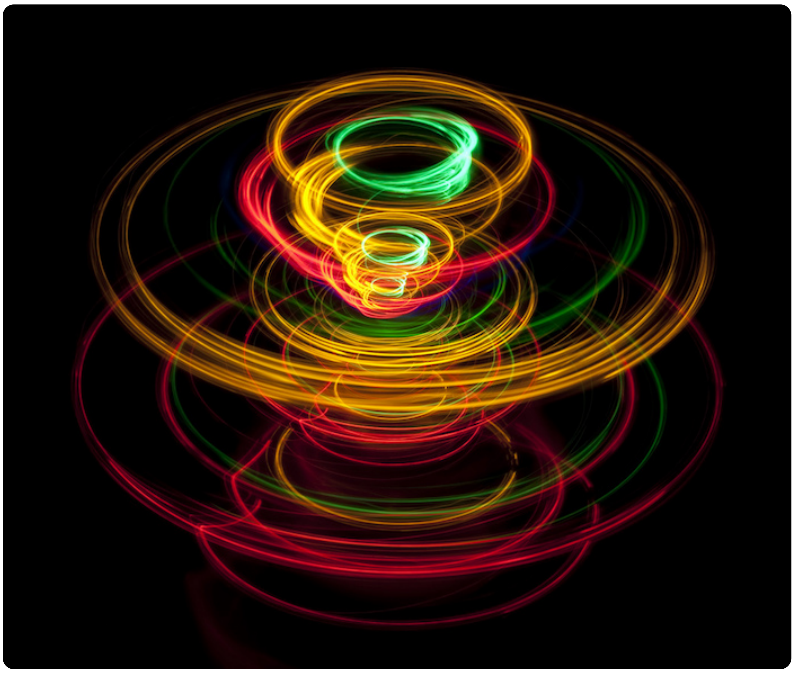
Spin Velocity

by Steven Smith



In this paper, I will use and extend the concept of angular velocity in order to find the relationship between stacked spin levels. I will create transforms that allow us to move between kinematic and geometric spaces with confidence. I will then use those transforms to delve a bit deeper into stacked spins.

According to Miles Mathis (www.milesmathis.com), all matter is created from real photons traveling and spinning at the speed of light. Through gyroscopic collisions[1], a topic that I will have more to say about later, photons can increase their radius and mass through a mechanism known as spin stacking. This process explains how most atomic particles are built. Miles has published various papers about stacked spins (http://milesmathis.com/super.html), giving us a reasonable picture of how they might operate. However, he has not delved too far into the spin velocities and what he has said leaves me wanting more. Instead of waiting for Miles to do it for me, I grabbed a shovel, and my digging turned up some very useful information.

Let's start at the beginning and set a solid foundation.

We start with the BPhoton, a spherical particle that is rigid and indestructible. It can move in a straight line and it can spin about its own central axis. How fast can it spin? Miles has shown (http://milesmathis.com/elecpro.html) that it can spin at **c**, matching the linear velocity. That is, the tangential velocity of the spin is **c**.

Next, we add a stacked spin to it, giving us an X spin which is end-over-end. Now we need to ask how fast can that level spin? The answer remains the same: **c**. Every spin level spins at the same tangential velocity. That isn't the whole story though. Each successive spin level also doubles the radius and this effects the angular velocity of each level.

The basic outcome of this is that each spin level, from the inside out, spins slower than the last. It has to because the radius increases the circumference and the spin has to travel that circumference. More distance to travel with the same velocity means more time to reach the destination. So now we have to ask how much slower does it spin?

To find that out we need to bring in Miles' Angular Velocity (http://milesmathis.com/angle.html) equation:

$$\omega = \sqrt{[2r\sqrt{[v^2+r^2]}-2r^2]}$$

We know the value of v is the speed of light and it becomes a constant for our purposes here. It is the radius that we are changing for each invocation of the equation. So let's go ahead and see what happens when we start doubling the radius.

Angular Velocity

Radius	Circumference	Angular Velocity
1	8	24494.897
2	16	34641.016
4	32	48989.795
8	64	69282.031
16	128	97979.587

We can see that the angular velocity increases as we increase the radius but what does that tell us? Each angular velocity tells us the velocity as traveled on the circumference, but each circumference is different. They all have different curvature, so it is difficult to tell if those angular velocities are increasing or decreasing. What can we do about that? We can convert them into something useful.

What we need is a level playing field. We need these values with some kind of common denominator. We need to remove the curvature. To do that we revert to angles. Miles has spent considerable time moving angular velocity away from angles and towards velocity, but one thing angles have going for them is that they are easy to visualize. We can take two values that give us an angle per second, say, and see which one is rotating slower than the other. We can do this precisely because it removes the curved component. Angles are angles and we can compare them directly but angular velocities are not all comparable. In fact, they are only directly comparable if the radii are equal because then we are only comparing the velocity component and keeping the curvature constant.

However, we strive on, determined to find a way. If we could just convert our angular velocity, in m/s, into an angle velocity[2], in radians/s, then we could compare these angular velocities without caring about the radii. The first thing we need to do is get rid of those meters. To do that we just need to express the angular velocity as a percentage of the circumference. This will give us a value that represents the number of times the circumference can be traveled for each unit of time. Another way to put that is the revolutions per unit time. This allows us to perform the second step with ease.

$$\textbf{circumference} = 2\pi_k r$$

$$\textbf{revolutions} = \omega/2\pi_k r$$

Our desired outcome is to find an angle and we currently have a value expressing the revolutions per unit time. A revolution is the same thing as a circle, but it is dimensionless and we need some units for our angle. So we express a circle in radians and multiply that value by the number of revolutions and we will be given an angle per unit time. It really is that easy.

$$\textbf{circle} = 2\pi_g$$

Therefore the full equation is:

$$\theta/t = 2\pi_g\omega/2\pi_k r$$

Where:

$$\pi_g = \textbf{geometric } \pi = 3.14$$

$$\pi_k = \textbf{kinematic } \pi = 4$$

You will either be confused that I have subscripts and differing values for π or you will be amazed that I have managed to use both versions of π in the same equation. To the former, I direct you to Miles' papers on π (http://milesmathis.com/pi2.html) and to the latter, I can only say that I was as amazed as you are when I found this. It made me take a step back and think about what I had just done. How could these two values find their way into the same equation? Could this be right?

Yes, it can, and you only have to think about what it is we are trying to achieve to see that they both *had* to end up together. We are trying to convert from an angular velocity in m/s into an angular velocity in radians/s. We are transforming a value from one set of units into another so of course we are going to need to bring tools from both areas together.

You could look at this equation from a different perspective and see that we are actually finding the ratio between a circle measured in radians to a circumference measured in meters. We then multiply that by our angular velocity in meters to get the angular velocity in radians. It must be remembered that the radius used for both the angular velocity and the circumference must be the same.

At this point we can reduce the equation to a simpler form and we end up with this:

$$\theta/t = \pi_g\omega/\pi_k r$$

We can even take it a step further if you just want the angle:

$$\theta = \pi_g\omega t/\pi_k r$$

I wanted to show the full form so that it was easier to see how it was built. With that achieved, these reduced forms will be more useful. You can use that last equation to find the amount of rotation of any spin level over any time span. Care must be taken though, as there are references to values within ω and they must equal the values you use in these equations. That is, you must calculate ω using the same radius and time that you use here. If you want to know the angle over 1s, then you must use a tangential velocity that is also over 1s. If you want 1ns, then the velocity must be /ns. The two equations are inextricably linked and you must be aware of that when you use them.

If we wanted to, we could put them together into one big equation like this:

$$\theta/t = \pi_g\sqrt{[2r\sqrt{[v^2+r^2]}-2r^2]}/\pi_k r$$

Now you can see why they all must match. They are all being used at the same time but it is often convenient to calculate ω once and use it as a value where-as the radius and time are used in both places. This is fine to do, as long as you know the time period before you calculate ω and stick to it when you calculate the angle.

Alternatively, you just calculate the angle in whatever time the angular velocity uses and then adjust the angle after the fact. For example, if the angular velocity is measured in m/s and you want to know the angle over 1/10 of a second, then you just multiply the angle velocity, in radians/s, by the time ratio, which in this case is 1/10. Since an angle is a simple value, we can make this kind of adjustment easily.

Before I move on, I would like to point out how important this equation is. Obviously, it is useful for converting between units, but it has another revelation to make. It may not be as useful in the long term as to the short, but it must be said, none-the-less. By using both versions of π, this equation shows the correct ways to use π *and* that Miles never intended to replace the conventional usage of π. He just wanted to show that it was not appropriate in certain situations and that we had better start to recognize those situations if we want answers. At least, if we want *correct* answers.

This transform allows us to move between kinematic and geometric spaces. We can still use our old tools, we just need to make sure that we are using the correct values in the right situations.

So, let's have a look at what this equation can do for us. How about we throw a few values through it and see what it does.

Angular and Angle Velocity

Radius	Circumference	Angular Velocity	Angle Velocity
1	8	24494.897	19238.247
2	16	34641.016	13603.495
4	32	48989.795	9619.124
8	64	69282.031	6801.747
16	128	97979.587	4809.562

Well that paints a different picture, doesn't it? We can clearly see that the rotational speed is decreasing as the radius increases, even though the angular velocity was increasing. That is the power of curvature. It can hide all sorts of things from you if you aren't being careful.

I mentioned above that this equation is actually a transform from kinematic situations to geometric ones. So it follows that we should be able to go back the other way. This would actually seem the more useful transform to most, but I personally had a need for the other and so I found it first.

This time we start with an angle and need to get to meters. We just need to do everything we did before, but we swap the kinematic and geometric parts around. However, we can find it easier just by rearranging our equation:

$\boldsymbol{\theta/t = \pi_g\omega/\pi_k r}$

$\boldsymbol{\theta\pi_k r/t = \pi_g\omega}$

$\boldsymbol{\theta\pi_k r/\pi_g t = \omega}$

Therefore:

$\boldsymbol{\omega = \theta\pi_k r/\pi_g t}$

Now that we have a proper transform, we can compare Miles' angular velocity equation to the mainstream version. We couldn't compare the values directly before but now we can put them both on the same graph and see how they differ.

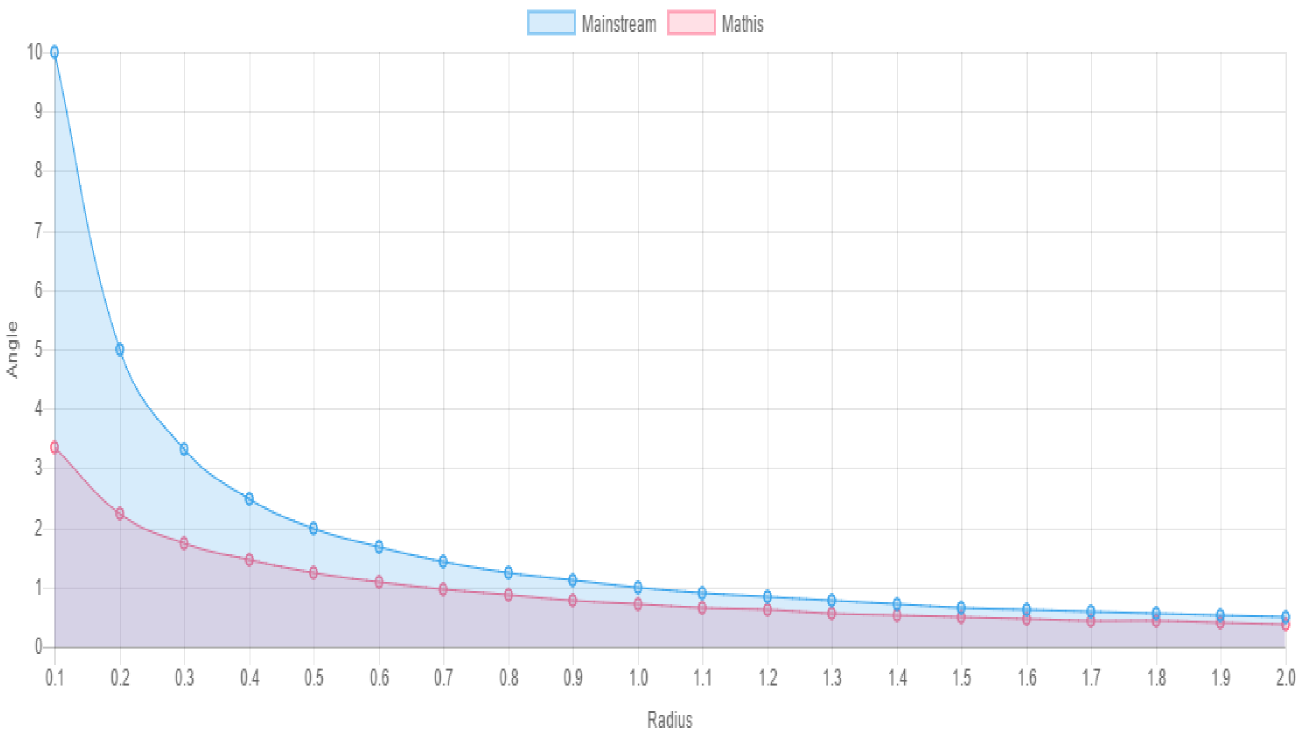
$\boldsymbol{\omega_{ms} = \Delta\theta/\Delta t = v/r}$

$\boldsymbol{\omega_{mm} = \sqrt{[2r\sqrt{[v^2+r^2]}-2r^2]}}$

$\boldsymbol{\Delta\theta/\Delta t = \pi_g\omega_{mm}/\pi_k r}$

We will keep the tangential velocity constant with a value of 1. The radius will start at 0.1 and increase in 0.1 increments over 20 values. This allows us to see either side of 1, which is of interest to us because the mainstream angular velocity has a scaling issue at this point. We will also keep the time value a constant with a value of 1.

Angular Velocity Comparison



The two graphs don't actually differ by that much. They do start quite far apart but they are converging towards each other as the radius increases. The general trend of each graph is very similar with Miles' equation having a more gentle curve. From a radius of 1 onwards, the equations are very close to each other. However, From 1 backwards we have a very different story and this will only get worse as we keep decreasing the radius.

This is caused by the scaling issue found in the mainstream equation. Once the radius goes below 1, it doesn't work very well anymore, which is caused by the radius inverting the equation when it is below 1. Dividing by 0.1 is the same as multiplying by 10. Such a small change in radius should not cause such a large change in angular velocity. Miles doesn't have this problem and the angle follows a smoother progression as the radius decreases.

We will now focus on how these transforms can help us understand stacked spins. Maybe we can tease some more information out of these equations. We saw earlier that the rotational speed decreases as the radius increases but what is the relationship between spin levels? How much slower is it, in general terms?

To find that relationship, we need to look at the ratio of one spin level to another. We simply ask how many times does this level spin in relation to another spin level. All we need to do is divide the angle velocity of the target spin level by the angle velocity of the other spin level.

Angle Velocity Ratios

Radius	Angle Velocity	Ratio to inner level	Ratio to first level
1	19238.247		1
2	13603.495	0.707	0.707
4	9619.124	0.707	0.5
8	6801.747	0.707	0.353
16	4809.562	0.707	0.25

Let's start with the ratio to inner spin level values. We see that they are all the same with a value of 0.707. Some of you might recognize that number because it often comes up in electric circuit theory. Some might recognize its inverse which is 1.414. Much more recognizable as the square root of two. This tells us that each spin level is √2 slower than its inner spin level.

This relationship comes from two places. Firstly, the 2 comes from our doubling radius. That is the relationship between the radii for each invocation of the equation. The second part comes from the equation itself. If you look at Miles' angular velocity equation, you see that its most powerful feature is a square root. Inside of that we are doubling all instances of the radius and we end up with a √2 relationship.

$\omega = \sqrt{[2r\sqrt{[v^2+r^2]}-2r^2]}$

Now we can have a look at the ratio to the first spin level. What we are doing here is looking at the relationship between any spin level and the axial spin. The axial spin is the fastest possible spin because it has the smallest radius. Everything else is compared to that to give us a way to relate all spin levels. The value tells us how fast a spin level is with respect to the fastest possible spin.

What we find here is that each value is 1 divided by the square root of the radius. It is very important to realise that we are using a radius starting at 1. We aren't looking at the real radius of a BPhoton, we are just looking for the relationships so we use 1 as our baseline. So, what I should have said is that each spin level rotates 1 divided by the square root of the ratio of their radii, for every rotation of the axial spin level.

$S_n = S_a/\sqrt{[r_n/r_a]}$

Where:

S = angle velocity

n = spin level

a = axial spin level

We can actually generalize that to cover any two spin levels. It doesn't have to be the axial spin, we only care about the relationship between levels, and obviously, any two levels can have such a relationship. It is most useful to use the axial spin as our baseline, but there is no such requirement that we do so.

$S_n = S_m/\sqrt{[r_n/r_m]}$

Where:

n = spin level 1

m = spin level 2

What this allows us to work out is the angle velocity of any spin level given any other spin level.

Angle velocity and angular velocity are two ways of looking at the same motion, so we can do everything we just did with angle velocity, to the angular velocity:

Angular Velocity Ratios

Radius	Angular Velocity	Ratio to inner level	Ratio to first level
1	24494.897		1
2	34641.016	1.414	1.414
4	48989.795	1.414	2
8	69282.031	1.414	2.828
16	97979.587	1.414	4

We find the inverse of the values we found for the angle velocity. Now we are increasing by √2 each time we double the radius. Another way to say that is that each angular velocity is √2 as large as its inner spin level. I use the term *large* because we can't easily talk about *faster* or *slower* when dealing with an angular velocity. We have to remember that an angular velocity contains a curve. It is a distance over a time where that distance is curved. This skews the values and makes them difficult to judge but more importantly here, it doesn't represent a simple value like an angle or even a distance. It has distance, time and curvature all in a single value. An angle, though, is just a simple distance.

$\omega_n = \omega_a\sqrt{[r_n/r_a]}$

Where:

ω = angular velocity

n = spin level

a = axial spin level

Or more generally:

$\omega_n = \omega_m\sqrt{[r_n/r_m]}$

Where:

n = spin level 1

m = spin level 2

That lets us work out any angular velocity given any other angular velocity.

Let's put those two equations together and see what comes out:

$\mathbf{S_n = S_a/\sqrt{[r_n/r_a]}}$

$\mathbf{\sqrt{[r_n/r_a]} = S_a/S_n}$

$\mathbf{\omega_n = \omega_a\sqrt{[r_n/r_a]}}$

$\mathbf{\sqrt{[r_n/r_a]} = \omega_n/\omega_a}$

Therefore:

$\mathbf{S_a/S_n = \omega_n/\omega_a}$

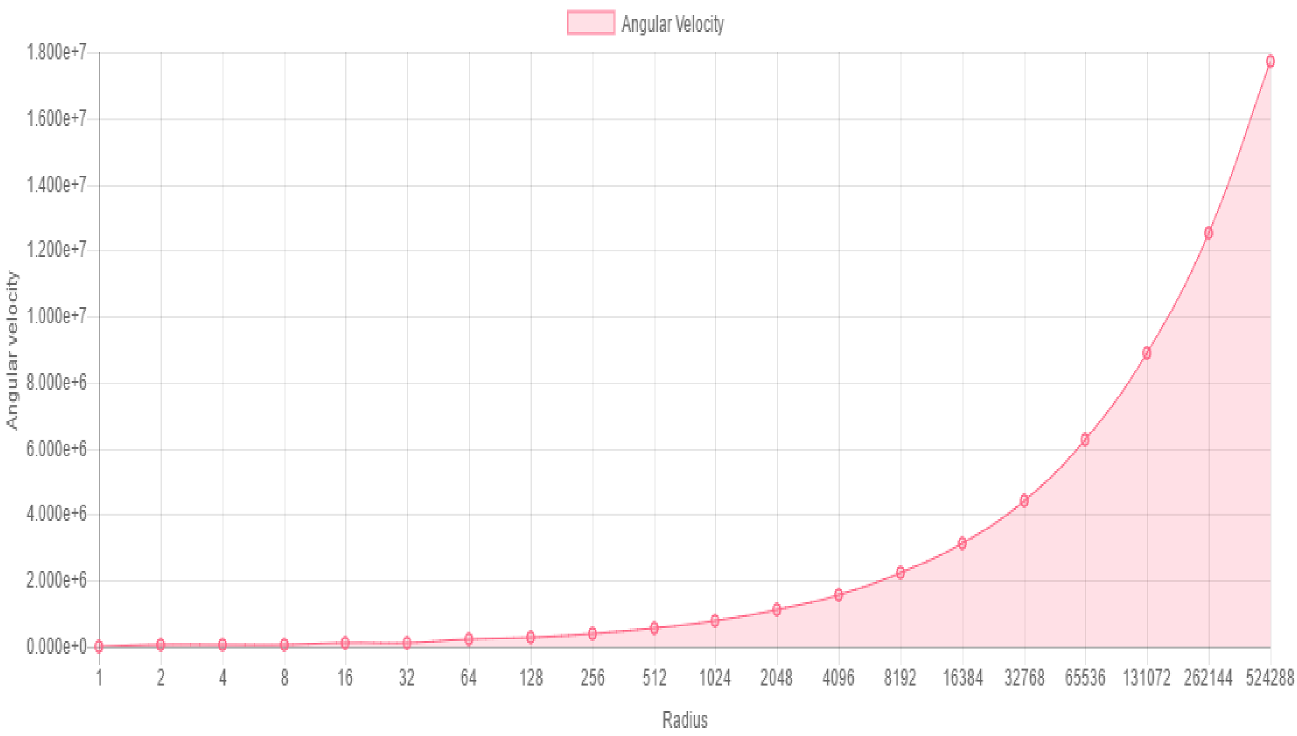
We find that the relationships between spin levels follow an inverse relationship with each other. What does that tell us? We are doubling the radius to create all of our changes. We are looking at the change in angular velocity as well as the change in angle velocity and we find that they are in an inverted relationship. They both represent the same motion so the relationship between those perspectives is inverted. Angle velocities are inverted to angular velocities.

What does that mean? It just means that even though the angular velocity increases, the angle velocity decreases. This tells us that there is more going in inside of the angular velocity than we can see. It is the curvature that is being expressed by the angular velocity that causes this difference. Angles still contain the idea of curvature, since they are a distance around a circle, but the curvature is described outside of the angle. They are separate concepts. An angle is a potential curve, not an actual curve. We need a radius to determine what that curvature is but an angular velocity already has the radius inside of itself.

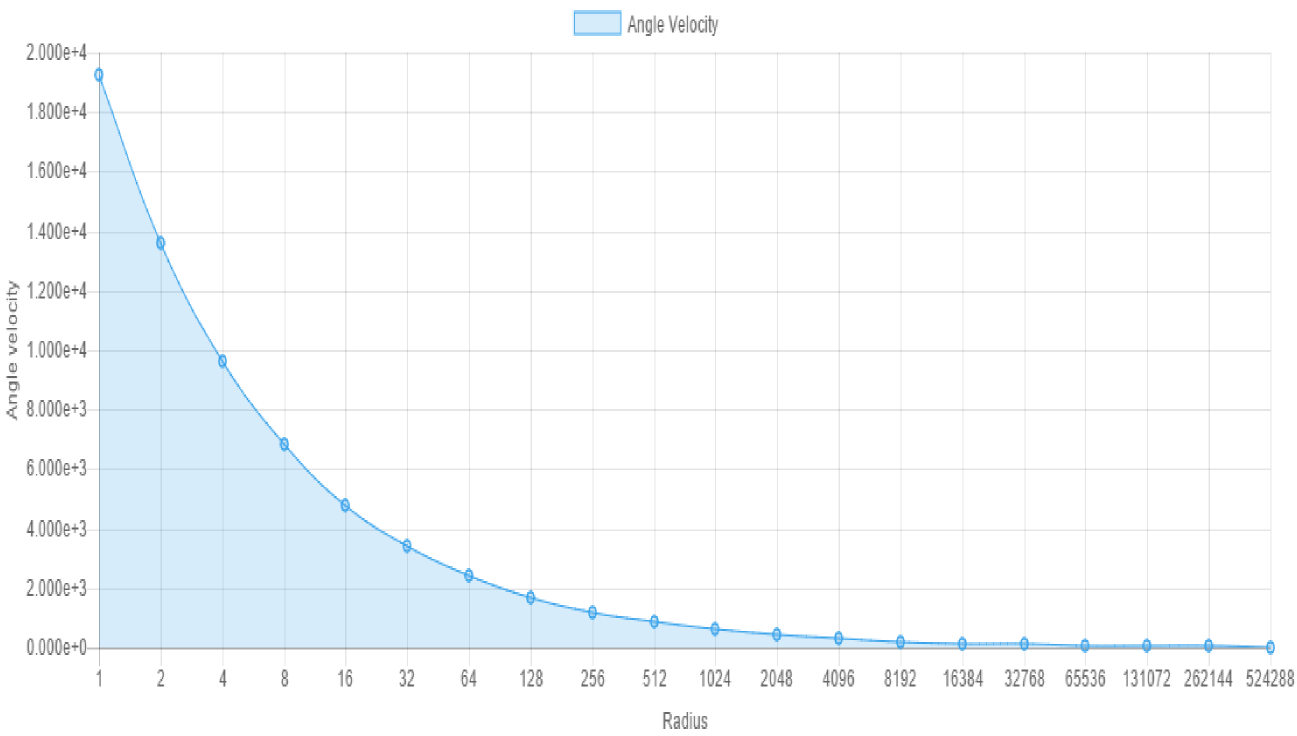
This is why Miles was right to change the definition of angular velocity. His definition is much more of a velocity than the mainstream definition or what I am calling an angle velocity. Miles has managed to wrap up the distance, time and radius into a neat litle package. We have found that we need to be very careful with that package but it is still closer to the idea of a velocity than something like radians/s. An angle velocity doesn't actually tell the whole story. It is missing the radius and that radius makes a very big difference.

Now that we have found the √2 relationships between stacked spin levels, we should have a look at them in a more visual form. The following two graphs present angular and angle velocities over 20 spin levels.

Angular Velocity over 20 Spin Levels



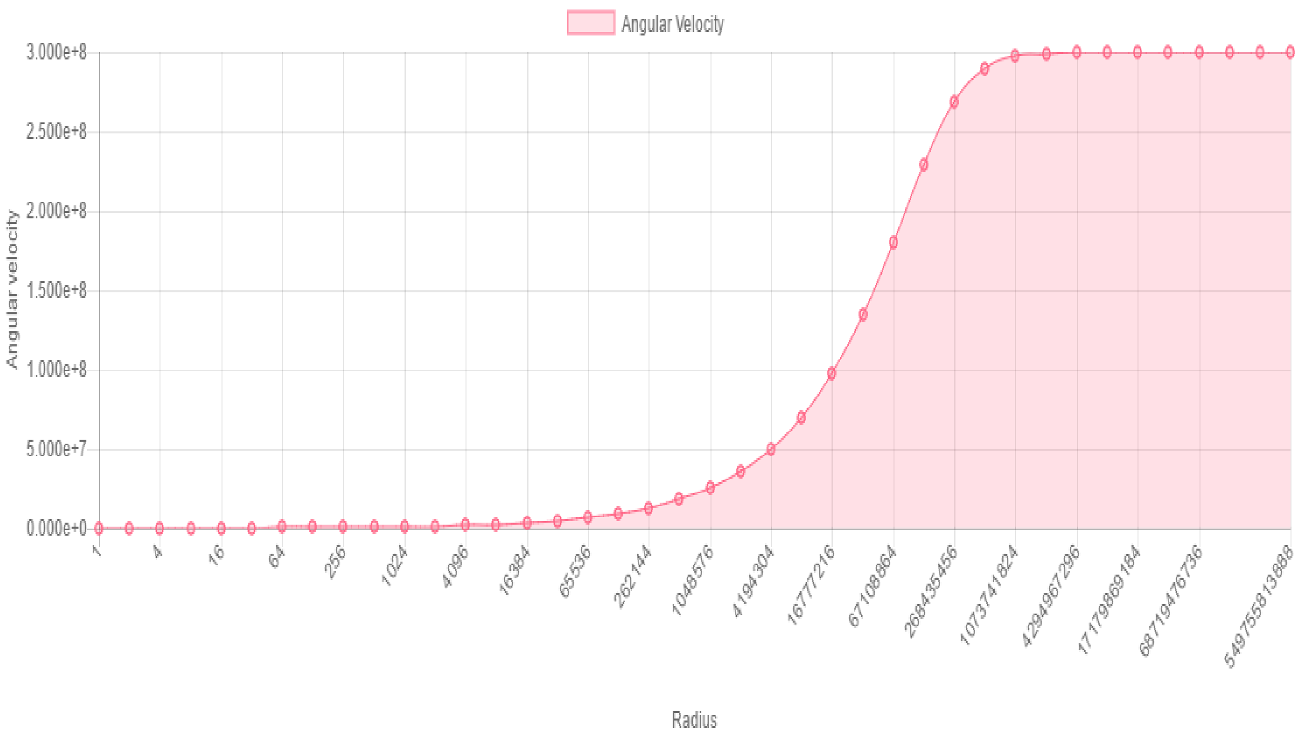
Angle Velocity over 20 Spin Levels



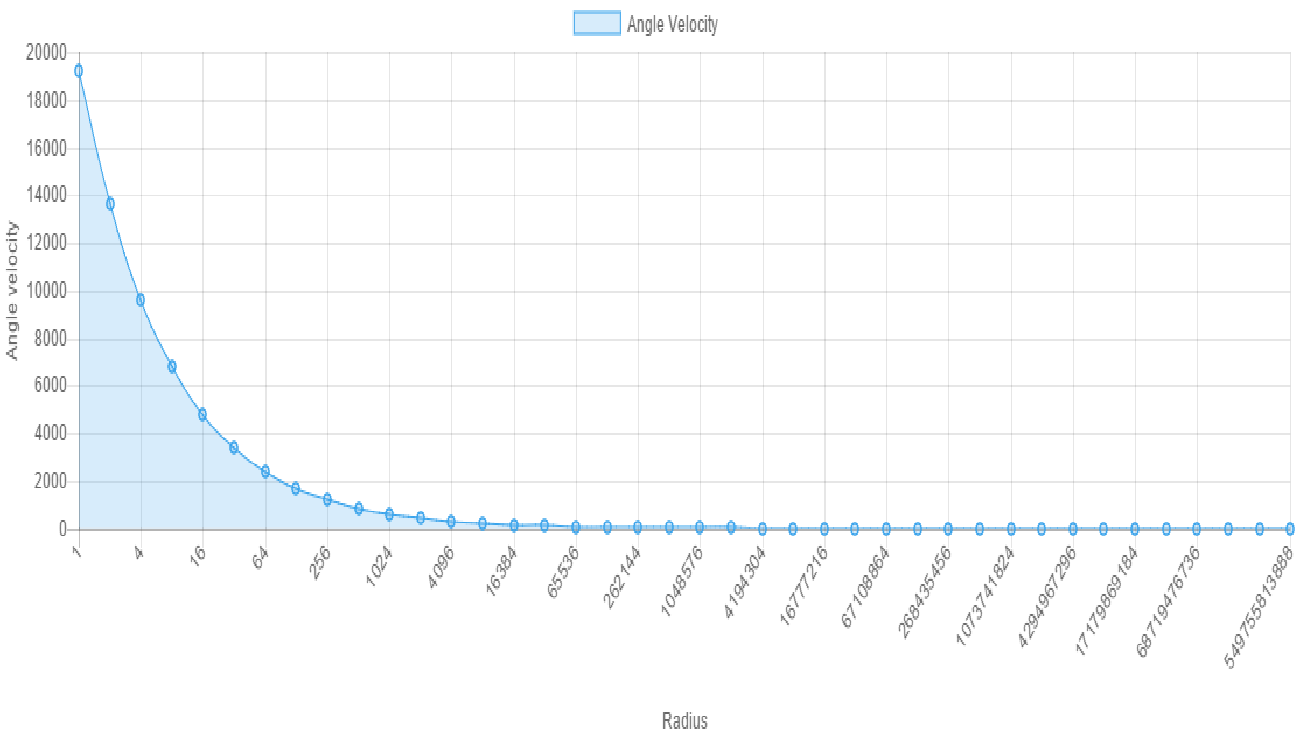
We see a nice curve in each graph with angular velocity increasing and angle velocity decreasing, representing the trends we found earlier as well as the inverted relationship. The two graphs look like mirror images of each other, although the Y axis is a very different scale on each one. This indicates that our relationships hold fairly well over this dataset.

Let's extend the datasets to 40 spin levels and see if everything still works as we expect.

Angular Velocity over 40 Spin Levels



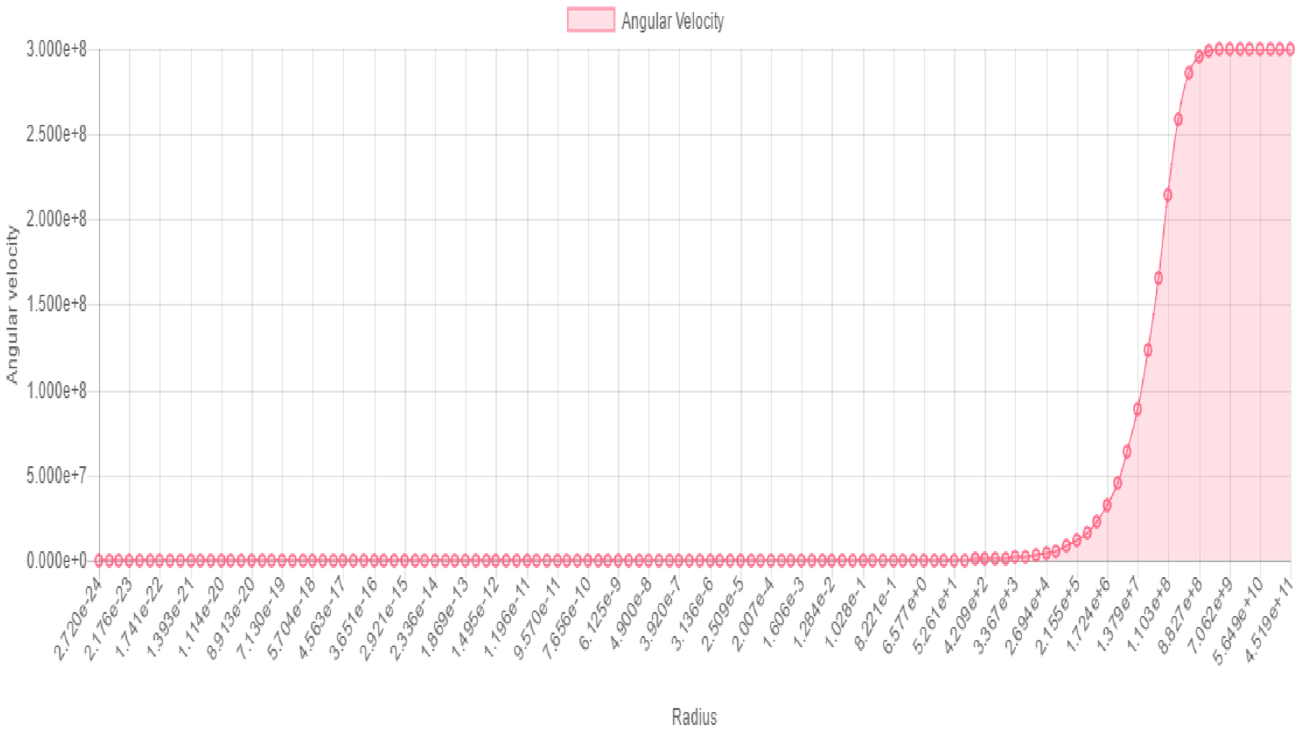
Angle Velocity over 40 Spin Levels



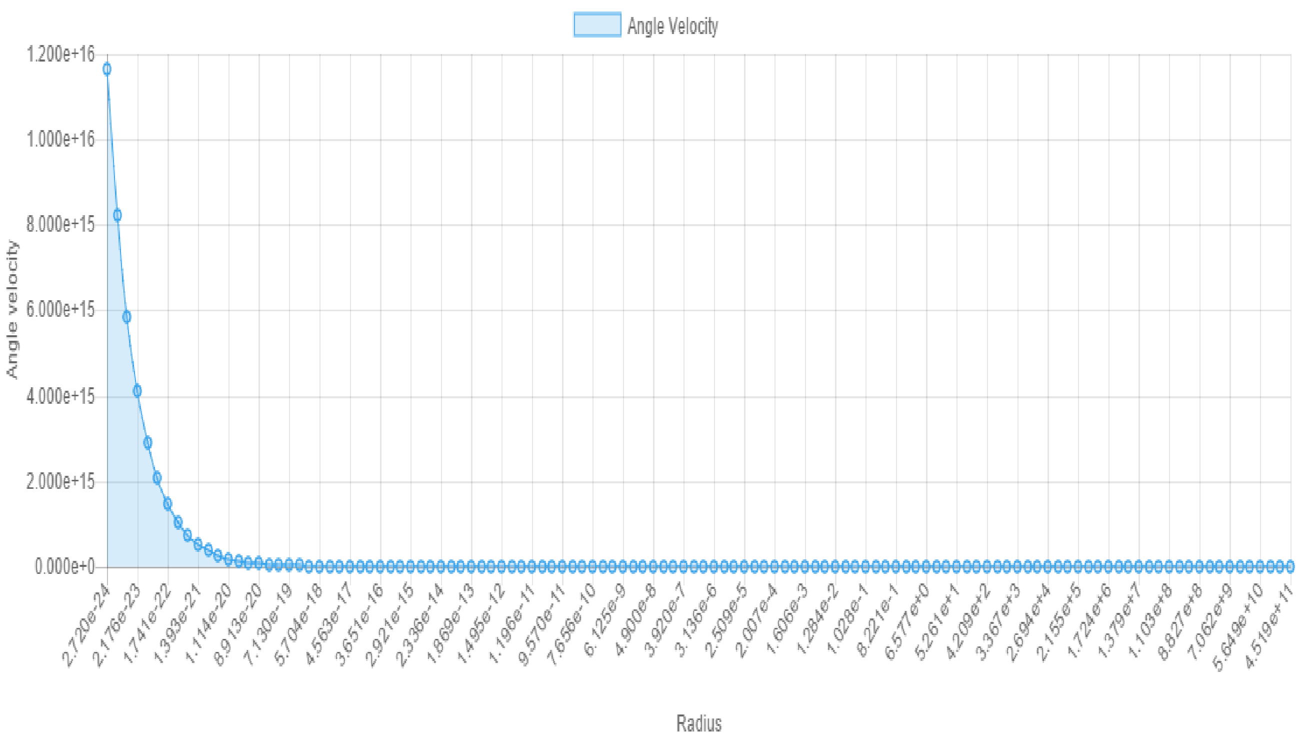
We can now see that the two graphs diverge quite dramatically which is bad news for the relationships we are testing. Just looking at that angular velocity graph shows that it is not going to work with a simple √2 relationship between spin levels. The angle velocity graph could still hold on to its 1/√2 relationship but an inspection of the actual values shows that it does not. Close, but it does drift away from our target value.

If we focus on the angular velocity graph for a moment, we can see that the values approach the tangential velocity as the radius grows very large. This is caused by the curvature approaching straightness. Can we test that statement? Yes, quite easily. All we have to do is start at a different radius and see if the position of the curves change. We will start with a radius equal to the BPhoton which is 2.72×10^{-24}m.

BPhoton Angular Velocity over 118 Spin Levels



BPhoton Angle Velocity over 118 Spin Levels



Why have I used 118 spin levels? Wouldn't 120 be more in line with the previous graphs? Yes, it would, but then the final radius would be different. I chose 118 spin levels because it keeps the radius around the same size as the last radius in the 40 spin level graphs.

The BPhoton angular velocity graph clearly shows that the drastic curve changes still occur at around the same value. The radius must be around 10^4 to 10^5m which is great news because we don't need stacked spins anywhere near that size. In fact, we are many orders of magnitude below that range. This means the $\sqrt{2}$ relationships hold fairly well over the required radii for BPhotons.

They don't hold perfectly though, and we must remember that. The relationships are just short-cuts that allow us to find relative values so we don't need to use them when precision is important. Sometimes you just need a close value and in that case you can make use of these relationships.

1: Gyroscopic collisions are an extension to pool-ball mechanical collisions that allow for spin stacking.

2: I am defining angle velocity as an angular velocity measured in angle per time, usually radians/s, in order to differentiate it from Miles' definition of angular velocity which is measured in distance per time, usually m/s.