Review by
Kyle Anne

Teaching Paper Peer Review

Racecar Driving Techniques by Andrew Poss

Introduction:

Does the author provide an interesting opening to the topic?

Yes

Could they improve it? Explain how.

The introduction to the topic was interesting and attention grabbing. It brought me into the mindset of racing. But the bulk of the intro talks about what you aren't going to talk about. Change this up and grab our attention with what you are going to talk about.

What is the author teaching?

The author is teaching the reader techniques on how to take a corner in racecar driving and the different factors that play into this.

Underline where you think the thesis is in the paper.

Organization:

How is the information organized?

The information is organized into very dense paragraphs. Each one covers its own topic in completion. I would like to see these split up into smaller chunks of information. By the end of many of these paragraphs I forgot how they started.

Is it logical? Does it flow well?

This paper is very logical and flowed well.

Does it stay on task or is there unneeded information? Explain.

There are a few long lists that are unnecessary and the author even points these out. In a few spots a term is used before it is introduced.

Support:

Explain specific ways they used facts or information to teach you about their topic.

The author uses categories to separate information into more manageable pieces, such as Loose and Tight and then builds off of these categories to explain handling techniques.

Are there ways to improve this detail and description? Explain.

I would suggest using more similes and comparisons that may be more familiar to the reader about the more complex topics. I followed along with most of the paper but had a hard time visualizing the situations you talked about.

Conclusion:

Is there a clear conclusion? Explain.

The conclusion is clear in that it marks the end of the paper. But it doesn't really review what we learned. It instead leaves with a statement about how there is much more to learn.

General:

Who would you think is the audience for this paper?

Someone who already knows a bit about racing and can relate more to the topic.

Do you understand all of the terms or ideas in the paper? If no, identify which are unclear.

No, again there were terms that were written but never used or explained. Cut these out.

What is the best thing about their paper?

The information was robust and given another read I would have a good understanding of the topic of racecars.

What are two things they could do to improve their paper? Be specific.

1. Cut out unnecessary information. Read each sentence with the thought, "How does this help someone understand racecars?"
2. Choose whether or not you want to directly refence the reader. There are points where 'you' is used as if the paper is talking directly to what I need to do (like an instruction). Other times, the paper talks in general about a Racecar Driver.

Would you attempt the thing being taught after reading this paper? Why or why not?

No, driving at high speeds scare me.

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Kyle Anne

Racecar Driving Techniques

Andrew Poss
Database 1 Date?

One of the most overlooked professions in professional sports are racecar drivers. Racecar drivers are highly functioning athletes that must overcome physical and mental obstacles. This paper is not about the physical part. I could focus on telling you that drivers endure scorching 140 degrees' Fahrenheit heat, average a 140 BMP heart rate, sweat more than basketball players, and have the precision and reaction time of a baseball hitter; this paper is rather going to focus on some of the mental tasks drivers employ to aid in their chances of getting a better finish. More specifically, driving techniques they can use to improve their lap times.

} thesis is Vague

First, we want to define some terms. Racecars never have optimal handling when they are pushed to their limits. They ~~inhibit~~ exhibit certain behaviors that can be characterized in two categories. These categories are "loose" and "tight". Loose refers to the condition where the front tires have more grip than the rear making the car want to spin out. Tight refers to the condition where the rear tires have more grip than the front causing the car to push towards the wall on the outside of the track. Being "loose" or "tight" can happen throughout an entire corner or in only one part of a corner. The parts of a corner are the entry, middle or apex, and exit. The ideal line around (curve?) a corner is when you enter close to the outside wall, cut down to the bottom of the track at the apex, then swing back to the outside wall on exit.

Being tight or loose can be caused by
~~The causes these of being loose or tight are~~ a number of things. The way the driver is driving, track temperature, tire compound, wind, or the car setup just to name a few. There are many adjustments you can make to a car to change its handling. These ~~things~~ range from tire pressure, camber, caster, toe, track bar, wedge, shocks, springs, spring rubbers, shims, ~~among many other things~~. There are a few hundred adjustments ~~you can~~ to make to a car to perfect it's handling. You probably do not know what some of those terms ~~were~~ are, but don't worry. This is not ~~our~~ the focus. Most of these adjustments can only be made during pit stops or during practice. The focus will be on the adjustments a driver can make to their driving style to help improve their lap times while they wait until the next pit stop. Most of the terms and techniques that will be introduced and examined are going to pertain to oval race tracks.

overusing the word things

The first condition we will address will be when the car is tight entering a corner. You will feel this when you first enter the corner and the car just will not respond right away to your steering input. Eventually, the car will turn and you will be able to hit the apex and exit just fine. The simplest way to fix this is to hit the brakes earlier in the "breaking zone". Right before every corner there will be an optimal time to start hitting the brakes. This is referred to as the braking zone. The higher the entry speed is into a corner, the larger this zone is and vice versa. When you brake earlier in the zone you will obviously have a slower entry speed and the front tires will not be as close to their grip limit. This will allow them to grip better and hopefully fix the tight on entry issue. This is not the best solution to this problem ~~however.~~ It is the simplest and

explain breaking zone first

easiest, but not the fastest. Most professional race car drivers have perfected what is called "trail braking" to help with this issue. Trail braking is when you continue to hit the brakes and gradually let off while you enter the corner and approach the apex. What trail braking does is maintain more weight on the front tires for a longer period. By maintaining more weight on the front tires, you will increase the friction required to make them slide. Thus, temporarily giving them more grip. This in turn will help a car that is tight on entry. If the car is tight at the apex, your only option is ~~going to be~~ to use early braking zone technique. But if the car is tight on exit, neither of these will work.

A car that is tight on exit will turn fine for the entry and apex, but just as you start to add throttle it will push towards the wall. The best remedy for this is to "diamond the corner". Diamonding the corner refers to the technique of getting a straighter exit off the corner. You can diamond the corner in two ways. You can either maintain a higher line and wait an extra few moments at the normal apex. This will allow you to cut down the track and get a straighter exit. Or you can "double apex" the corner. The way you double apex a corner is instead of entering high like you normally would, you enter low. By entering low, you will be able to apex the corner on entry, then push to the outside wall in the center, then cut back down apexing the corner again on exit. This will give you the desired straighter exit that will help a car that is tight on exit. The double apex usually only works on oval tracks with tight corners. On tracks with big sweeping corners, you will want to do the wait at apex technique. This is achieved by entering high like you normally would, but instead of apexing in the center of the corner you will maintain the higher line to the normal apex. Next, you will wait an extra few moments for the car to rotate. Once the car rotates, you will be able to late apex the corner and get the straighter exit. This sacrifices some speed in the center of the corner, but you will make up some of it on the exit. A good exit is more important that a good center of the corner. With a good exit, you will be able to carry more speed that will multiply down the straight part of the track that follows the corner.

What about the other end of the spectrum? What if a car is loose on entry? There are two fixes for this. The first one is obvious, backing up the corner by braking earlier in the braking zone. You must also ensure you have not started turning in while you are still applying the brakes. This would result in the trail braking we covered earlier and make the condition much worse. The other fix is to use the brake bias adjuster. This only works if the car is equipped with it. Most racecars are. What brake bias adjuster does is change how the brake pressure is distributed to the front and rear brakes. For instance, if you increase the brake bias it will be like adding more stopping power to the front brakes. While at the same time reducing the stopping power of the rear brakes. A normal brakes bias is roughly 40% rear brake pressure and 60% front brake pressure. You want to have more front brake pressure because the front tires will have more stopping power. Once you hit the brakes, a lot of weight gets shifted from the rear to the front adding to the grip the front tires have. Increasing this bias can help a loose in condition. If we increase the bias from the previous example, we might end up with 65% front brake and 35% rear brake. What this does asks the front tires to do more of the braking and pushes them closer to the point of skidding. This will cause to simulate a tight condition and help the loose on entry problem. You must be careful to not put too much front bias in

because it will increase the chances of a lock up. In particular, the inside front tire. If it locks up, you can put a flat spot on the tire and this will throw it out of balance and you will have all sorts of issues. Both techniques work best on tracks with tighter corners. What about big ovals with more sweeping corners?

There is another unique maneuver drivers can do on larger tracks to fix a loose car. The maneuver is to simply ride the high line all the way around the corner. This sounds simple in theory, but why does it work? There are two reasons. First reason is it allows you to ride the "cushion". The term cushion originates from dirt track racing, but it works in a different way. The concept is the same though. On large asphalt tracks, the cushion is the pocket of air that forms between the car and the wall. When a car goes through the air at high speeds it forms a wake of air that is hitting the front of the car and spreading out from either side. It works just like a boat going through water. When you ride the high line all the way around a corner, you can trap this wake in between the car's side and the outside wall. This will create a high pressure that is pushing against the car's side and allows you to go faster than you otherwise would. It uses the air to give the car more overall grip. This increased grip will help a car that is loose make faster lap times. The other reason it works is it adds heat to the right front tire. On 99% of ovals in the world, you race counter clockwise which means you will be turning left which puts more weight on the right side. The right front tire takes most of the abuse on ovals. By riding the higher line, you are using a larger radius around the corner which means you can carry more speed regardless of the air cushion. The air cushion just magnifies the effect. This increased speed will cause the right front heat up and wear out quicker. By wearing out the right front you can make the car tighter. This will help fix the loose condition on larger ovals.

Good Analogy & Use more of these

As you can see by this essay, being a race car driver is more complicated than it appears from the outside. This information just scratches the surface of what a driver must know how to execute in order to be successful. Different tracks present different challenges and different types of cars require a different skill set. By taking the time to appreciate and understand what some of challenges racecar drivers face are, we can develop a much deeper appreciation for one of the most overlooked professions in professional sports.

Conclusion