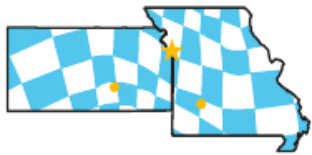


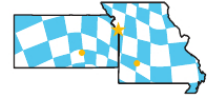
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# INTERMEDIATE

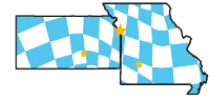
*Session #1*

# DE Objectives



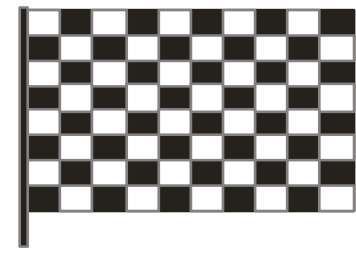
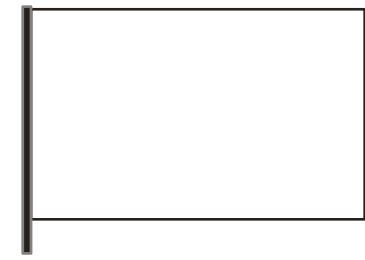
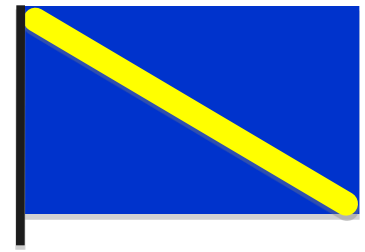
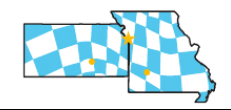
- ▶ **Learn.**
  - ▶ **Keep open mind – listen, then apply.**
- ▶ **Strive for progression.**
  - ▶ **Safe speed before fast speed.**
  - ▶ **Prove you deserve to move up.**
  - ▶ **Stay relaxed & comfortable.**
- ▶ **Have fun!**

# Flags

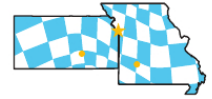


- ▶ **Are there to keep you safe.**
- ▶ **You must obey all flags.**
- ▶ **Acknowledge flags.**

# Flags

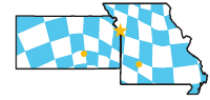


# Instruction



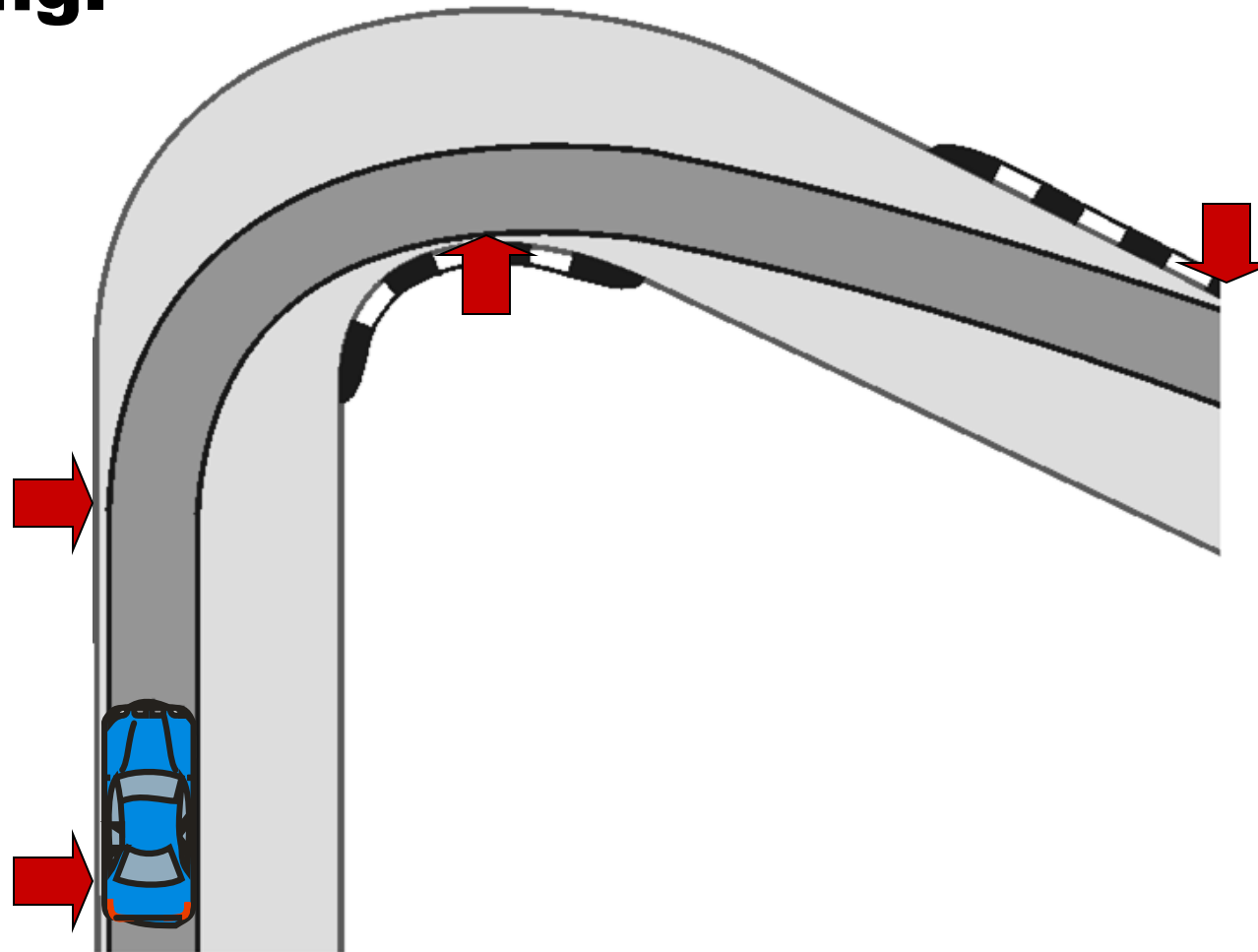
- ▶ **Listen to instructors – they’re here to keep you safe and help you learn.**
- ▶ **Instructors have different experiences, so language may be different.**
- ▶ **What to expect:**
  - ▶ **Verbal instruction.**
  - ▶ **Hand signals.**
  - ▶ **Right-seat steering.**
  - ▶ **Feedback, evaluation, commands and support.**
- ▶ **Safety is #1.**
- ▶ **Objectives for every session – set in classroom, and emphasized by in-car Instructors.**

# The Line: What We Know

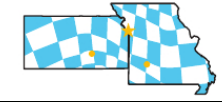


## Reference Points:

- ▶ **Begin-Braking.**
- ▶ **Turn-in.**
- ▶ **Apex.**
- ▶ **Exit.**

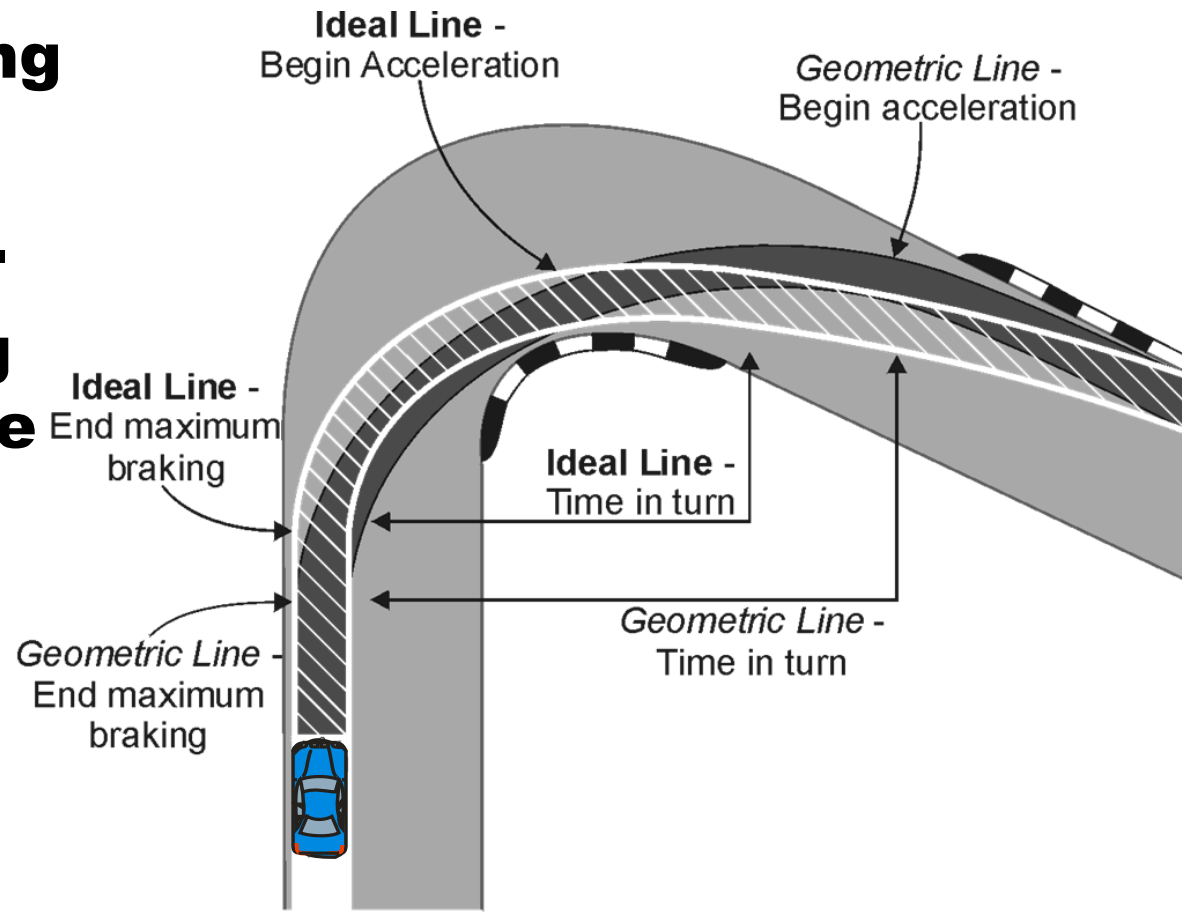


# The Line: What We Know

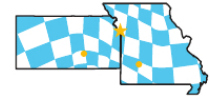


## Advantages of Late Apex:

- ▶ **Maintain straightaway speed longer.**
- ▶ **Begin accelerating earlier.**
- ▶ **See through turn.**
- ▶ **More time driving straight, less time cornering.**

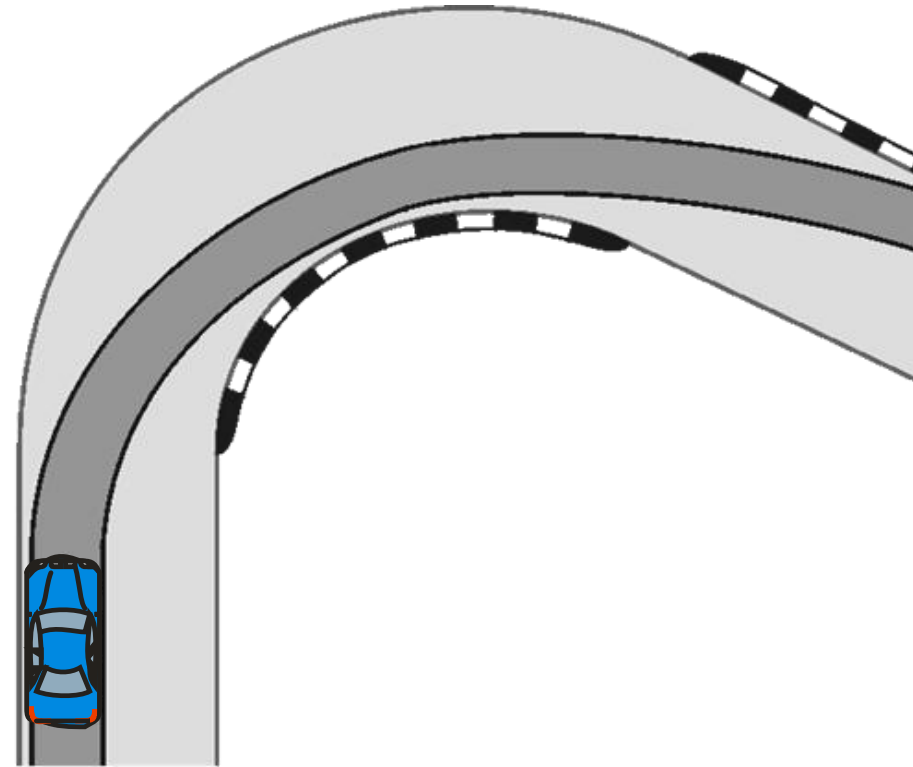
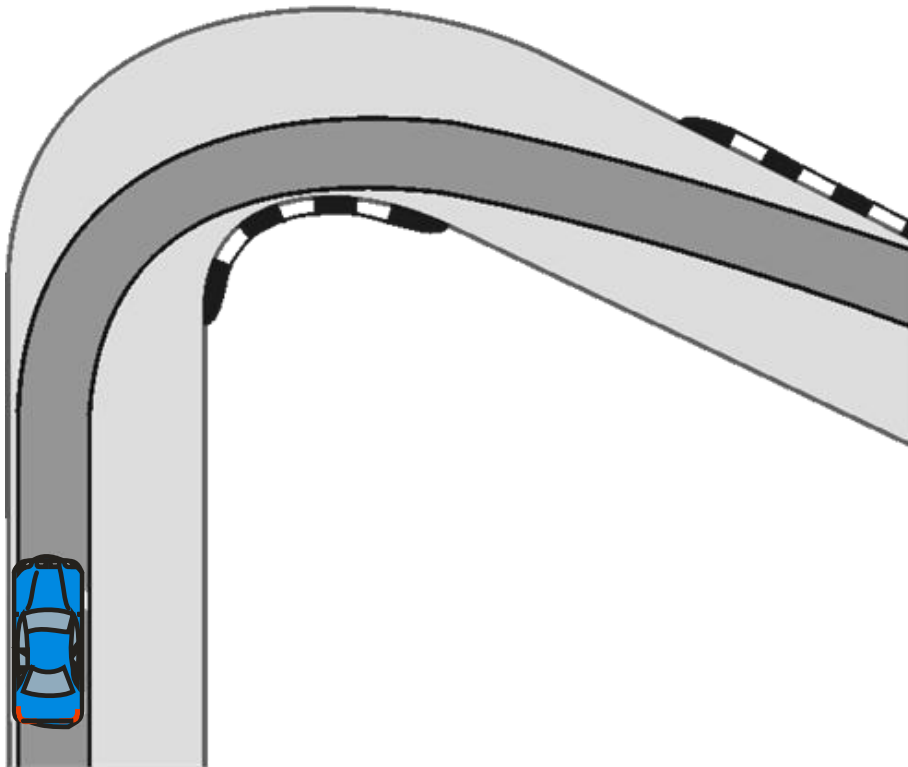


# The Line: What We Know



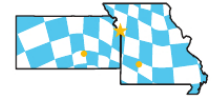
## Corner Radius vs. Apex:

- ▶ **The tighter the radius, the later the apex.**
- ▶ **The larger the radius, the earlier the apex.**



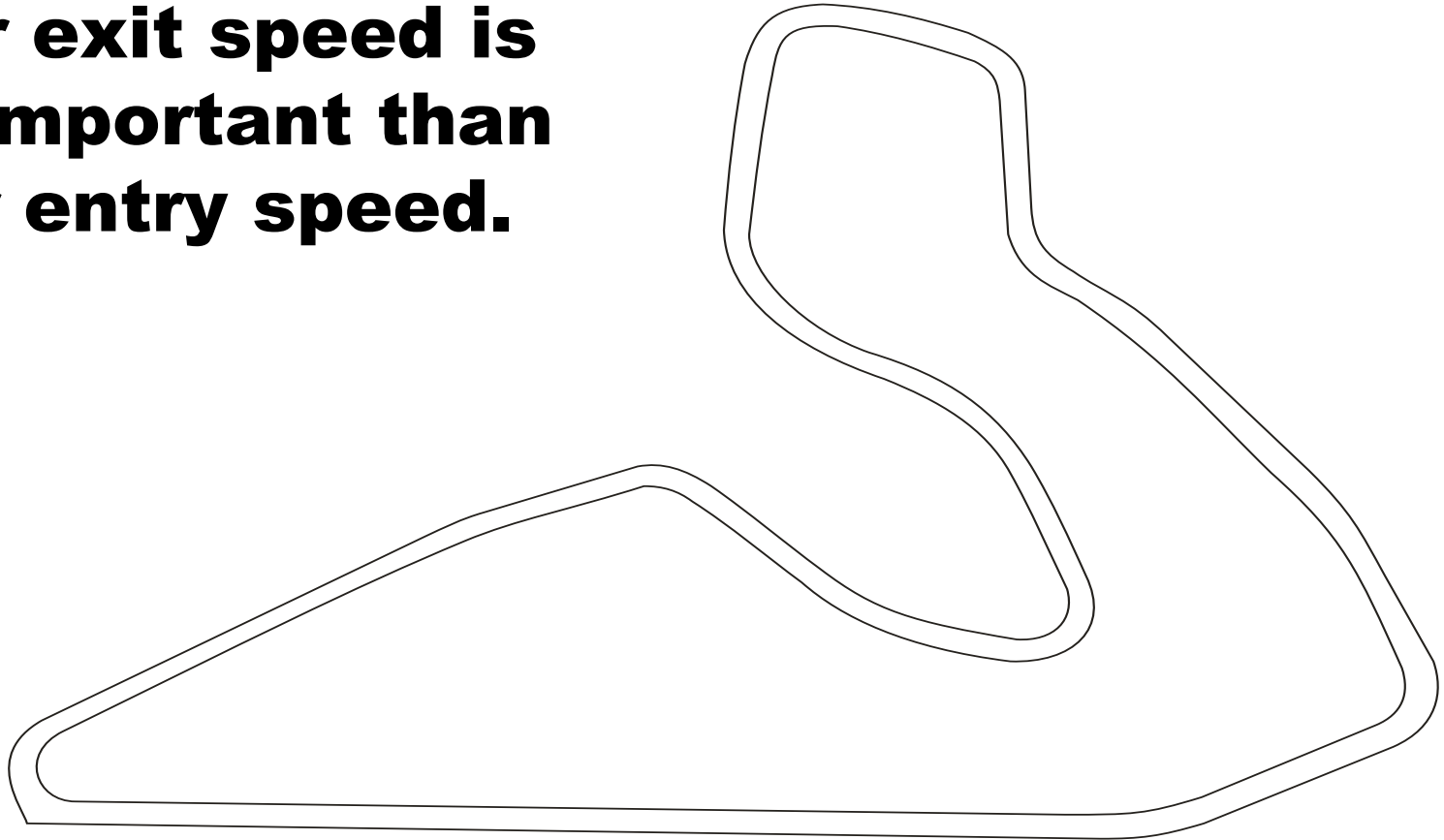


# The Line: What We Know

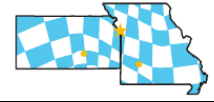


## In Slow – Out Fast:

- ▶ **Corner exit speed is more important than corner entry speed.**

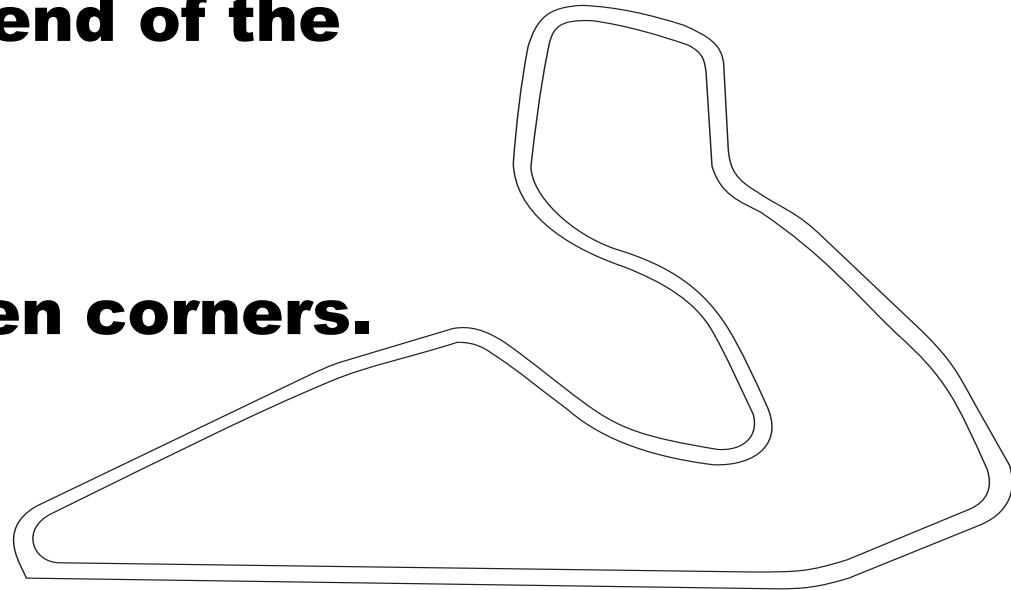


# The Line: What We Know

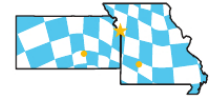


## Corner Priorities:

- 1. The fastest corner leading onto the longest straightaway.**
- 2. Next fastest...**
- 3. Fastest corner at the end of the longest straightaway.**
- 4. Next fastest...**
- 5. Fastest corner between corners.**
- 6. Next fastest...**

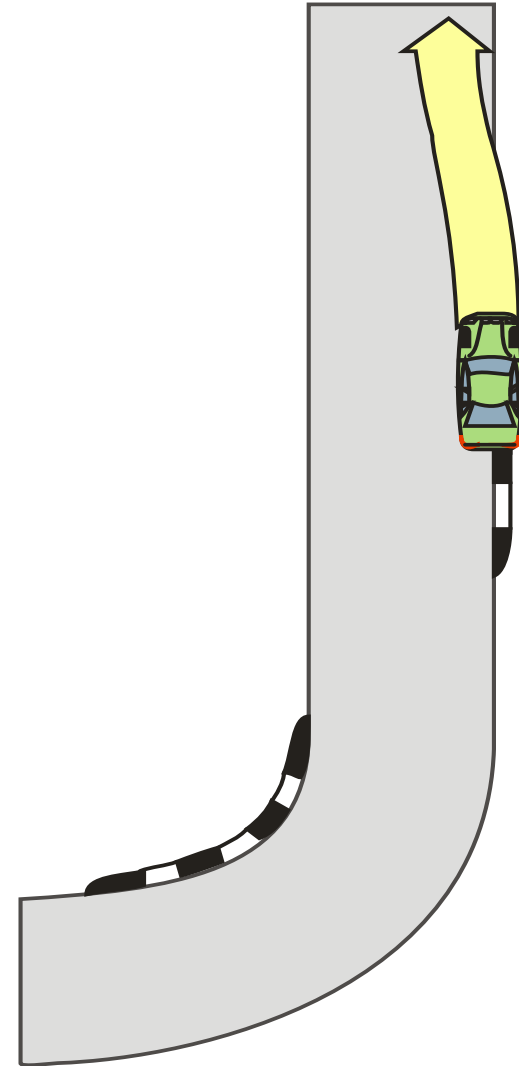


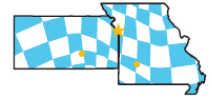
# Off-Track...



## Off-track recovery:

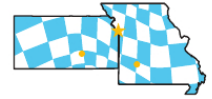
- 1. Look where you want to go.**
- 2. Keep steering straight.**
- 3. Ease off throttle.**
- 4. Gently ease back on track (watching for traffic).**





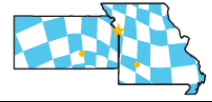
- ▶ **There is more to be lost than gained by trying to be faster...**
- ▶ **Progression is most important.**
- ▶ **Open Mind – listen, apply, learn.**
- ▶ **Smooth is Fast.**

# Q & A

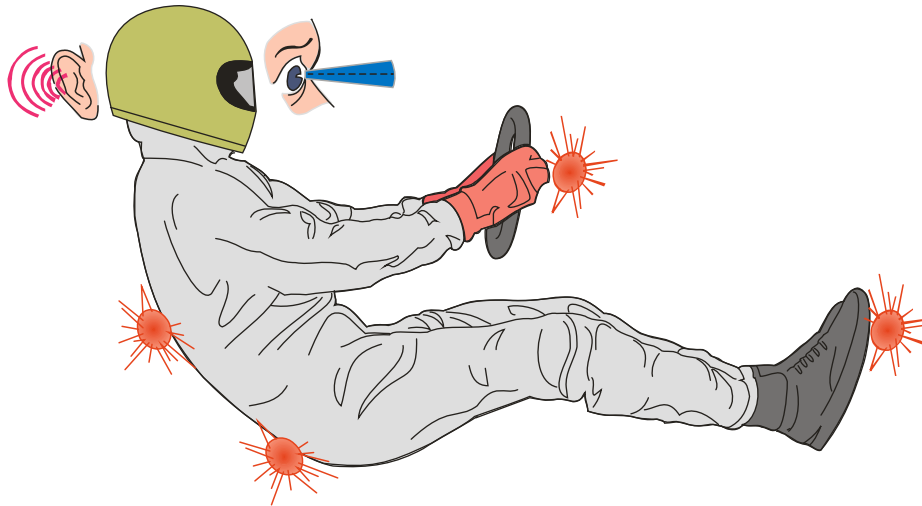


- ▶ **Questions?**
- ▶ **Problem areas?**

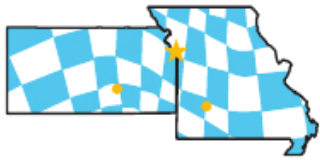
# On-Track Objectives – #1



- 1. Warm-up.**
- 2. Familiarize with track/learn line.**
- 3. Vision – look farther ahead.**



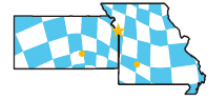
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# INTERMEDIATE

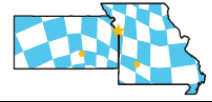
*Session #2*

# 1<sup>st</sup> Session?



- ▶ **How did it go?**
- ▶ **Questions?**



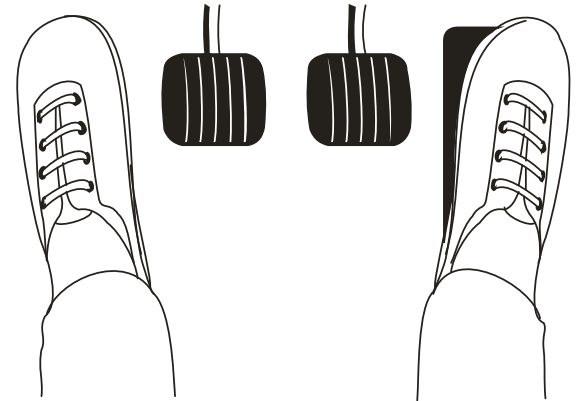
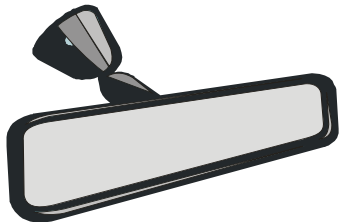


# Use of the Controls

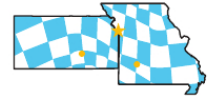
- ▶ **Steering wheel**
- ▶ **Throttle**
- ▶ **Brakes**
- ▶ **Shifter**
- ▶ **Mirrors**



## Your Tools...



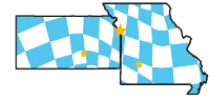
# Remember...



**The less you do with the controls, the less chance for error.**

**The slower you move, the faster the car moves.**

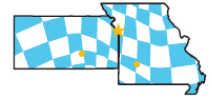
# Throttle



- ▶ **Wheelspin.**
- ▶ **Weight transfer.**
- ▶ **Squeeze & Ease.**
- ▶ **The Throttle is NOT an On-Off switch.**



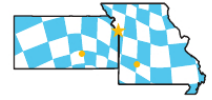
# Braking



- ▶ **Maximum braking = Threshold braking.**
- ▶ **Squeeze & Ease.**
- ▶ **The release of the brakes is just as important as the application.**

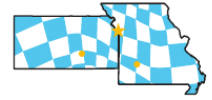


# Steering



- ▶ **The less you turn the steering wheel, the faster you will go.**
- ▶ **Keep steering movement to a minimum.**
- ▶ **Your Steering Wheel is connected to the Throttle & Brake pedal.**



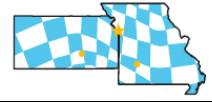


## Two areas of control:

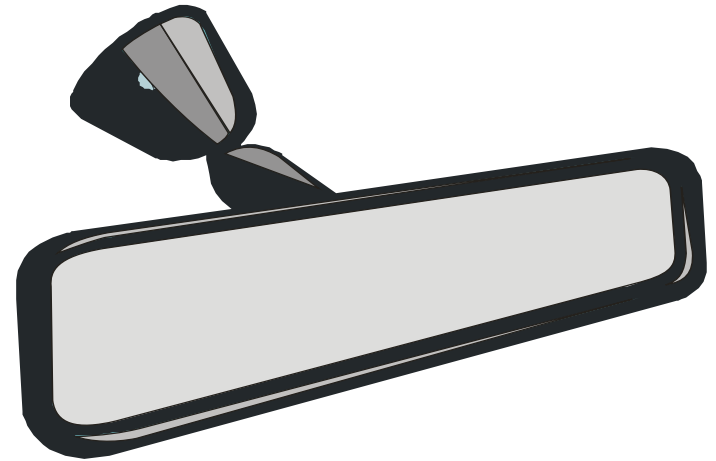
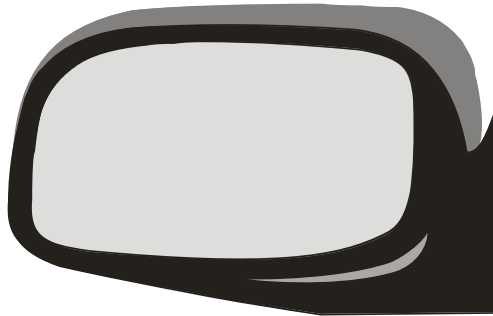
- ▶ **Directional control (steering wheel).**
- ▶ **Balance (throttle & brake).**

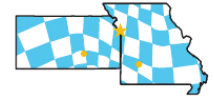


# Mirrors

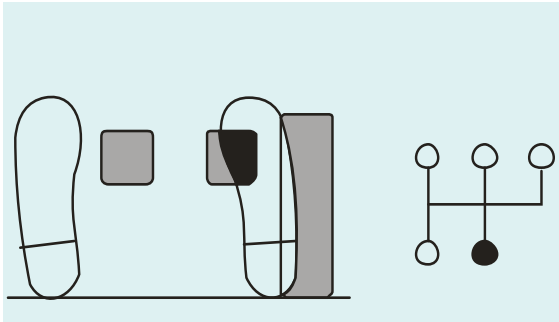


- ▶ **Check your mirrors as often as it takes to always know where others are around you...**
- ▶ **But no more than that.**

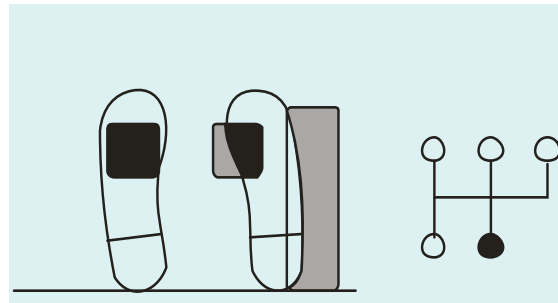




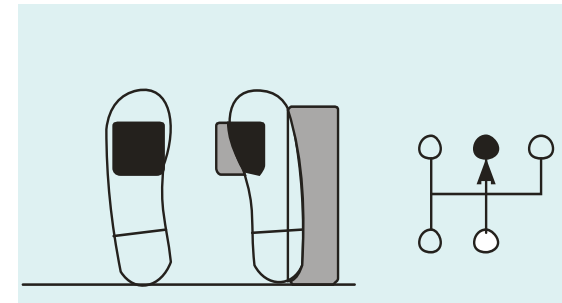
# Heel & Toe Downshifting



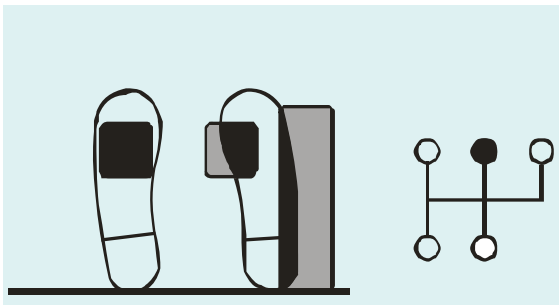
**Begin braking**



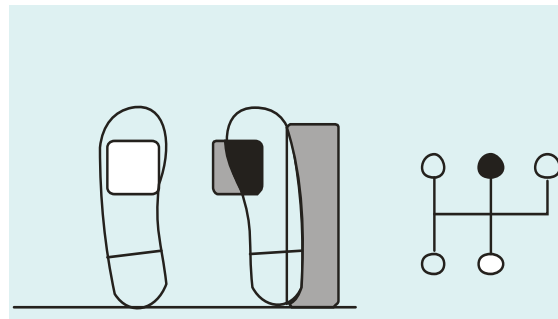
**Depress clutch**



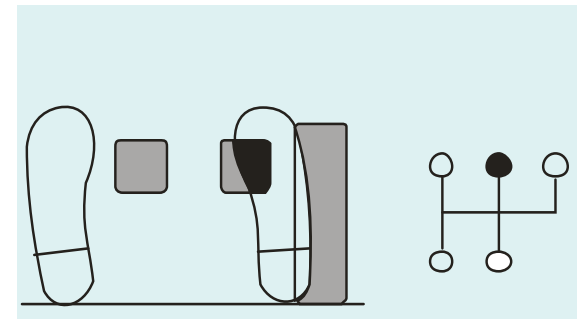
**Shift**



**Blip throttle**



**Release clutch**

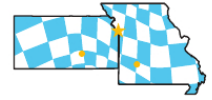


**Continue braking**



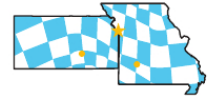
# Remember...

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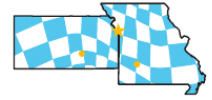
**Brake first - then downshift.**

# Q & A

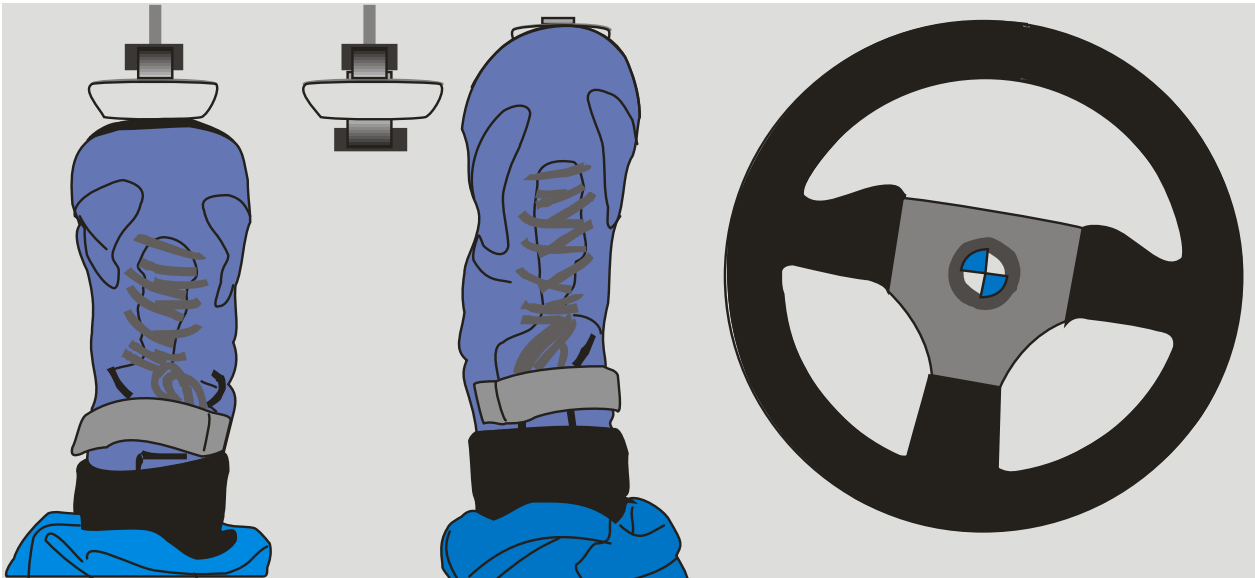


- ▶ **Questions?**
- ▶ **Problem areas?**

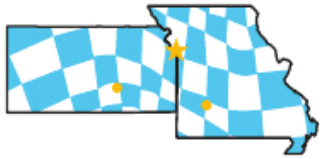
# On-Track Objectives – #2



- 1. Focus on smooth/precise control use.**
- 2. Seamless transition.**
- 3. Minimize input.**



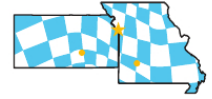
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# **INTERMEDIATE**

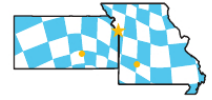
***Session #3***

# 2<sup>nd</sup> Session?

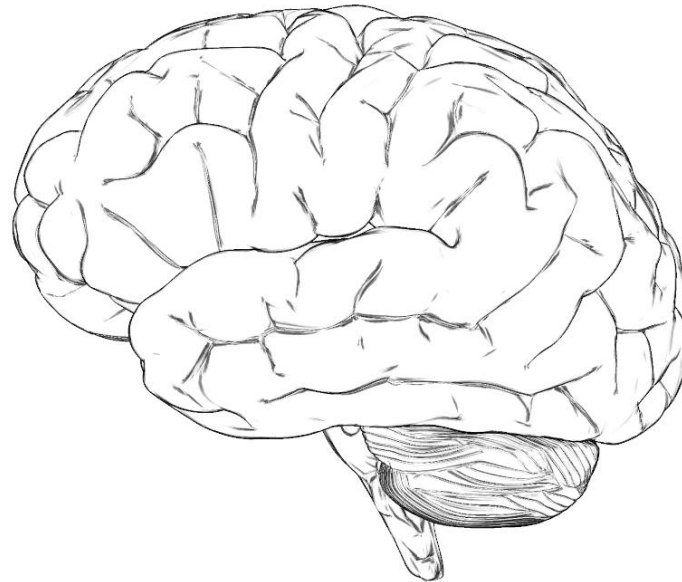


- ▶ **How did it go?**
- ▶ **Questions?**

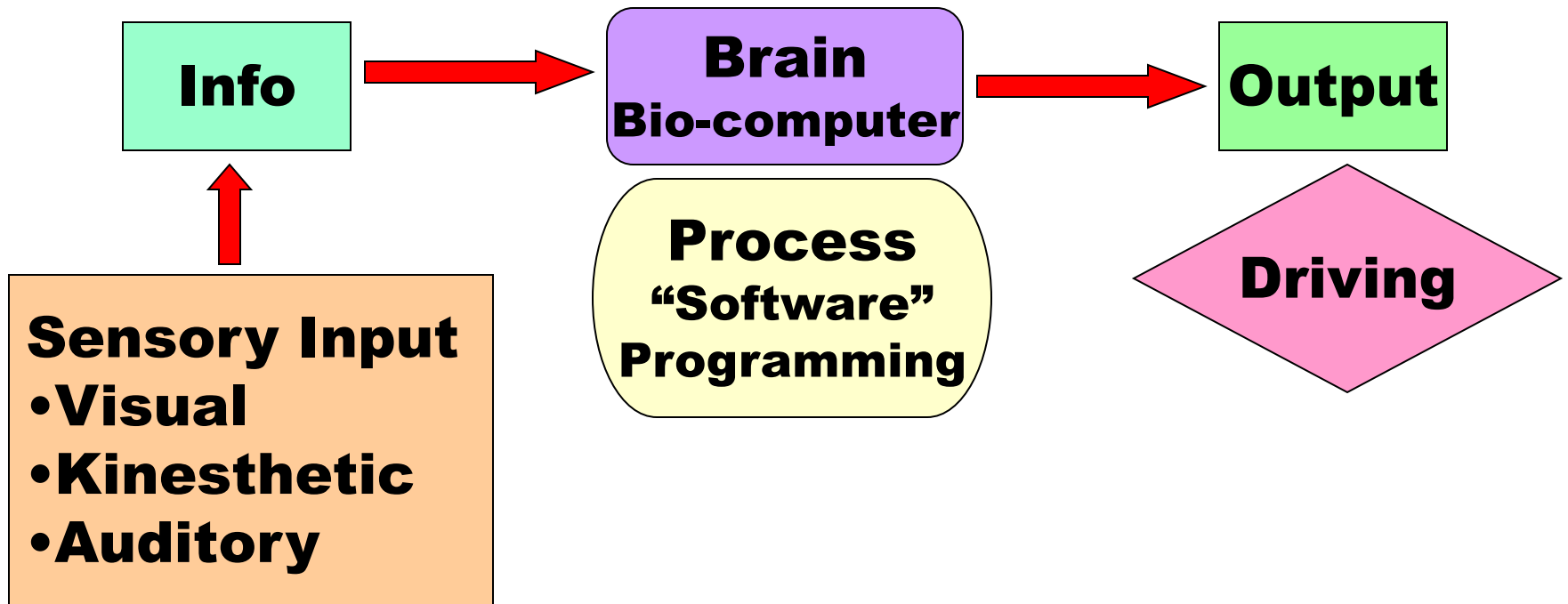
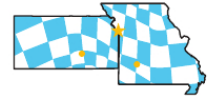
# Brains or Brawn?



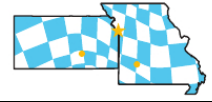
- ▶ **What's driving your car?**
- ▶ **What percentage of performance driving is mental?**
- ▶ **Brain controls your body, so...**



# Performance Model

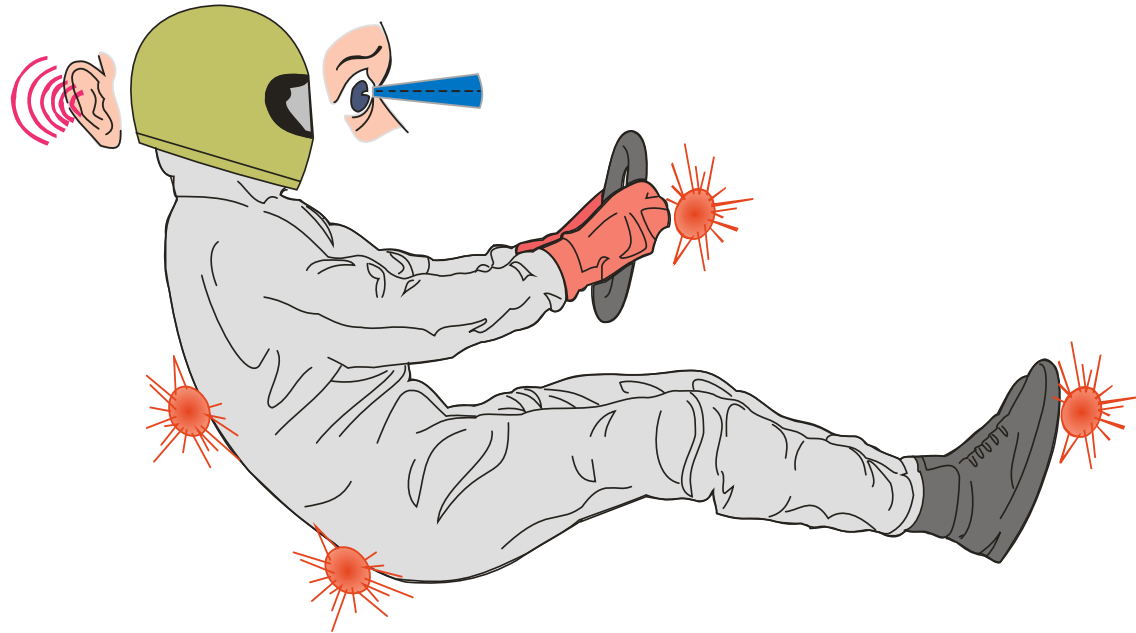


# Sensory Input



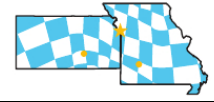
## Quality In = Quality Out

- ▶ **Visual**
- ▶ **Kinesthetic**
- ▶ **Auditory**



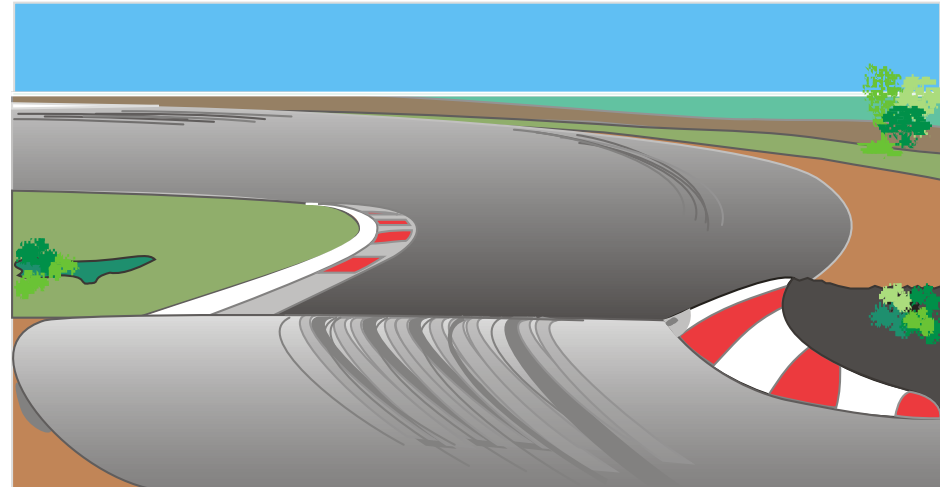
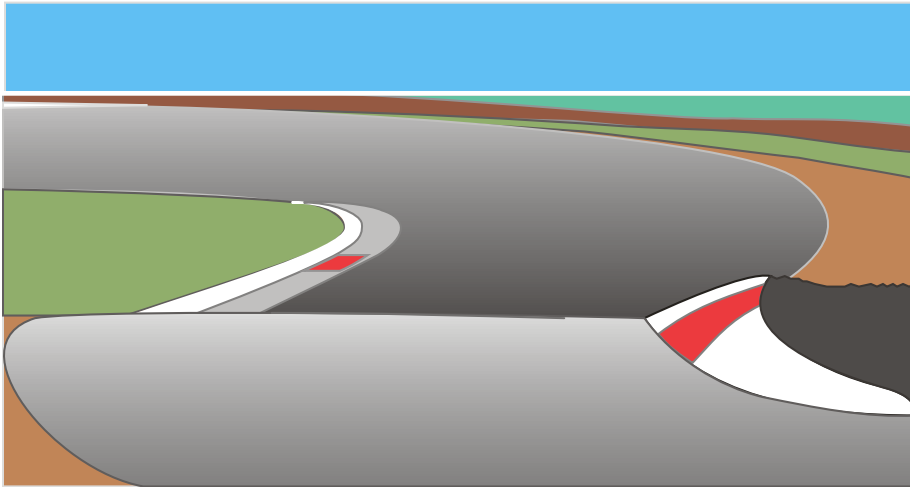


# Sensory Input

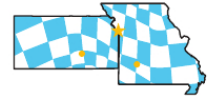


## Quality In = Quality Out

- ▶ **More Sensory Input =**
- ▶ **More References =**
- ▶ **Fewer Errors =**
- ▶ **More Speed & Consistency**



# Mental Programming



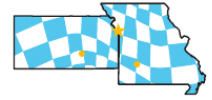
**Why do you do what you do?**

- ▶ **Because of your Programming.**

**Why do you NOT do what you want, or are told to do?**

- ▶ **Your Lack of Programming.**

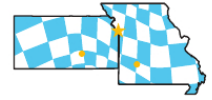




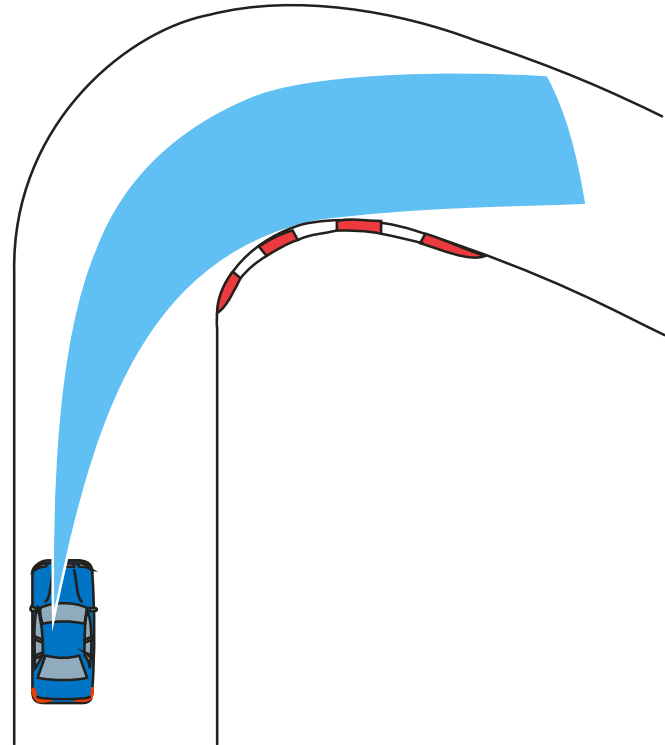
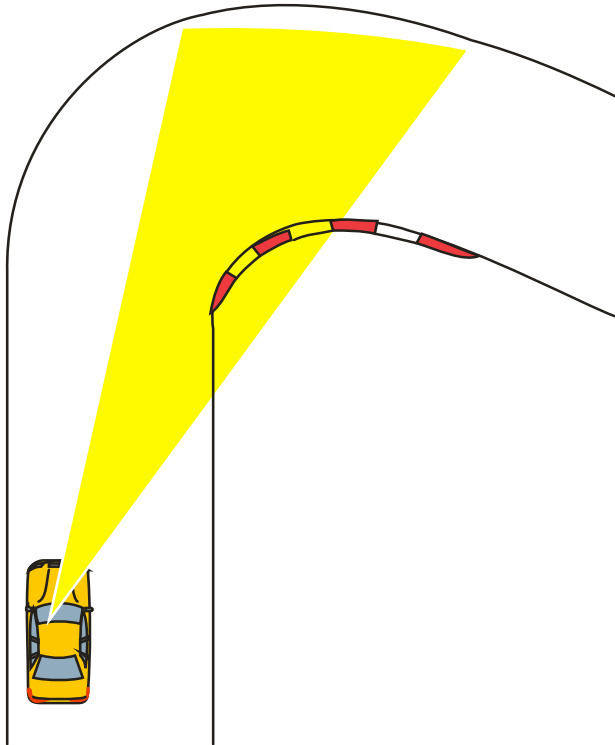
## How do you develop mental programming?

- ▶ **Physical practice.**
- ▶ **Mental practice:**
  - ▶ **Visualization.**
  - ▶ **Use multiple senses.**

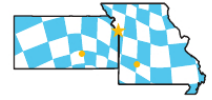




- ▶ **Look ahead – High Aim Vision.**
- ▶ **Look where you want to go, not where you don't want to go.**
- ▶ **Look through the turns.**

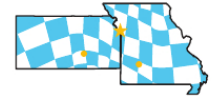


# Q & A

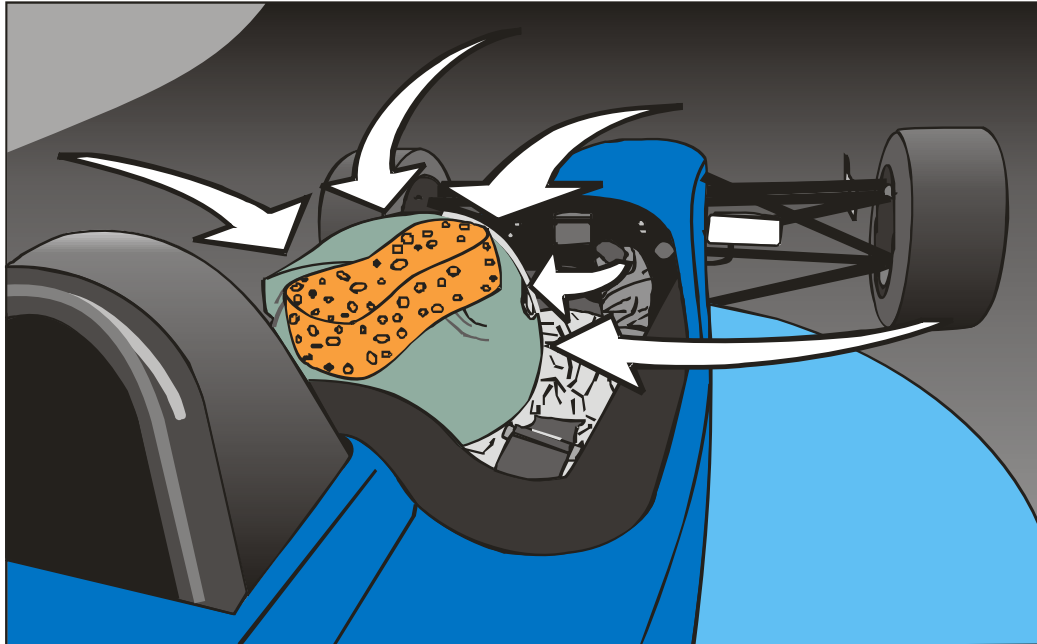


- ▶ **Questions?**
- ▶ **Problem areas?**

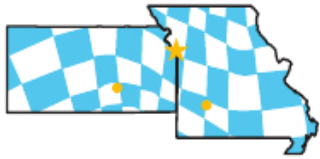
# On-Track Objectives – #3



- 1. Sensory Input session – be a Sponge.**
- 2. Put whole lap together – consistency.**
- 3. Collect mental image of track for tonight's mental replay (visualization).**



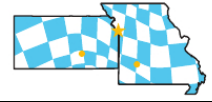
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Kansas City**



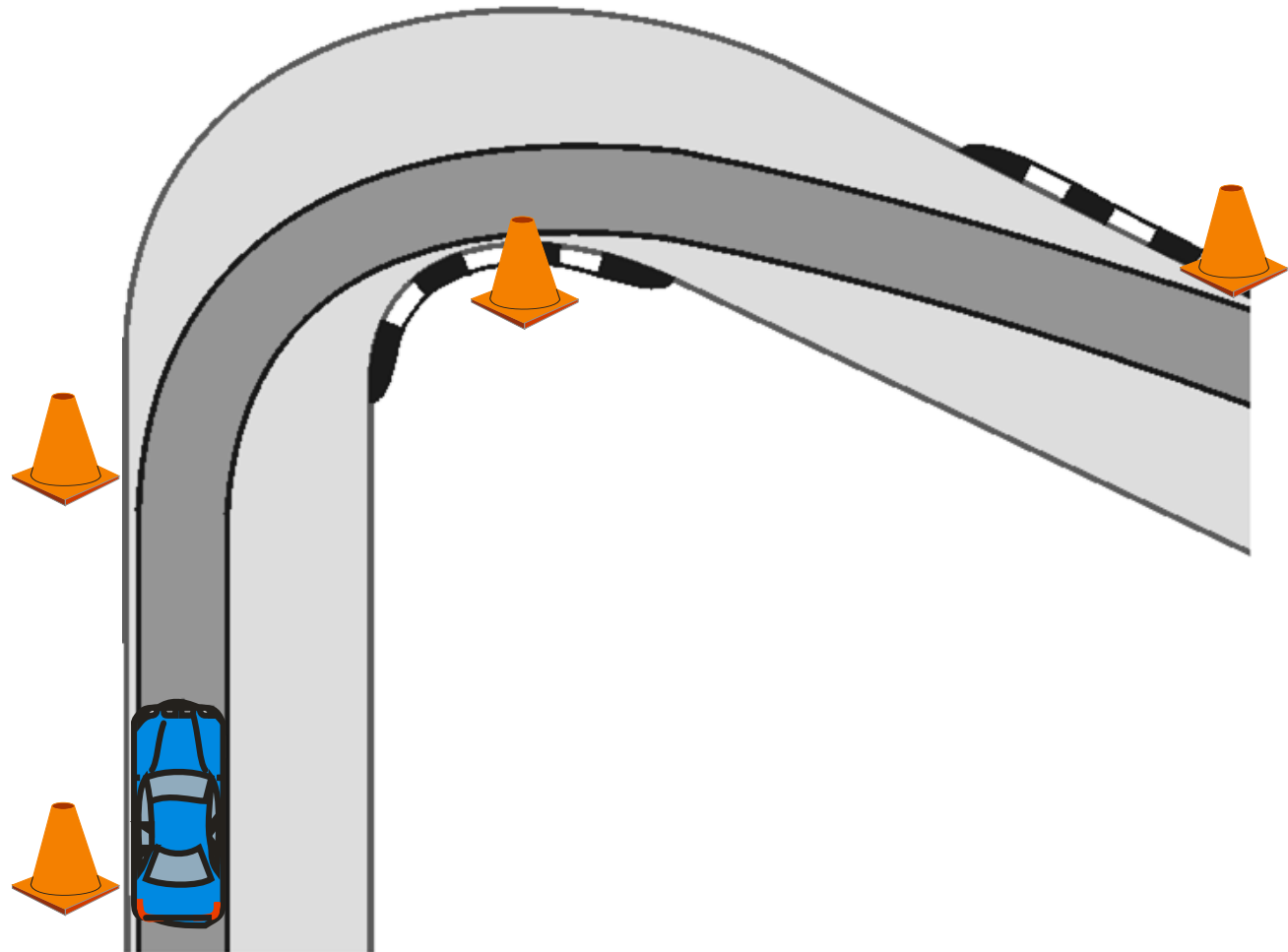
# INTERMEDIATE

*Session #4*

# Sunday Morning...

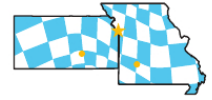


- ▶ **How did yesterday go?**
- ▶ **Questions?**
- ▶ **Cones...**





# Performance Driving



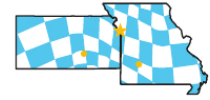
**There are 4 keys...**

- 1. Tire**
- 2. Tire**
- 3. Tire**
- 4. Tire**

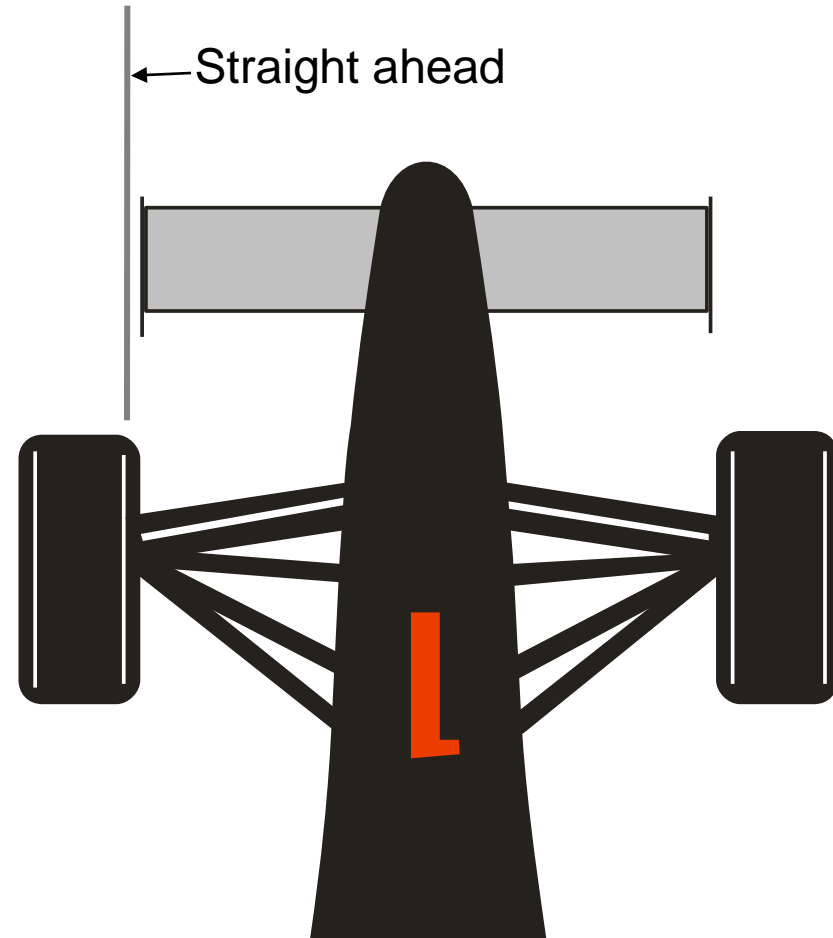
**Key to going fast:  
*Understanding tires***



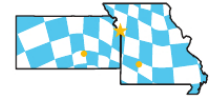
# Slip Angle



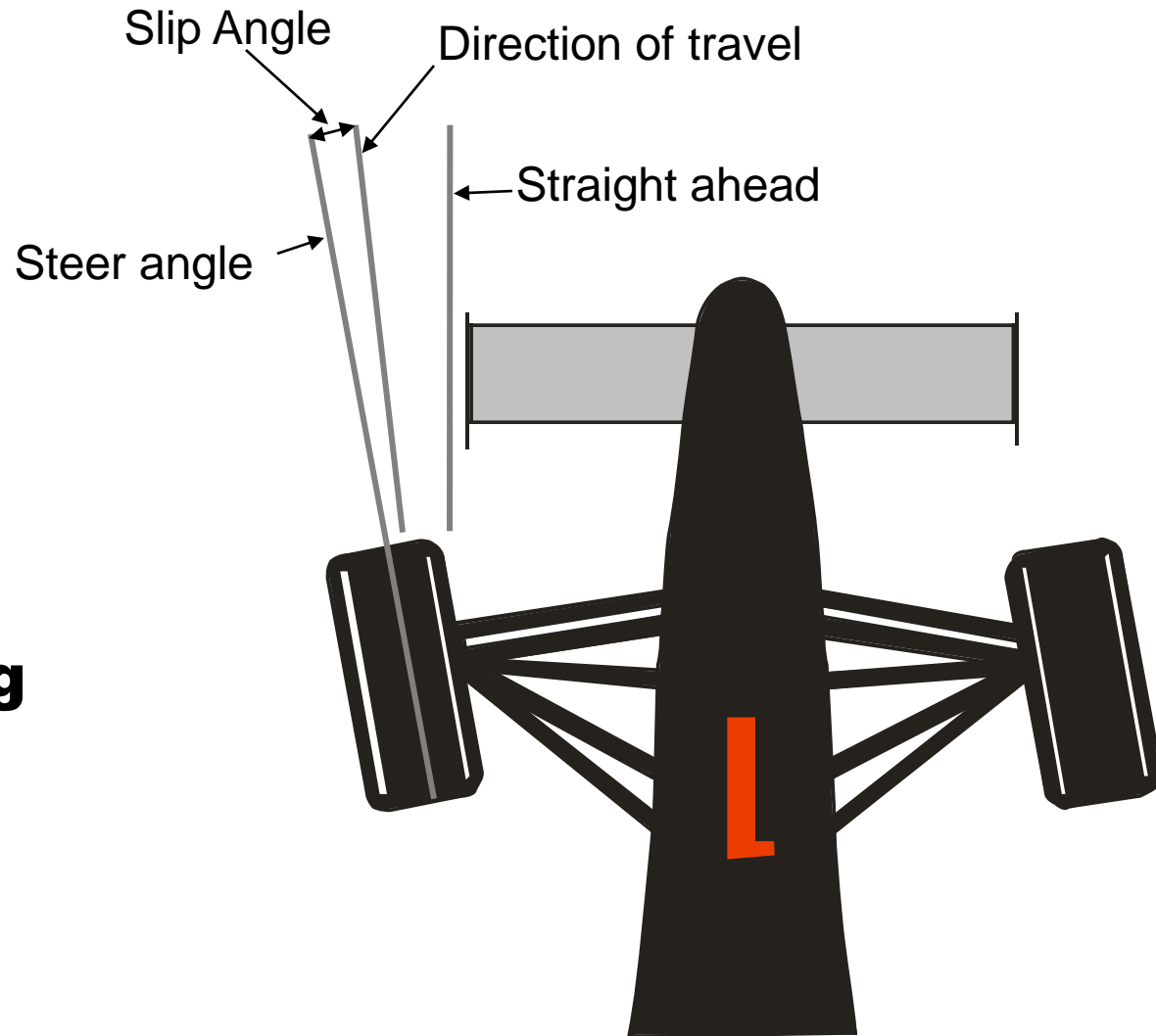
Slip Angle:



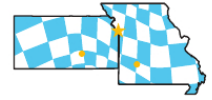
# Slip Angle



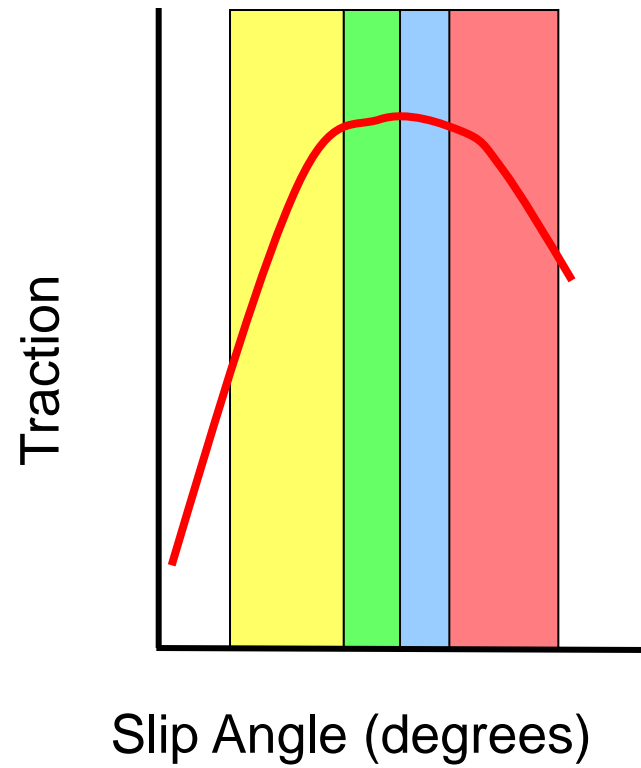
Slip Angle:  
**The difference between the direction the wheel is pointing and the direction the car is traveling is the Slip Angle.**



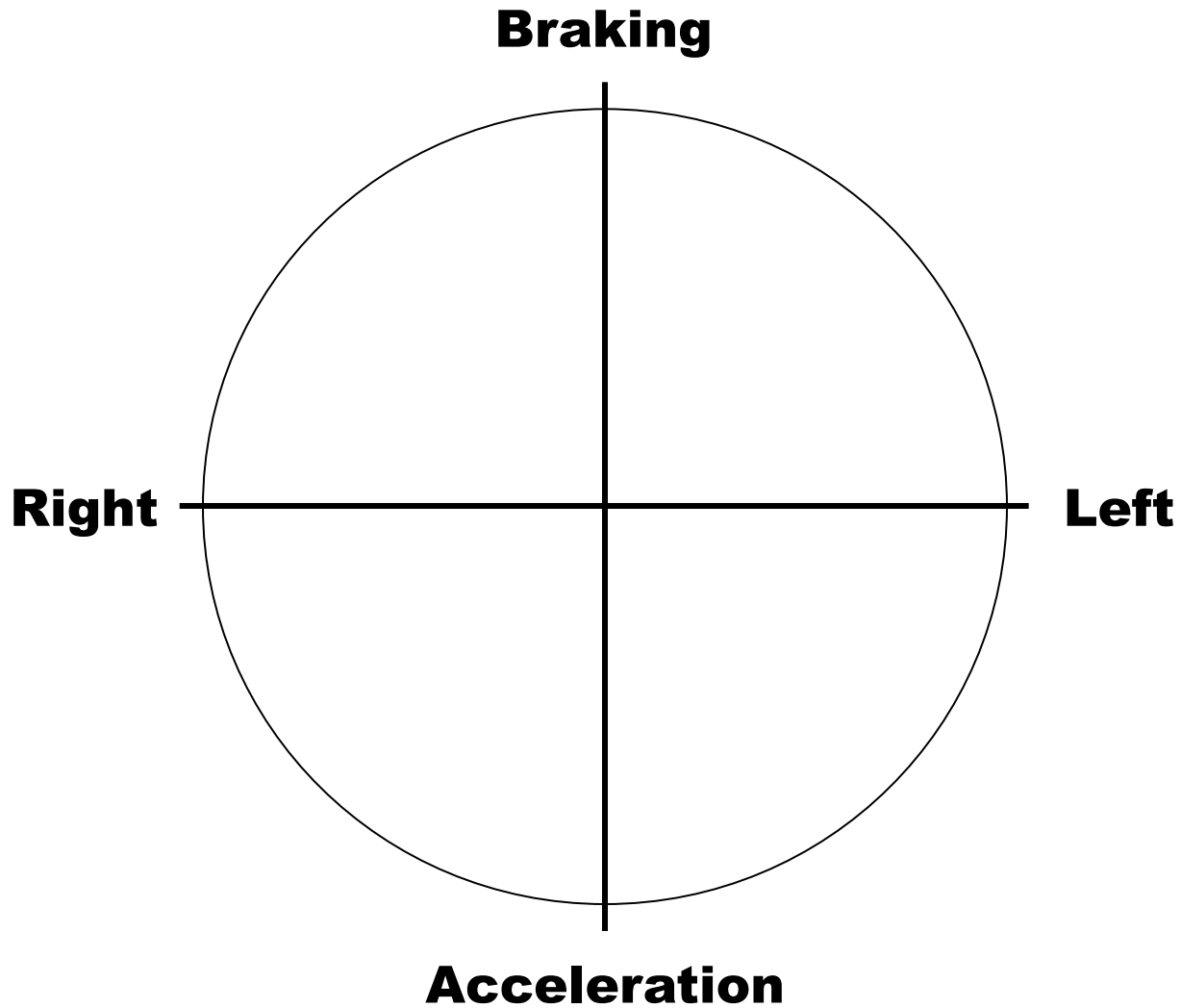
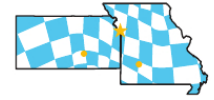
# Slip Angle



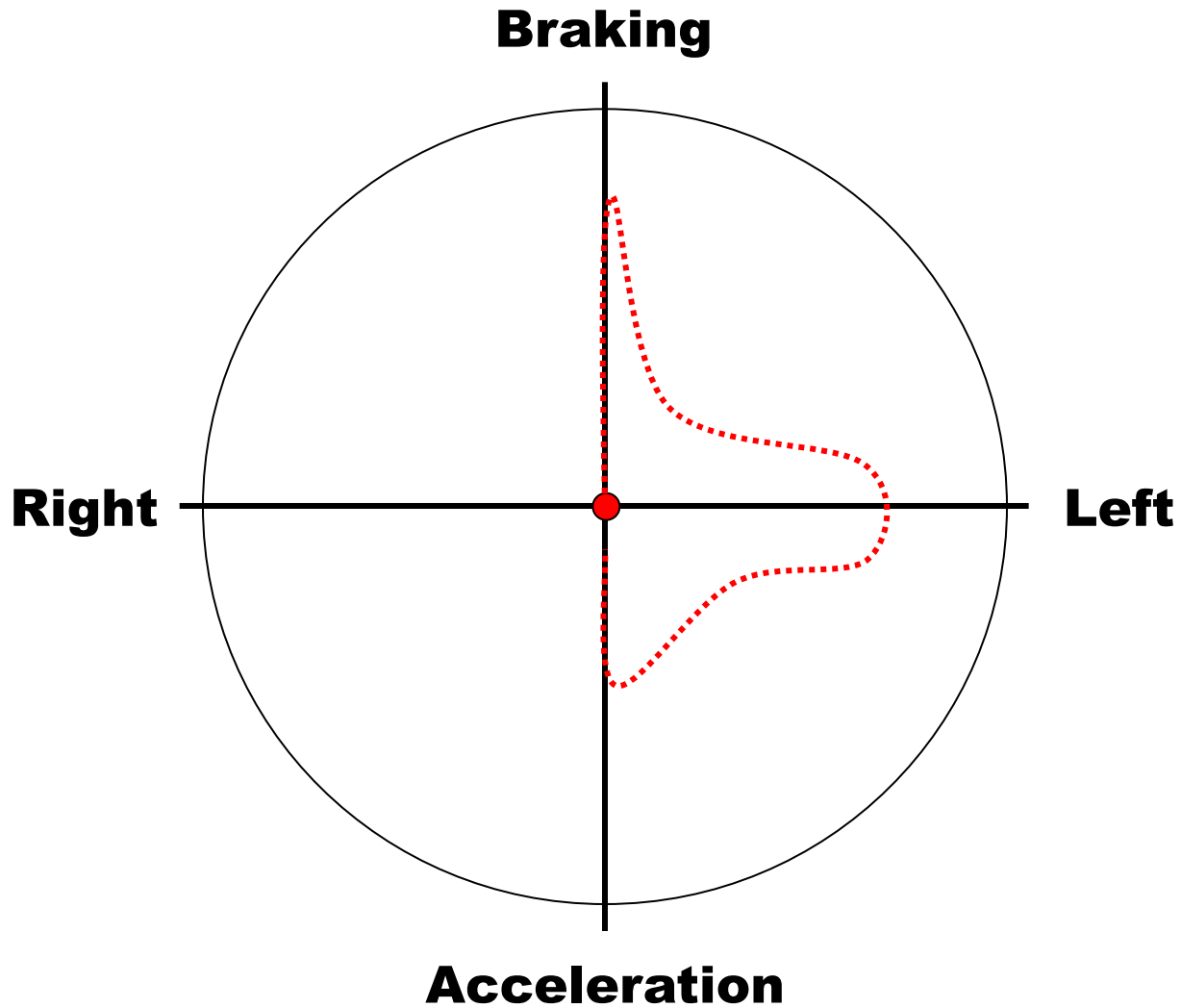
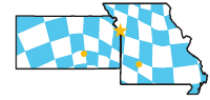
## Traction vs. Slip Angle



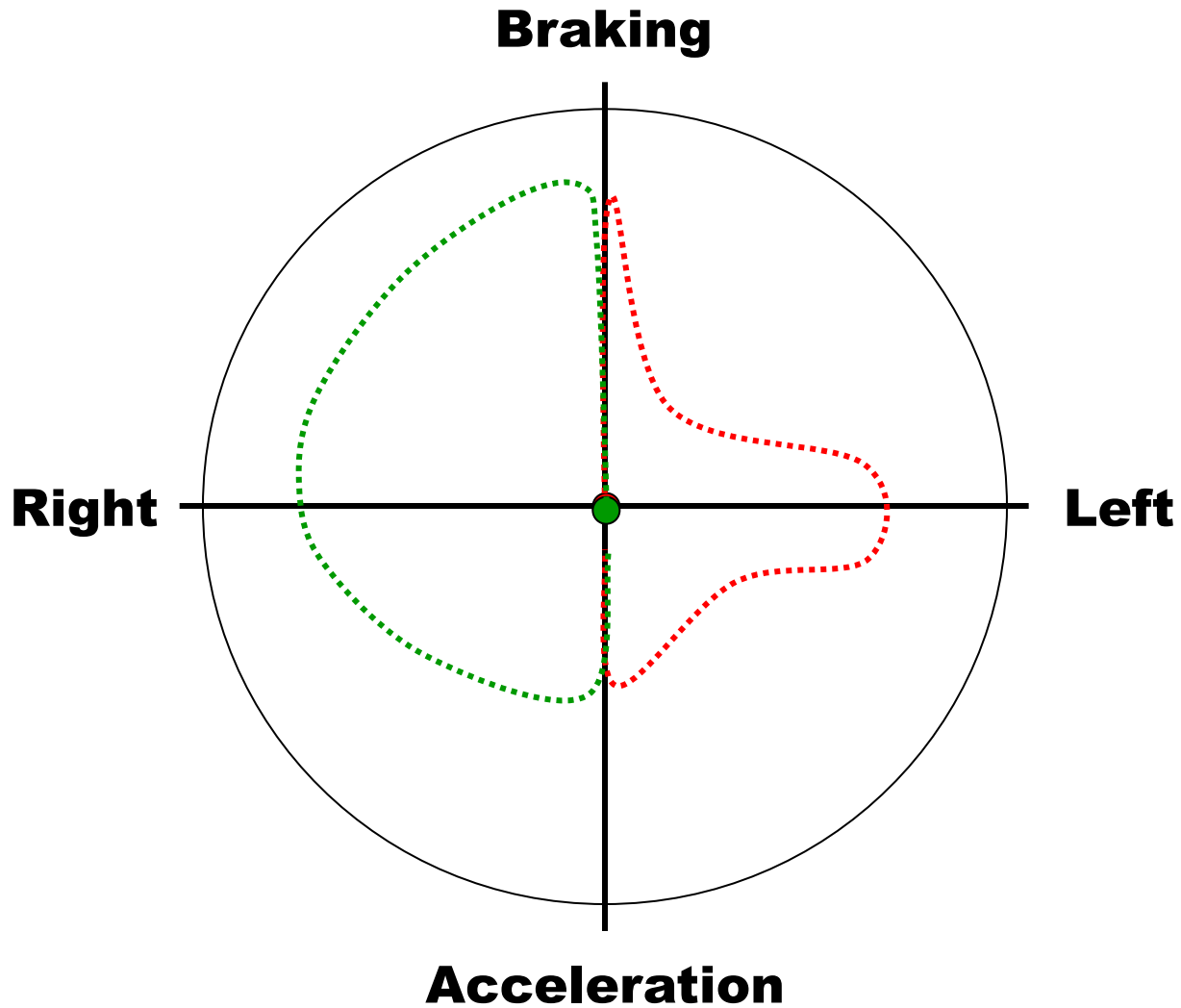
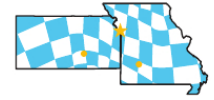
# Traction Circle

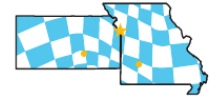


# Traction Circle

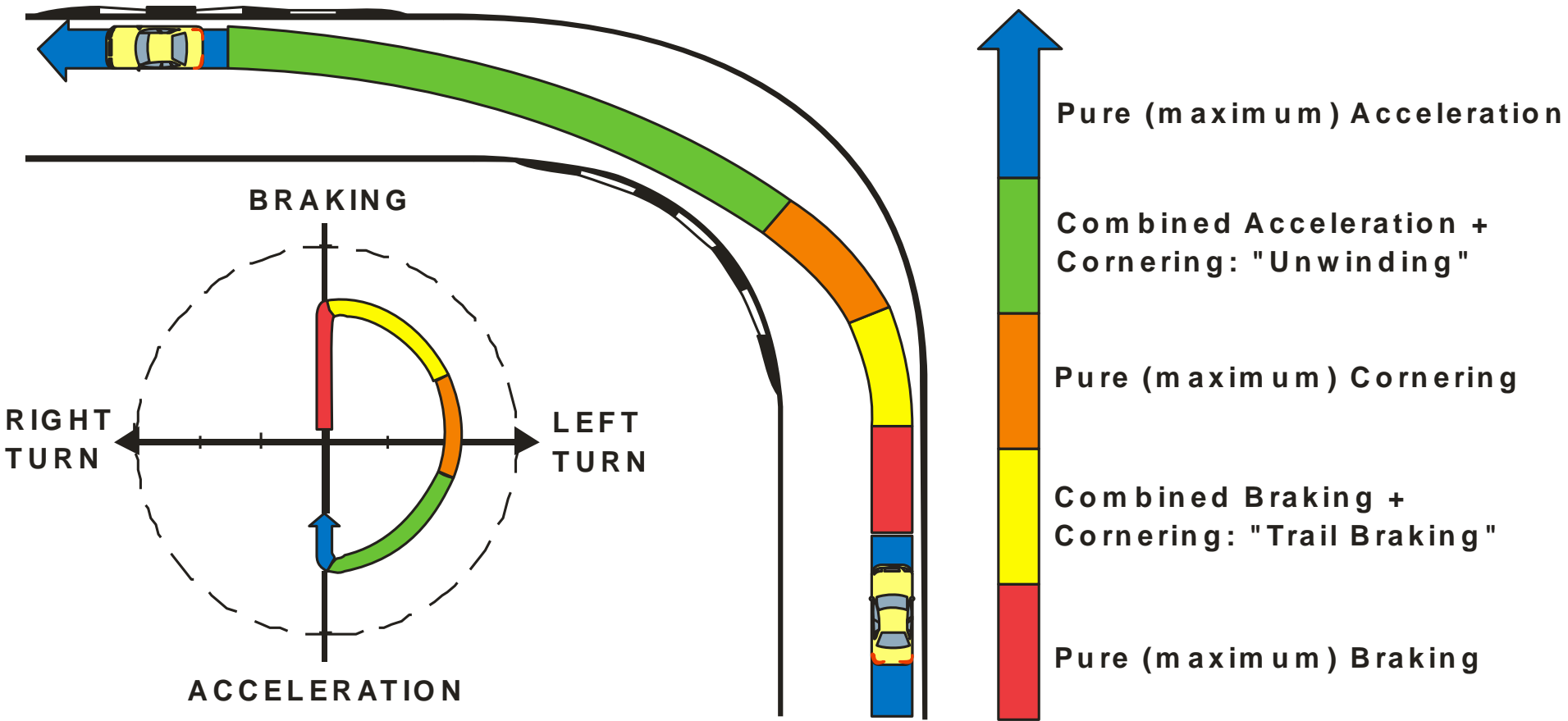


# Traction Circle



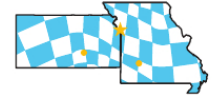


# Traction Circle

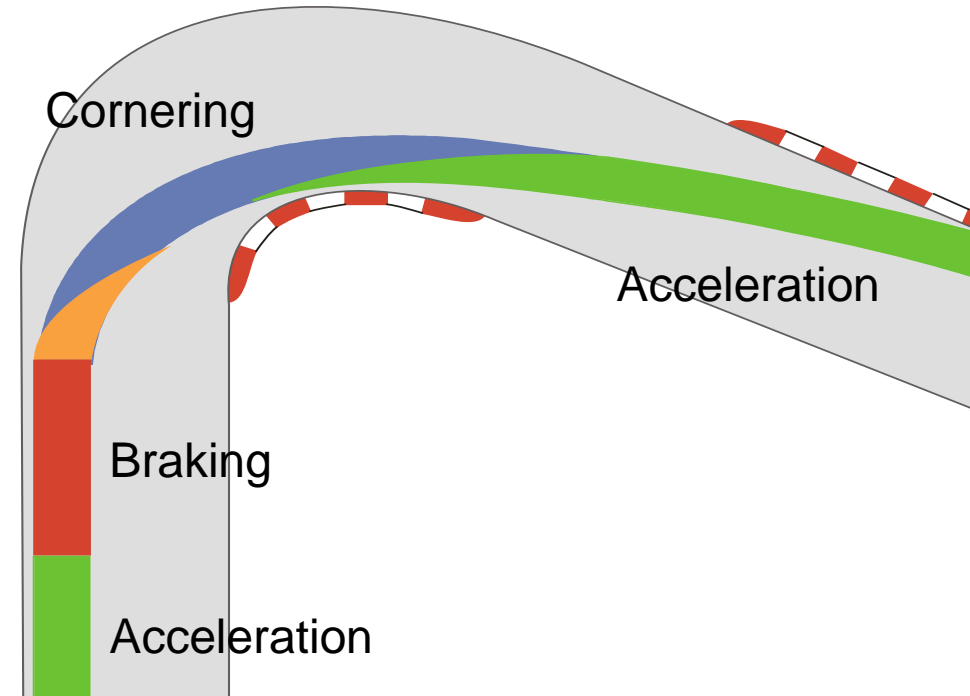




# Traction Circle

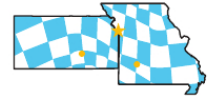


- ▶ **Maximum acceleration...**
- ▶ **Maximum braking...**
- ▶ **Trade off braking for cornering...**
- ▶ **Maximum cornering...**
- ▶ **Trade off cornering for acceleration...**
- ▶ **Maximum acceleration**



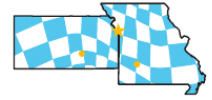
# Remember...

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Kansas City



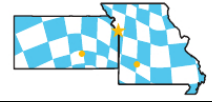
**Overlap your braking, cornering and acceleration forces.**

# Q & A



- ▶ **Questions?**
- ▶ **Problem areas?**

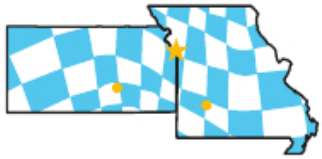
# On-Track Objectives – #4



- 1. Learn track without cones.**
- 2. Build speed with smoothness.**
- 3. Be a Weight Manager - use your car's balance to your advantage.**



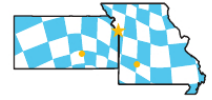
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# INTERMEDIATE

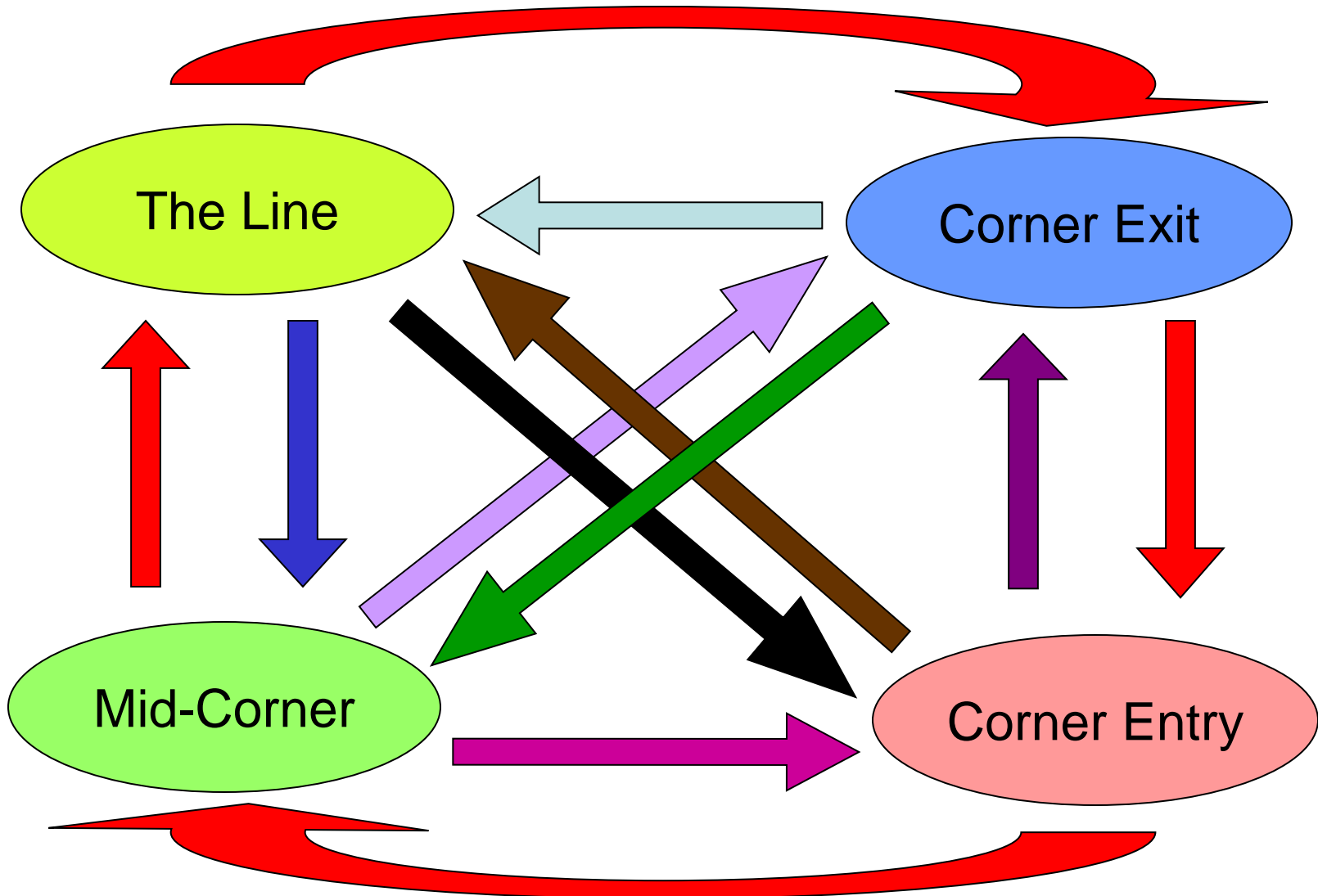
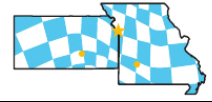
*Session #5*

# 4<sup>th</sup> Session?

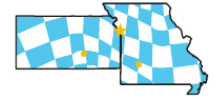


- ▶ **How did it go?**
- ▶ **Questions?**

# Learning A Track

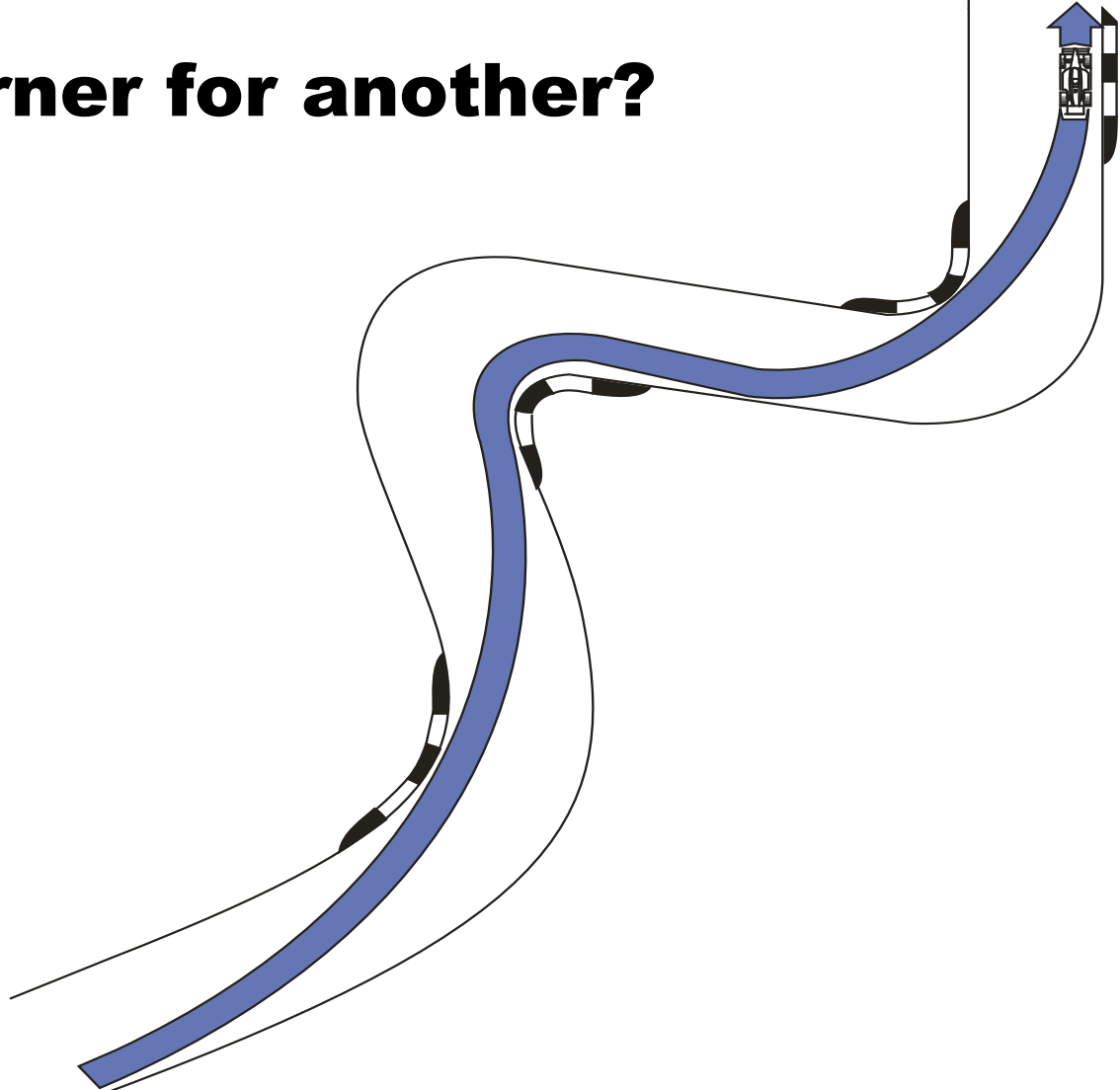


# The Line...



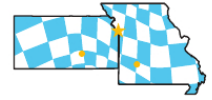
## Compromises:

- ▶ **Give up one corner for another?**





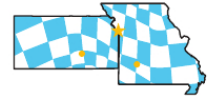
# The Line...



## **Priorities:**

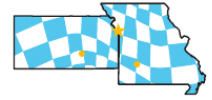
- ▶ **The most difficult corner?**
- ▶ **The fastest corner?**

# Q & A



- ▶ **Questions?**
- ▶ **Problem areas?**

# On-Track Objectives – #5



- 1. Precision – hit apexes, be smooth.**
- 2. Smooth throttle application.**
- 3. Letting the car run free - minimum steering input.**

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