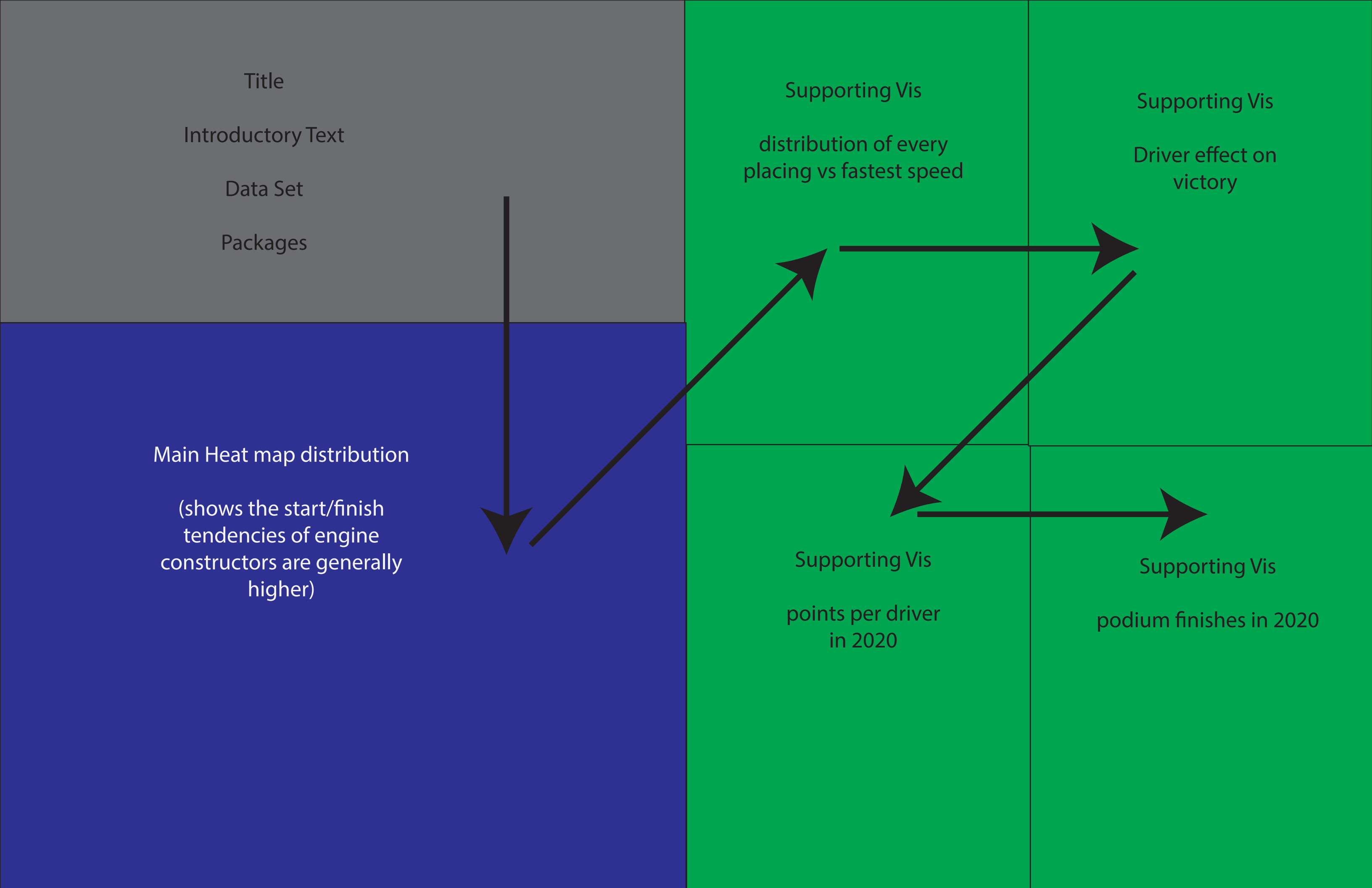


Measuring the Importance of Building a Formula 1 Engine

Connor Hanan, IST 421 M001

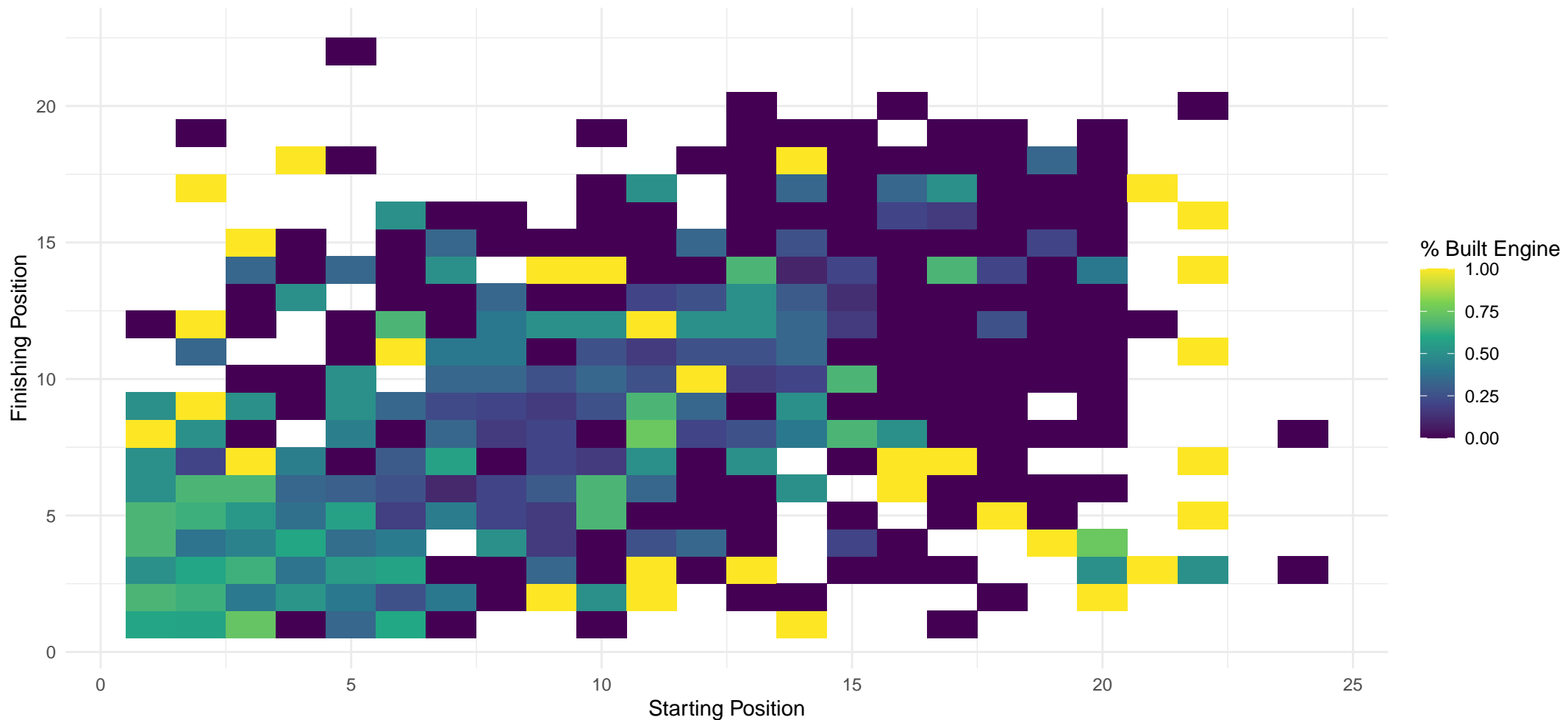
The data I used, sourced from Kaggle (<https://bit.ly/3rhABRB>), contained thirteen different csv files, each with data about Formula 1 races dating from 1950 to present. The primary dataset I used was the `results` sheet, as it detailed every driver in every race (25,000+ observations). The rest of the files consisted of essentially lookup tables, joinable to the main `results` dataset from further information on race year, race outcome, placing, etc.

How impactful is it for a Formula 1 constructor to design and build their own engine, and use it on their chassis? This is a disruptive story, as it forces F1 viewers to consider if engine constructors (i.e., Mercedes, Ferrari and Renault) receive an unfair advantage during races. This story is very compelling, as most fans believe the driver is the leading factor in performance; however, the vehicle they operate is just as crucial to the story.



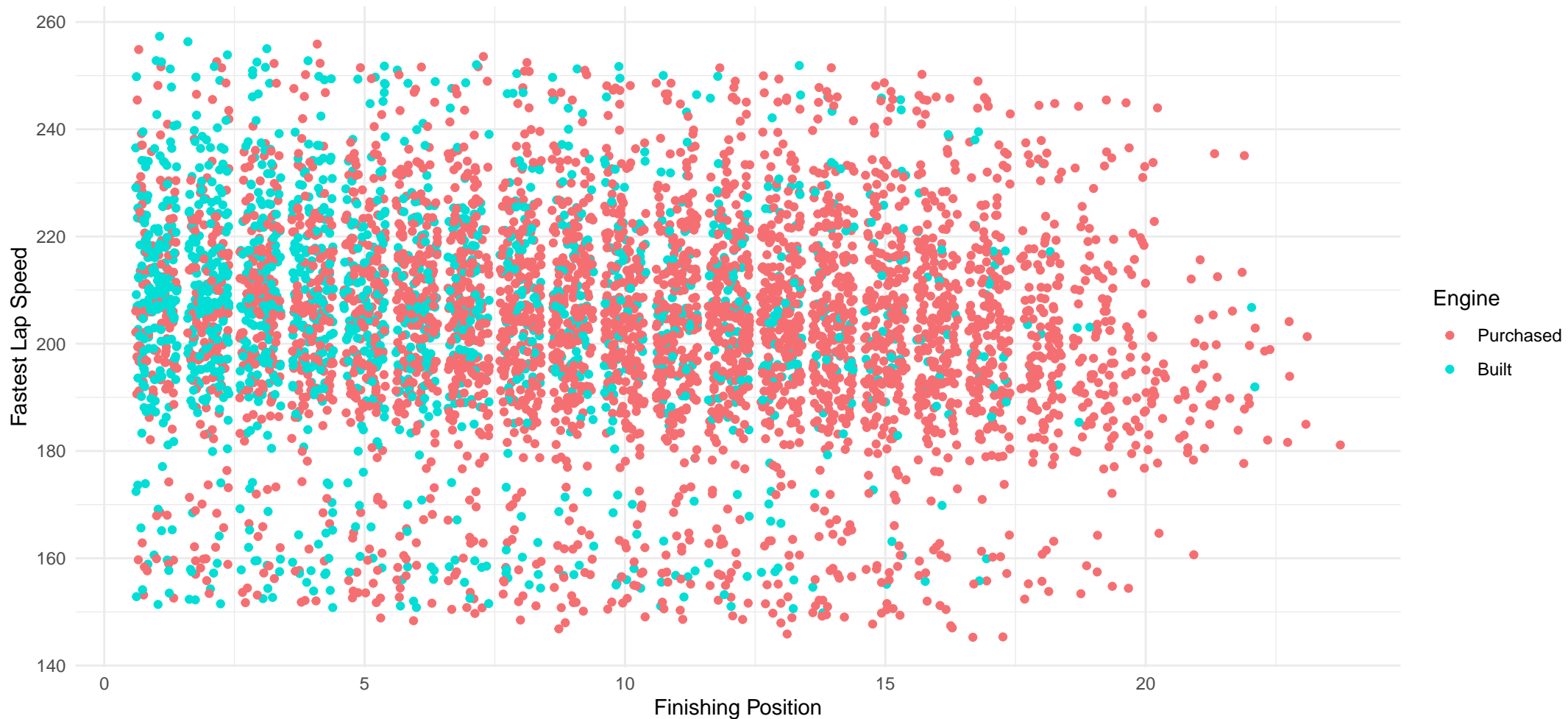
Starting vs Finishing Position in 2020

Constructors who build their own engines tended to both start and finish better than those who did not



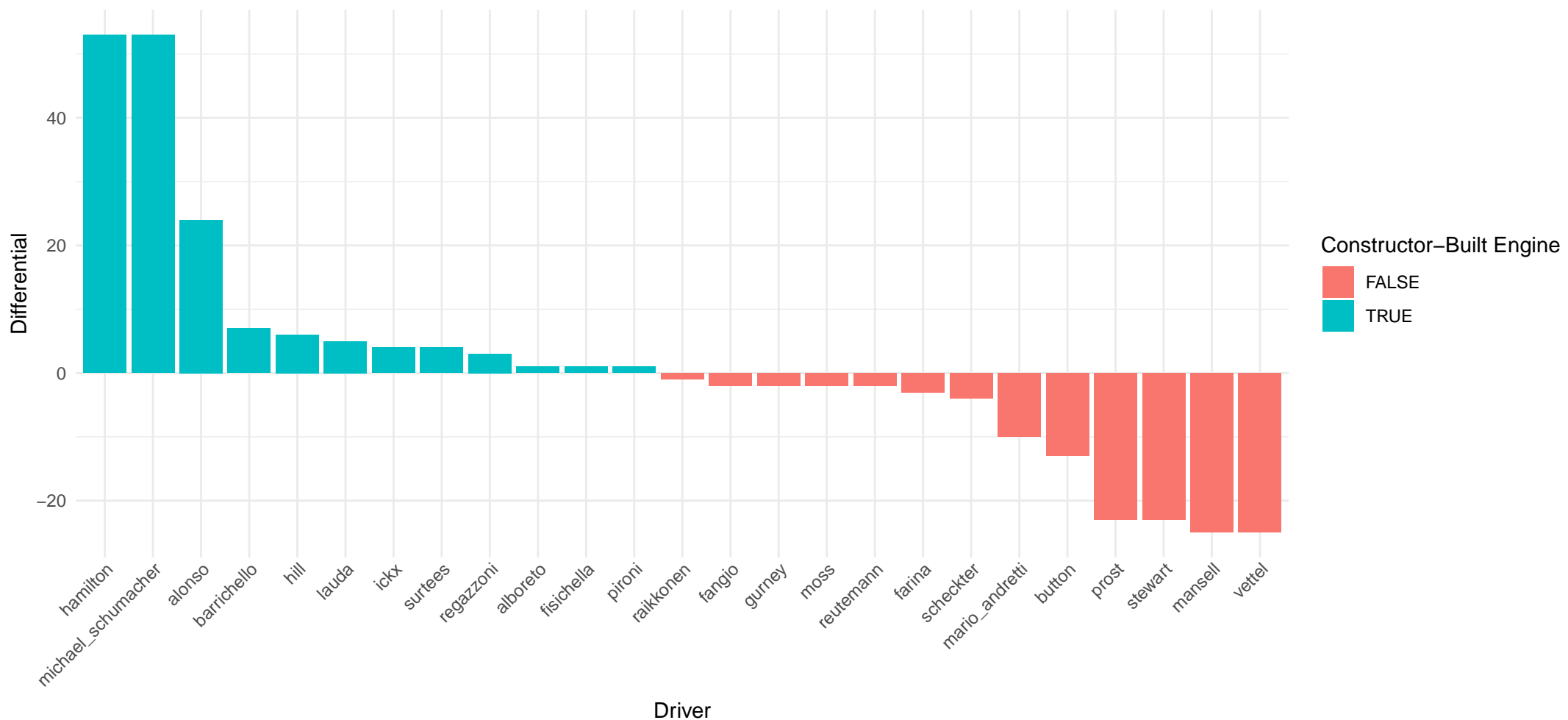
Finishing Position vs Fastest Lap Speed by Engine Constructors vs Engine Purchasers

Engine constructors tend to finish in a better position and generally earn slightly faster lap speeds than their counterparts



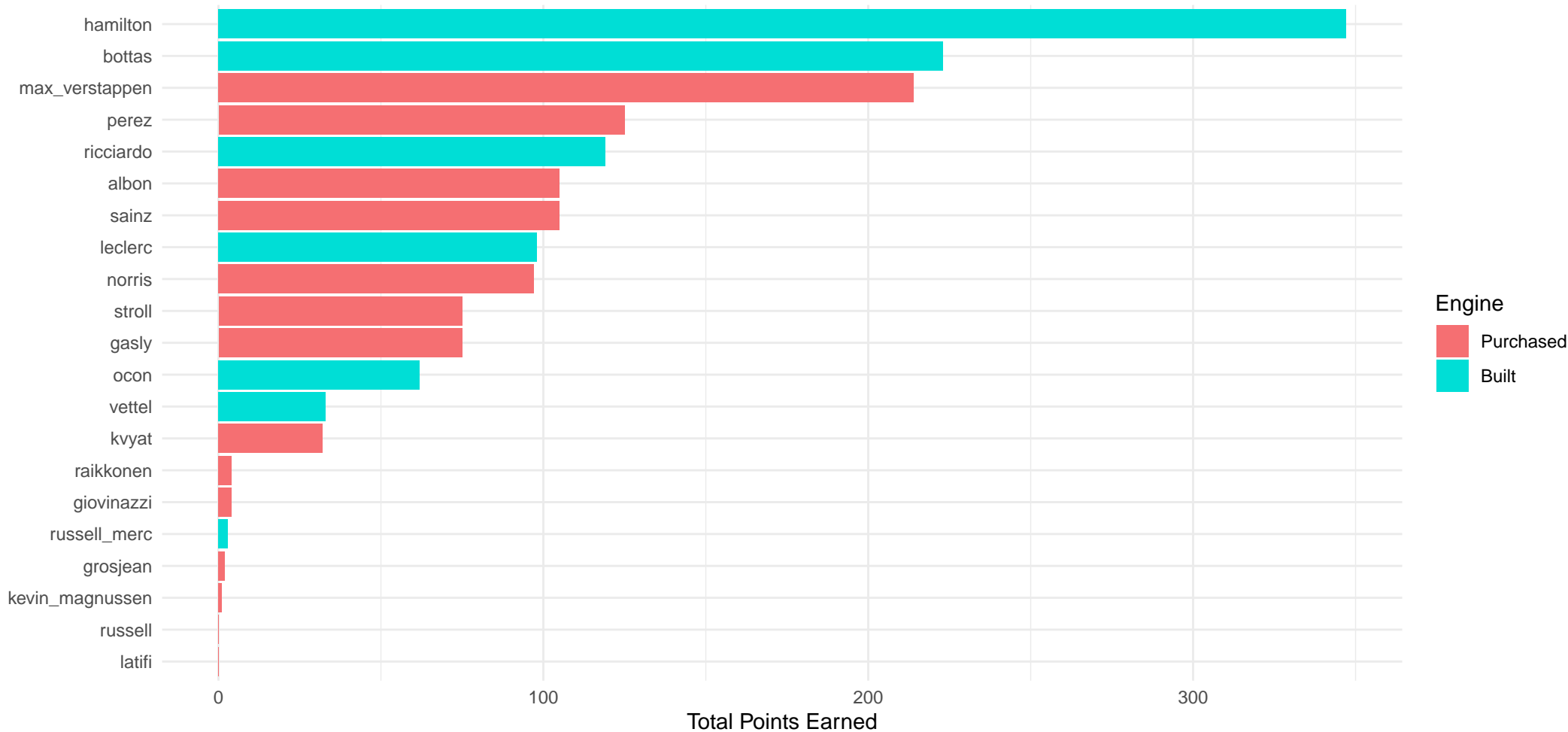
Number of First Places by Driver

Though the overall amount of constructor-built wins (303) is greater than non-constructor-built wins (276), the drivers' affect cannot be discounted



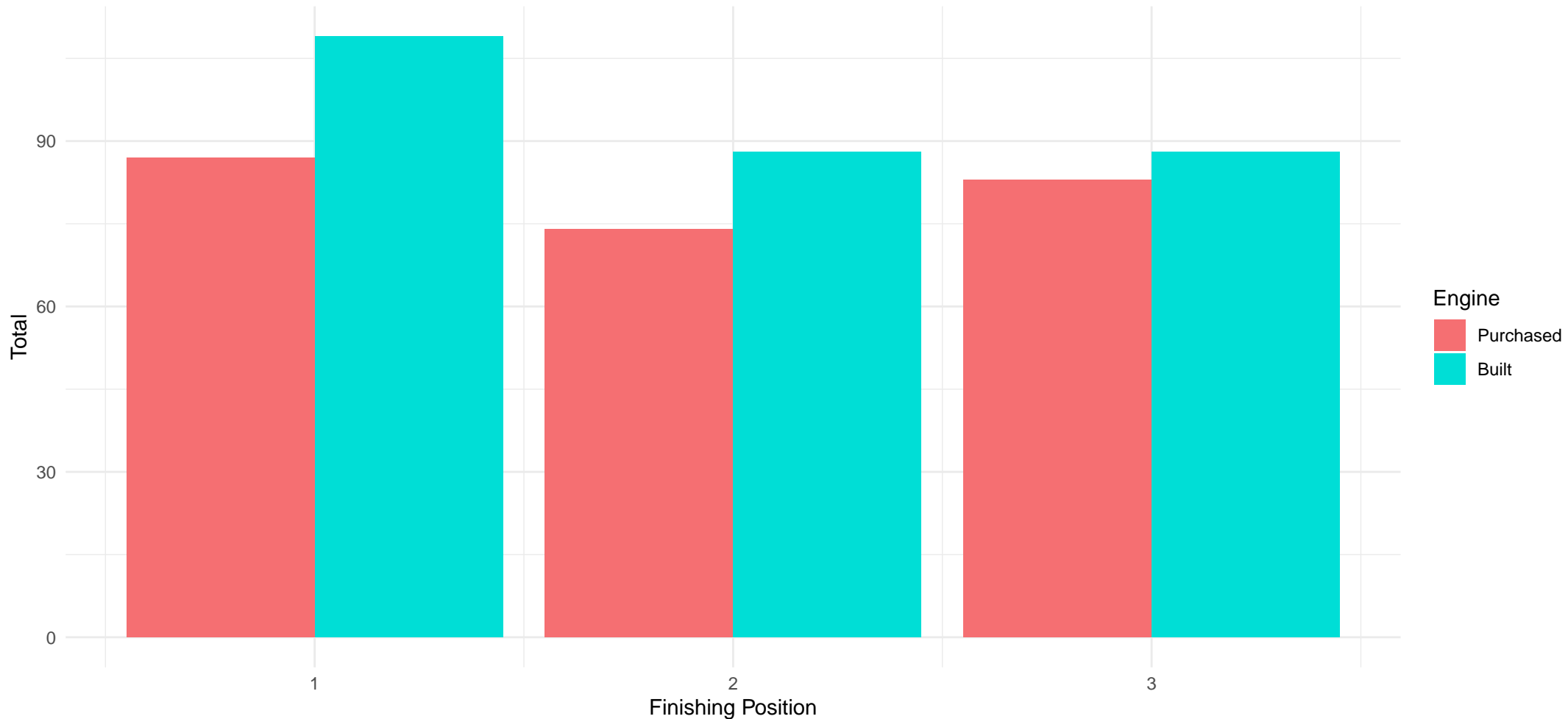
Total Points per Driver on the 2020 Grid

A majority of the points in 2020 were won by drivers who drove vehicles with the engine produced by their own constructor



Podium Positions Won in 2020 by Engine Constructors

Constructors who build and use their own engines consistently finish on the podium more often than those who purchase their engines



Total Race Wins by Engine Manufacturers Since 1950

Constructors who build and use their own engines have regularly been competitive in F1, with a drastic increase in performance over the last 20 seasons

