

# CALIFORNIA'S ROLLING STOP

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FACT OR FICTION?: A STATISTICAL STUDY

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## BACKGROUND

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This is a statistical study to determine how often car drivers do a *rolling stop*. A rolling stop happens when a car slows down before coming to a stop sign but never really comes to a complete stop before proceeding. In California, it is widely believed that most drivers do a rolling stop. This is because people are in a rush and they feel that they will be delayed for work if they come to a complete stop. They believe that even though it is wrong to break traffic rules, they still haven't done something terribly wrong. Others do it because they just do not like following the traffic laws. What I wanted to do was to find out how often this happens.

My first hypothesis is that most car drivers do rolling stops, a moderate number do full stops, and some do not stop at all. My second hypothesis is that amongst large, medium, and small cars, large cars do the most non-stops. My third hypothesis is that cars following direction 1 and 3 do more full stops than cars following direction 2 (see figure 1). This is because cars following the latter have better field vision than cars following the former.

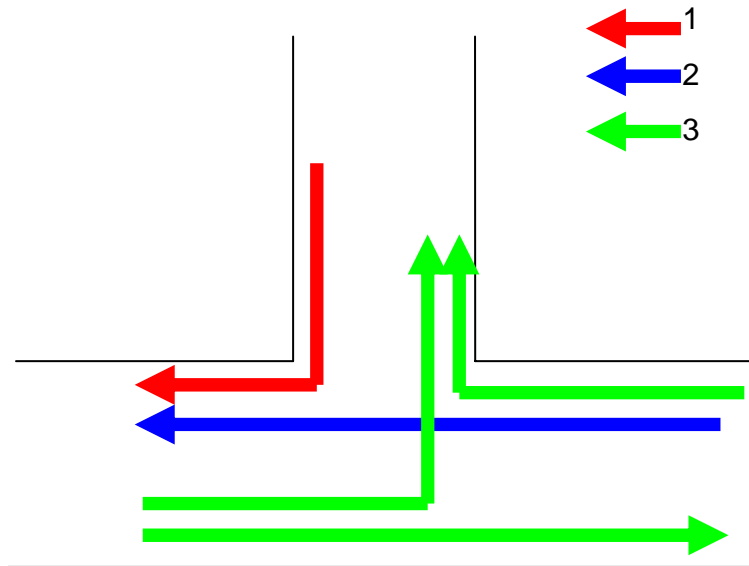
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## DATA COLLECTION PROCESS

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The location where we collected the data was in a park named Paradise Park in Morgan Hill, CA. I chose this place because it was a place which lead to the freeway, giving me a lot of data to collect. I was in a parking lot in front of the public school. In front of the parking lot, there was an intersection (see figure 1) that had 3 possible directions to drive. (Actually, direction '3' is more than one direction.)

Figure 1



If I had asked people whether they did rolling stops or not instead of watching them actually driving, there would have been two main problems. First of all, some people were bound to lie because doing rolling stops is partly illegal. Second of all, those people might not be keeping track of it themselves.

This is why, though asking people would have been easier, I chose to watch them for the sake of accuracy.

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## **DIFFERENT DATA TYPES**

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For the project, I required different types of data. First, I had to collect the car type, which was divided into medium, large, and small. Second of all, I collected the direction they drove (e.g. to work), which is shown in figure 1. Finally, the type of stop, which could be a rolling stop, stop, and no stop.

It seems that car direction and car type played a role in the final results. For example, there seemed to be rolling stops for drivers following direction 2 than for drivers following directions 1 and 3. It is possible that since they might have a better view of the pedestrians or others cars, if they saw no one there, they could do a rolling stop. On the other hand, cars driving in direction 1 could not see others cars or pedestrians as well as cars driving in direction 2 or some of the directions in 3. This caused them to have more caution, and fewer of the direction 1 cars did rolling stops.

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## **THE DIFFICULTIES IN THE PROJECT**

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The first difficulty of this project was that too many cars went fast, and sometimes it was hard to tell differences between the rolling stop and no stop.

Because of the difficulties in catching up with the speed of the cars, I had to invent code names for the types of data.

I made R denote a rolling stop, S denote a stop, and N denote no stop. For the car types, I had M denote medium, L denote large, and S denote small. Finally, I had the numbers 1, 2, and 3 denote the car direction, as shown in figure 1.

Another difficulty was trying to look at all 3 directions for any cars, and the fact that many times, groups of cars would appear together.

Sometimes, when the street seemed deserted, I had to keep turning my head to see whether a car would appear.

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## RESULTS

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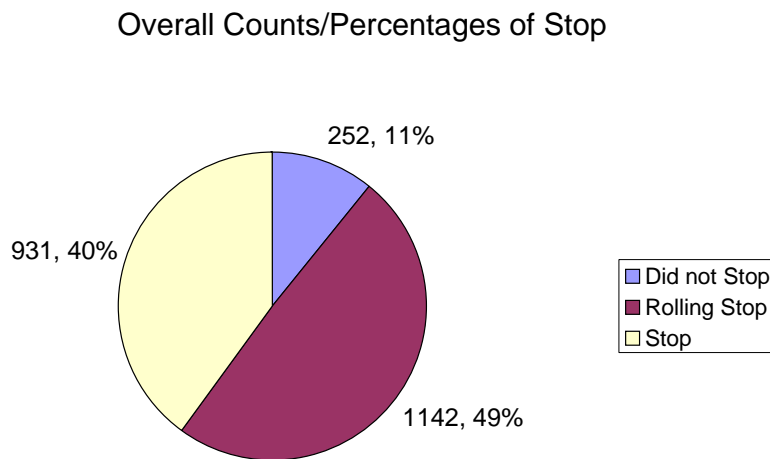


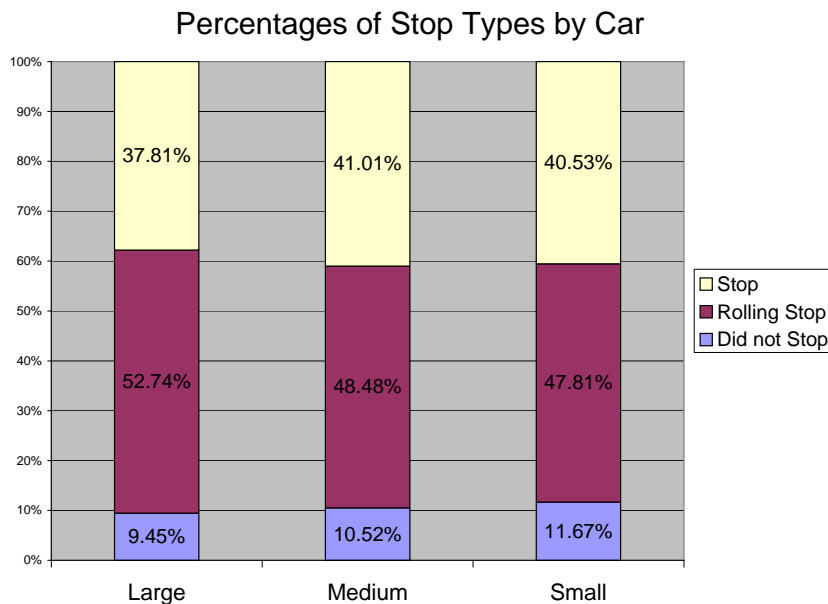
Figure 1

Figure 1 is a pie chart of my overall results.

Looking at the diagram, it is easy to see that my first hypothesis was true.

It seems that not many people would do a nonstop in California, but rather it is primarily made up of full stops and rolling stops.

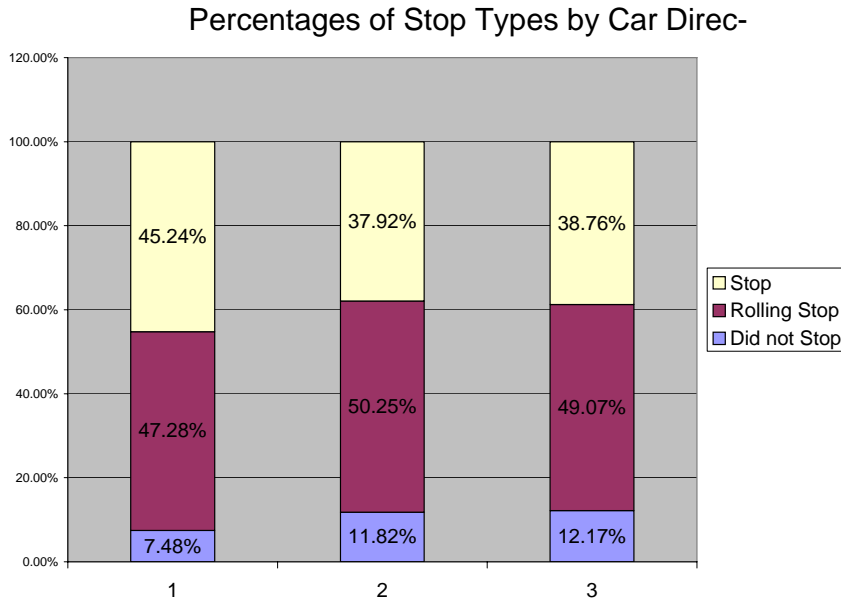
The numbers before the comma explain the number of data points, and the number after the comma is the percentage. So, I collected 1,142 rolling stops, 931 stops, and only 252 nonstops. 50% did rolling stops, 40% did full stops, and a very small number—10%—did no stops.



**Figure 2**

Figure 2 shows for each car size, percentage of each of the stop types. Overall, the number of rolling stops, stops, and no stops seems to be the same across all car sizes. Thus my second hypothesis was wrong: drivers of large cars do not seem to be more reckless drivers than drivers of other size cars.

It is a bit of car ‘folklore’, though, that drivers of large cars are more ‘reckless’ drivers than drivers of smaller cars. Obviously, this study proves that to be false.



**Figure 3**

Figure 3 shows for each car direction, percentage of each of the stop types. My third hypothesis seems to be true. Certainly more cars seem to be doing rolling stops for direction 2 than for direction 3. And we can see direction 1 has only about 7% no-stops because, of course, they don’t see cars coming from 2. 2 seems to have the highest percentage of rolling stops—50.25%. These results are not unusual—cars coming from 2 can scan their environment easily to find if anyone else from 1 or 3 is coming by.

However, direction 1 people are not completely 'road blind'. For them, it is easy to spot direction 3 people.

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## CONCLUSIONS

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This is a statistical study to determine how often car drivers do a *rolling stop*. I collected this data in front of Paradise Park, in Morgan Hill, California. For every car, I collected three variables: its stop type, its size, and its direction. My hypotheses were that (i) Rolling stops would happen most often, (ii) Drivers of large cars would do more rolling stops than drivers of smaller size cars, and (iii) Drivers of cars in direction 2 would do more rolling stops than drivers of cars in directions 1 and 3. My first hypothesis was true in that about 50% of the drivers in my collected data did rolling stops. My second hypothesis was false, since each of the size cars did about the same number of rolling stops. My third hypothesis was true, though. It makes sense, since drivers on direction 2 have better field vision than drivers on directions 1 and 3.