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Final

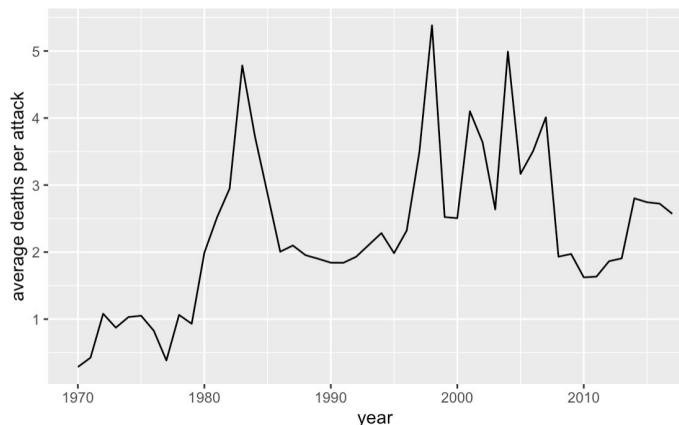
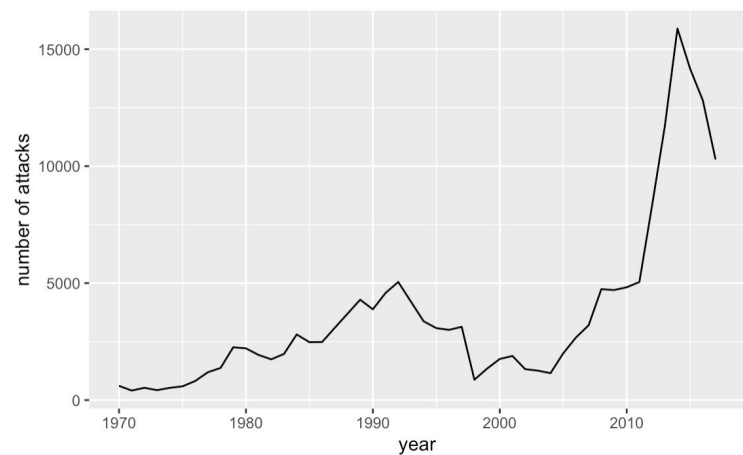
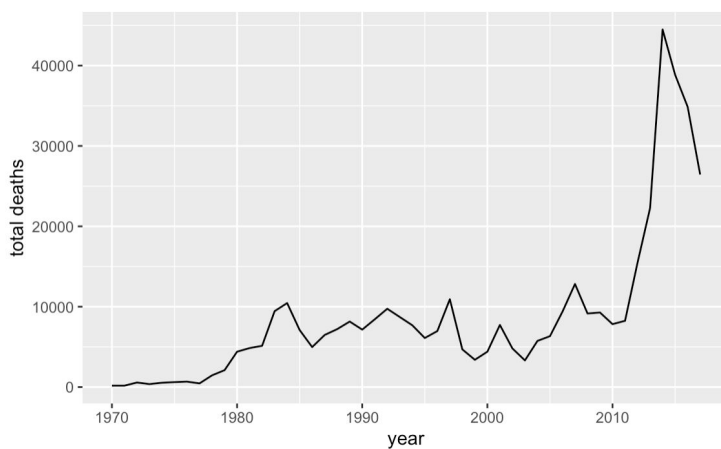
The Global Terrorism Database (GTD) is an open-source database including information on terrorist attacks from 1970 through 2017, except 1993. I found the dataset on Kaggle. Definition of terrorism: "The threatened or actual use of illegal force and violence by a non-state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation." The GTD includes systematic data on terrorist incidents all over the world and now includes more than 180,000 attacks. The database is maintained by researchers at the National Consortium for the Study of Terrorism and Responses to Terrorism (START), headquartered at the University of Maryland. A link to the dataset on kaggle: <https://www.kaggle.com/START-UMD/gtd>  
Variables: Over 100 variables on location, tactics, perpetrators, targets, and outcomes of the attacks.  
Sources: Unclassified media articles

#### Questions:

How have terror attacks changed over the years?

Where is terrorism taking place in the world?

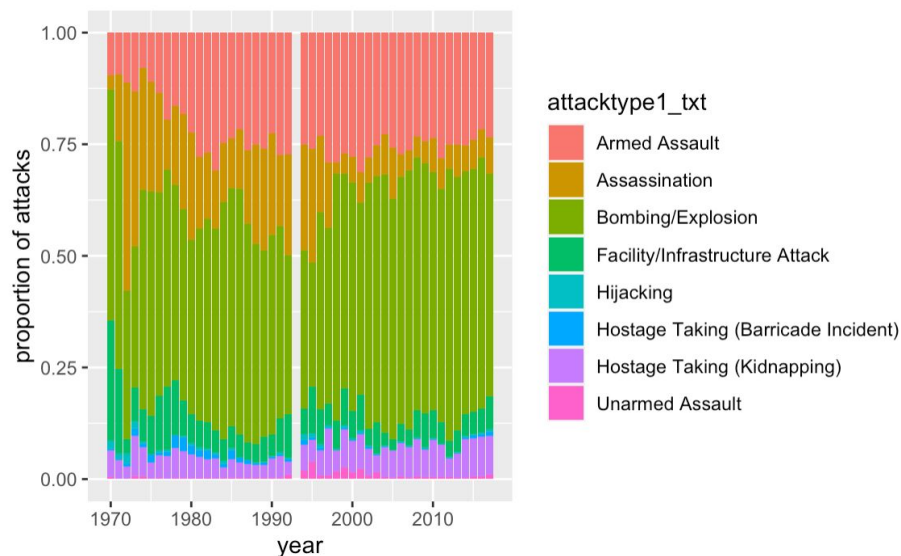
I first wanted to see how terror attacks worldwide have been changing through the years. To do this I grouped the data by year, so the place of attacks were irrelevant. I then made 3 figures. One that compared the number of attacks per year, one that compared the number of deaths from terror attacks per year, and one that looked at the average number of deaths per attack each year.



From the first figure, I found it easier to analyze when I broke it into 3 parts. From 1970-1980, the total number of deaths were low. Then they increased around 1985 but remained steady until about 2010, when they skyrocketed. This pattern is similar to the total number of attacks. From 1970-1990 they steadily increased, then decreased until 2000. But around 2005 the number of attacks skyrocketed. These two graphs

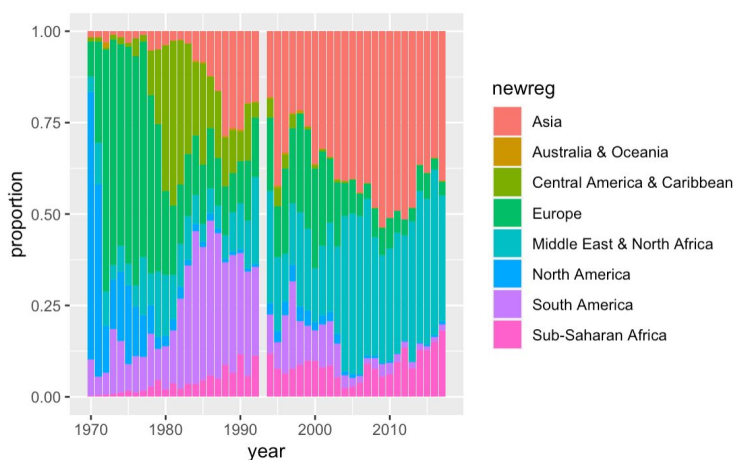
match up very well with each other. I made the third figure to see if the attacks were getting more violent by checking the average deaths per attack. This figure is not as linear as the other two, but you can still get some important information. From 1970-1980, terror attacks averaged about 1 kill each, but after 1980 terror attacks got more violent. While from 1980 on the average deaths per attack varied, the average was closer to 3 deaths. So overall, terror attacks have been on the rise for the past 10 years, with 2015 being the worst year to date. However, the attacks haven't gotten any more violent, or more deadly, in the last 30 years.

Then I was curious as to the different types of attacks that have been happening. I made a figure that shows the proportion of attacks throughout the years.



From this figure I can see that throughout the years the proportion of assaults has increased, while assassinations are on the decline. The proportion of hijackings peaked around 1980, and kidnappings have slowly increased over the years. Currently, the most common form of attacks are assaults and bombings/explosions.

Next, I wanted to find out how each region was getting attacked differently over time. Which regions are attacked the most and which were attacked the least. The dataset initially had 11 regions but I clustered them down into 8 to make the plots easier to read.

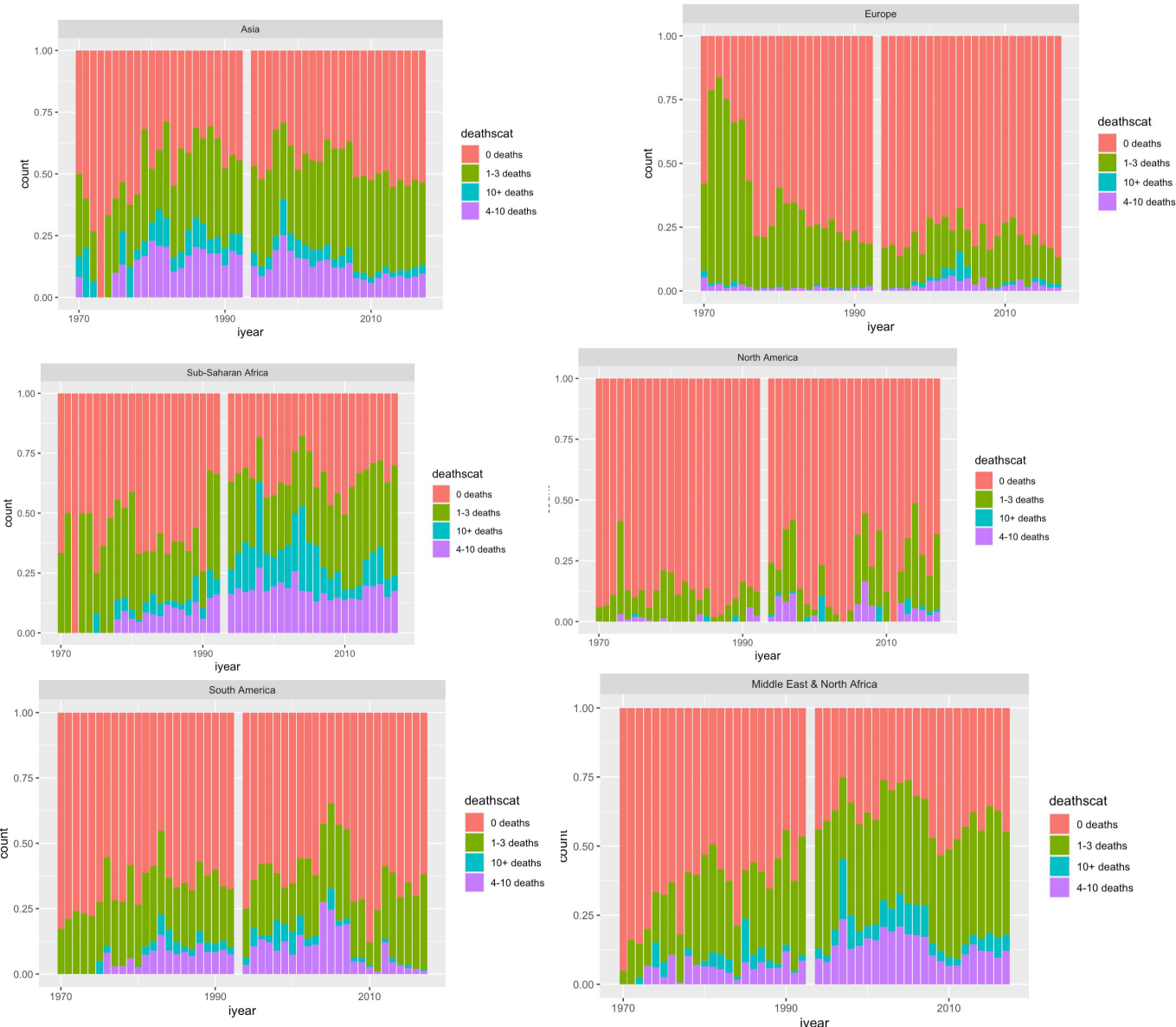


This figure is very clear in giving us important information. The most noticeable being that Asia and the Middle East have been getting attacked more and more over time. Initially they had very little attacks compared to other regions but now they are the 2 most attacked regions. Similar to Sub-Saharan Africa. In 1970 it barely had 1% of total attacks, but now it's close to 15%. Another thing that surprised me from this figure was the fact that North America is getting

attacked so little compared to other regions. In the 1970s it made up around 10% of total attacks but

now it's barely even 1%. Also, I found it very interesting that Central America got roughly 20% of total attacks from 1980-1990 but after that they received far far less attacks. Additionally, the proportion of attacks for Europe has been steadily decreasing. In the 1970s over 50% of all attacks were in Europe and now that number is maybe 5%.

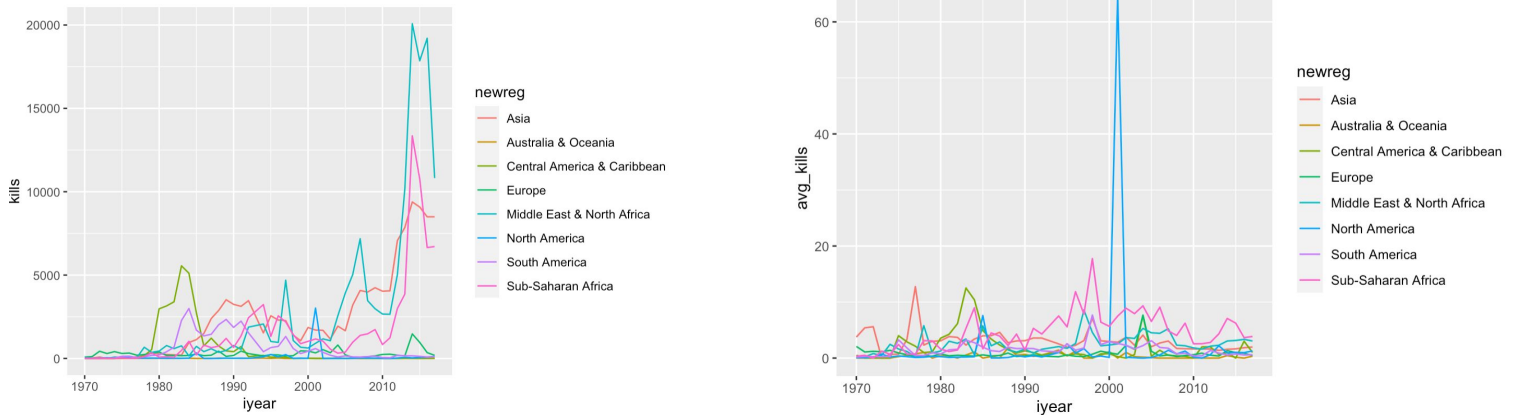
Now, I broke the variable that recorded the number of deaths per attack into 4 categories. Attacks with no deaths, 1-3 deaths, 4-10 deaths, and 10+ deaths. I wanted to see deadly attacks in different regions. I ignored Australia and Oceania because they have such few attacks.



From these figures we can see that Europe and North America have the least deadly attacks, roughly 75% don't have any deaths. South America has slightly less deathless attacks but they have much more 4-10 death attacks. Sub-Saharan Africa has the most 10+ death attacks and a great number of 4-10 death attacks. The proportion of different deadly attacks hasn't really changed over

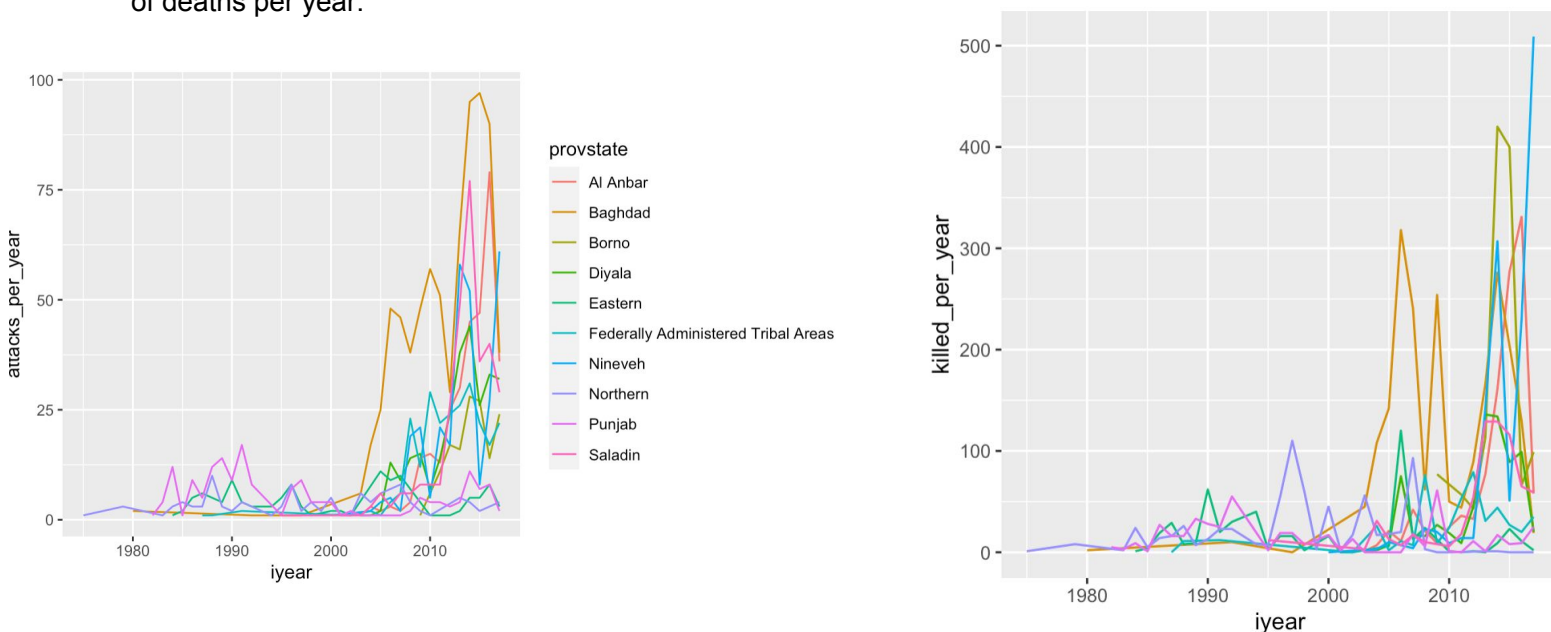
the years, except in the Middle East, the deathless attacks have been decreasing and more deadly attacks have been increasing.

These figures compares the number of deaths and average kills in each region over the year



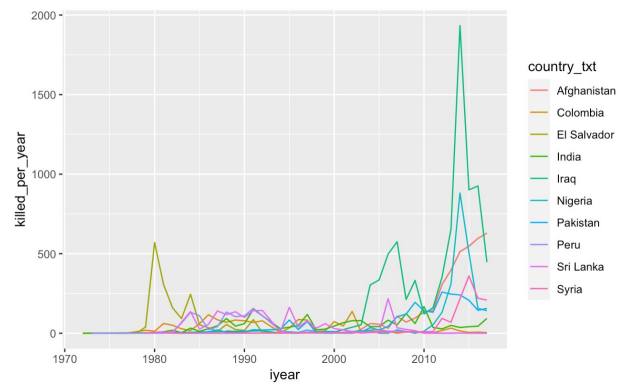
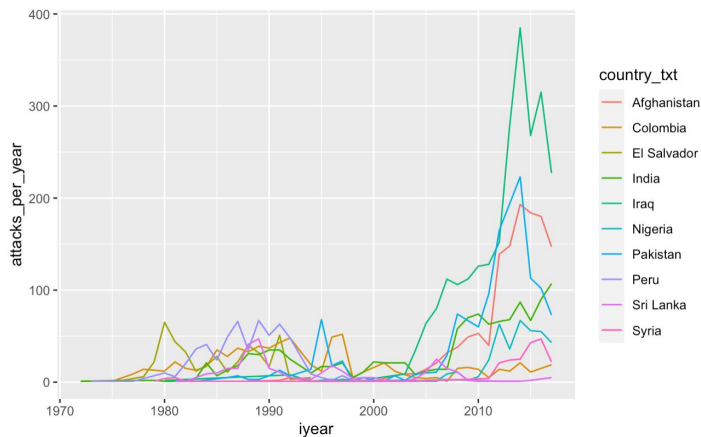
As you can see, for Asia, Sub-Saharan Africa, and the Middle East, the number of total deaths has drastically increased in the past 10 years. The increase is roughly 400%. Another point of interest is Central America in the 1980s. Their total deaths spiked here, but only here and have remained low ever since. Also, in 2001 for North America you can see one huge spike which is the instance of 9/11 which is America's deadliest terror attack. As for average kills per attack, they have been steady throughout the years, however, Sub-Saharan Africa has consistently had the most deadly attacks, with the Middle East close second.

Now, I wanted to find the 10 most attacked states/provinces. I found out that they are Baghdad, Nineveh, Borno, Al Anbar, Saladin, Diyala, Eastern, Northern, Punjab, and Federally Administered Tribal Areas. I made 2 figures, one comparing the number of attacks per year and the other number of deaths per year.



These figures show that for the 10 most attacked provinces, the attacks have only been getting worse. Since about 2000, the number of attacks and number of deaths have been skyrocketing. Baghdad, for example, barely had any attacks before 2000. Then it rose to 50/year by 2005 and then doubled to 100 in 2012. These places all happen to be in the Middle East, which I found out is one of the worst places for terror attacks in the world, and it only seems to be getting worse.

I repeated this process for the 10 most attacked countries, they came out to be Afghanistan, Colombia, El Salvador, India, Iraq, Nigeria, Pakistan, Peru, Sri Lanka, and Syria.



Just like with the 10 most attacked states, the 10 most attacked countries have been getting attacked far more in the last 10 years. With that, the number of deaths from attacks is increasing as well.