**VLOOKUP(), meet JOIN** (30 minutes)

* For our final lesson.
* Presentation: Illustrate the differences between left and inner joins

1. First show the typical Venn Diagrams
2. Then show the animated joins: <https://github.com/gadenbuie/tidyexplain#mutating-joins>

* Presentation: Conducting joins in Power Query
  + Demo: Nycflights13 flights & planes table.

1. Pull up flights-and-planes.xlsx to really explain what it is you are doing.
   1. We have this list of flights and we would like to look up some information about these planes. But we don’t have information about *all* these planes.
      1. So, do we want to keep the information about the records without a match? Therein lies the main distinction between a left outer and an inner join.
2. So we can load these into our workbooks and now this time we will go to MERGE them rather than append them.
   1. Now our “point of reference” is flights. For the sake of what we are doing now imagine that the table which you pick first is going to be the one that you would write a VLOOKUP() on.
      1. Righ-click, merge and now we choose what “tables and matching columns” we should use.
         1. So we also need to click on the matcing rows.
      2. See from the resulting match that we are NOT going to get a match in every record by doing this!
      3. Hit OK
   2. Now we have a new column called planes. See that we have a tiny left<->right button.
      1. Click that and now we can select all of the “lookup” columns that we want.
      2. And now they are joined.
   3. Close and load. It’s a big file so it’s gonna take some time.
      1. Name it left join
      2. Check it out, we have the same number of rows in this file as we do in the flights file!
   4. Now let’s make a brand new query, do everything the same this time except it’s going to be an innerjoin.

* Exercise: Drills
* We have the hall of fame, and we have a list of people. But our list only includes people, A through M.
* We will join our combined hall of fame table onto this players A through M table. What is the result?