1. What is radio noise? What is silence? How can they be characterized (Methods)? How frequently does it occur(Results)?
   1. To define silence in the acc\_i signal, inspect the RMS signal and compute a histogram and set a reasonable threshold. Visualize acc\_i spectrograms just above and below the threshold to verify your choice. How does the duration of silence depend on the threshold?
   2. To define radio noise, look at the radio signal strength signal and try to find a threshold on it, below which the accelerometer signal is noise. Verify your choice again by plotting and inspecting spectrograms of data above and below the threshold. How does the amount of radio noise depend on the threshold?
2. Define the trivial subsets () when only one bird vocalizes and there is no radio noise in any of the accelerometer channels.
3. Define the subset with only radio noise on , while the other accelerometer signals are silent.
4. Cluster all vocalizations in on the microphone channel.
5. Generate a synthetic data set.
   1. Superpose the accelerometers on with radio noise.
      1. , for , where is a function that chooses a randomly drawn -th noise and adds the corresponding accelerometer snippet ≔ at a randomly chosen time to .
      2. Therefore, , where defines if noise is added at time .
   2. Generate the corresponding microphone signal components
      1. for , where is a function that adds the microphone signal snippet ≔ at time to , analogous to task 5a).
   3. Shuffle the time on these synthetic components, such that even though we started with , we will generate a data set with co-vocalizing birds. Compute then .
6. Learn a classifier on the synthetic data and apply it on the test data.