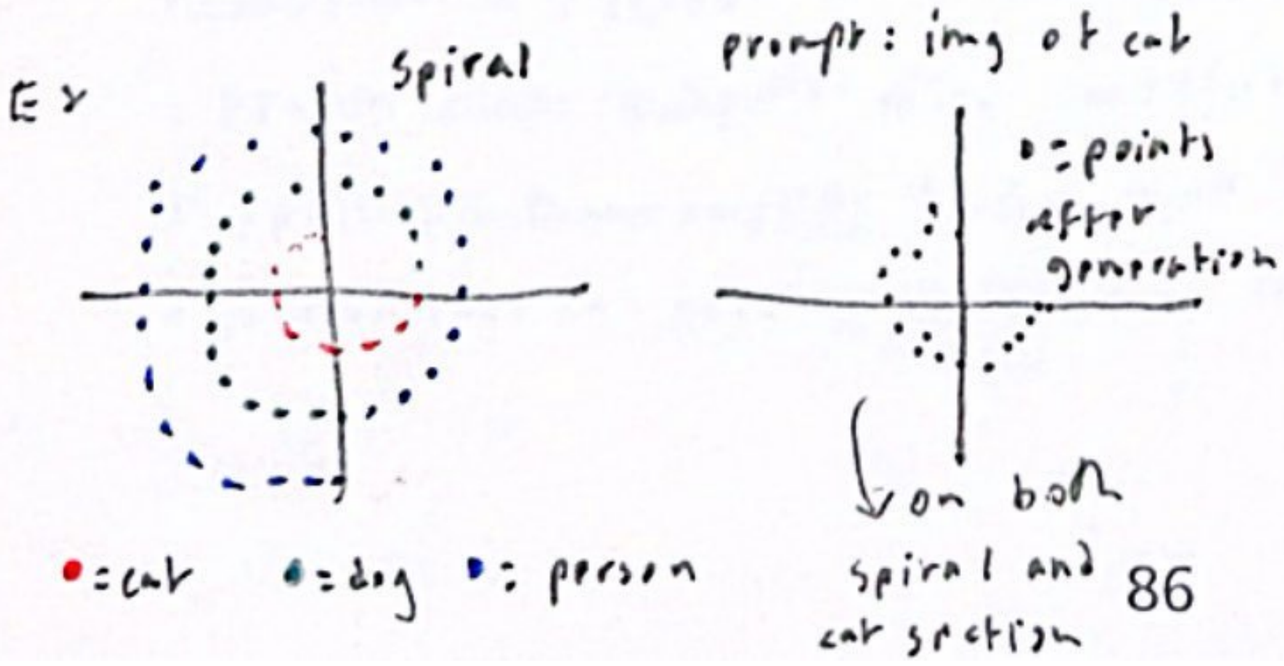
Guidance (gen ai notes)

- Continuing from conditioning, the task of generally matching our overall spiral has overpowered our models ability to move our point in the direction of a specific class
- it turns out we can solve this. The trick is to use the difference between the unconditional model that is not trained on a specific class and a conditioned model that is. we could train 2 models but it's better to leave class info for a subset of the training data
- Now we have 2 vector fields one pointing towards the spirals general direction and one pointing towards that specific class. now for training data ie points far from our spiral ie large t the two vector fields point in the same direction (towards the spiral) but as time t becomes smaller and the training data is closer to the spiral the 2 vector fields diverge with the conditioned ... pointing towards the outer portion of that class on the spiral. now we can use the vectors difference to push a point in the direction of the class we want specifically: $f(x,t,class) - f(x,t) =$ new direction we can now amplify this direction using α: $\alpha(f(x,t,class) - f(x,t)) =$ new vector
- now the points fall on the spiral and the portion of the spiral accociated with that class



- so with both guidance and conditioning we get closer to a img that matches our prompt
- α: increasing α (guidance scale) adds more and more detail to the generated img making it better and more accurate to the prompt.