Loss functions

Making decisions in the face of uncertainty is one of making a choice. There are many ways to formulate how the choice is made. Simplistically, one could choose to pick the option that is most likely correct. Are all choices of equal consequence? Likely not. To allow for this biased view of being wrong, we introduced the idea of a loss function. Loss functions are our opportunity to tune our algorithm to finding an optimum solution representing our real world consequences of being wrong. Consider this scenarios:

Disease treament

Identifying the underlying cause of symptoms is not an error free process. Given possible errors, one must consider the potential harm of treating or not treating the patient. If a patient comes in displaying signs of a bacterial infection, it might be appropriate to prescribe antibiotics. To the patient, antibiotics are generally non-harmful. However, there is a growing body of evidence suggesting our over prescription of antibiotics are training bacteria to be resistant to current antibiotics. What is the cost of non-treatment? What is the potential future cost of developing resistent bacteria? These are the types of scenarios that might lead to a cost function assisting a doctor in treating a patient.

Loss functions

The Keras package has many loss functions included and a nice description.

https://keras.io/api/losses/

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