Pretty plots

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Early stopping

Early stopping is a regularization method where we stop training when our validation error stops decreasing. When training a neural network, we have set a number of iterations/epochs to complete before stopping. During training, we will hopefully see the validation error decrease, but at some point (see figure @ref(fig:earlystoppingviz) left plot), we might start over-fitting our train data. This will cause our generalization performance to decrease and is seen in the validation error increasing. By doing early stopping we will stop training when validation error has not decreased for a number of iterations/epoch. This number is referred to as the *patience*.

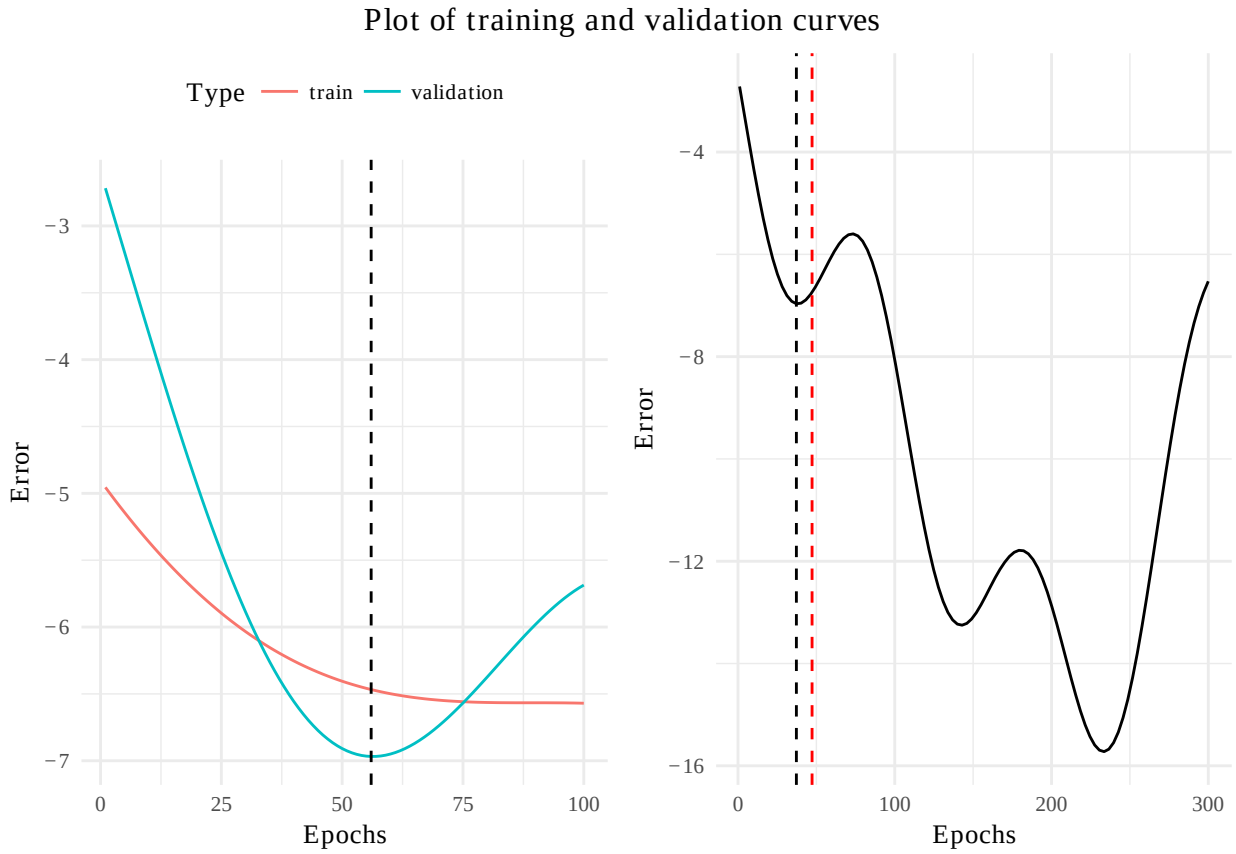

Figure 1: **Left**: Example of train and validation error during training. Vertical line marks lowest validation error. **Right**: Example of validation error where early stopping will not be a good method. Red vertical line marks early stopping point with a patience of 10 epochs. Vertical black line is first local minima of the validation curve.