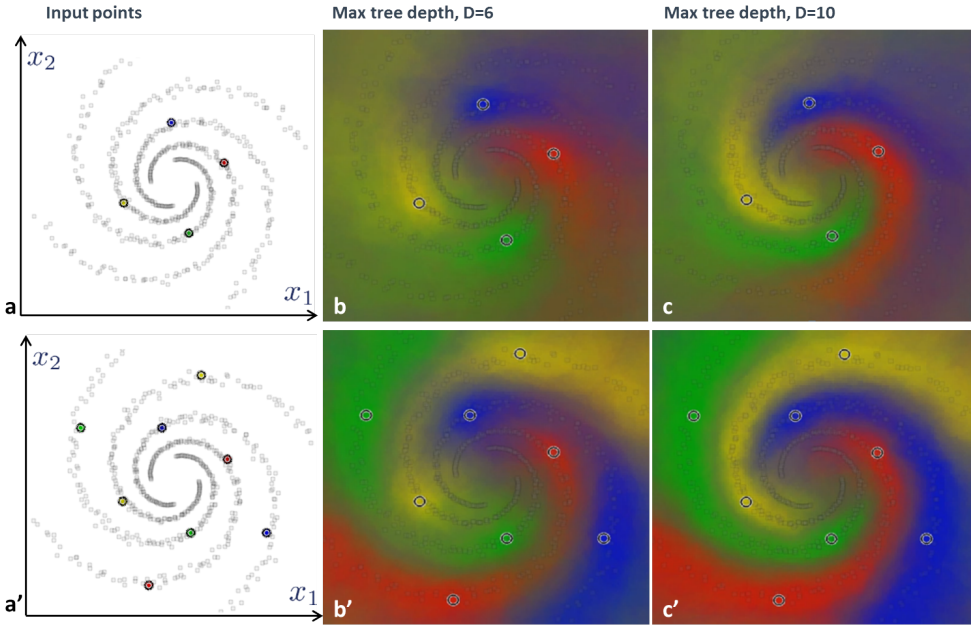

Fig. 7.7: **Semi-supervised forest: effect of depth. (a)** Input labelled and unlabelled points. We have 4 labelled points and 4 classes (colour coded). **(a')** As in (a) but with double the labelled data. **(b,b')** Semi-supervised forest classification posterior for $D = 6$ tree levels. **(c,c')** Semi-supervised forest classification posterior for $D = 10$ tree levels. The best results are obtained in (c'), with largest amount of labelled data and deepest trees.

The effect of tree depth. We conclude this chapter by studying the effect of the depth parameter D in fig. 7.7. The figure shows two four-class examples. The input data is distributed according to four-arm spirals. In the top row we have only four labelled points. In the bottom row we have eight. Similar to classification forests, increasing the depth D from 6 to 10 produces more accurate and confident results. And so does increasing the amount of labelled data. In this relatively complex example, accurate and sharp classification is achieved with just 2×4 labelled data points (for $D = 10$ tree levels) and hundreds of