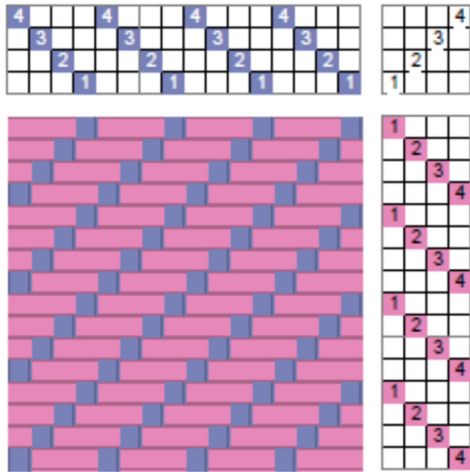


Unbalanced Twills

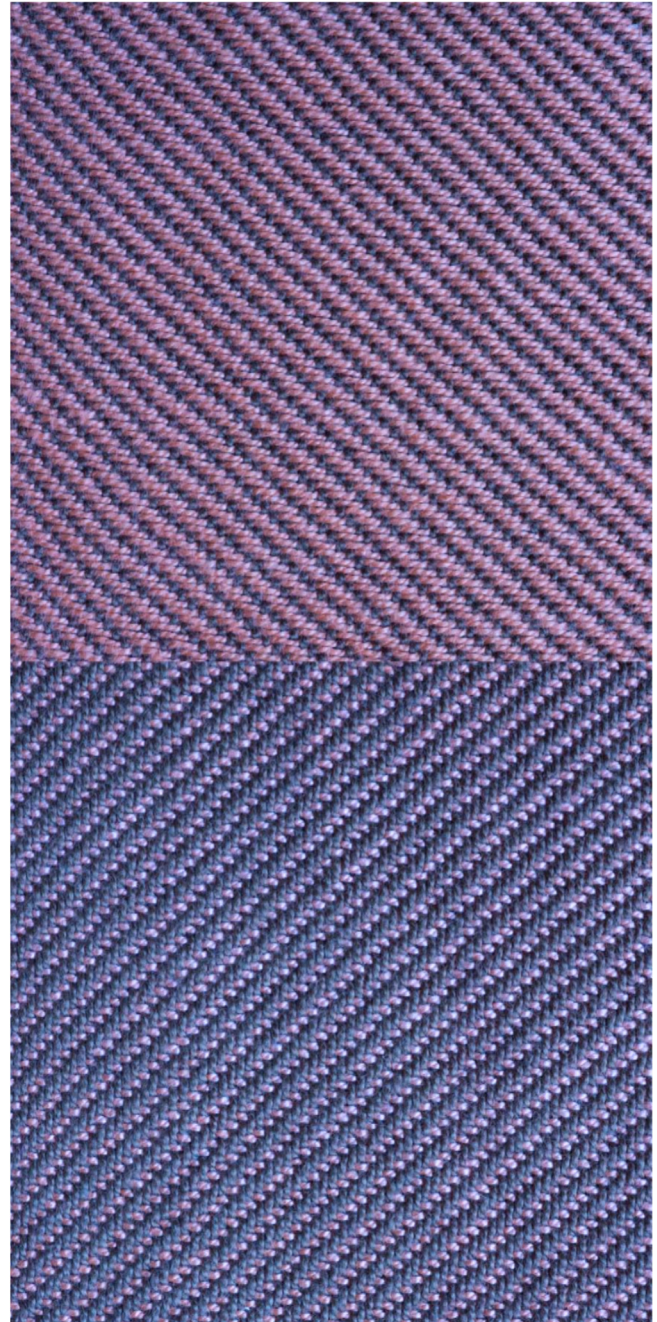
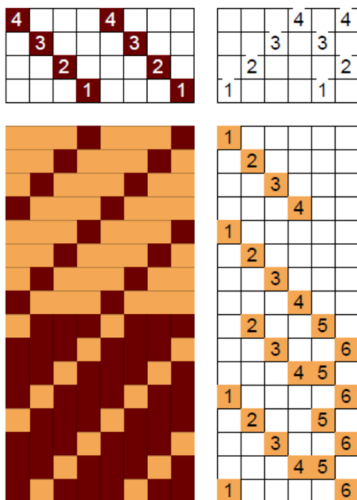
Unbalanced twills are those where one side of the fabric shows more warp, while the other shows more weft; this is in contrast to a balanced 2/2 twill.

On four shaft, a 1/3 twill is unbalanced. On the left is the drawdown showing the weft-dominant side.



On the right is the corresponding weft-dominant side of the fabric, with the reverse, warp-dominant side below.

Shown in the drawdown below is how to weave both weft and warp-dominant on one side of the fabric. Three shafts have to be raised for the warp dominant fabric, so a total of eight treadles are needed.



Since most four-shaft looms have six, the skeleton tie-up in the drawdown on the left can be used.