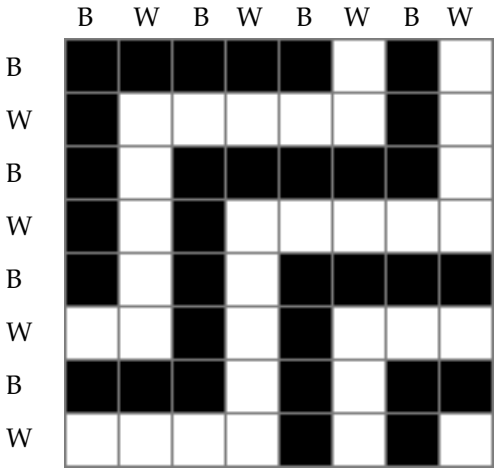
Drafting Problem Patterns, Part 3: Interlacement Basics

The last article in this series [1] described how thread colors could be determined for a problem pattern.

The next step is the interlacement. There are two considerations. The primary one is getting a sound interlacement. The secondary one is getting an interlacement with acceptable float lengths.

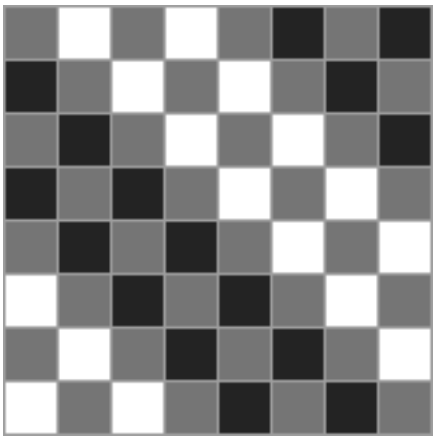
The colors for the example pattern in the last article are:



pattern

Two cases arise in determining an interlacement. If the warp and weft colors are different there is no choice: The thread that is on top is forced by the color of the corresponding cell in the pattern. The second case is where the warp and weft threads are the same color and either could be on top. This is an option point.

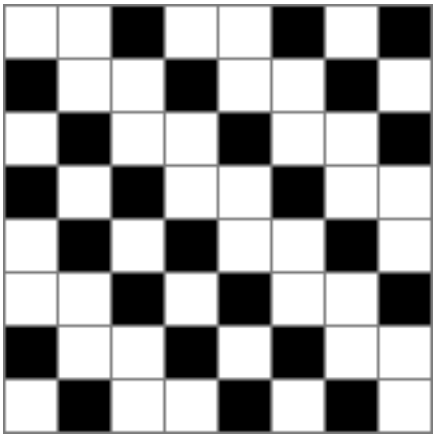
The second case is, of course, the important one. The situation for the pattern above is illustrated by a partial interlacement diagram in which the cells at option paints are gray:



partial interlacement

The large number of option points and their placement is a strong indication that there is a sound interlacement without long floats. Note the twill effect; this suggest the pattern is a color-alternate twill that does not hang together [2].

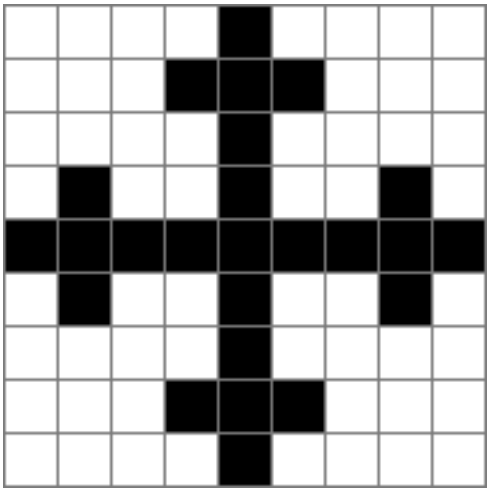
In this example, it is easy to get a sound interlacement. The idea is to make choices that prevent long floats. One solution is



interlacement

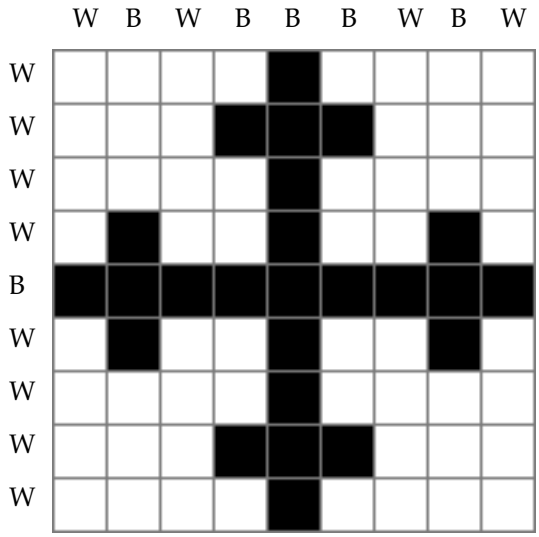
This is a twill with floats of length two.

Not all problem patterns have such good interlacements. Here's an example from a series of block-substitution fractals [3]:

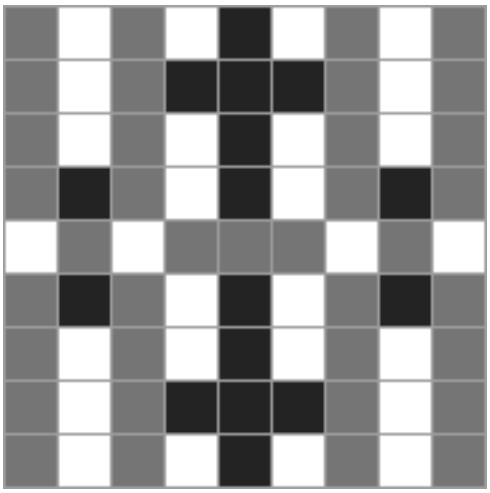


pattern

One possible thread coloring is



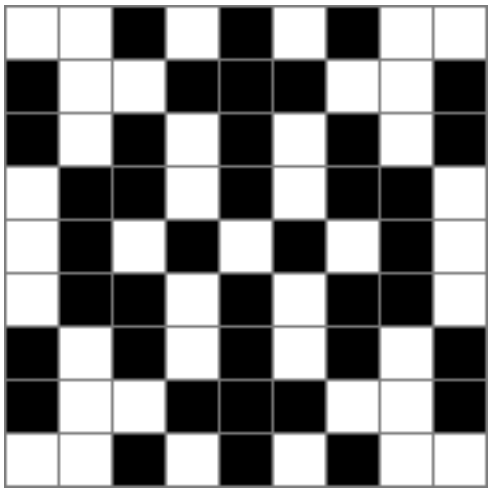
A partial interlacement is



partial interlacement

Note that whatever choices are made at option points, there will be a float of length eight if this interlacement is repeated vertically.

Here is one sound interlacement; at least it hangs together:



Of course, there are other possible colorings and interlacements, but the intersection of a solid-colored row and a solid-colored column suggests that not much better can be done.

These interlacements were done by hand. Done that way, the process is tedious and error-prone. To be able to get sound interlacements for many large patterns requires a method that can be incorporated in a program. That will be the subject of the next article in this series

References

1. *Problem Patterns, Part 2: Introduction*, Ralph E. Griswold, 2004:
http://www.cs.arizona.edu/patterns/weaving/webdocs/gre_pp2.pdf

2. *Color Complementatin, Part 1: Color-Alternate Weaves*, Ralph E. Griswold, 2004:
http://www.cs.arizona.edu/patterns/weaving/webdocs/gre_com1.pdf

3. *Block Substitution, Part 1: Basic Concepts*, Ralph E. Griswold, 2004:
http://www.cs.arizona.edu/patterns/weaving/webdocs/gre_bs1.pdf

Ralph E. Griswold
Department of Computer Science
The University of Arizona
Tucson, Arizona