

## Single, Three Unpaired Ties, 1:1 Ratio, “Half Satin”

### Emery Classification

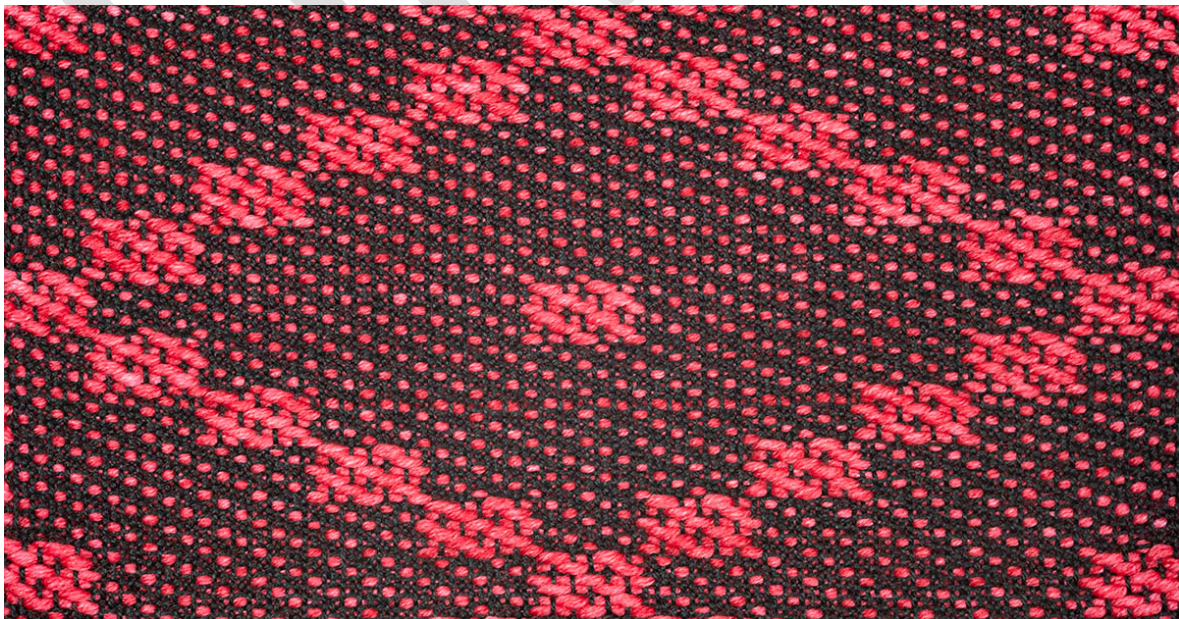
**Weave Compounded by Adding Sets of Elements, Supplementary:** one warp, two wefts, one of which is *not* needed for the integrity of the cloth.

### Weaving Category

**Tied Unit Weave;** the supplementary element is an *additional weft* which forms blocks of patterning and is not needed for the integrity of the cloth. This structure is a single, three unpaired ties, 1:1 Ratio, by the tied weave nomenclature, explained below. It is called “Half Satin” because the background resembles a satin. However, it is not related to the structure called satin (see entry on *Satin Blocks*) which uses one warp and one weft.

### Fabric Characteristics

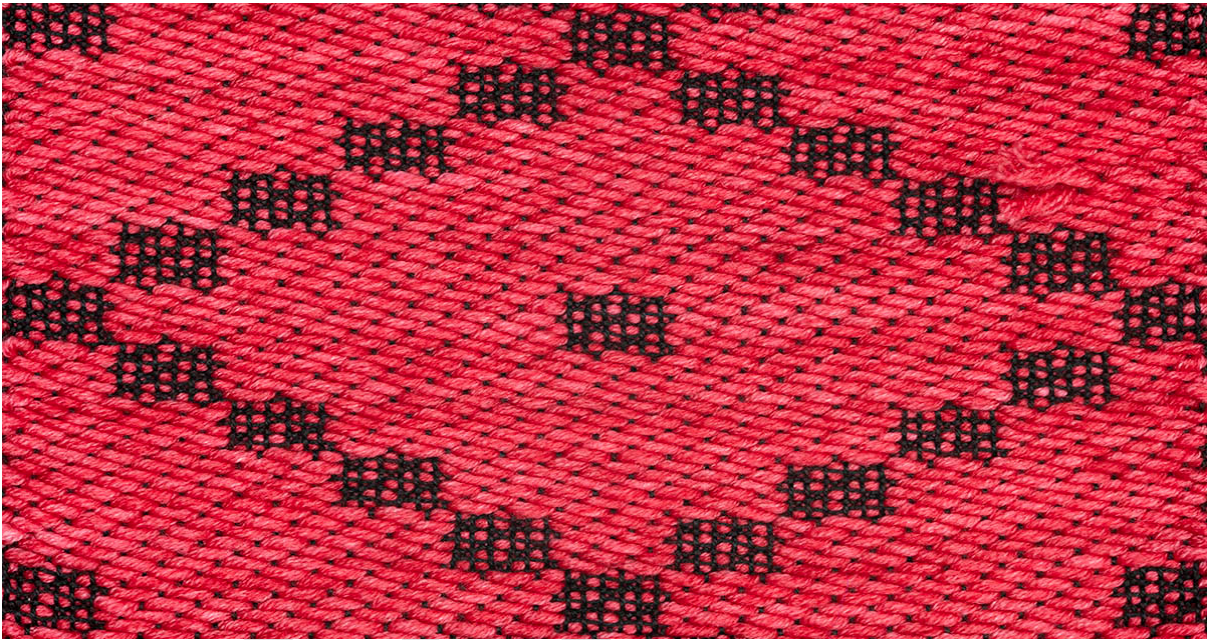
As in all supplementary weaves, the fabric is formed by a warp, a ground weft and a supplementary weft. The warp and the ground weft form the ground cloth that gives the fabric its integrity. They are usually the same size, but sometimes the ground weft is smaller. The supplementary weft is usually larger to show the pattern and loftier to pack in the web.



1 “Half Satin”

In this weave, as is usually the case in tied unit weaves, the blocks are not solid but have patterning. The background is also patterned, resembling a satin with staggered dots formed by the twill organization of the ties as can be seen on the front of the fabric.

The back of the fabric has warp dots poking through.



The fabric is similar to Quigley (Single, Four Unpaired Ties, 1:1 Ratio) which has an additional tie.

### **Drawdown**

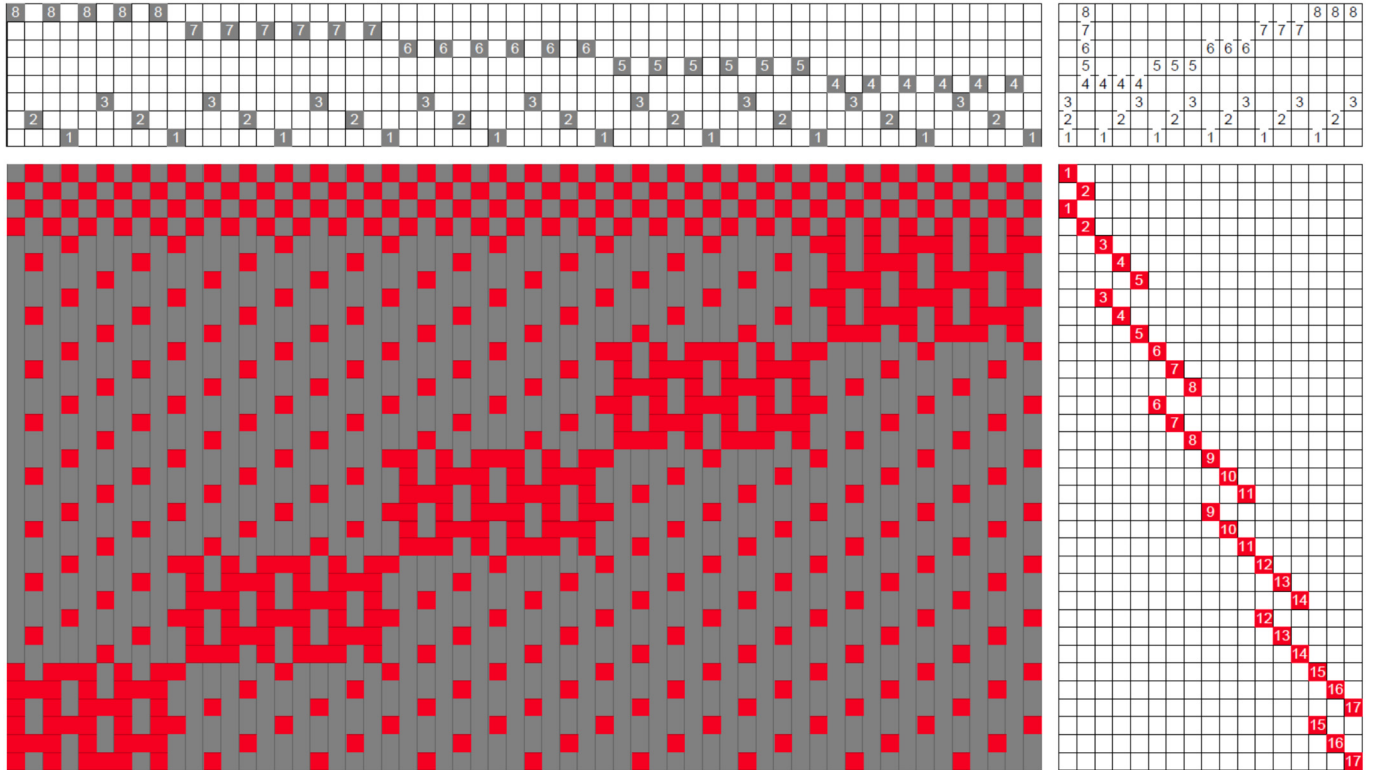
The *sinking shed drawdown* below explains the nomenclature of the structure: single, three unpaired ties, 1:1 Ratio. The example shows five blocks on eight shafts.

*Single* refers to the *single* shaft per block. There are *tree* ties, shafts 1 through 3. The ties are *unpaired* because they are separated by a pattern shaft. The ratio is 1:1 because there are three *pattern threads* (*not* pattern shafts) and three ties per block.

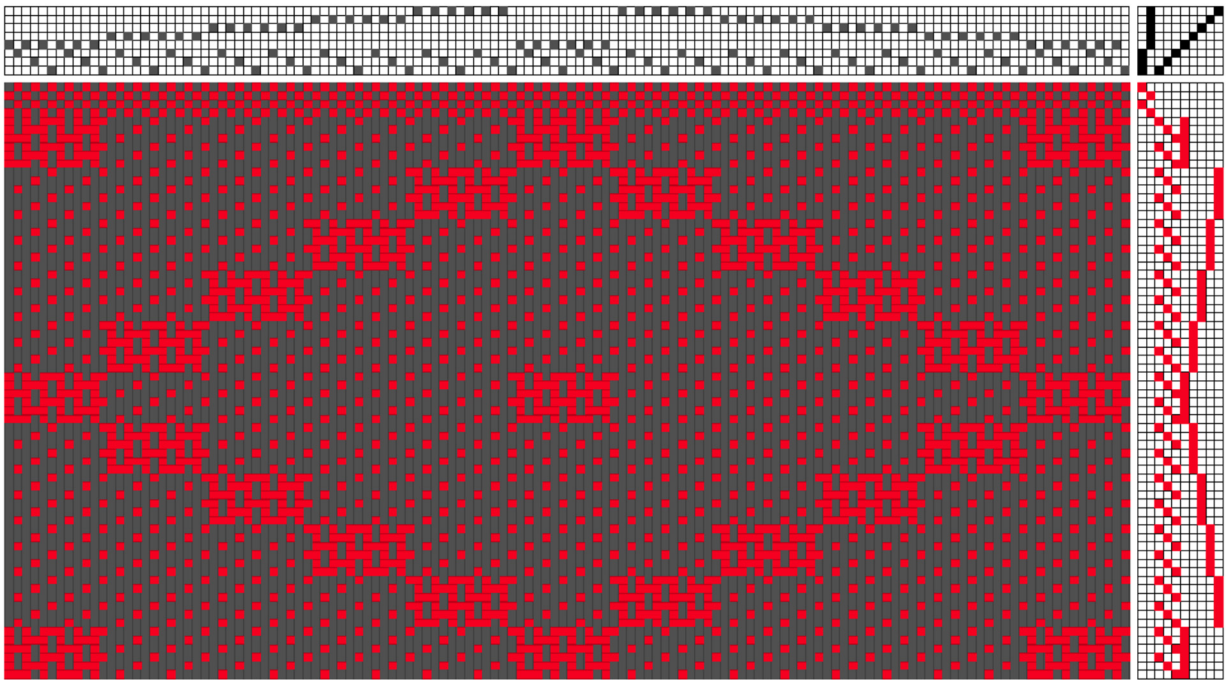
Not shown in the drawdown is that *each pattern pick* used in treadling order *is followed by one of the two tabbies*; they intersect with the warp to form the ground cloth.

Tabby a is all three ties; tabby b is all five pattern shafts.

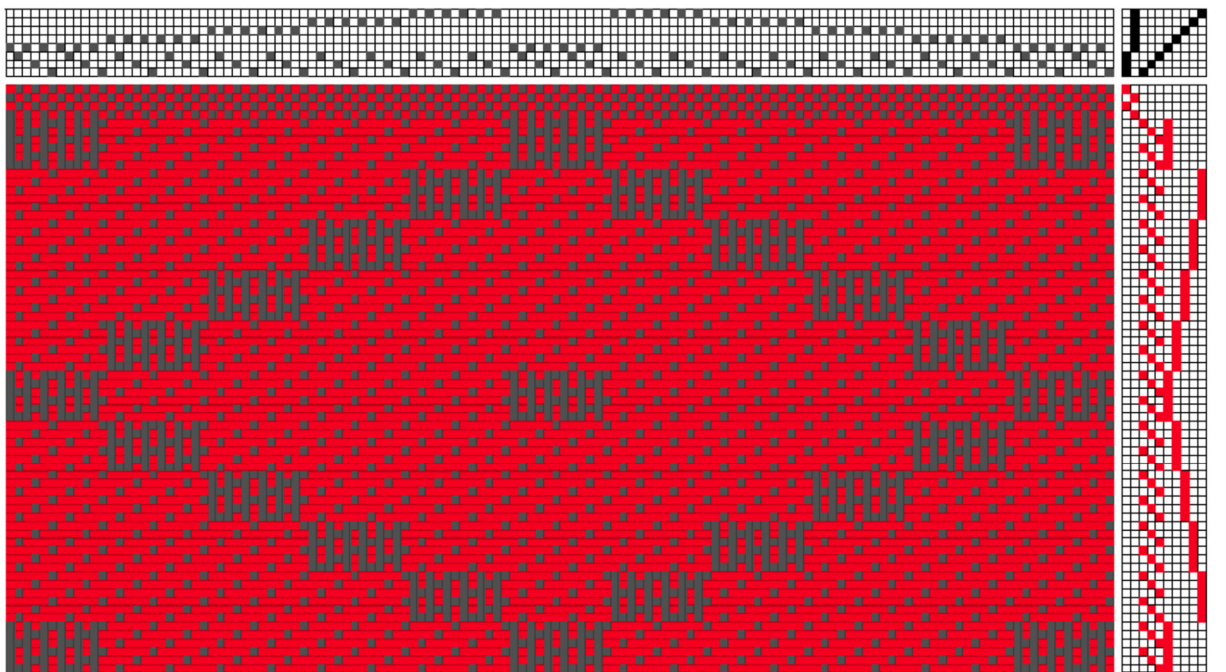
Each block has been repeated in this example. Fourteen treadles are needed to weave the five blocks shown in the drawdown below.



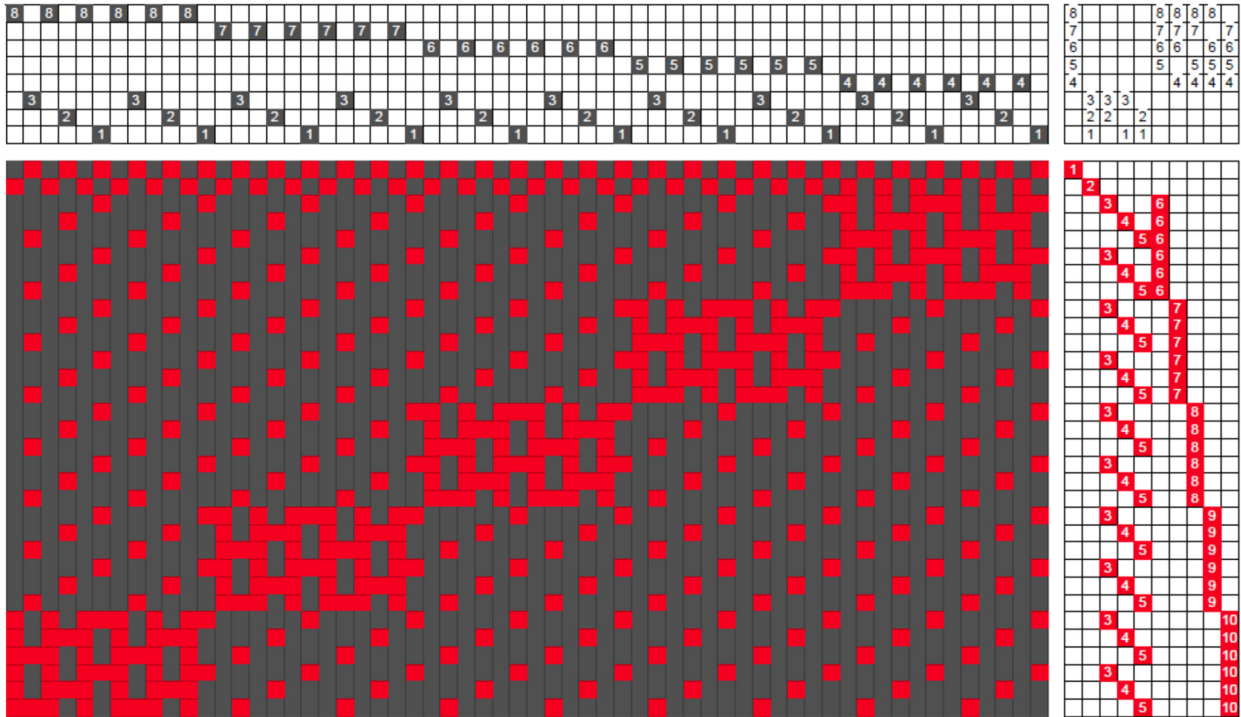
We can reduce the fourteen treadles to ten by multiple treadling (with two feet) as shown in the *sinking shed* drawdown below. This drawdown was used to weave the fabric samples shown in the first page.



If we use the same tie-up and treadling sequence in a rising shed loom, we obtain the reverse side of the fabric as expected. The *rising shed* drawdown is below.



To weave the front of the fabric on a rising shed loom, that is the blocks with weft floats, the tie-up is reversed – tie what is untied and untie what is tied. This is shown in the *rising shed* drawdown below.



More shafts are raised with each treading step as the drawdown shows; thus, the treading may be harder than weaving the fabric upside down, that is with warp floats up. However, seeing weft floats while weaving is less prone to errors.

### Function

Tied unit weave structures have traditionally been used for house textiles, for example blankets because they tend to be more substantial from the double weft. Smaller items, pillows for examples, would work equally well. With smaller yarns, table mats would also be possible.

## Sett

The ground cloth is plain weave, so the plain weave sett for the ground yarn is a good starting point. However, room must be made for the supplementary weft, by opening up the sett. How much depends on the size of the supplementary weft. In the fabric sample shown in the first page, the 10/2 mercerized cotton was sett at 18 epi, more open than the 24 epi I may use for plain weave.

## Width of Blocks

The block is fixed at six threads, three for the ties, three for the pattern.

## Number of Blocks Available

Each block requires one pattern shaft; the three tie shafts are used in common. Thus, after three shafts, each additional shaft is an additional block. For eight shafts, we have 8 shafts - 3 ties = 5 shafts left for five blocks.

## Threading and Treading Variations

The three ties organized in a straight twill could be also organized in a broken twill or expanded to a three-shaft pointed twill. Similarly, the treading could be changed or expanded, either on the straight twill or on the other possible twills.

## References

Emery, Irene. *The Primary Structure of Fabrics*. Washington, D.C.: The Textile Museum, 1980.

Sullivan, Donna. *Summer & Winter A Weave for All Seasons*. Loveland, CO: Interweave Press, 1991.

Van der Hoogt, Madelyn. *Ask Madelyn: Quigley and Half Satin | Handwoven*, July 6, 2017