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Initial 2

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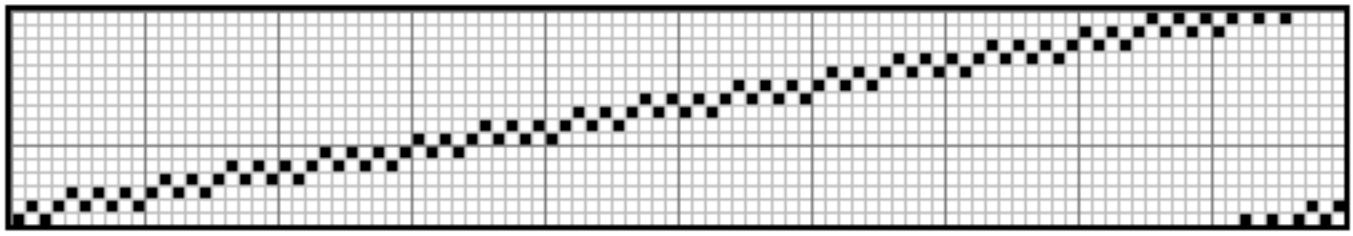
Date : March 2018

Summary :

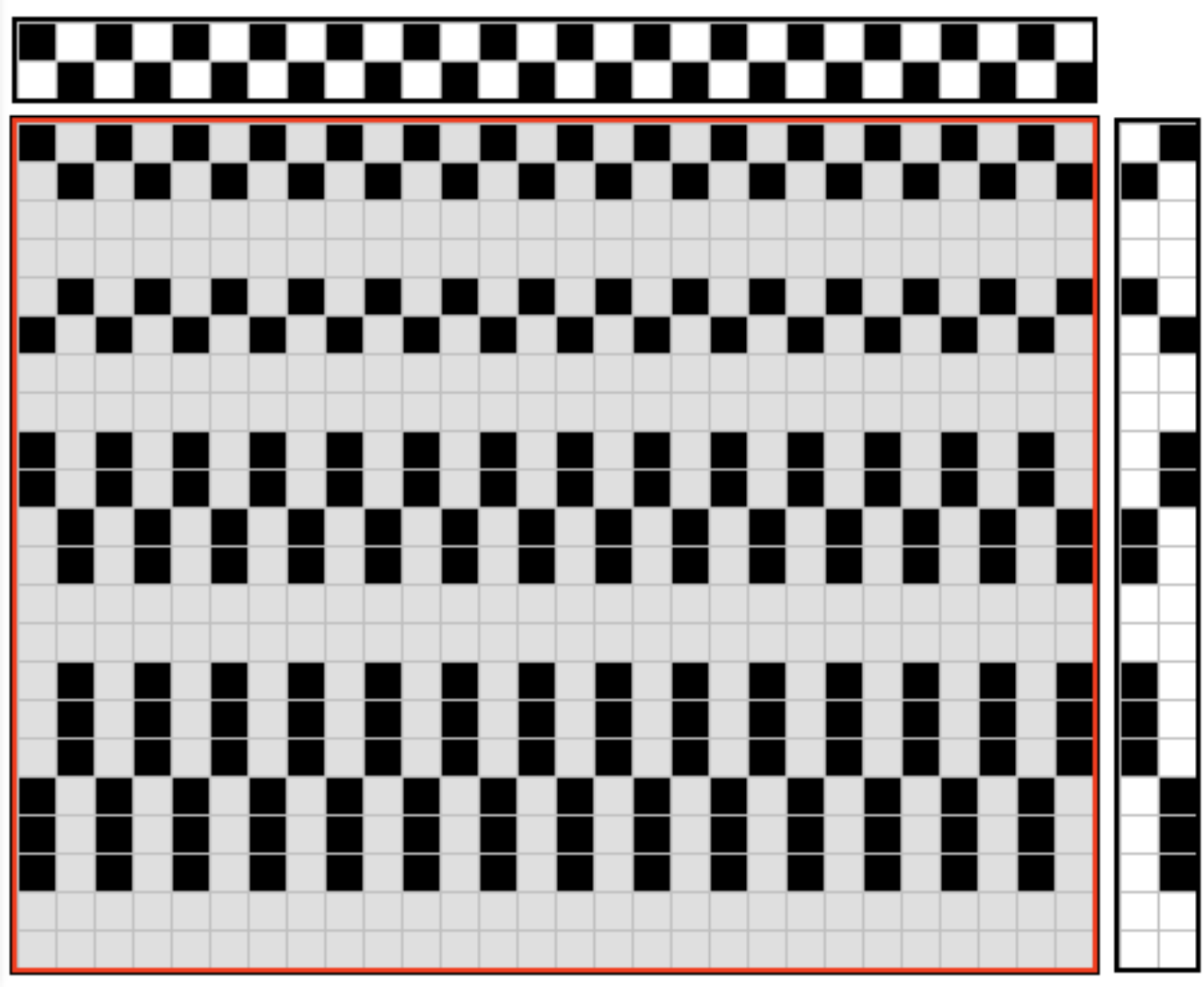
Study of the smallest of the initials, the initial 2.



The principle of the initials is to generalize a basic cloth on a larger number of shafts and ends. The threading will have to be written on a network constituted by the repetition of the threading of the basic cloth and the peg plan will use all the possible weave structures on the basic threading.
The word "Initial" is badly chosen; we should rather speak of the repeated cell which, that forms a network on which the drawing is drawn. It is "initial" in the sense that it generates the network, which is at its source, which initiates it. However, we will continue to use this term for the sake of convenience and respect for their authors Brandon and Guiget.

Let us explore the possibilities of the smallest initial, the straight initial 2, that is to say a generalization of the plain weave !

The basic cloth will be the simplest of the weave structures, the plain weave.



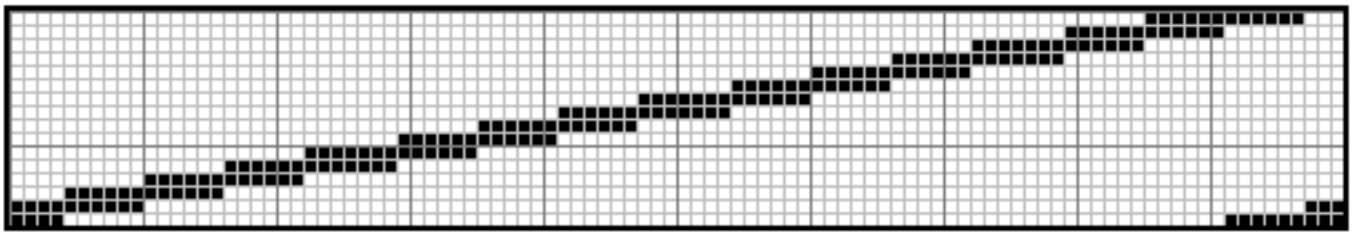
The possibilities of weave structures variations seem very limited.
The plain weave "one up / one down"
The plain weave "one down / one up"
Reps.

What interest could have a cloth with simply 2 shifted plain weaves areas? The entire cloth would be by far a plain weave.

Let's try it anyway.
Let's first build a threading on 16 shafts and a repeat of 100 ends.

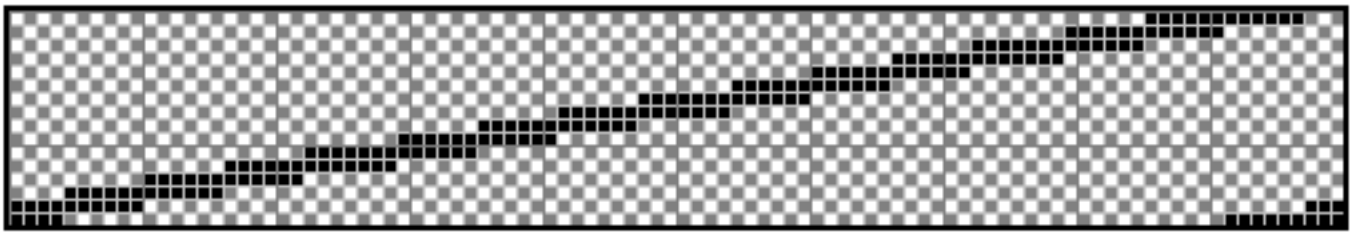
Note the ambition of the initials which makes us pass from a repeat of 2 ends with the plain weave of the base cloth, to a repeat of 100 ends which will allow us 10 cm wide graphics for a threading of 10 ends/cm.
We will keep a graphical straight line or an neutral effect on the curves.

Let's first build a straight 100 x 16 threading :

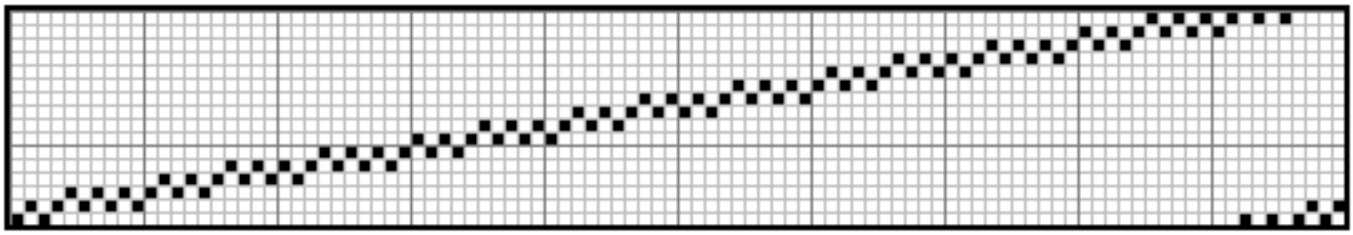


The thickness of the line is that of the initial : 2
We draw the line in repetition for a good continuity at the repeat.

It is now necessary to force this threading on the network of the initial 2 that is to say on a network of plain weave.



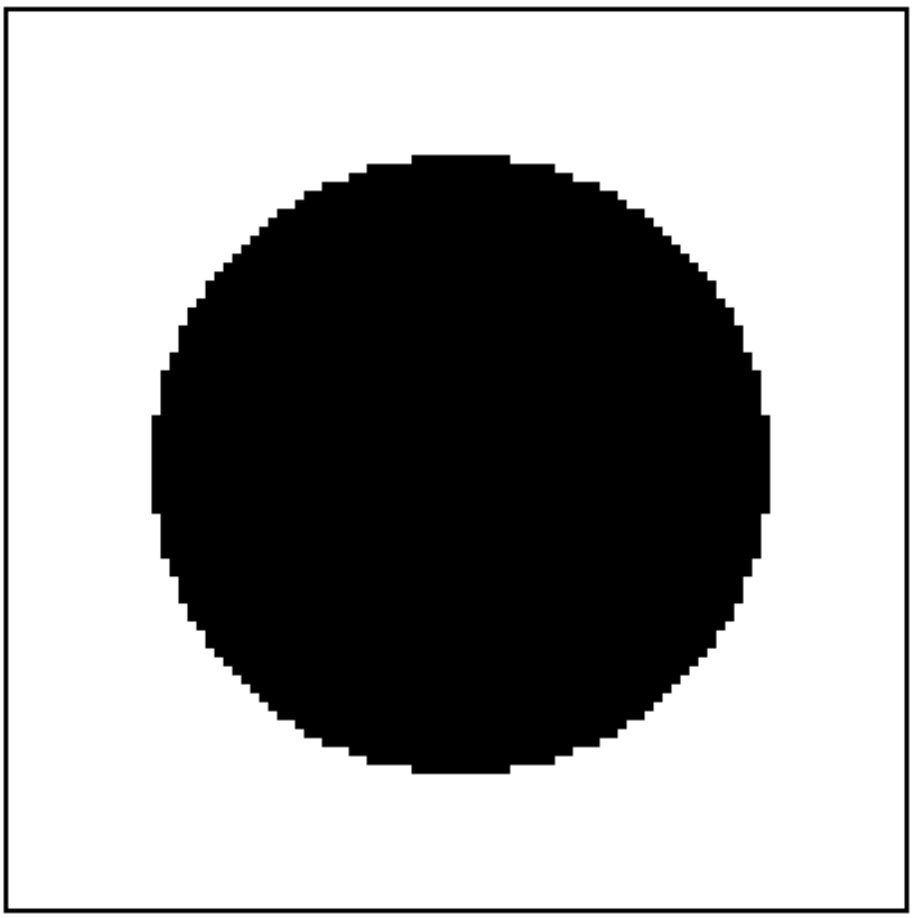
What gives us, doing the intersection of the threading and the initial 2:



This threading, according to the theory, allows us to weave all the weave structures of the basic cloth.
Just repeat the weave structures on 16 shafts in the peg plan :

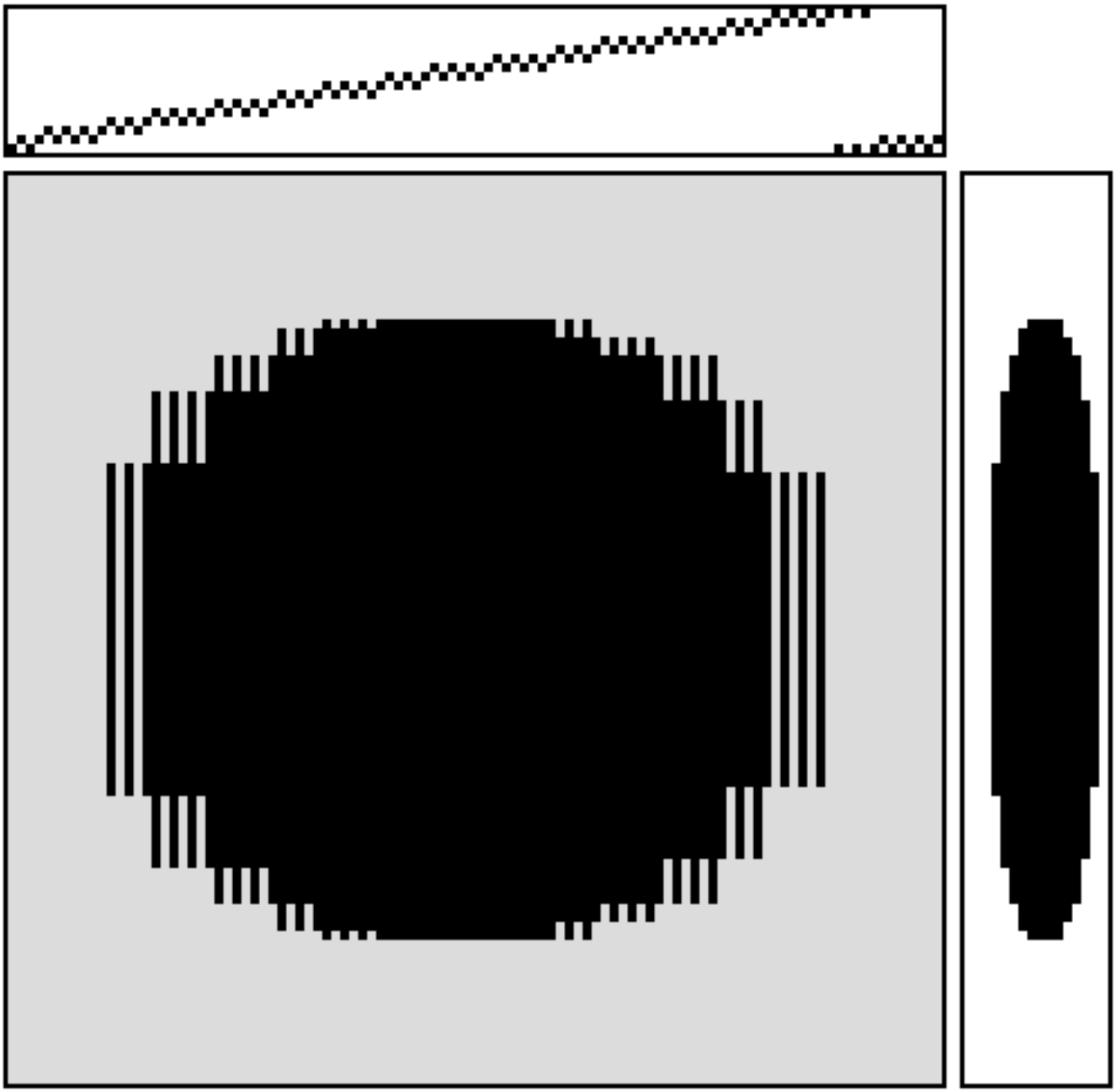
Let's go to graphics.
Let's take a simple form to better understand how this threading on initial 2 will change the graphics.

Let's draw a circle in a square of 100 x 100 pixels.



And now let's see the peg plan generated by this graphic.
(For Pointcarré users just draw the circle in the cloth diagram).

Here is the result :

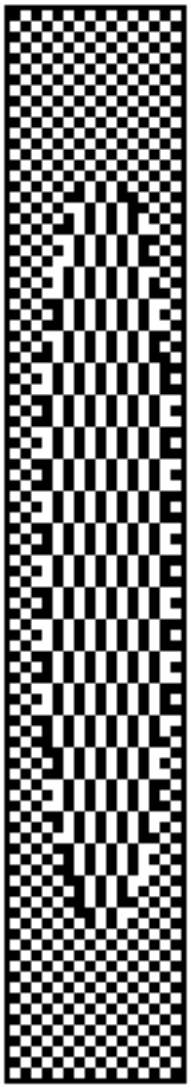


The peg plan contains a circle flattened in width, the black zone corresponds to the circle in the cloth.
Notice in the cloth the edges of the circle are "fringed", the graphics become blurred. This comes from the threading. The width of each group of ends threaded on the same shaft will generate a trace of the same width on the cloth, here 8 ends wide.
In the height direction on the contrary the graphics is respected.

It's the magic of the initials. Who would have thought to be able to do with 16 shafts a cloth with a completely free graphic on a repeat of 100 ends ?

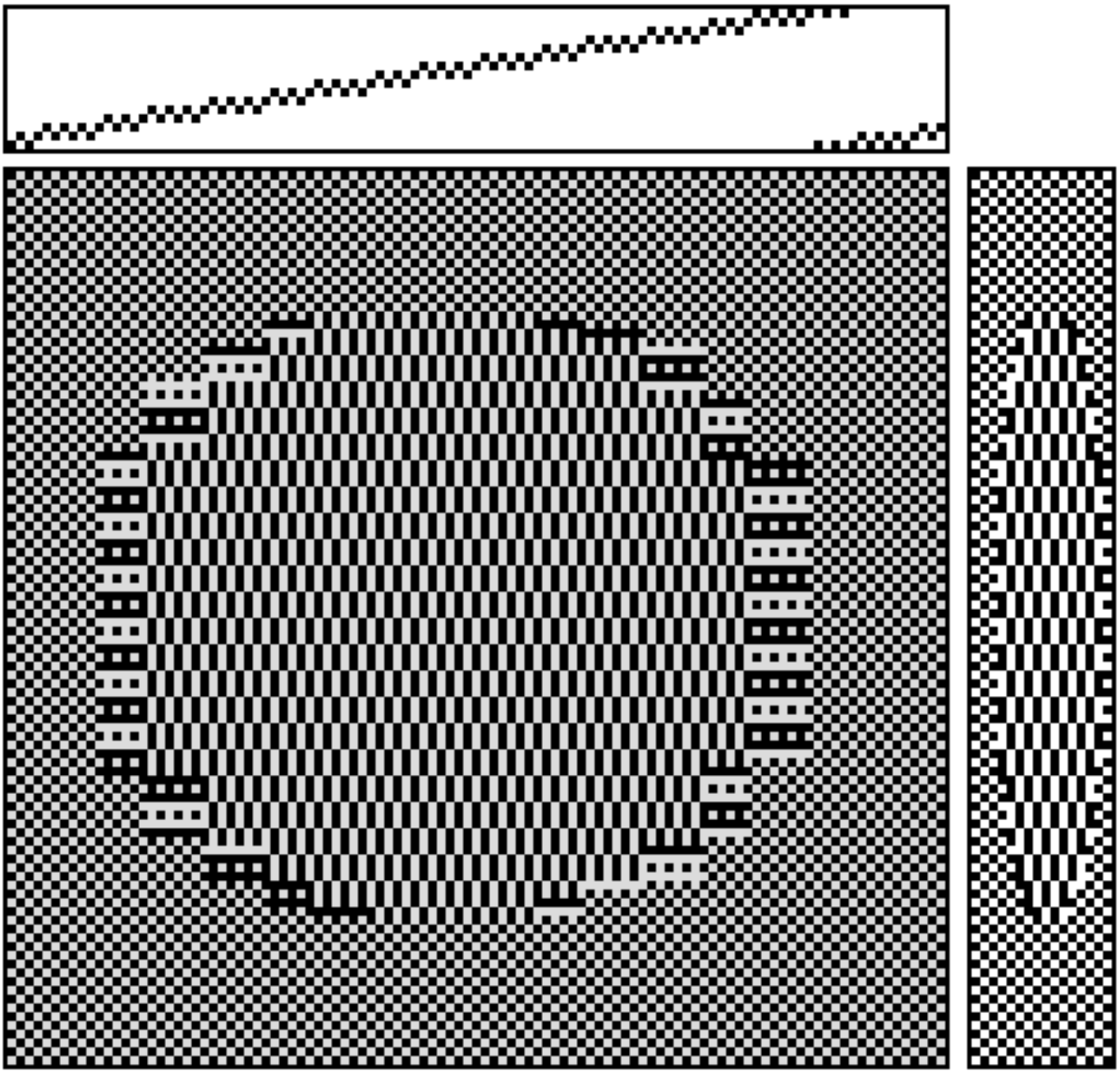
Now we have to put weave structures in the peg plan to get a real cloth.

We have to choose a weave structure for the black and another for the withe area.
If we choose the two shifted plain weaves the effect will probably be quite invisible, each surface will be perceived from afar as plain weave.
Let's try a plain weave and a rep.

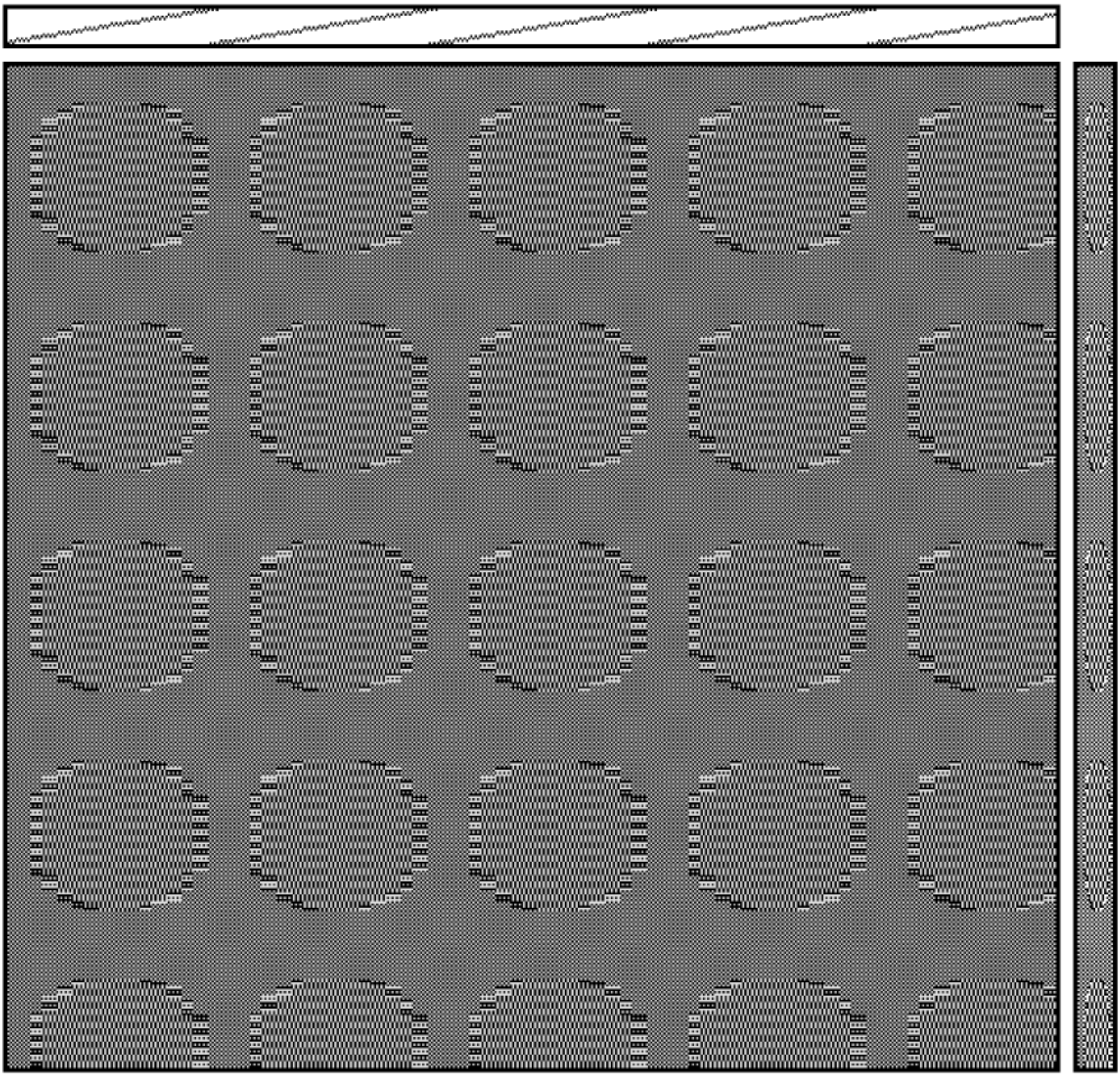


(For Pointcarré users, associate the black and white weave structures as pen and then use the evaluate menu).

Now let's replace the peg plan with the structured peg plan.
The cloth is finished:



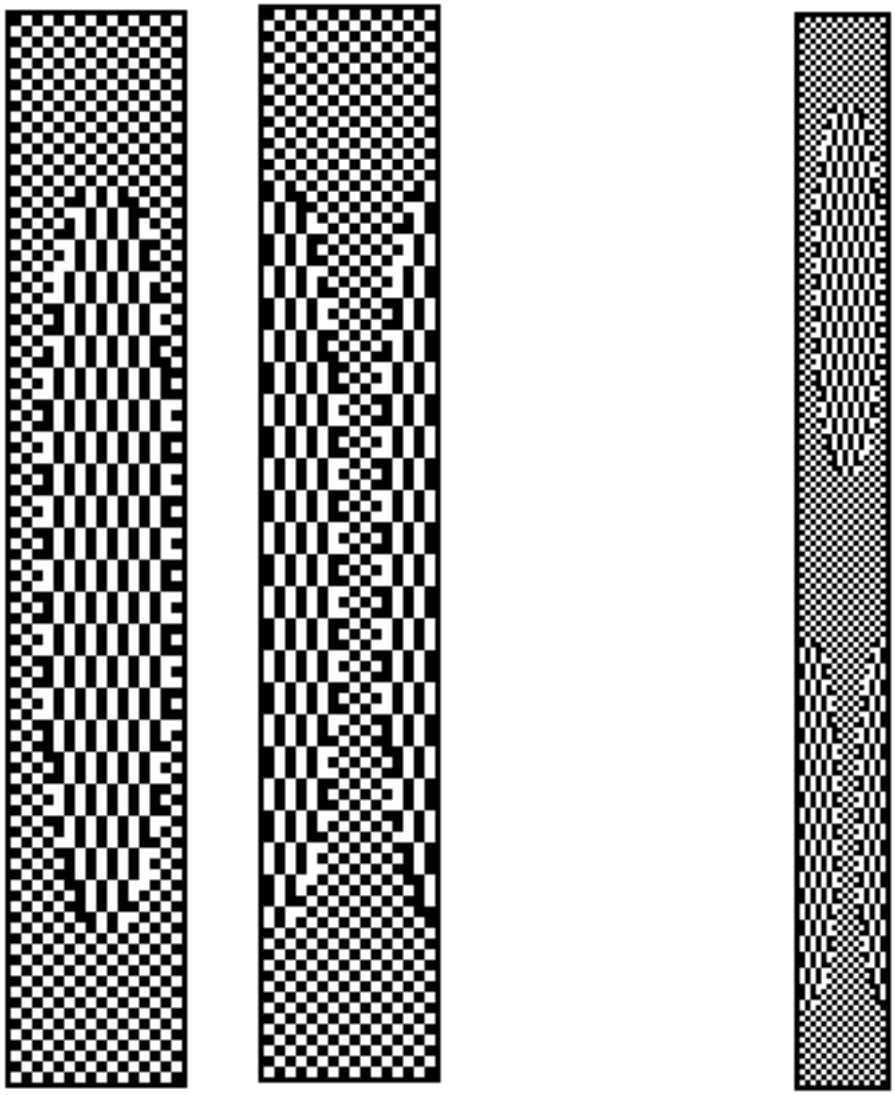
Here is a view of several repeats :



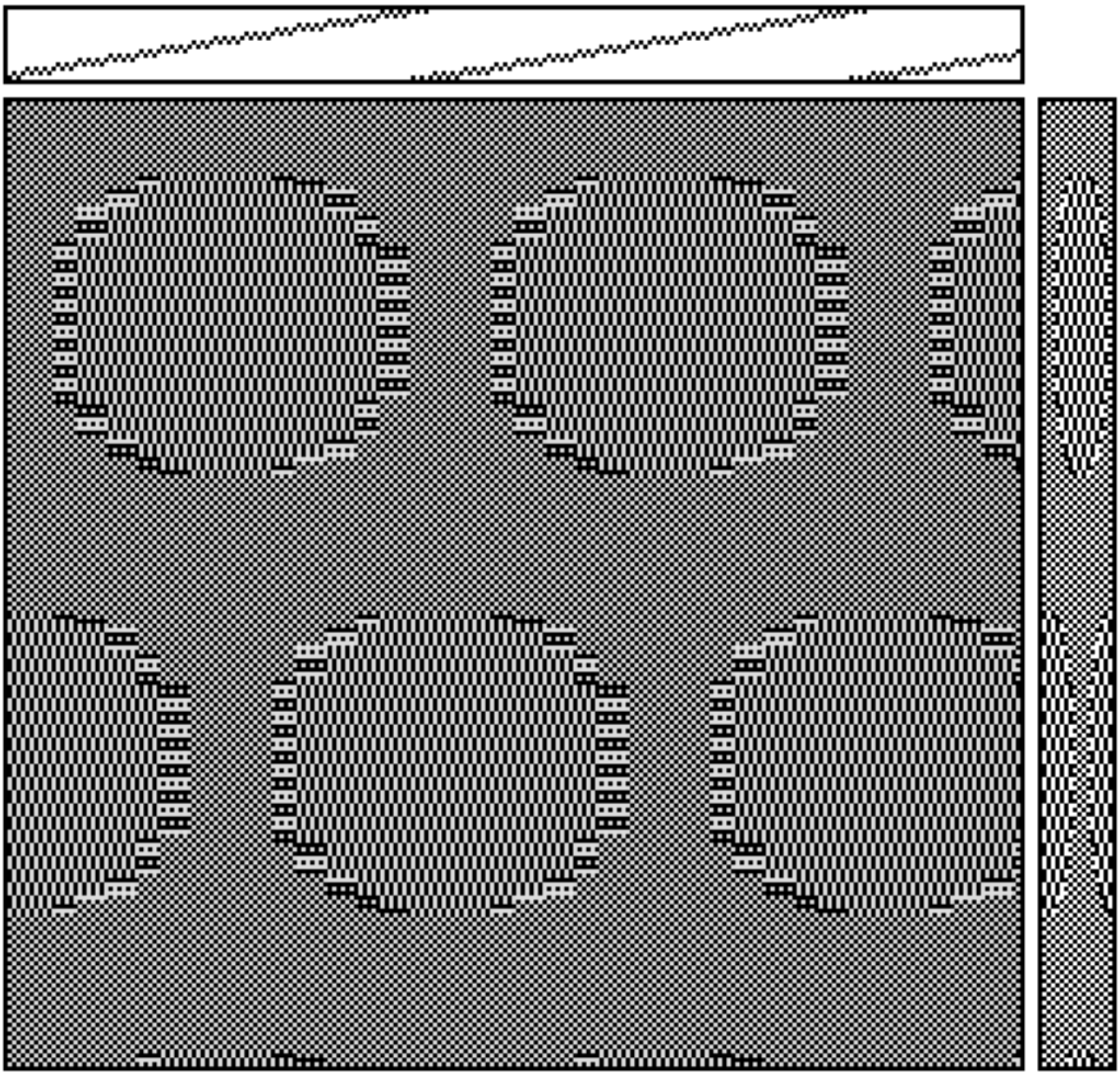
We will have a take-up issue with those weave structures ; in the cloth there are vertical areas that have only plain weave and others a lot of rep. The shrinkage will be more important in plain weave areas.

It is safe to scroll the peg plan on itself in the horizontal direction. As long as we use weave structures of the base cloth, the initial threading will reproduce them on the cloth.

Let's scroll the peg plan on one half (offset of 8 pixels) and add it below the first peg plan.

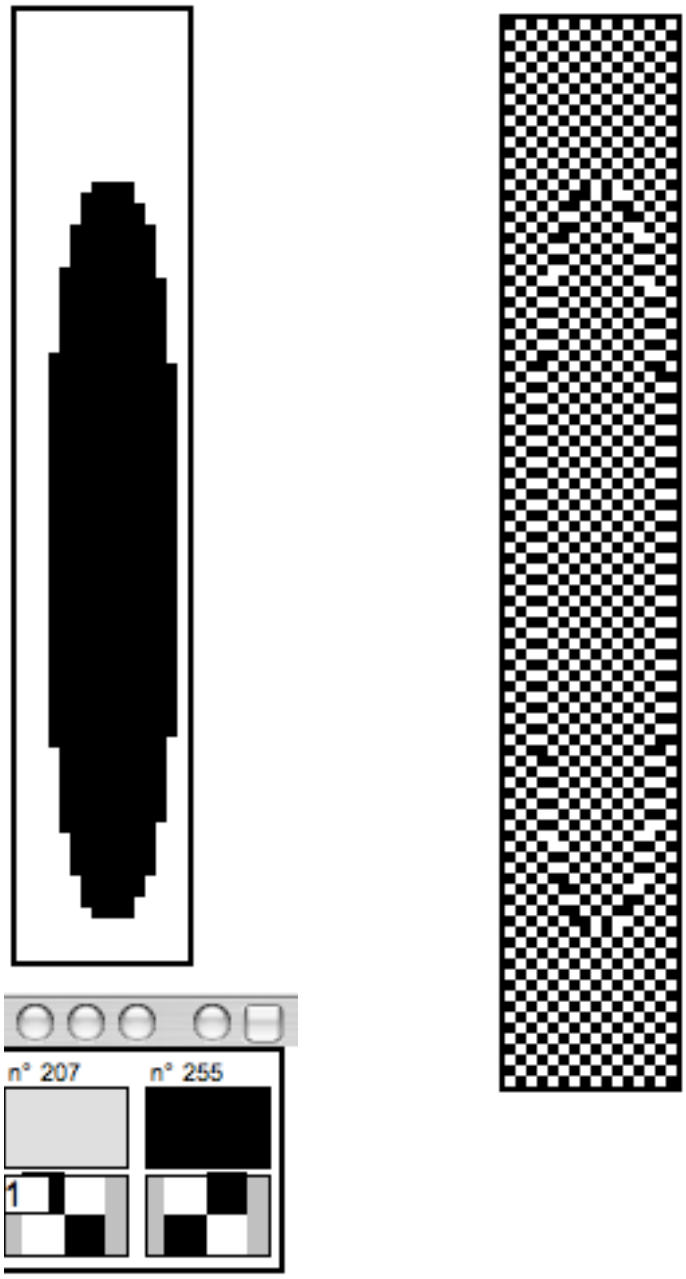


And here is the result much better from the point of view of the take-up:

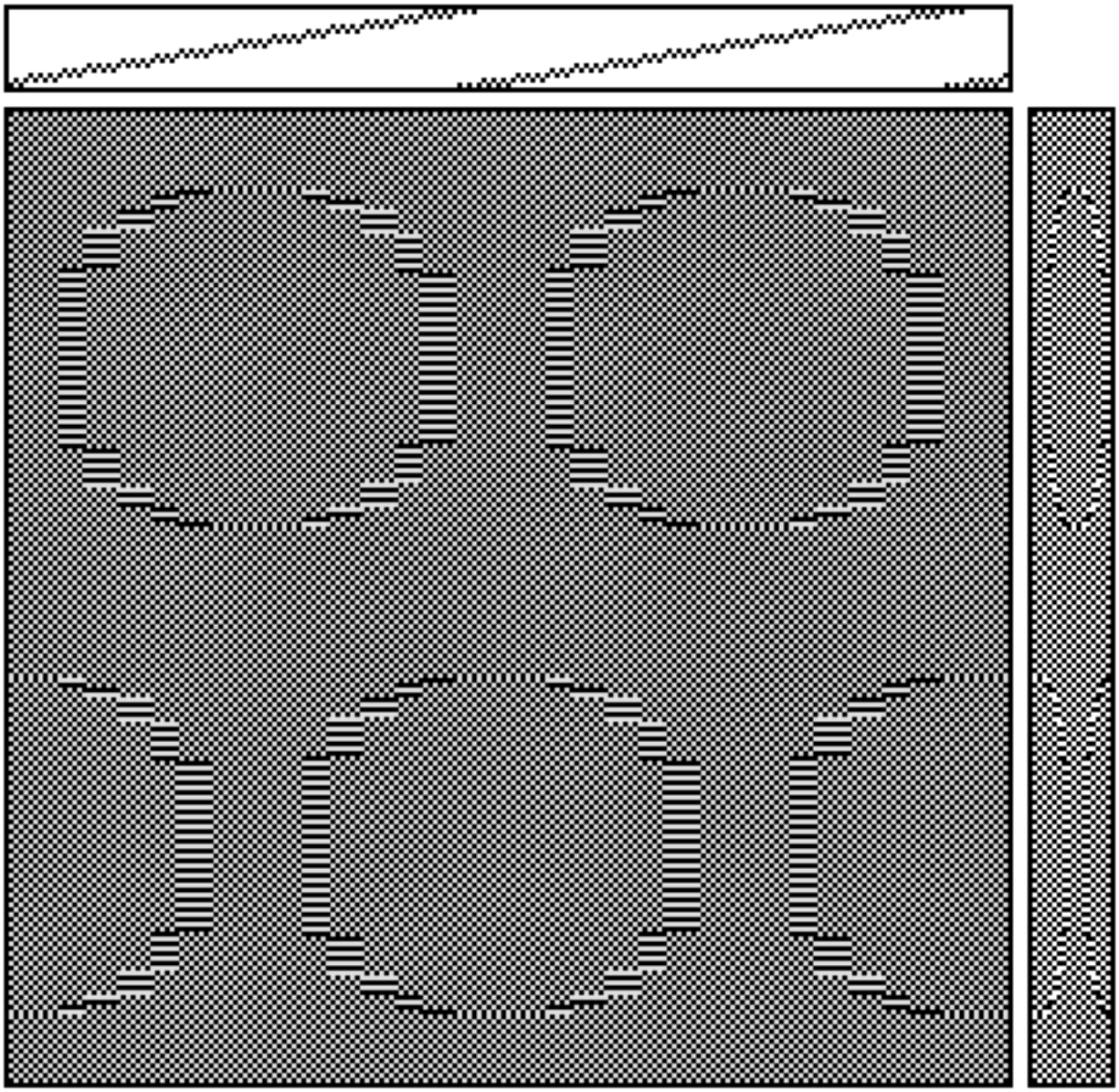


And now it's up to you to play at the graphics level ; you can do what you want within the limit of 100 ends in width and unlimited in number of picks !

We notice that the trace of the initial generated floats at the boundaries of the weave structures, around the circle. Finally, if we used the two plain weave associated respectively with black and white, we would still have a noticeable graphic effect but only at the boundaries of weave structures. Let's try:



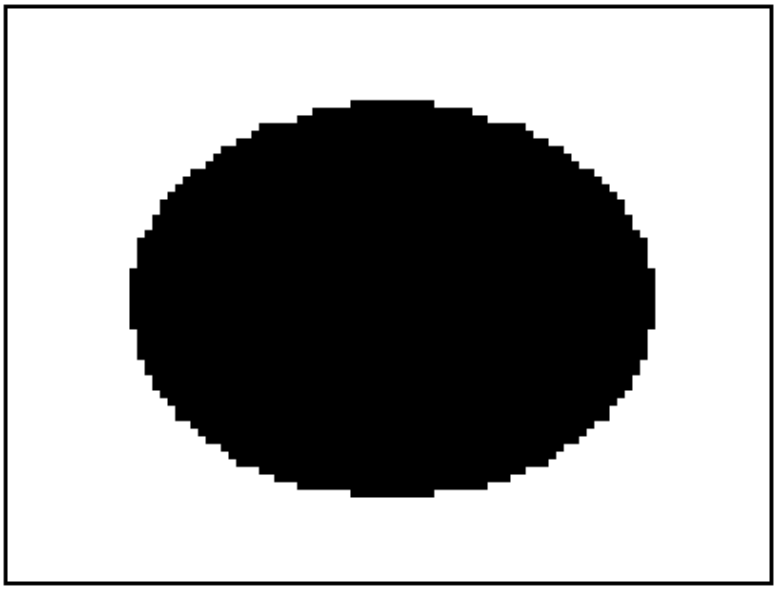
The 2 shifted plain weave associated to black and white



The entire cloth has two plain weave areas, one inside the circles and the other outside; by far it does not make any difference, we see a plain weave background. The passage from one plain weave to another generates floats on the trace of the initial.

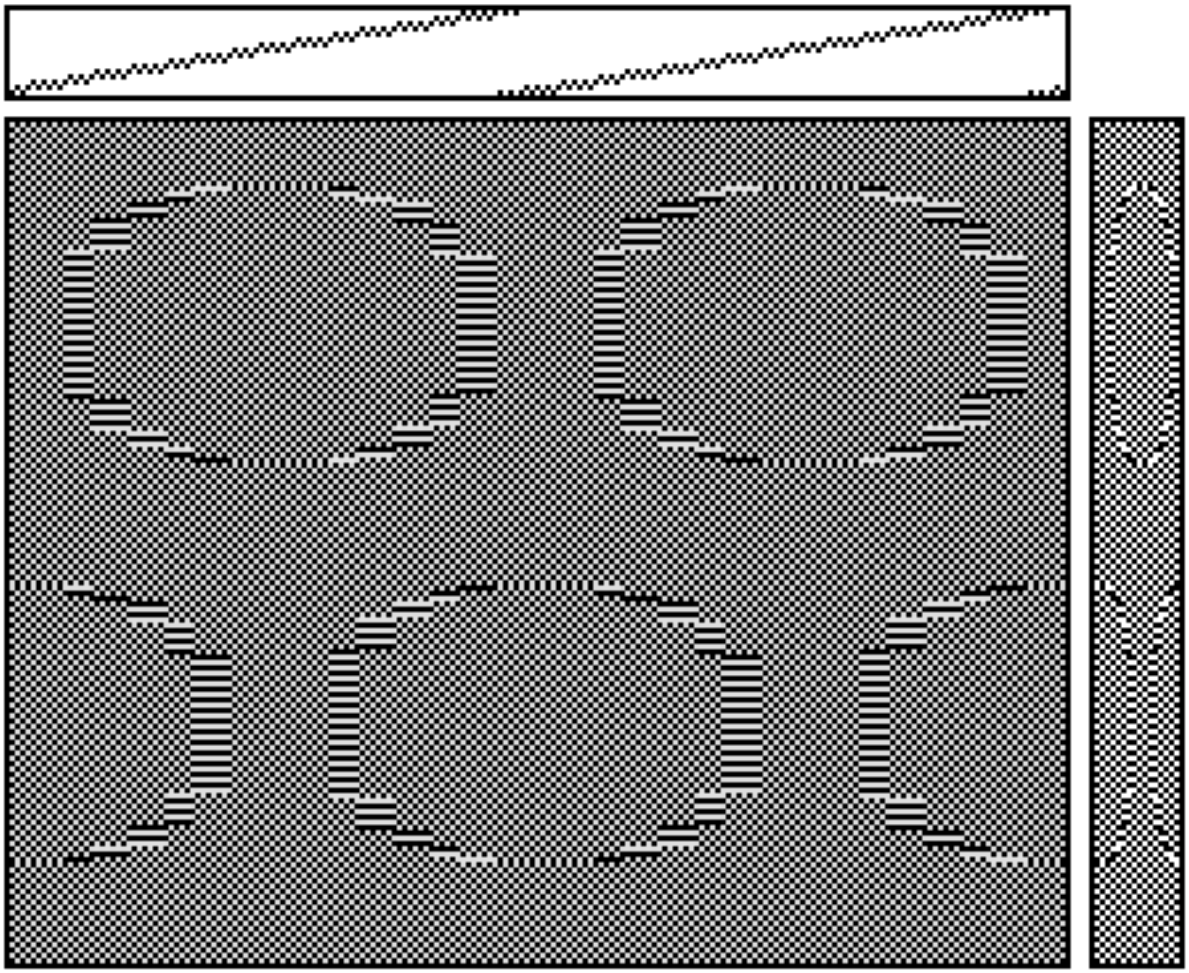
To see the real effect of the floats, we will simulate the cloth.
Before that you have to choose realistic cloth density, ; for example, warp density 20.90 ends/cm and pick density15.70 picks/cm.

If we weave with these density the circles will be stretched in height. We must therefore distort our graphics in the proportion 15,70 / 20,90.
The design of the graphics is now 100 x 75 pixels.
(75 = 100 x (15.70 / 20.90))

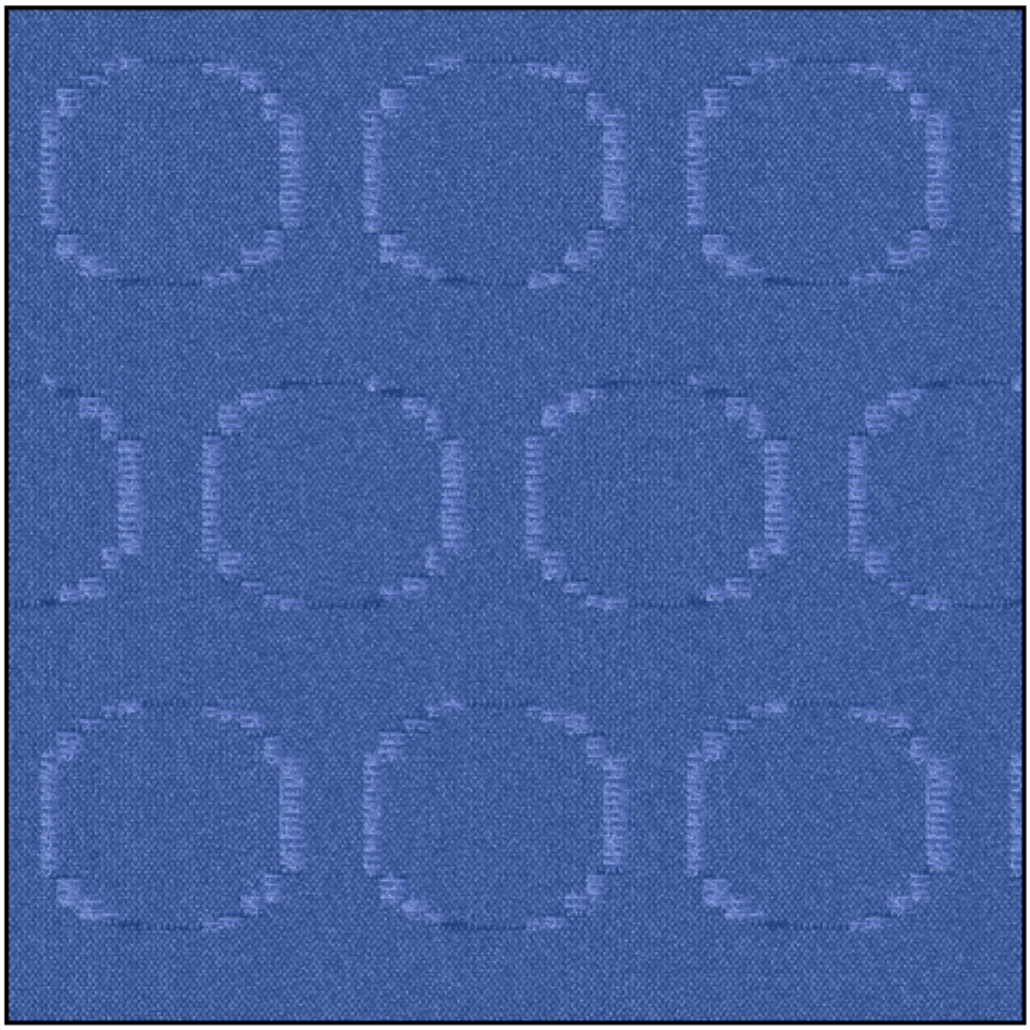


(For users of the Pointcarré software, choose initially as resolution for your graphic 20.90 pts/cm x 15.70 pts/cm. Then working with a magnifying glass "A real size" you will see your graphic as it will appear on the cloth) .

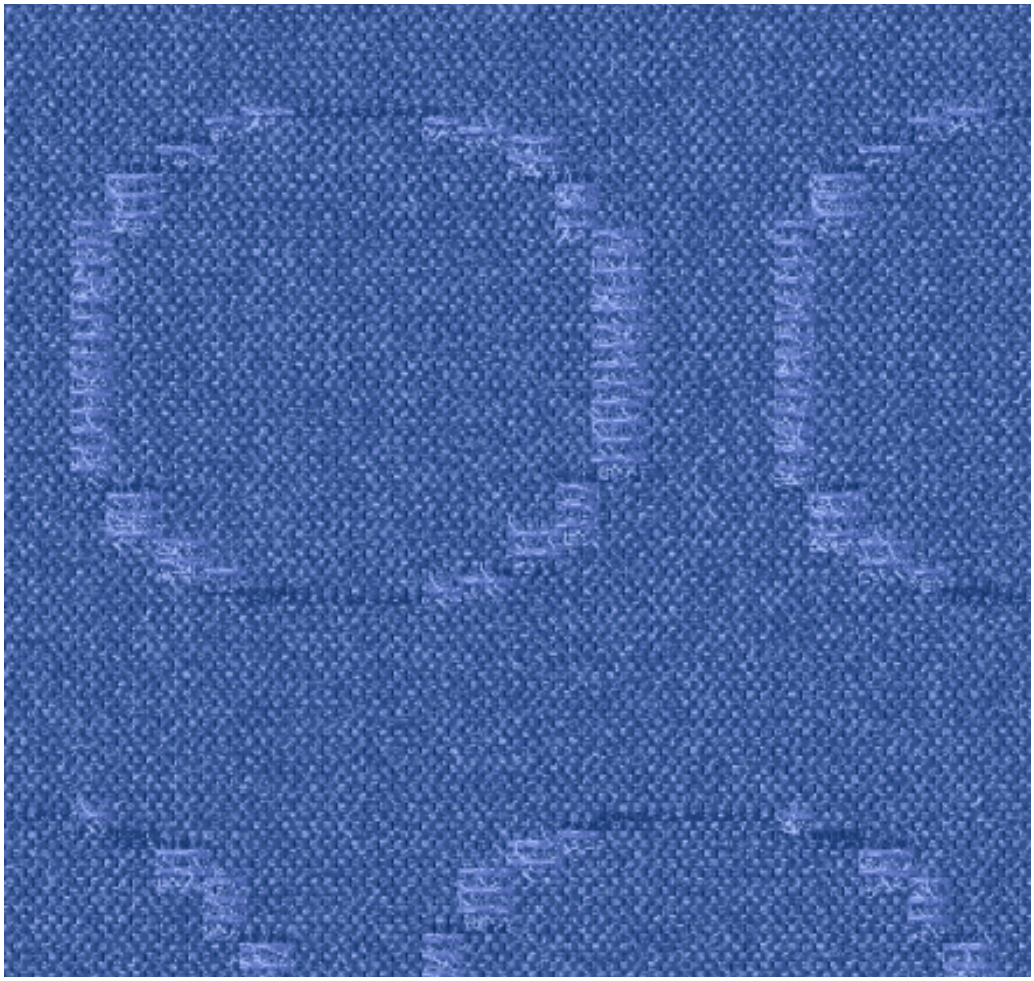
If we repeat the construction as before with this circle at the right proportions, we obtain the following cloth:



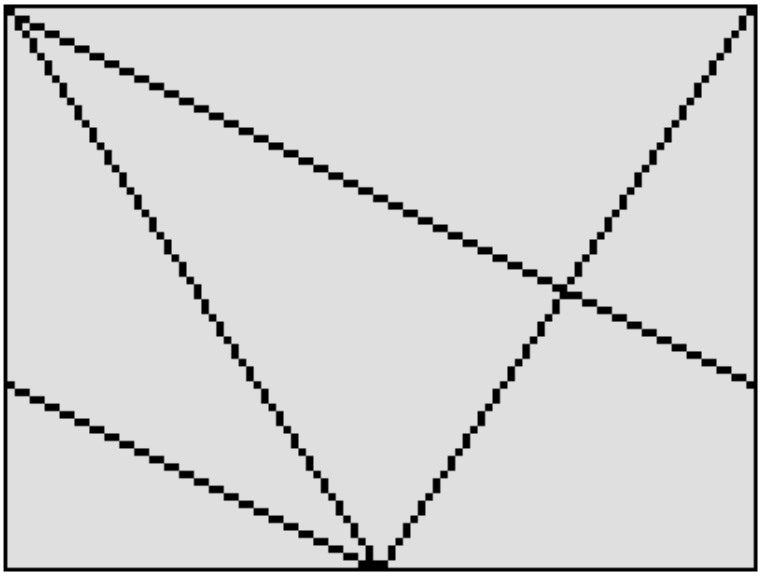
If we simulate the cloth:



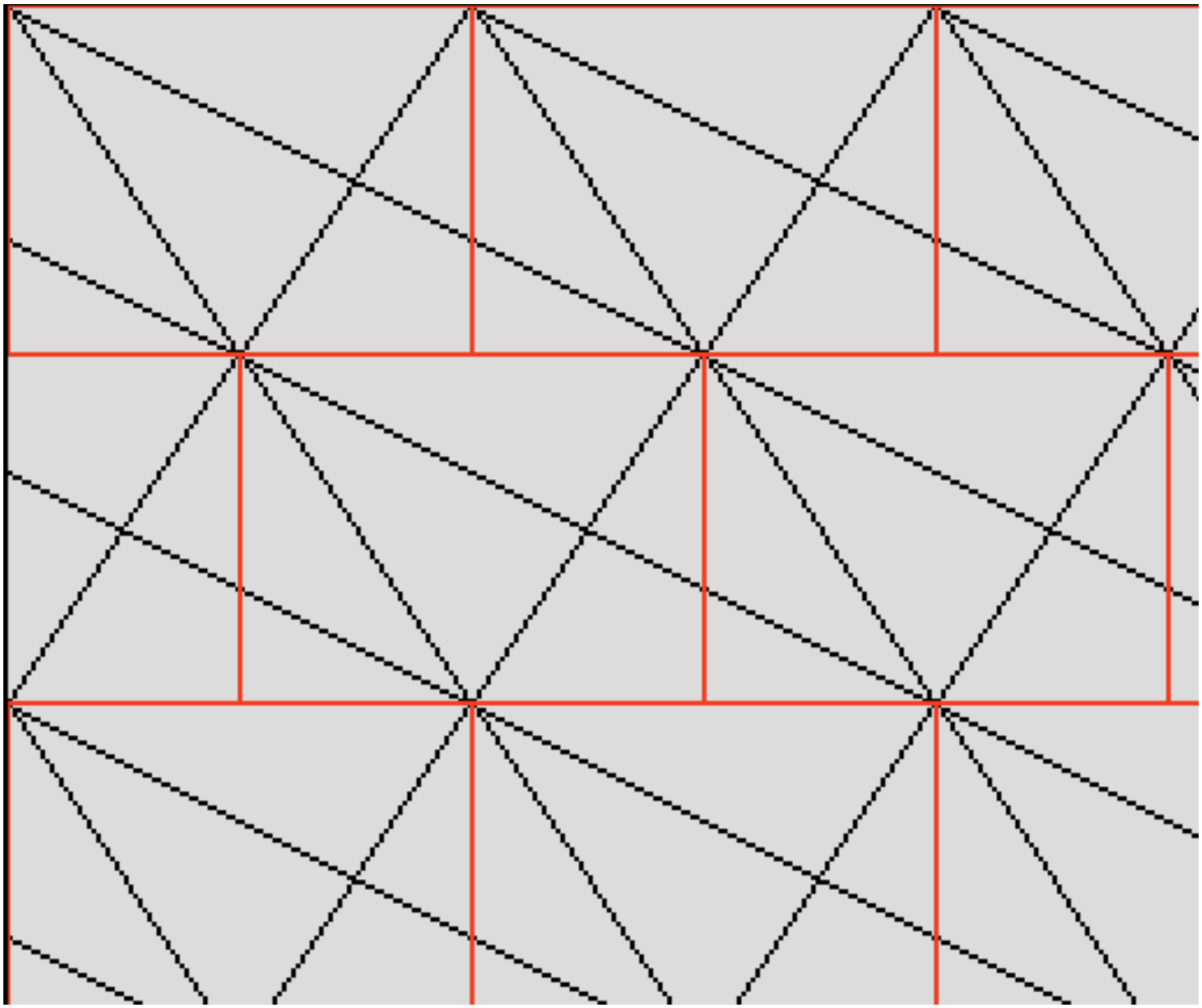
Closer view

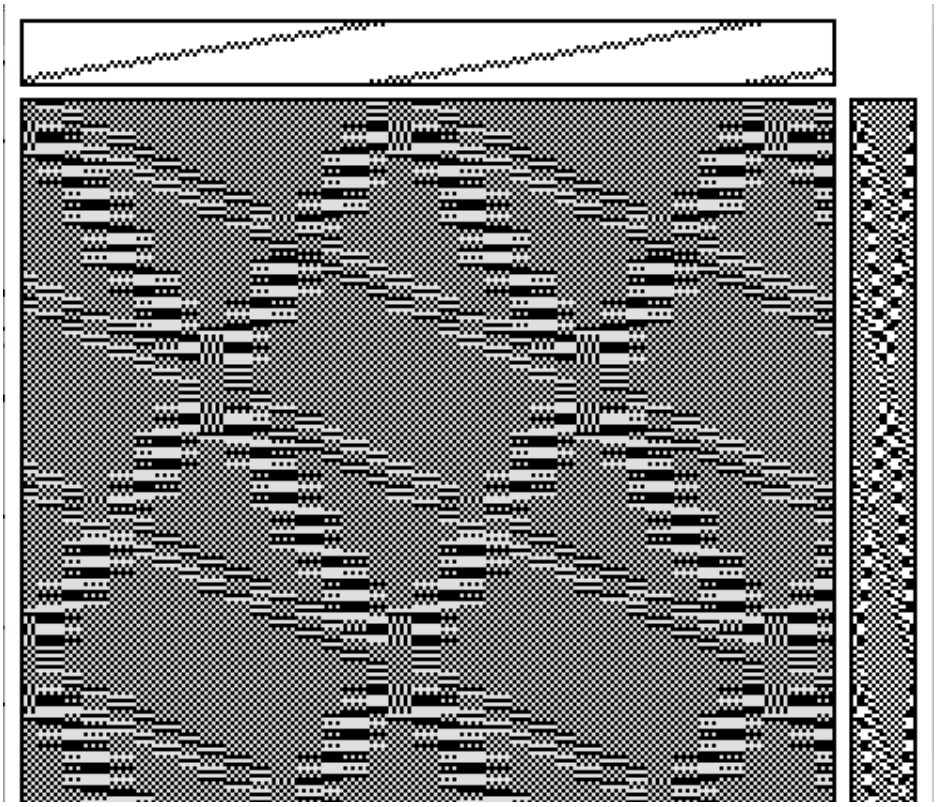


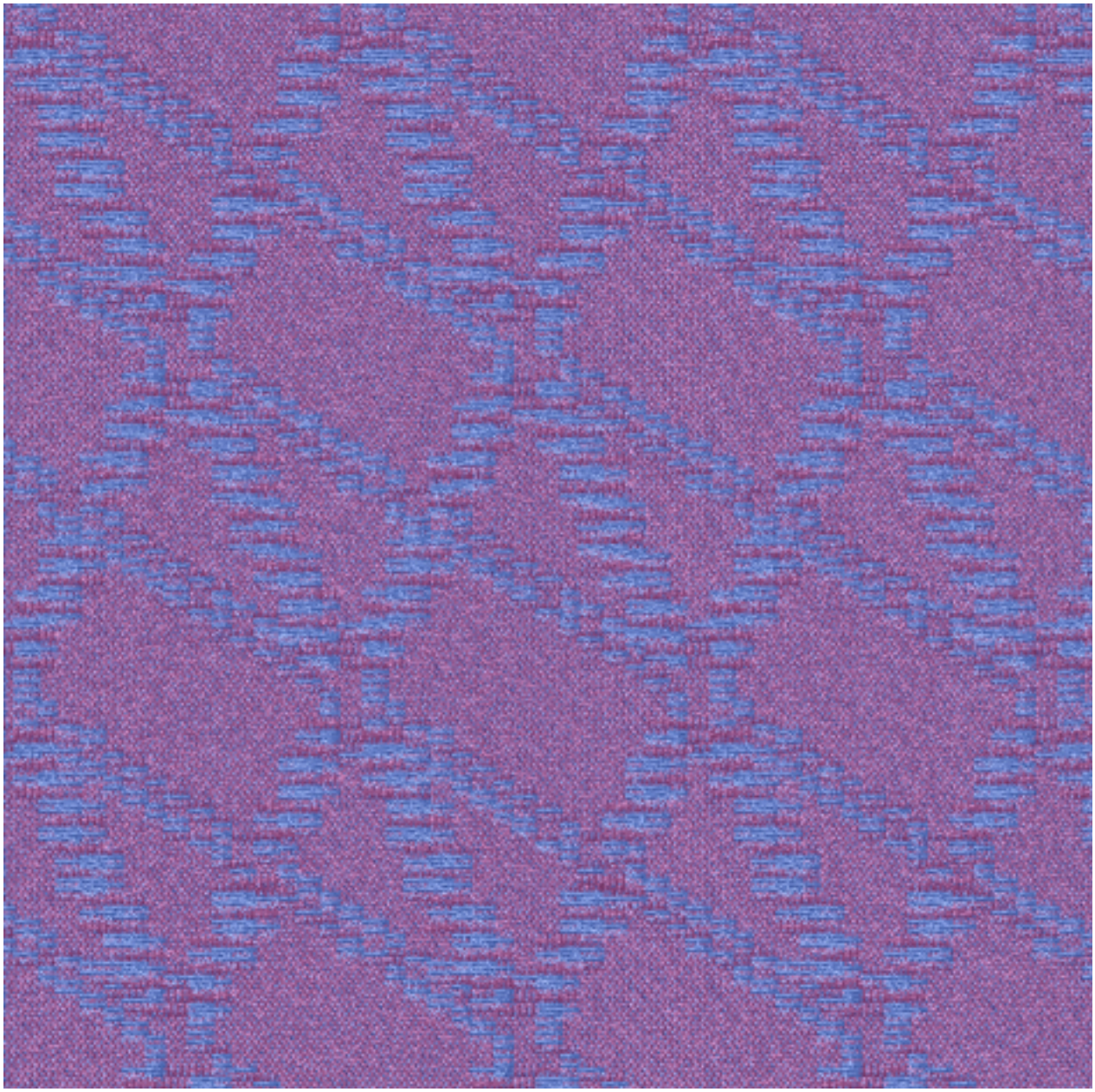
Now that the cloth is finalized, let's change the graphics.
As only the boundaries between the two plain weaves are significant, we can be use just a line graphics.



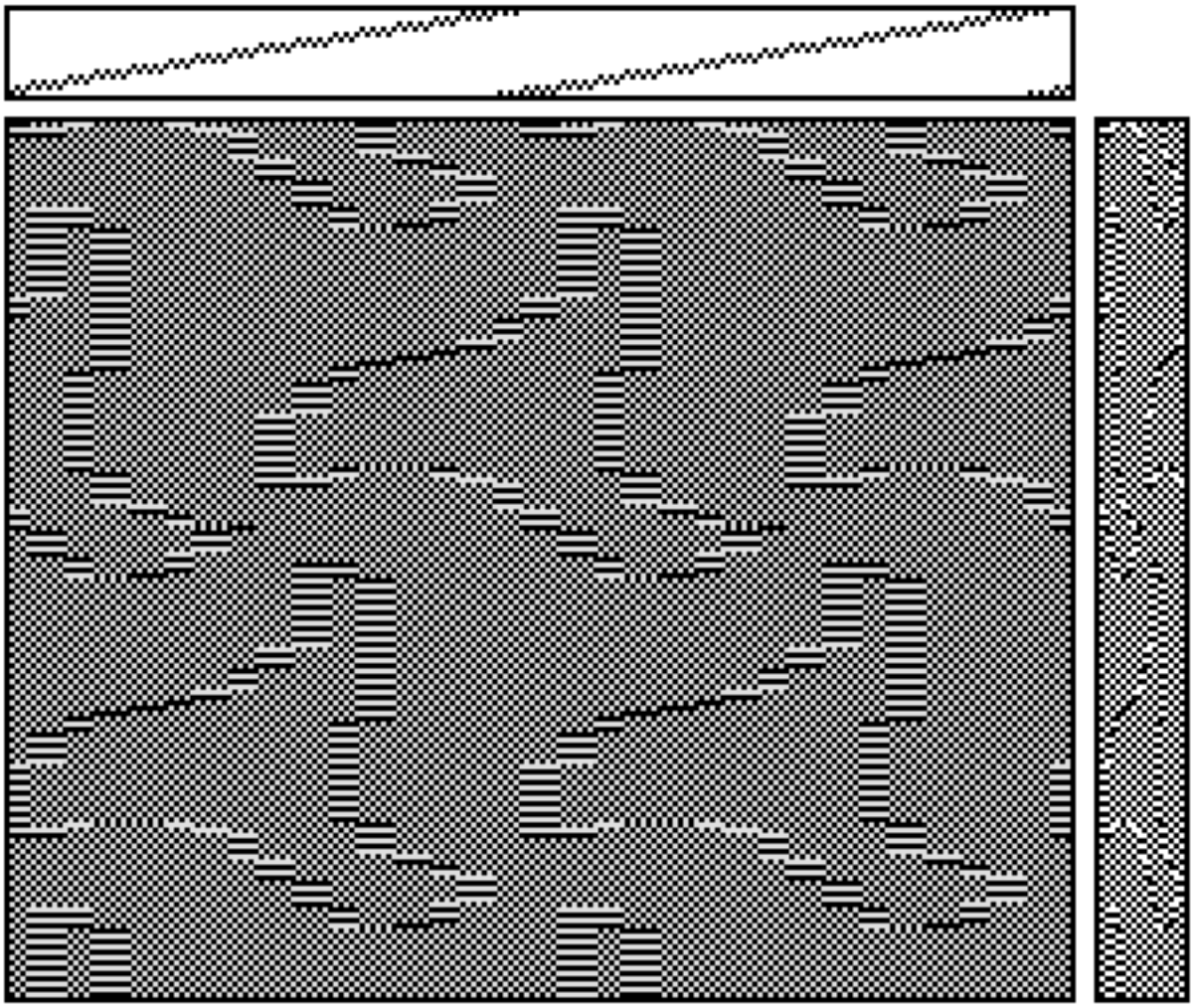
We use a half jumped repeat which will give a good take-up :





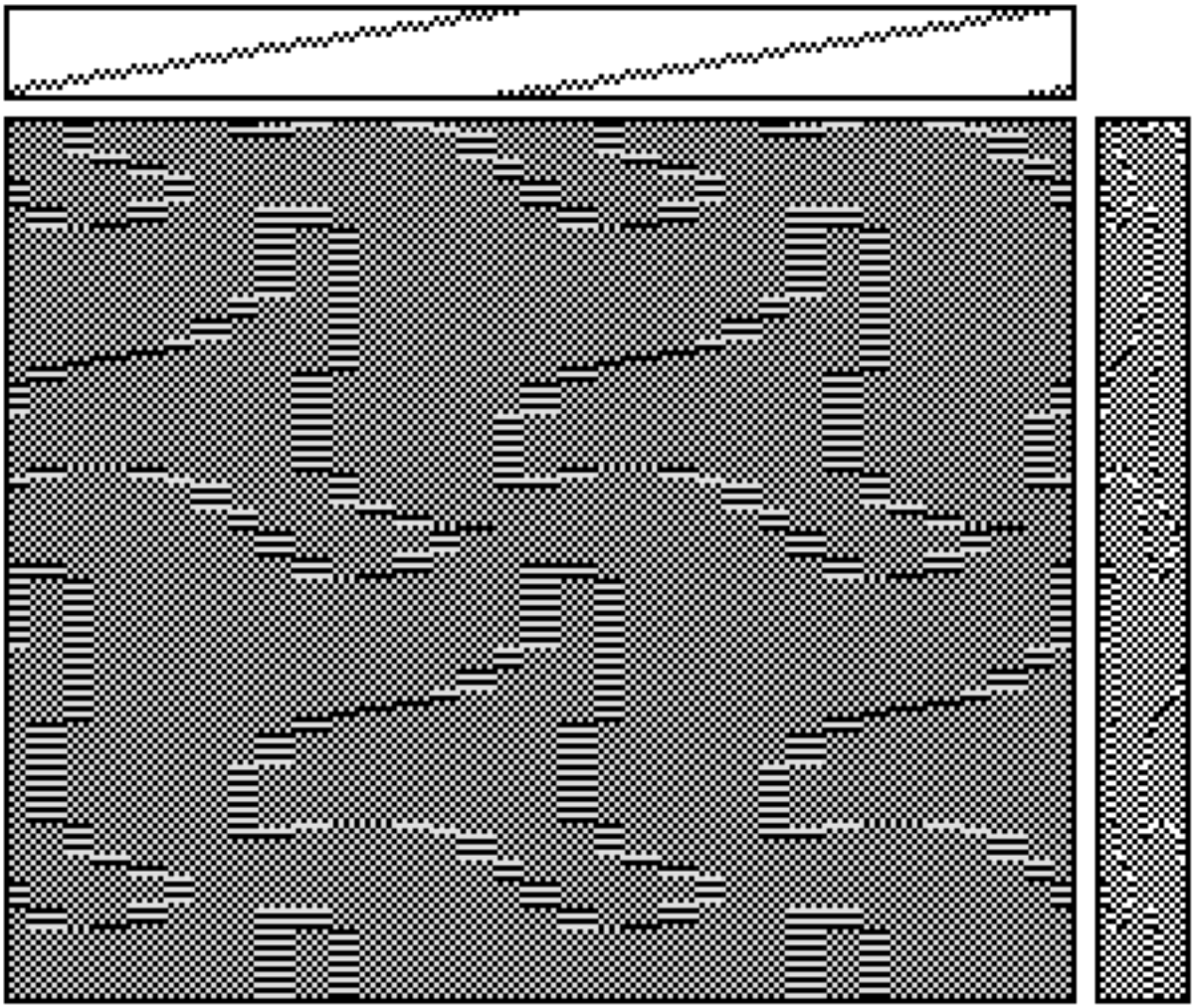


Another example inspired by a classical Islamic pattern that can be seen as mosaic at the Alcazar of Seville in Spain.



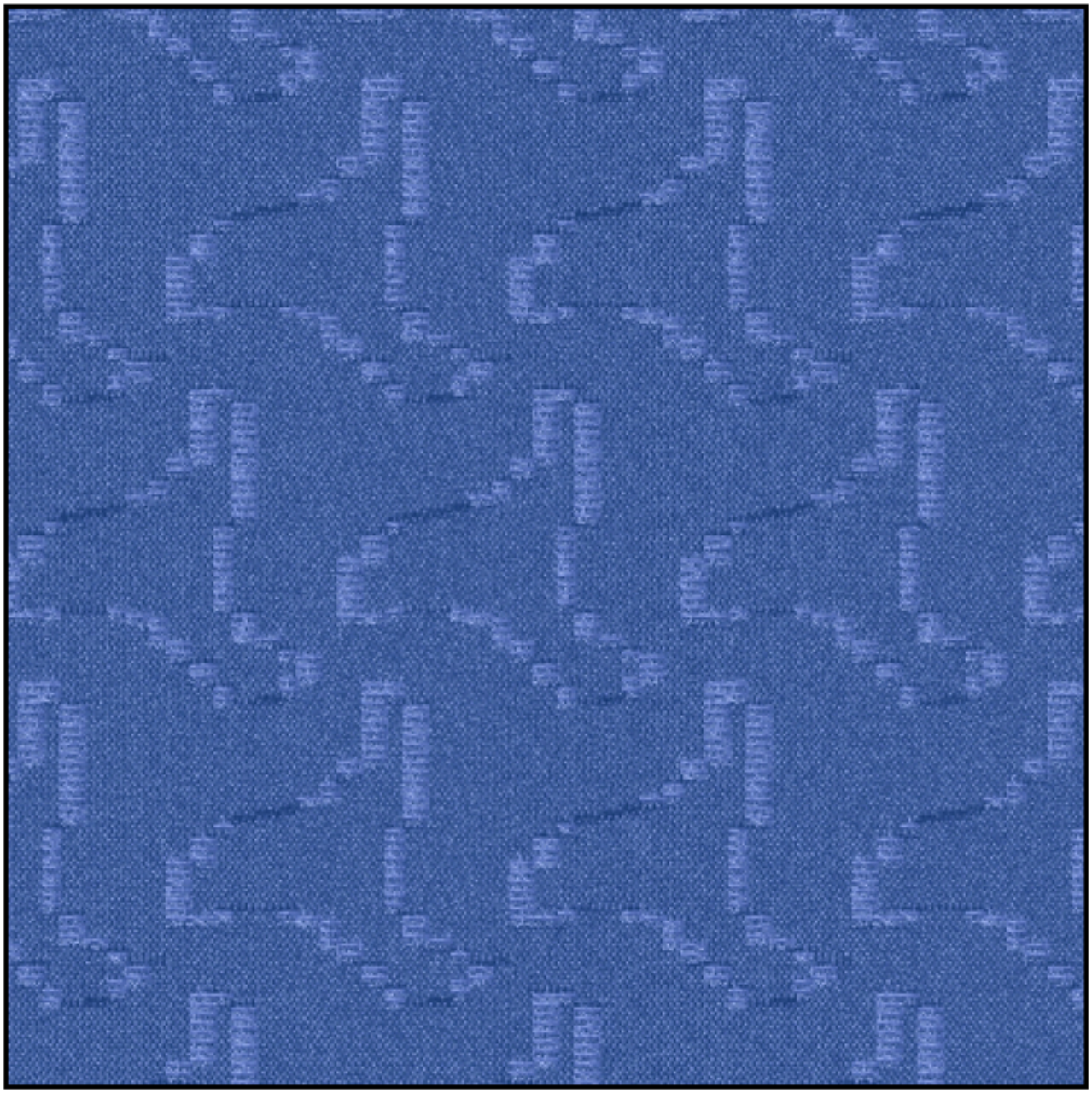
You are now aware of the universal nature of such a threading on Initial 2. It accepts any graphic on 100 ends wide and unlimited in height.
The texture is controlled everywhere in the cloth, the floats (of the plain weave) are at most of 1 end (except the boundaries of weave structures).

A simple shift of the columns of the peg plan, doesn't affect the cloth structure ; the graphic is just shifted as well :



This shows once again that the graphics can be anything and located anywhere in the width (this because we take care of a good continuity at the repeat, before writing it on the initial 2 network). All shafts play the same role and have the same structure.

Here is the simulation of this cloth :



With a larger initial the weave structures possibilities will be much larger.

The interest of this initial 2 is that it is very economical in number of shafts.

Build the same type of threading on 8 shafts and you'll find that the possibilities of high-ratio graphics are already important.

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