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Creative Arabic Calligraphy: Square Kufic

by Joumana Medlej 2 Feb 2015

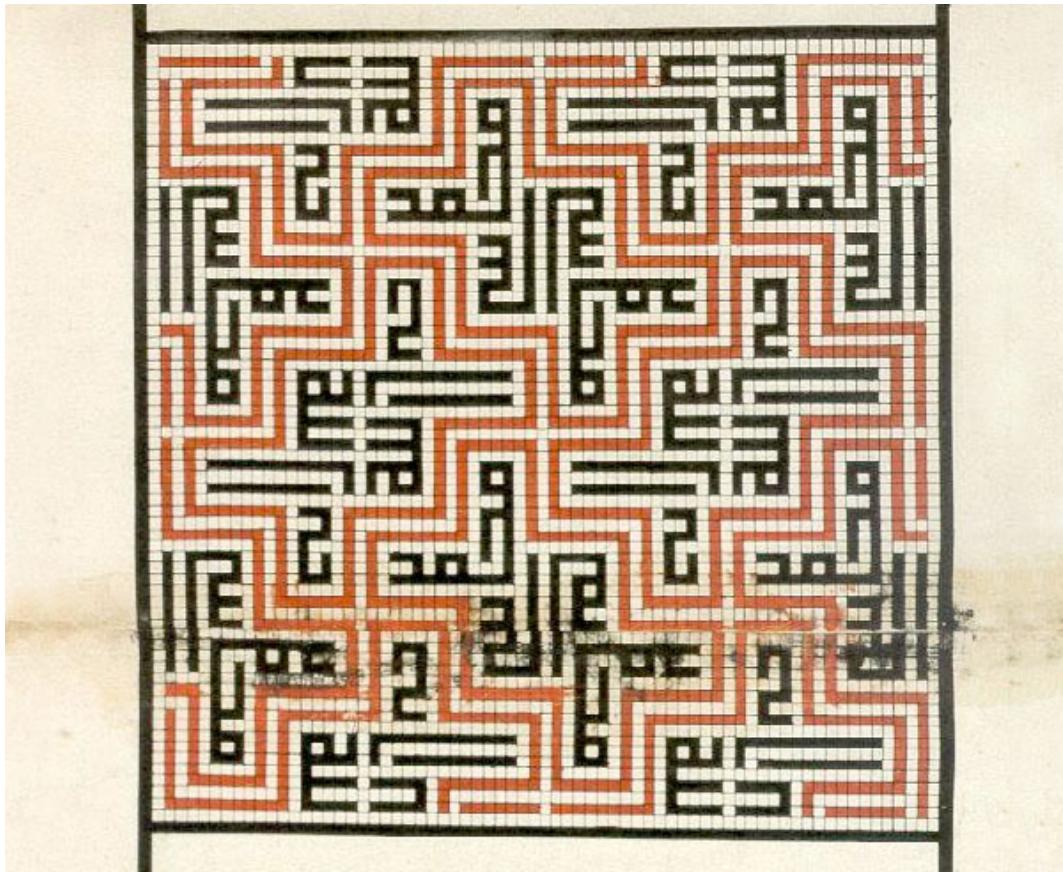
18-23 minutes

Square Kufic (*kufi mrabba'*), sometimes known as *bannâ'i* ("masonry script") is a particular style of Kufic that is going to allow us to create composition using the basic structural forms of the letters. Indeed, Square Kufic (abbreviated SK) is the barest of all Arabic writing styles, and an interesting precursor to pixel art, although it was originally made up of bricks and tiles and used on a large scale in architecture.

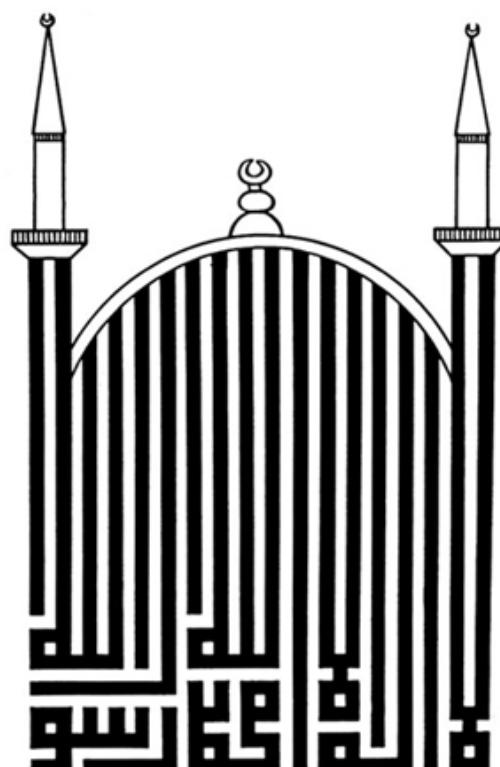
This style is absolutely not concerned with legibility: it is understood that the message, the Word, is there, and gazing upon it is enough to receive its blessing. Literacy may have been limited in the past, but beauty was always accessible to all, and it is the beauty of the pattern that matters. In its simplest form, SK is austere, and derives its beauty from the purity of its austerity; but it lends itself to clever, even playful variations only limited by one's creativity. More than any other calligraphic practice, creating in SK feels very much like solving a puzzle, giving it particular appeal for problem-solvers.

The following selection of examples gives an idea of the

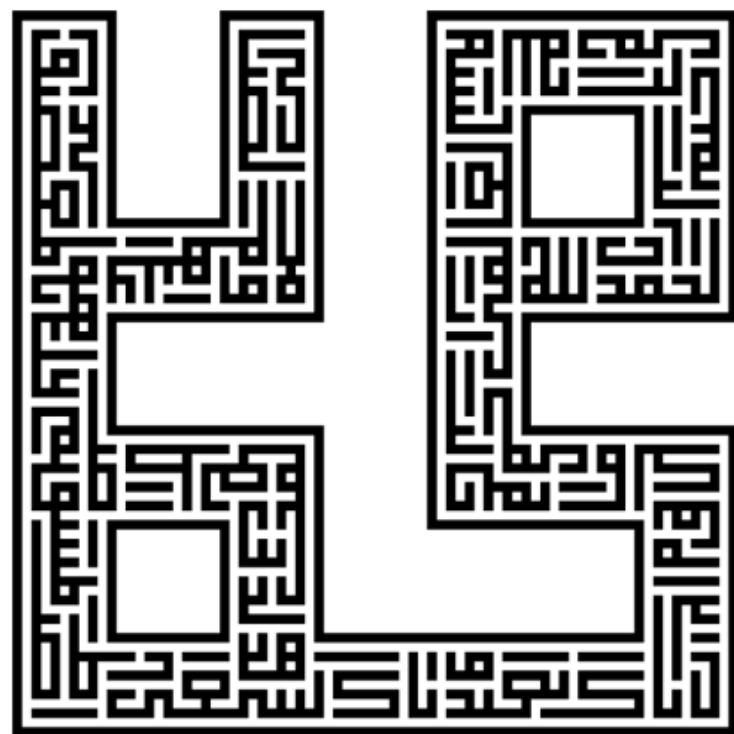
possibilities offered by this style.



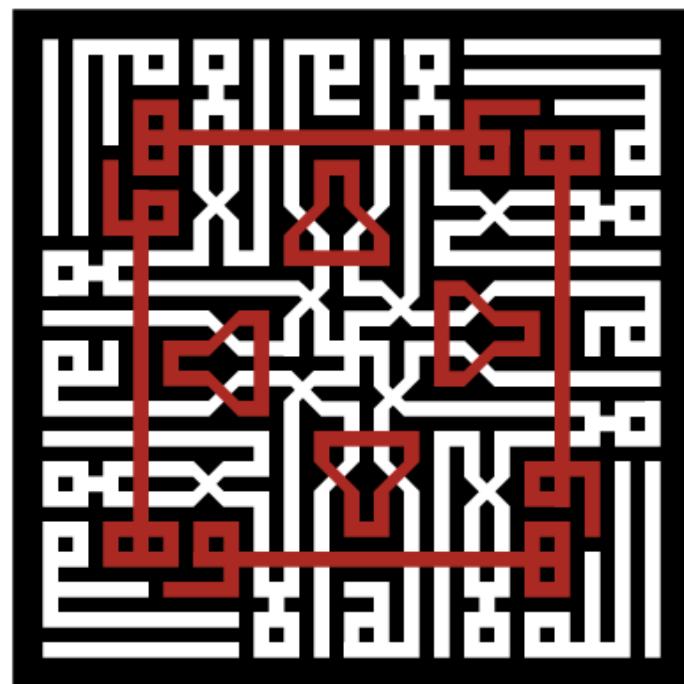
Panel from the Topkapi scroll, showing the grid underlying the design.



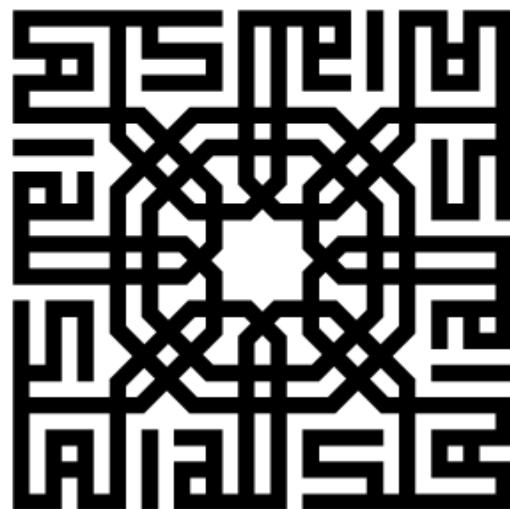
Mosque-shaped composition, Turkey.



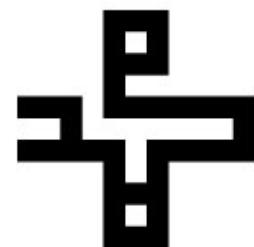
The first verse of the Qur'an composed in the shape of the name Muhammad, itself in Square Kufic.



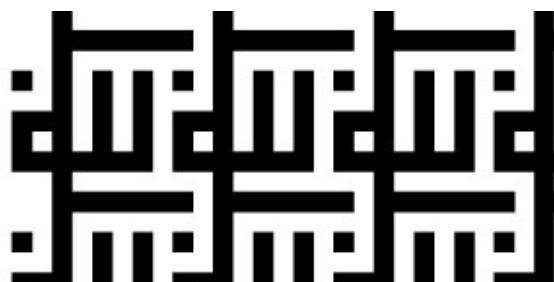
Composition with an overlapping effect.

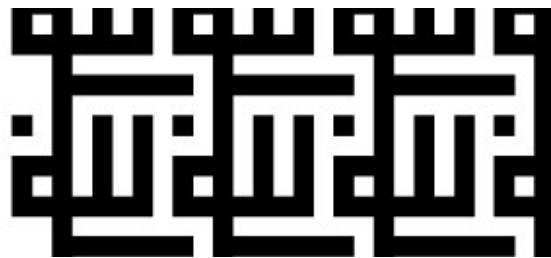


Combination of calligraphy and geometry



The minaret of the Royal Mosque in Isfahan, and the basic module making up its decoration (photo by Patrick Ringgenberg)



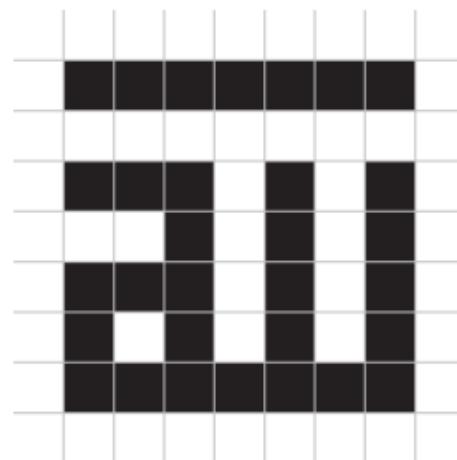


Clever design where the black and white spaces both spell "Allah"

Basic of Square Kufic

One Rule

Square Kufic has only one strict rule: absolute evenness of full and empty spaces. We can observe this in the following classic design for the word Allah, where the initial Alif is placed horizontally over the rest of the word (a liberty typical of SK) so that the overall shape is a square.



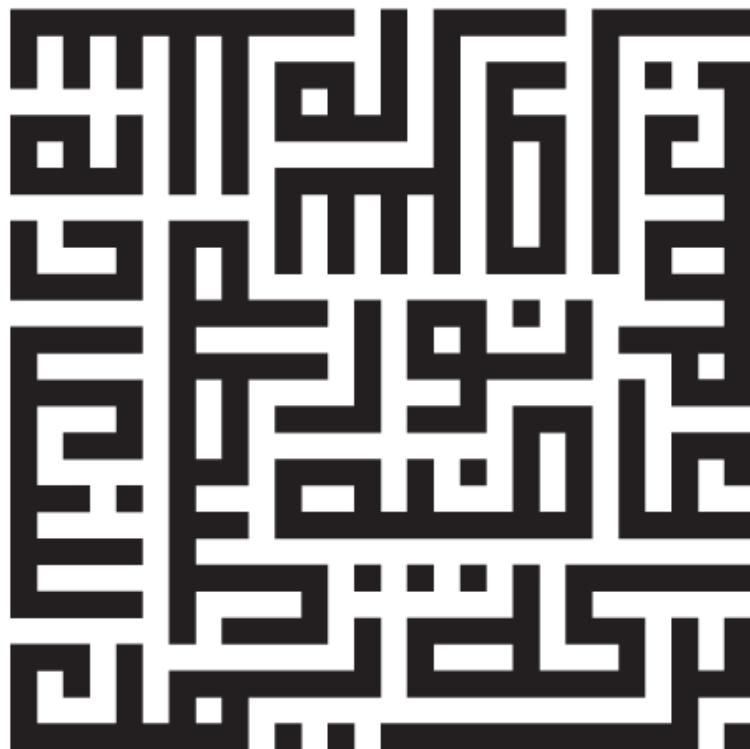
Nowhere is the black or white thicker than the unit (which is one square of the grid). This is evenness. Contrast this with the following two errors:





On the left there is a block of four empty spaces, on the right a block of four full spaces. Either way, the evenness is lost. In a larger and more complex composition, such accidents would stand out as they break the overall balance. This, then, is the one big mistake to watch out for when composing in SK. It can be trickier to notice than in these examples.

Below, for instance, is an early composition of mine with one serious (and unsolvable) mistake that I never noticed at the time. Can you find it? (The answer is in the downloads folder, spot-the-error.png)

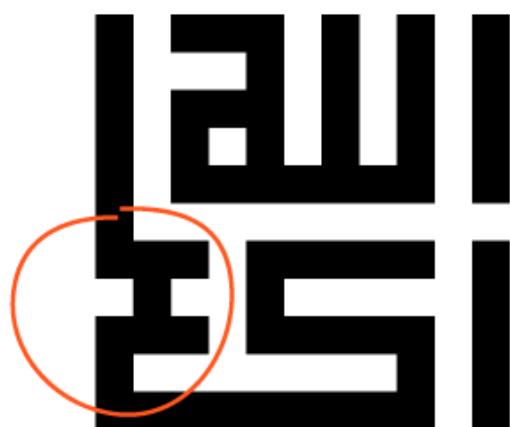


What this rule implies for the creation process is that we must find ways to fill all the space so that no irregular white is left. To this end, the following exceptional liberties are taken.

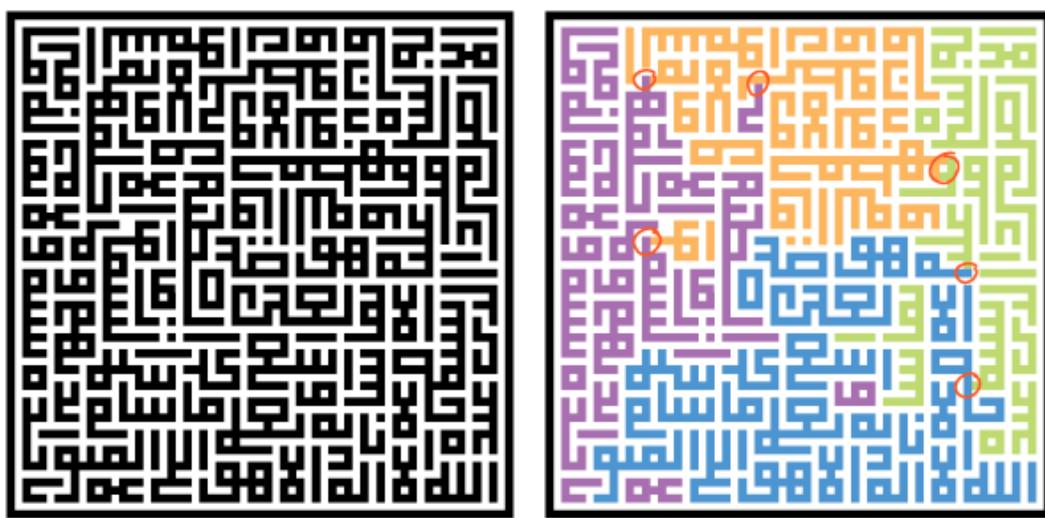
Liberties in Square Kufic

Change of Direction

In a Square Kufic text, each word can face in a different direction. Every horizontal and vertical in the grid is a potential baseline. Not only this, but the direction can change mid-word, as seen here in a rendering of "Allahu akbar": after the Kâf in أَكْبَرُ, the connecting line rotates 90° and continues upward, so that the last two letters are on a baseline that is perpendicular to the original. This effectively fits the sentence into a square (a desirable shape both because it looks complete, and because it can then be used as a tiling unit). In fact, this change of direction can even take place *mid-letter*, for the more elaborate letters such as Sâd or Sîn.

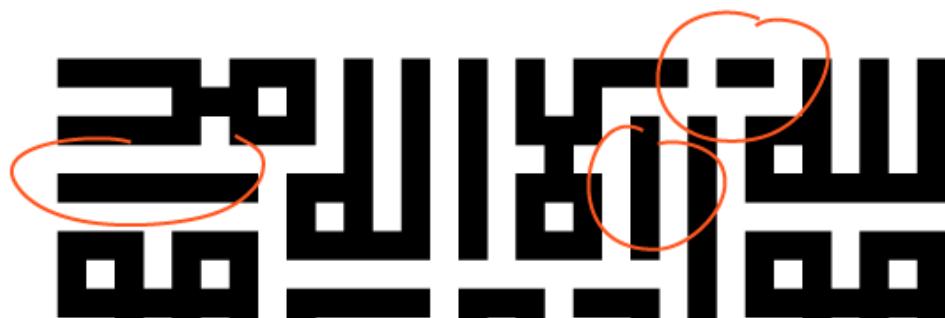


Here is a much more complex composition where I have assigned different colours to the four different orientations of the words (as best I could make it out), and circled sudden rotations. What this doesn't show is the direction of reading (only possible for one who already knows the verse!), which is in a clockwise spiral that begins in the lower right corner and ends in the centre.



Placement

The following composition, from the façade of the Royal Mosque in Isfahan, is just legible enough to recognize the sentence: "الله هو الذي لا إله إلا هو". Knowing this, we notice that the three circled Alifs are placed quite liberally, where they conveniently fill the space, not where they would normally be in the word.

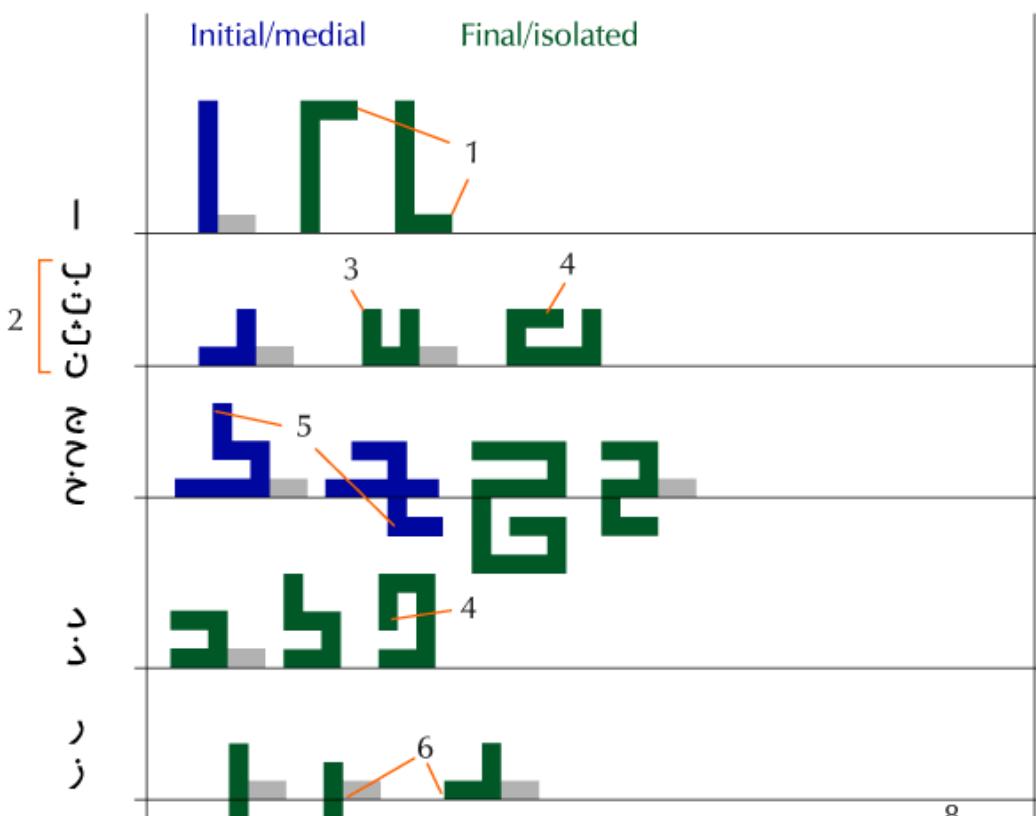


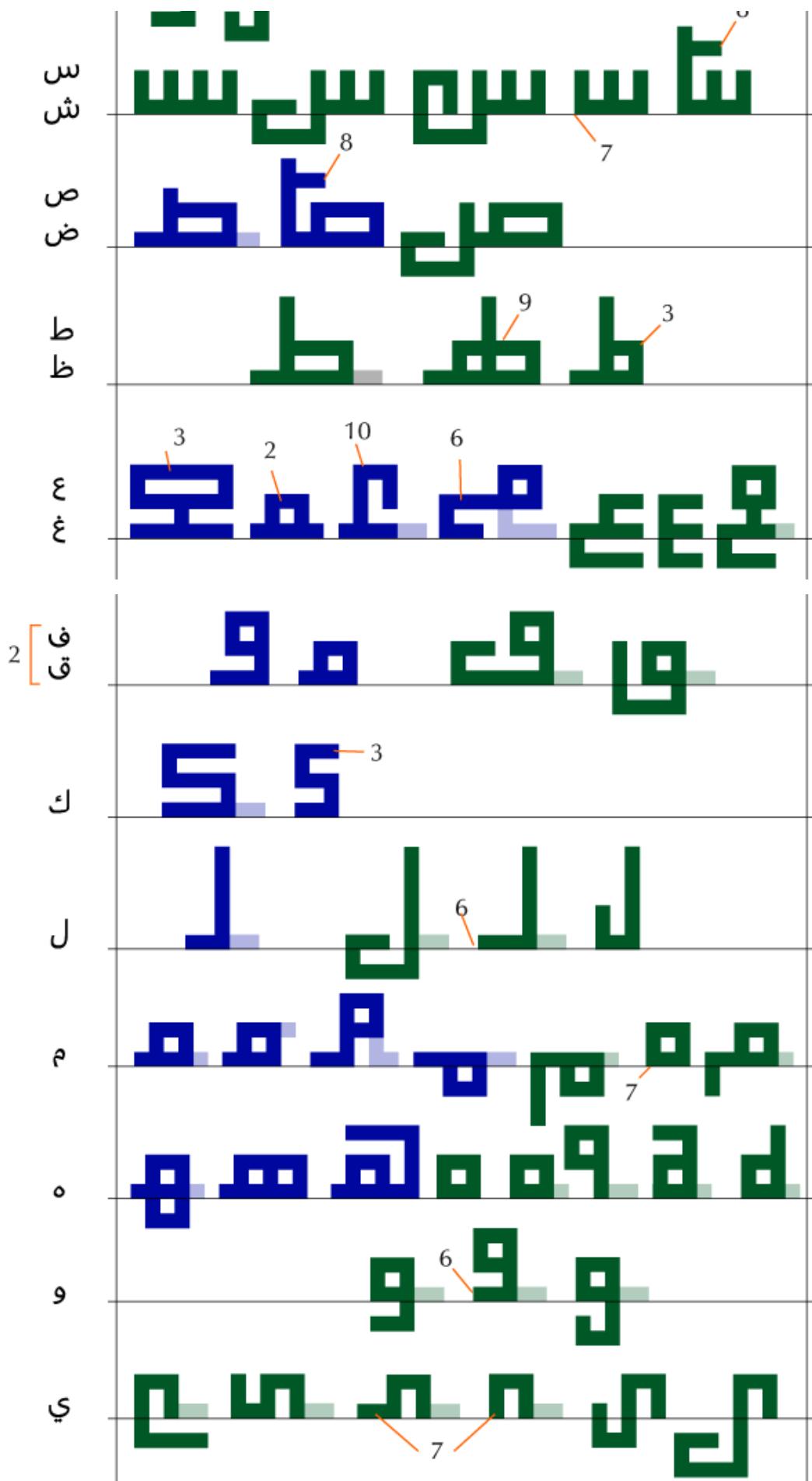


That said, the words themselves are arranged liberally (in addition to being rotated) so that they fit. The displaced letters are still adjacent to the word they belong to, and the displaced words to those they precede and follow in the sentence: as long as this condition is fulfilled, order and direction can be manipulated.

Letters

Letters still need to connect as they normally would, and take on the form appropriate to their place in the word, but they can be distorted to often extraordinary degrees to fill the space. The following chart shows some (by no means all) examples of forms distorted beyond the normal use of letters.





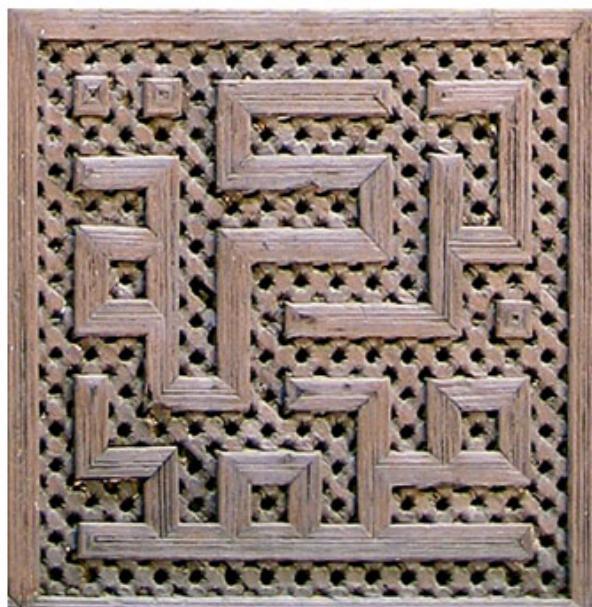


Notes:

1. The isolated Alif can grow a head or a foot as needed.
2. Some letterforms are no longer distinct: the differences between ن and نـ, or ف and فـ, are no longer relevant.
3. Letters that would normally be extended, such as ـ or لـ, can be extremely compressed. Conversely, narrower letters can find themselves very stretched.
4. Tails or heads can fold in to make a letter into a rectangle, and that can be stretched at will.
5. What would normally be a discreet and optional notch is here emphasized into a filler extension, changing the silhouette of the letter altogether.
6. The relationship of the letter to the baseline no longer matters.
7. Despite being in final or isolated position, these letters have no tail, making them easier to fit.
8. Mid-letter change of direction.
9. The ascender has here been moved to an unconventional position.
10. The initial form of ء can here also be used in a medial position, where it can be helpful because it is a rectangular shape that can stretch upwards.

Dots

The **diacritic dots** (the dots that differentiate letters) are often left out of SK compositions altogether. When included, they can add visual interest, and this can be enhanced by giving them a contrasting colour or shape. Like letters and words, they can be placed with a certain amount of liberty.



Panel from Medersa Bou Inania in Morocco, reading بِرَحْمَةِ مُحَمَّدٍ, where diacritic dots are used.

Omitting diacritic dots, on the other hand, opens the door to using **filler dots**: they are not part of the script at all, but serve to fill spaces when that can't be done otherwise, such as the bottom left corner in this rendering of Rahmân.





Sometimes it's unclear whether such dots are really fillers, or diacritics included when and if convenient—for instance, does this dot above actually belong to the Nûn that sits on top of the word? In complex compositions where legibility is jettisoned, it may be pointless to try and find out. When composing, out of artistic perfectionism, I would personally outline two rules of thumb:

- Either use diacritic dots in full, or none, in which case filler dots can be used.
- Diacritic dots can be made to stand out by a change of colour or shape; filler dots should blend in with the design.

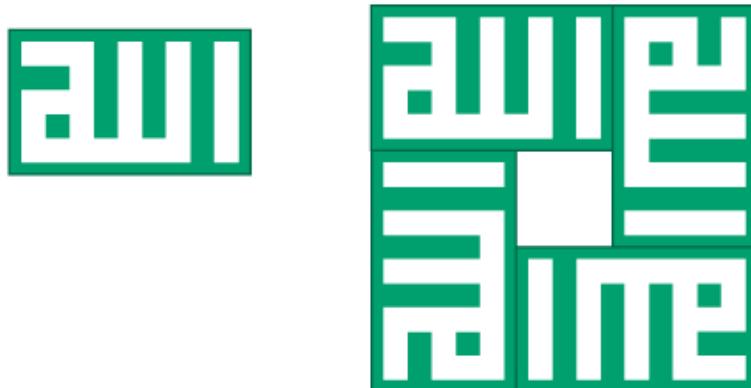
Repetitions and Rotations

Many of the historical examples we've seen tend to fit a word or sentence in a square, or at least a rectangle. This is not a necessary feature of SK, but an easy way to create large patterns (as opposed to using a long text). Squares, indeed, can be tiled, whether by repetition or rotation, or a combination of both, with no trouble—just make sure to leave half a unit all around. When two tiles are put together, this will add up to one unit, preserving the rule of evenness.

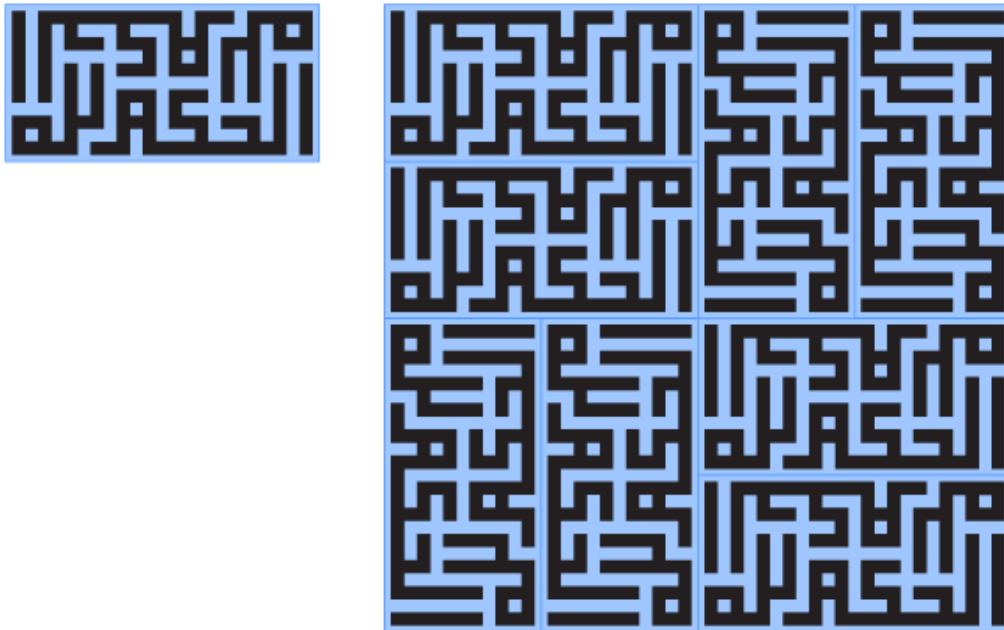




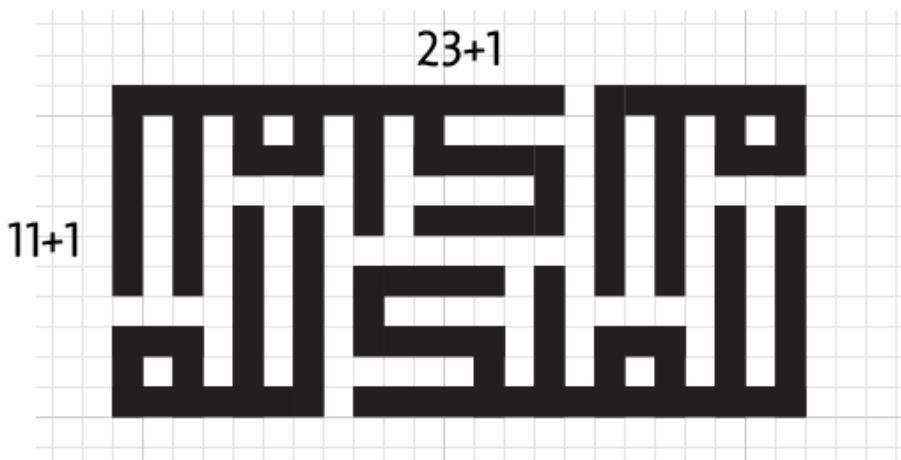
Rectangles can also be tiled, but it's not so simple to create a finite pattern with them. If the rectangle's ratio is random, all we can really do is repeat it in one direction, for instance as a cornice, or rotate it and assemble it as shown below right, to create a square composition. Bear in mind that the longer (or narrower) the rectangle, the bigger the space left in the centre. Unless you intend to create a design in that space, you really want it to be as small as possible.



Rectangles with a regular ratio (1:2, 1:3, 1:4 etc) are preferable to work with, because they can be assembled into squares, which can then be rotated and so on more freely. For instance, here's a complex composition made possible (and simple) by a 1:2 rectangle.

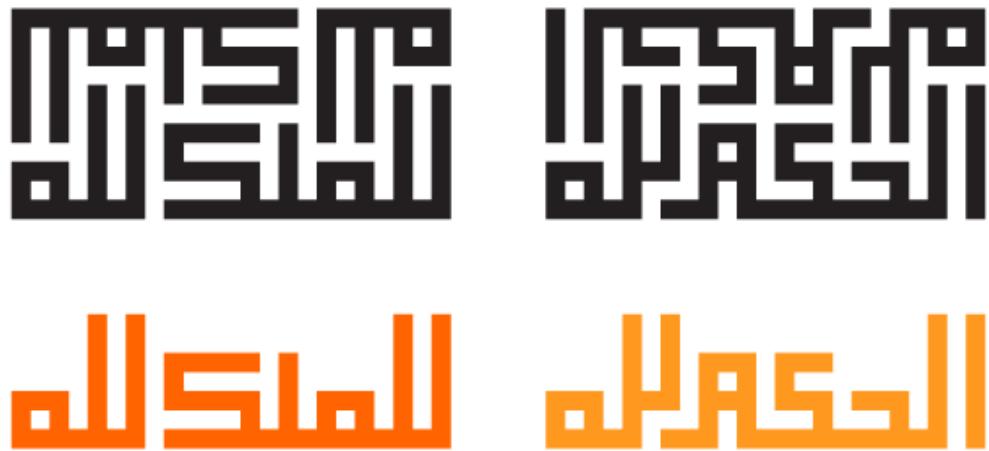


Important: *Don't forget to include the extra unit that runs around the word in your calculations!* If you count the height and width of this last design, it is 11x23; only by adding the extra unit do you get 12x24, which is the 1:2 ratio proper. The calligrapher who designed this motif was experienced and aware of this. If he had made the text into a 1:2 ratio prior to adding the surrounding space, it would have completely messed up any attempts to tile it.



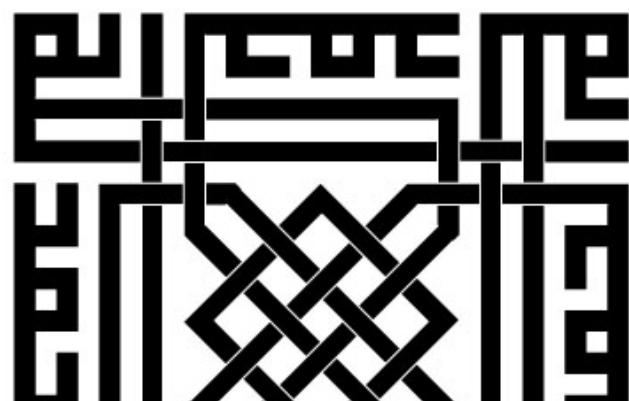
As a matter of interest, here's the composition of this last tile, and a similar neighbouring one: they are both made of

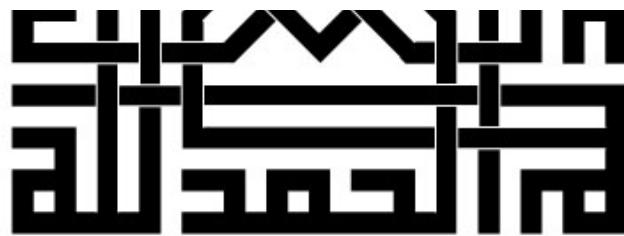
one sentence that has been rotated and added to itself to create the rectangle.



Deliberate Spaces

I have said above that evenness is a rule that must not be broken in SK, because it creates unsightly irregularities in the overall pattern. However, leaving *regular* spaces, so that they create a pattern within the pattern, is a skillful bending of that rule, as is leaving a large central space where something different can happen. Such is the case below, where the ascenders are skillfully connected to create a geometric knotted pattern. The diagonal positioning of the pattern, contrasting with the text, only adds to the striking overall effect.



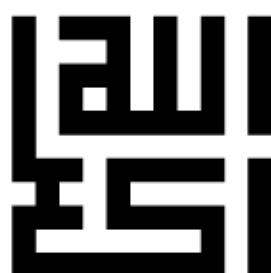


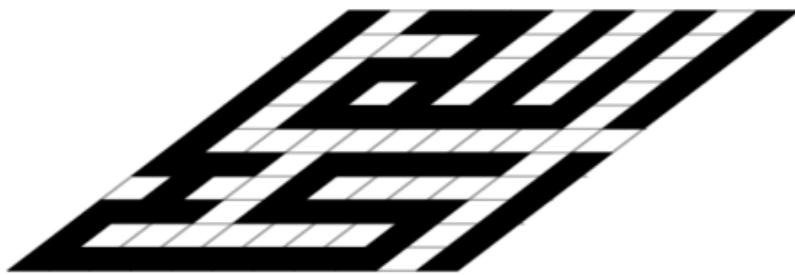
Taking It Further: Other Grids

The downloadable Exercise folder that accompanies this course contains a square grid template for you to print out and work on. You will also find there a **triangular grid** and different angles of **skewed grids**, because the principles of Square Kufic can be applied on any grid, including bent ones!

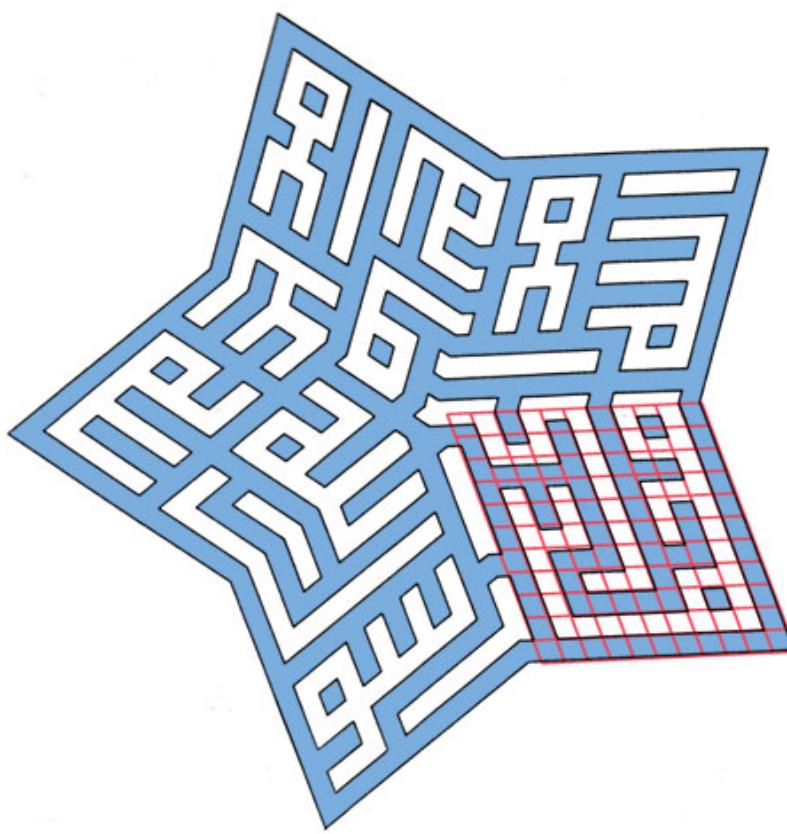
Skewed Grid

A skewed grid functions the same as a square grid because its units are also four-sided—all that changes is the angle at which the two sets of lines are set (so the square units become diamond-shaped). This produces an **isometric** effect, or fake perspective. If we take, for instance, our earlier *الله اكبر* design and draw it on a skewed grid, the result seems to be seen in perspective. (The reason this perspective is "fake" is that the lines are parallel and will never meet in a vanishing point.)





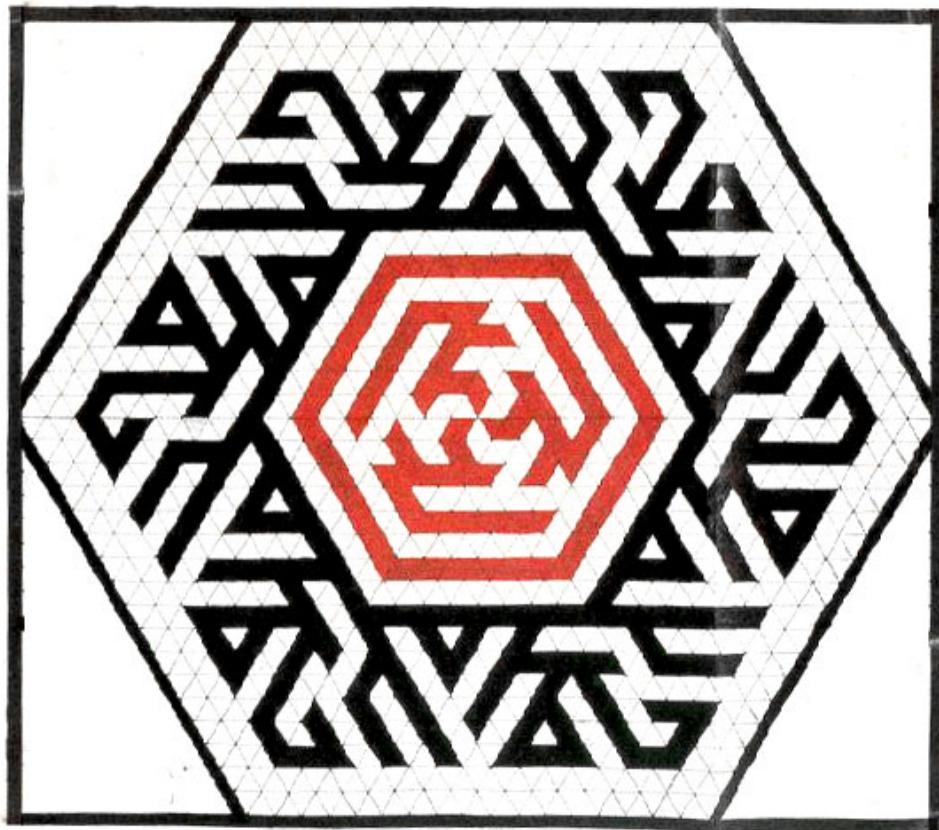
In the design below, the direction of the grid is different in each of the arms of the star, resulting in an optical illusion: we see a folding effect. A similar feel can be achieved by combining a skewed with a square grid.



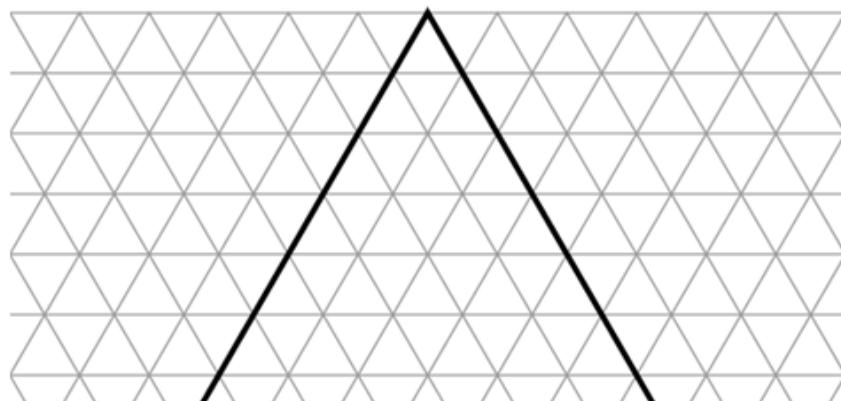
Triangular Grid

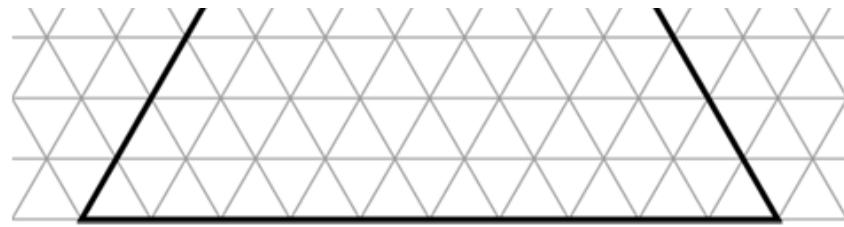
This is slightly different, as this grid requires three sets of lines, set at 60° to each other (the unit is an equilateral triangle). Rather than squares and rectangles, this grid frames compositions in triangles and hexagons. You can

see the grid behind the following design (and note in passing the central name, Ali, which is repeated six times in both white and red!)

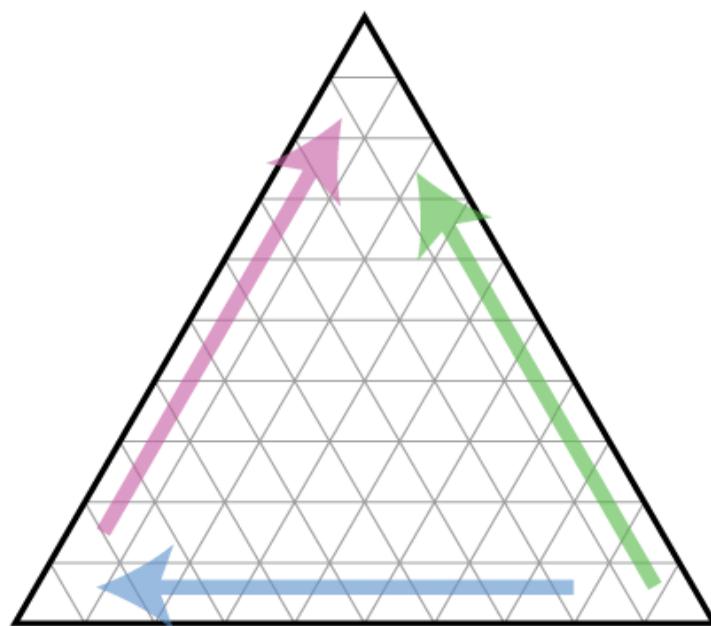


The triangular grid is confusing at first because we are really not used to working with a triple axis. To get accustomed to it, print out **Triangular-grid.pdf** and start by isolating a single triangle in it. You can't go wrong—any triangle you draw along the grid lines will be equilateral.

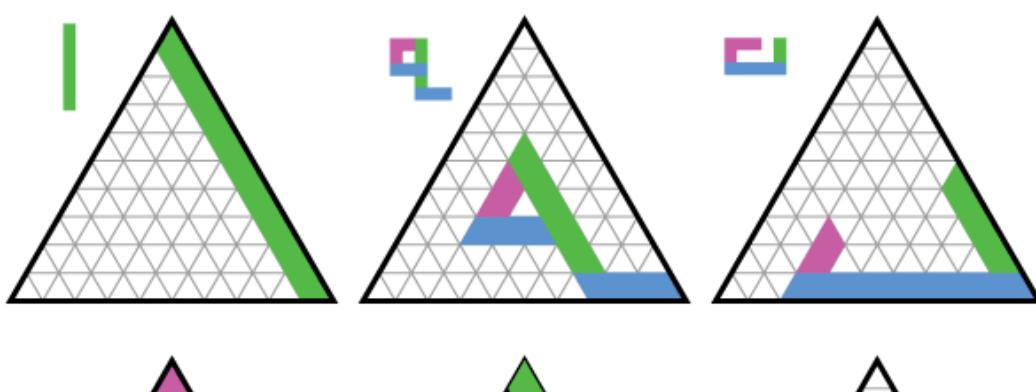


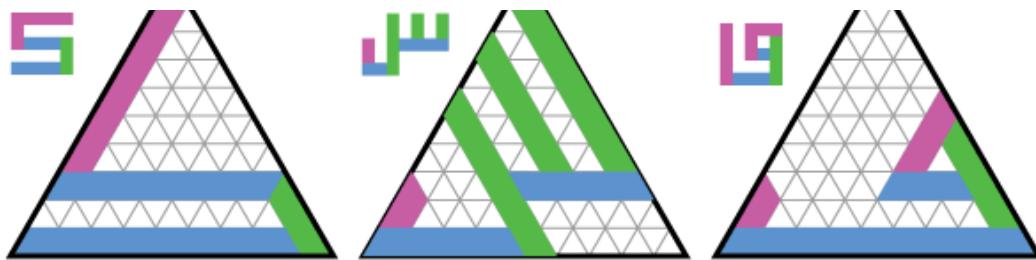


So, instead of just vertical and horizontal, we have three possible directions: leaning forward, leaning backward, and horizontal. How do our letterforms translate into this new frame of reference?



Here's a rule of thumb (but *not* cast in stone): Horizontals are still horizontal, verticals translate as leaning forward, and closing angles translate as leaning backward.





Try a few words in the reference triangle, making sure to fill it completely: that is the equivalent of fitting a word into a clean square.



More Grids

There is no end to the grids that can be created, once we start feeling comfortable with the logic of SK. The design below, for instance, seamlessly morphs from a square to a concentric grid. There is no set method to it: the calligrapher drew concentric circles based on the square grid (looking at the vertical and horizontal white lines, we can see how the distance between the circles is equal to a square unit), and used visual judgment to estimate when the straight lines

could begin to follow the curves instead. The transition is subtle and the overall effect surprisingly successful.



Step-By-Step Creation of a Square Kufic Design

Here's a walkthrough of the creation of a design from a sentence. For this I selected two lines from a poem by Lebanese master calligrapher Samir Sayegh:

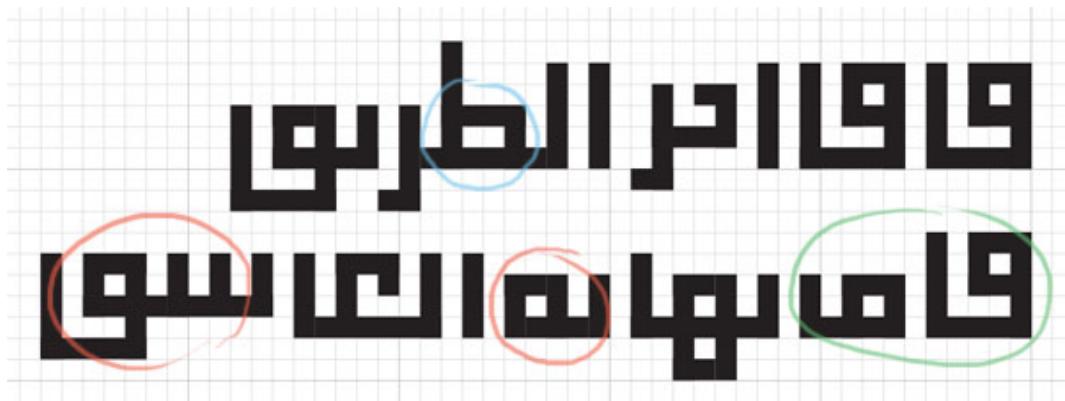
قاف اخر الطريق
قاف نهاية العاشق

"[The letter] Qâf is the end of the road [tarîq]; Qâf is the end of the lover ['âshiq]"

For clarity of the diagrams, the process was drawn in Adobe Illustrator, with **View > Show Grid** and **View > Snap to Grid** activated. It can just as well be done the traditional way, however: on gridded paper. A fine grid (such as in the attached file **Square-grid.pdf**) is better to ensure the design fits your paper.

Step 1: Visualizing

The very first thing I do is write the word or sentence in square characters, without trying to solve anything, just to see what I'm working with. Since the word قاف occurs twice, I tried writing it two different ways. I'm unsure at this point whether I'll use the dots or not.



What I note at once is that the second sentence is much longer than the first, and cannot be compressed (there is no long letter I could shrink). If I want to make it shorter, I'll have to move these groups of letters (circled red) on top of

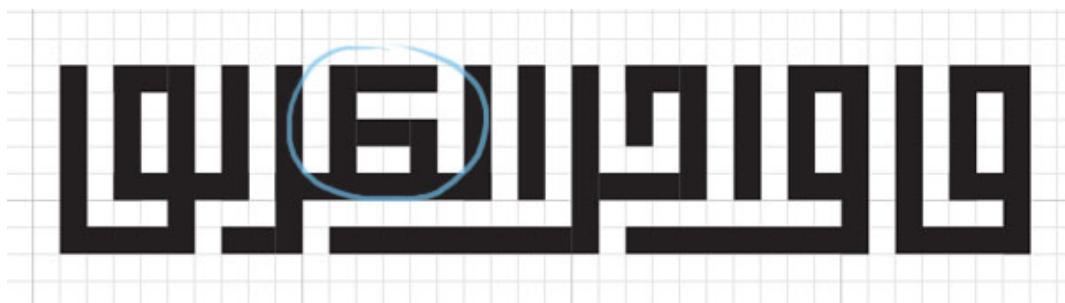
the preceding ones, but that would add a lot of height; or I can omit the second قاف (circled green). On the other hand, there is a لـ in the first sentence which I could stretch (circled blue) to make that sentence longer. For now these are just possibilities I bear in mind, because I don't have a set idea of what I want the result to look like; I'm exploring what these two lines can offer.

Step 2: Solving the Spaces (First Attempt)

Next, I see what I can modify in the first line to fill those empty spaces.



Not bad, but the لـ doesn't work. However, if I raise the overall level by one more square, I can make its ascender bend back over the letter to fill that space, like so.



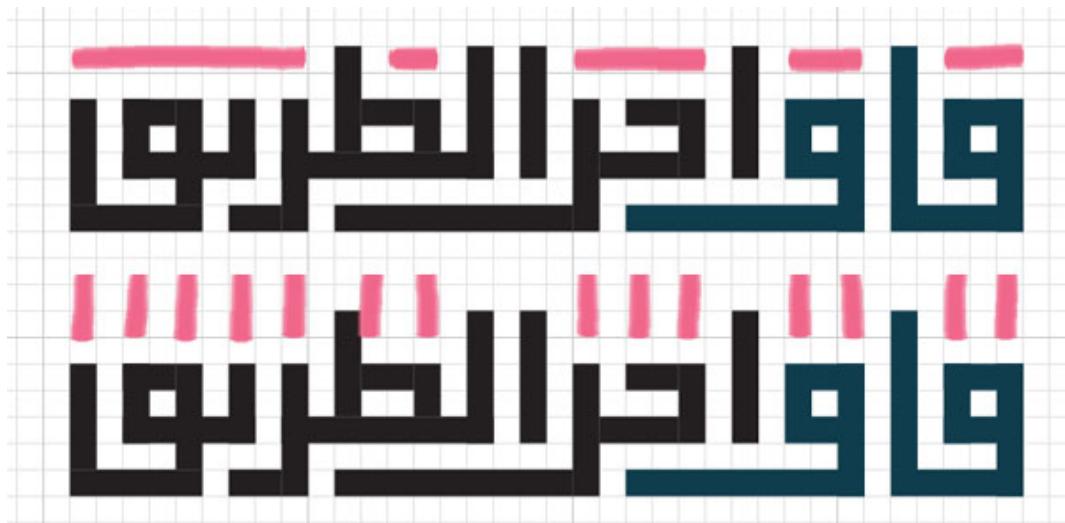
This does work: I have succeeded in making a rectangle out of the first sentence. Yet I'm not happy with this, because I'm working with two sentences, and if I isolate them both as closed shapes like this one (which is relatively easy), there

will be "seams" in my final composition; it will not be an integrated whole. So I backtrack a bit and return the letters in this test to proportions that I find pleasing. The bottom works well so I keep it. I give the word قاف a different colour so I can see it.

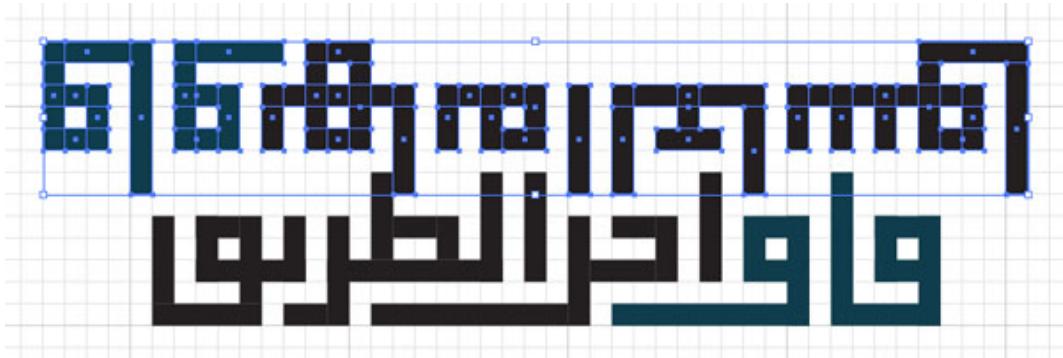


Step 3: Second Attempt, Differently

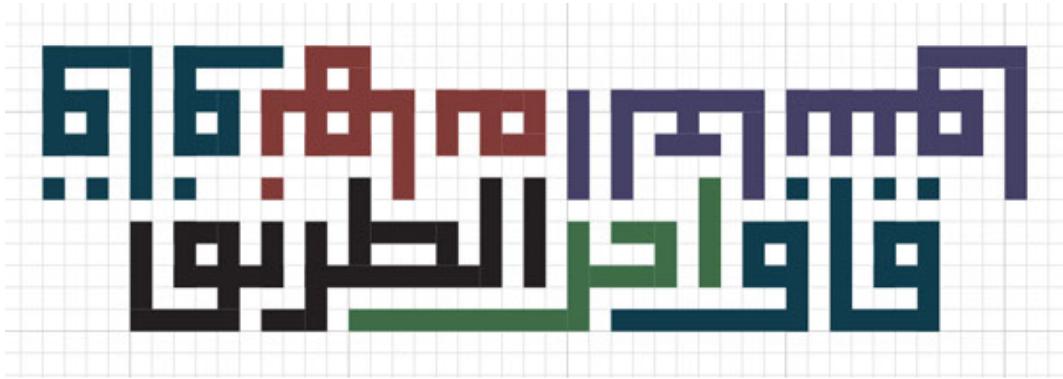
Now, this is almost luck, but the gaps above the words are quite clean and can be filled by straight lines, as shown below in pink. They also measure an odd number of units, which is desirable because, as shown here, lines inserted from above would fit in neatly and respect the gap-full-gap-full sequence. The only place where there's a clash is over the لـ, but as I can easily extend that letter to get the additional space I need, there's no problem here at all.



So, just to see how that pans out, I bring up my second sentence and rotate it 180°, to see whether it could fit in the gaps of the first. Much of the process in SK is trying possibilities until you hit on something you can work with—in time that becomes streamlined as you come to instinctively ignore directions that would lead to a dead end.



I colour the individual words so I can see better, position the top sentence so there's no clash, try to fill the gaps with the dots I hadn't included so far... An obvious problem is the difference in length which I spotted earlier.

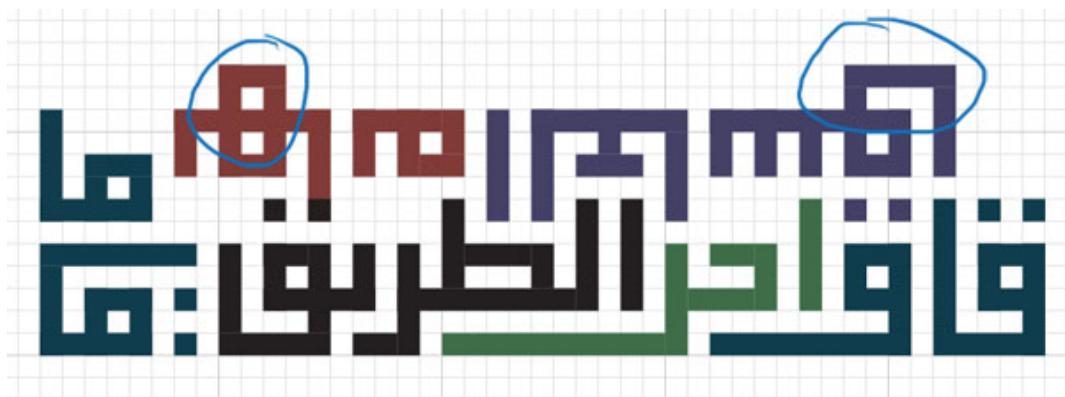


Step 4: Solving Length Disparity

I already know there's nothing I can compress to solve this, so it's time to try some directional changes. I rotate the word on the far left to see if that would help. This has potential, as filling the remaining gaps would not be difficult, and as for

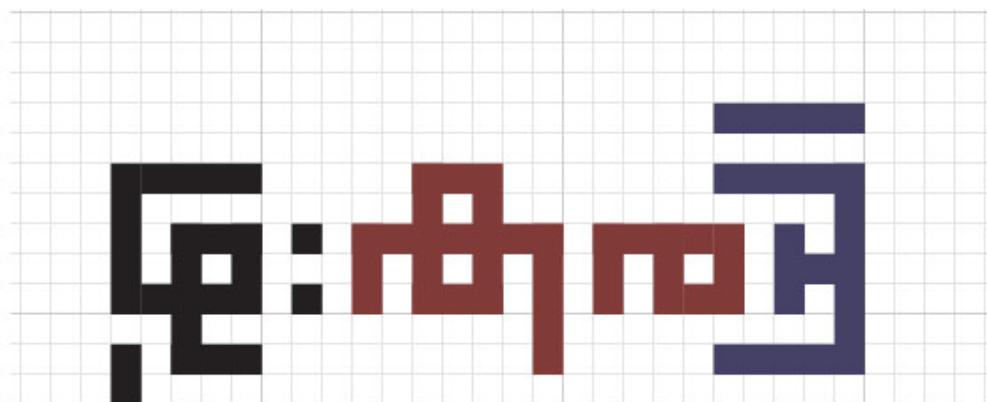
the circled letters, which stick out so badly, I can swap them both for a form that will be flush with the rest of the line—that's why I've been ignoring them so far.

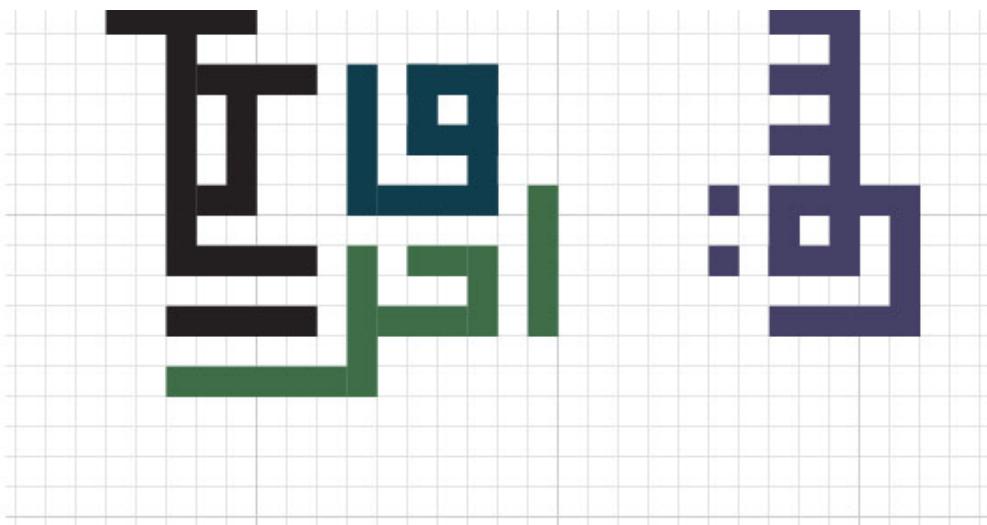
In the meanwhile I have decided there would be far too many diacritic dots if I included them all (21, to be exact), so I make a decision that is only appropriate for this specific text: I will only include the dots that belong to the letter Qâf ق (which appears four times), since these two lines are *about* this letter. This way, I can enjoy the visual interest that dots bring, while making Qâf stand out in the design, which makes sense here.



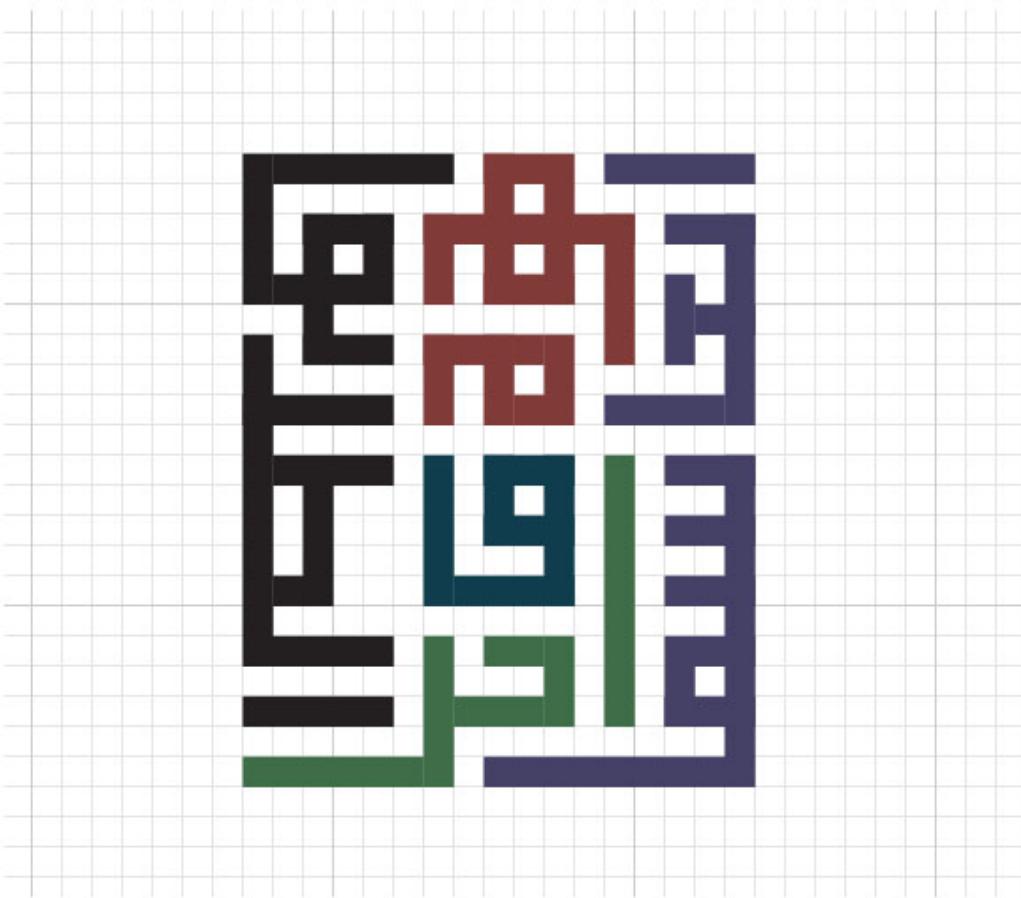
Step 5: Trying Something Else

At this point I have an idea and start a different sketch to try it out: can I have the ق in the centre, with the four other words of the poem wrapping around it in a square?



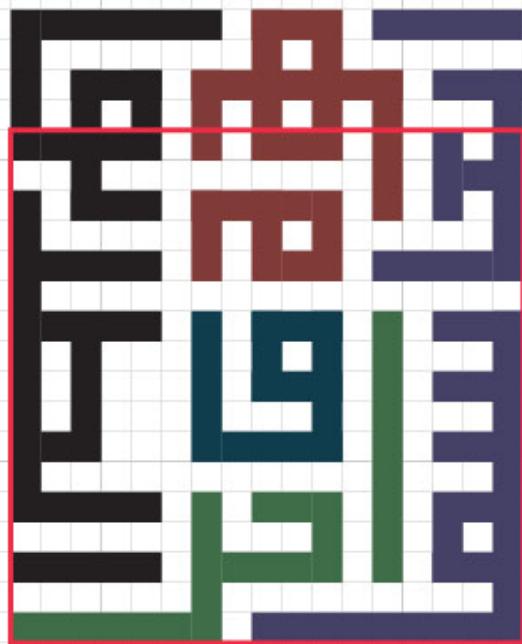


After some moving around and modification of letters, I manage to form a block around the Qâf. The remaining blank space can be filled by its two dots, which I had originally omitted. But this shape is not a square, nor an good rectangle.

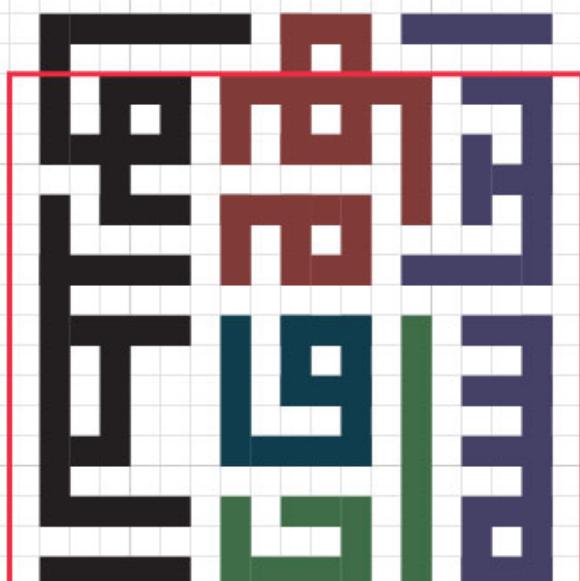


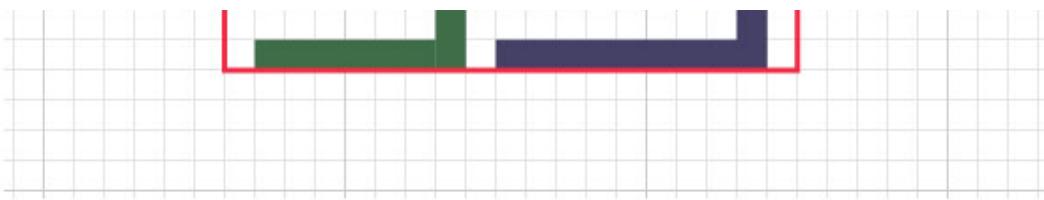
To make it a square, I would have to reduce its height by

four units so it fits the red square...

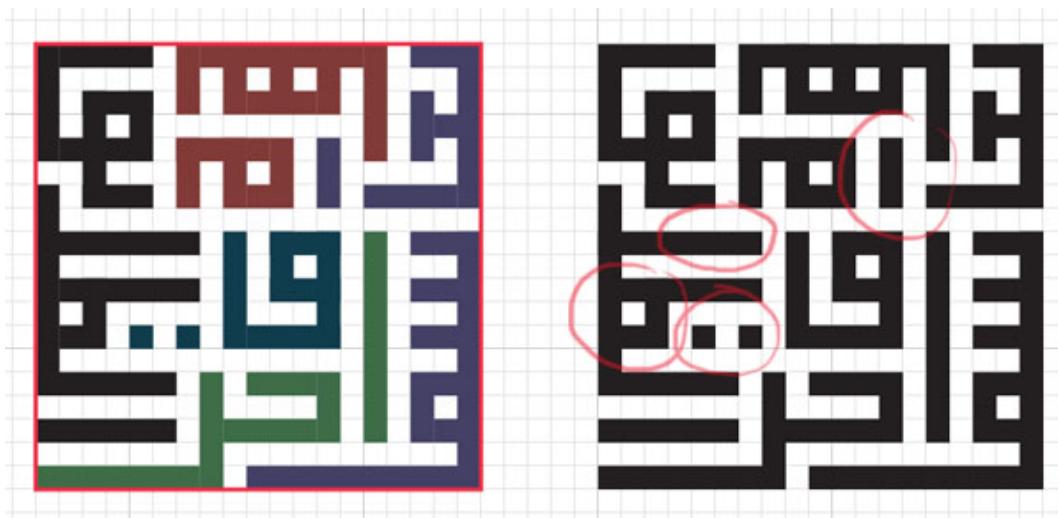


... or reduce its height by two and increase its width by two,
to fit this other red square.



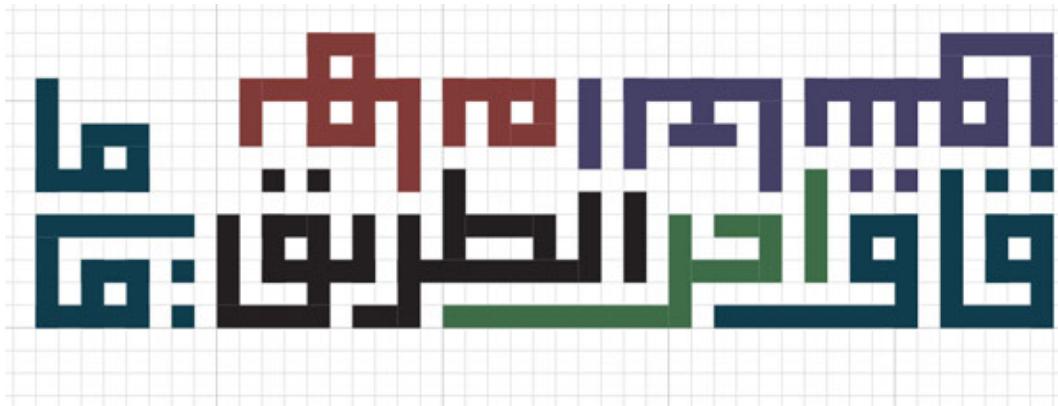


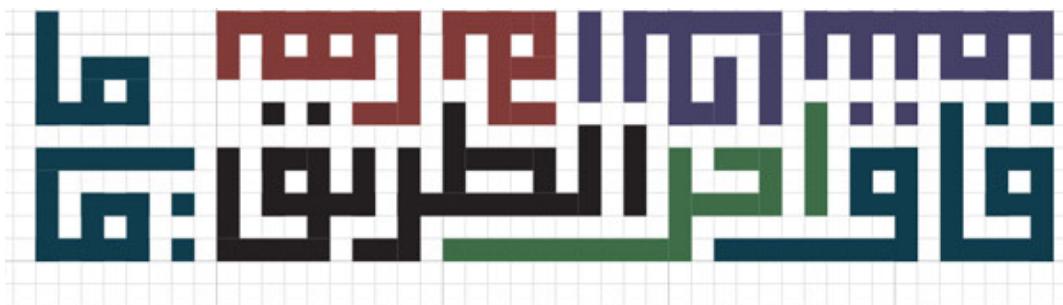
This I manage to do, but the result is frankly not exciting. Also, I've had to do some extreme manipulations that, while not forbidden, just don't sit well with me: the extra-compressed Tâ' ل, the Râ' ر so tall it looks like a Lâم ج, the Alif ا nowhere near where it should be, and the two dots that you'd never guess belong to Qâf.



Step 6: Return to the Original Plan

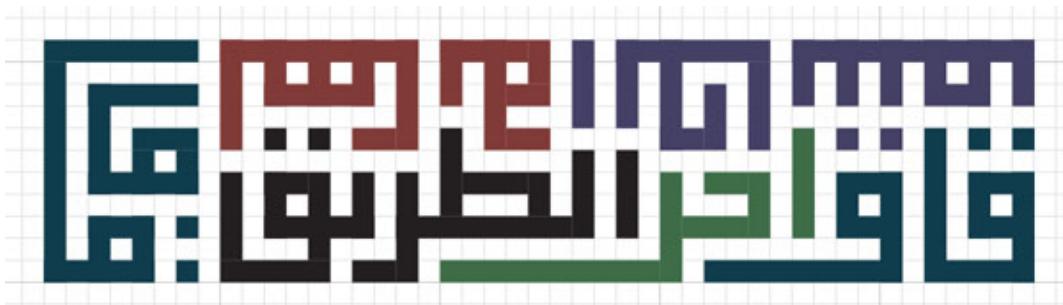
I therefore abandon this idea and return to the two lines fitting together. A few modifications are enough to fully fill the gaps and merge both lines into one rectangle.



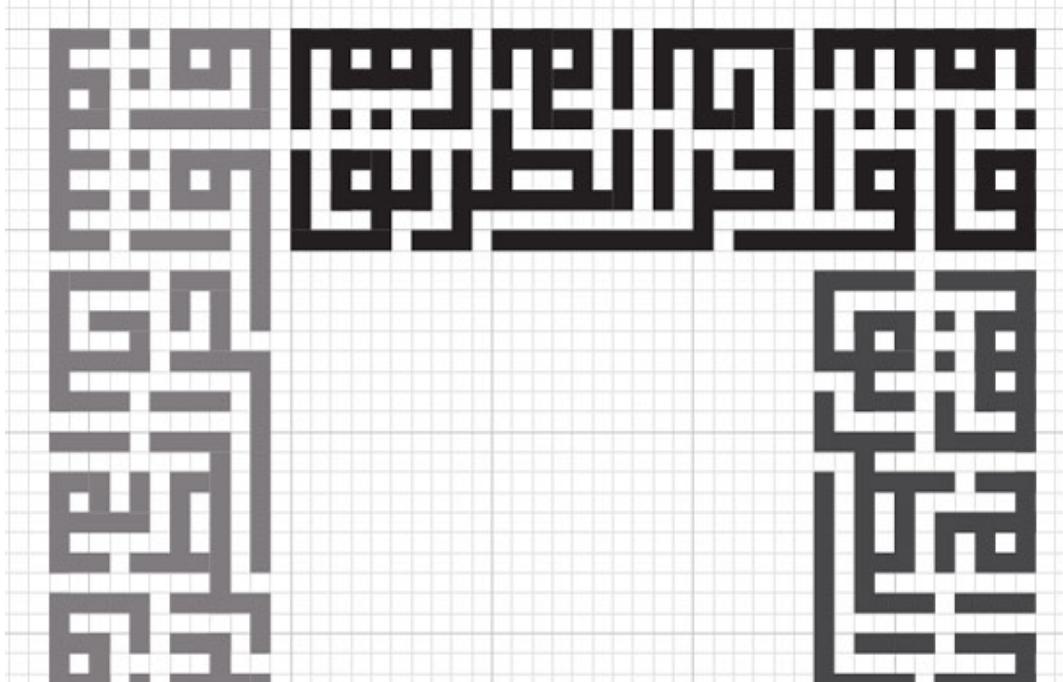


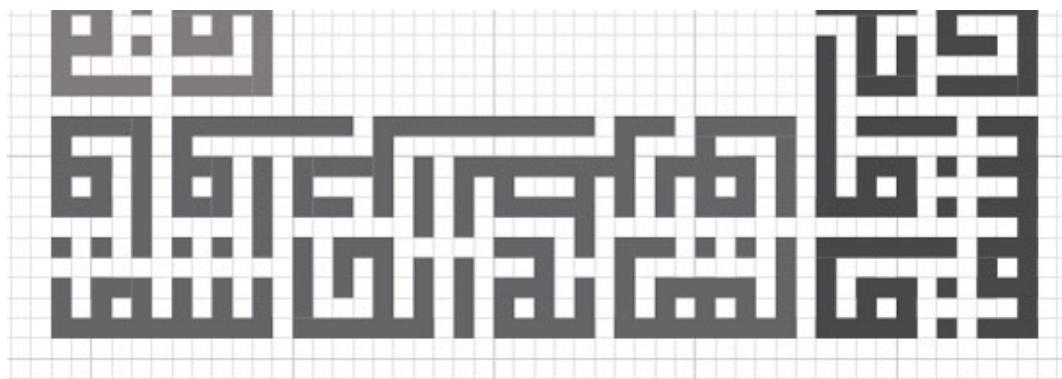
Step 7: Finalizing the Module for Rotation

The word at the left end can easily be fixed to be part of it, as below...



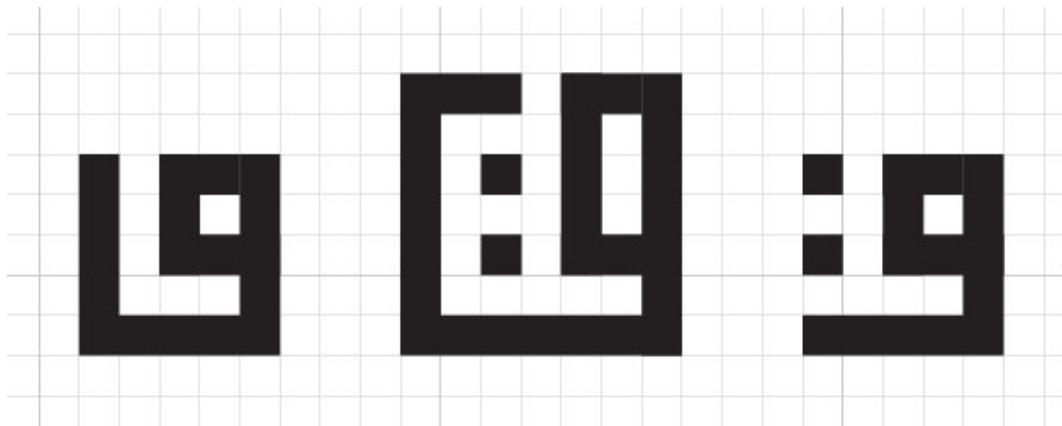
... but I decide to leave it out. The longer the rectangle, the bigger the central space when it is rotated to create a square, so leaving that word out to have a shorter rectangle makes for a tighter final composition.





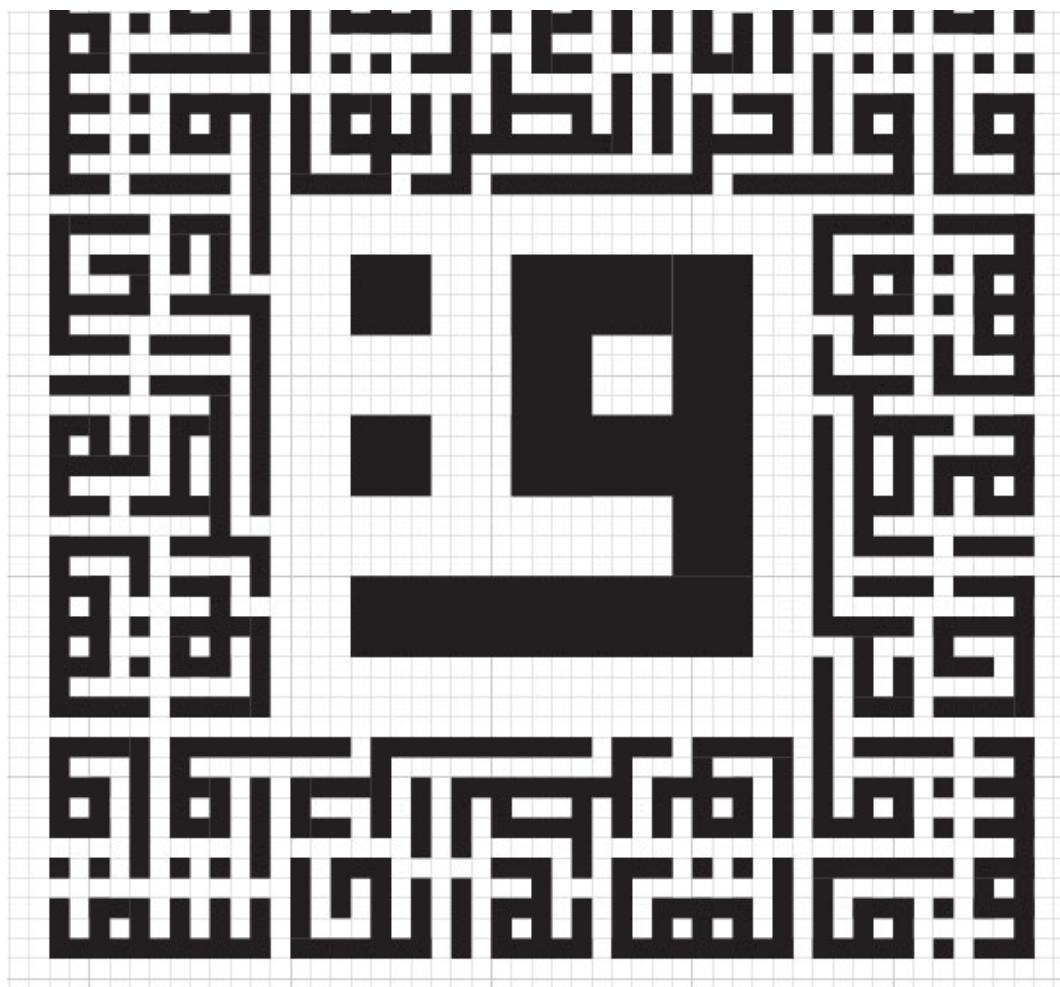
Step 8: Enhancing the Composition

Now I bring back, in a different way, my idea of having Qâf, the subject of the poem, at the centre. This central space is an entity of its own and could contain anything, even an image or a different calligraphy style. Here I'm going to stick to SK, but I am free with the scale, so I can create a design and then scale it up to fill the space. Only the space is square, so once again I'm looking for a square-fitting design. While the Qâf on the left is neat and a perfect square, I very much want to include the dots, so I'm going to go with the one on the right...

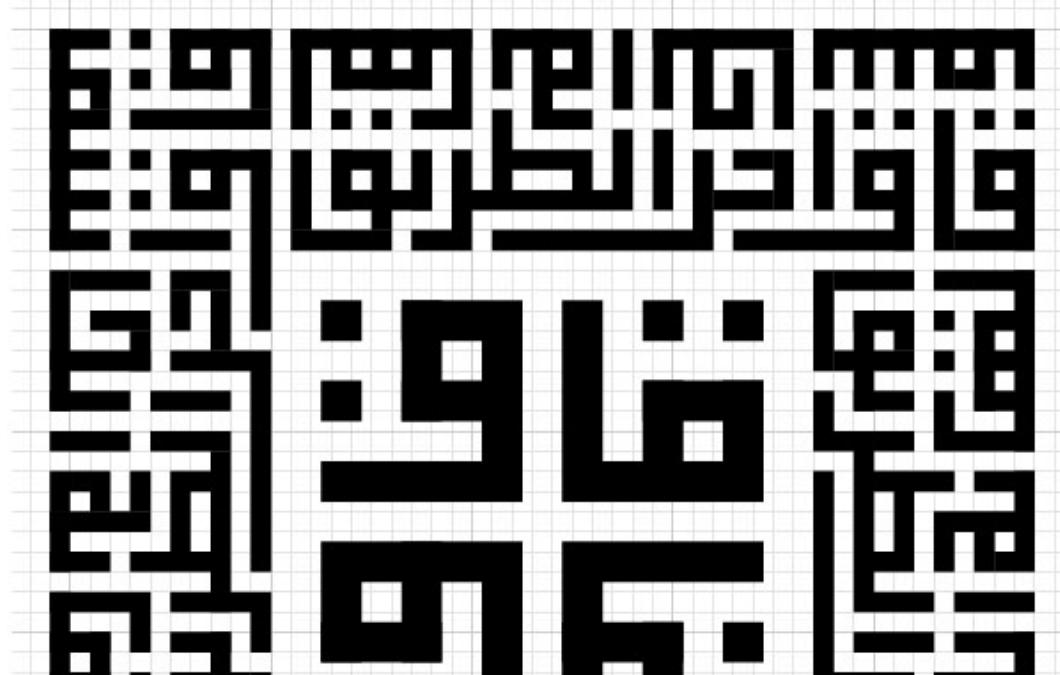


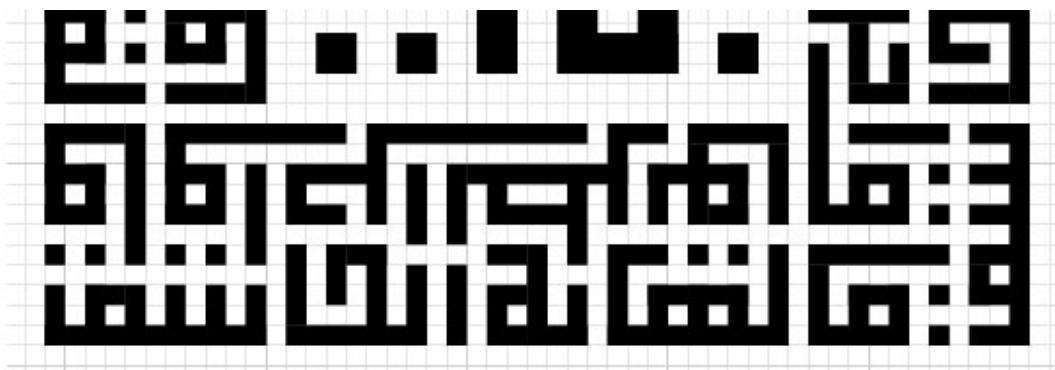
Here's how it looks after being made to fit the space. I'm not satisfied—it just looks too blocky in this size—so I'm going to try something else.





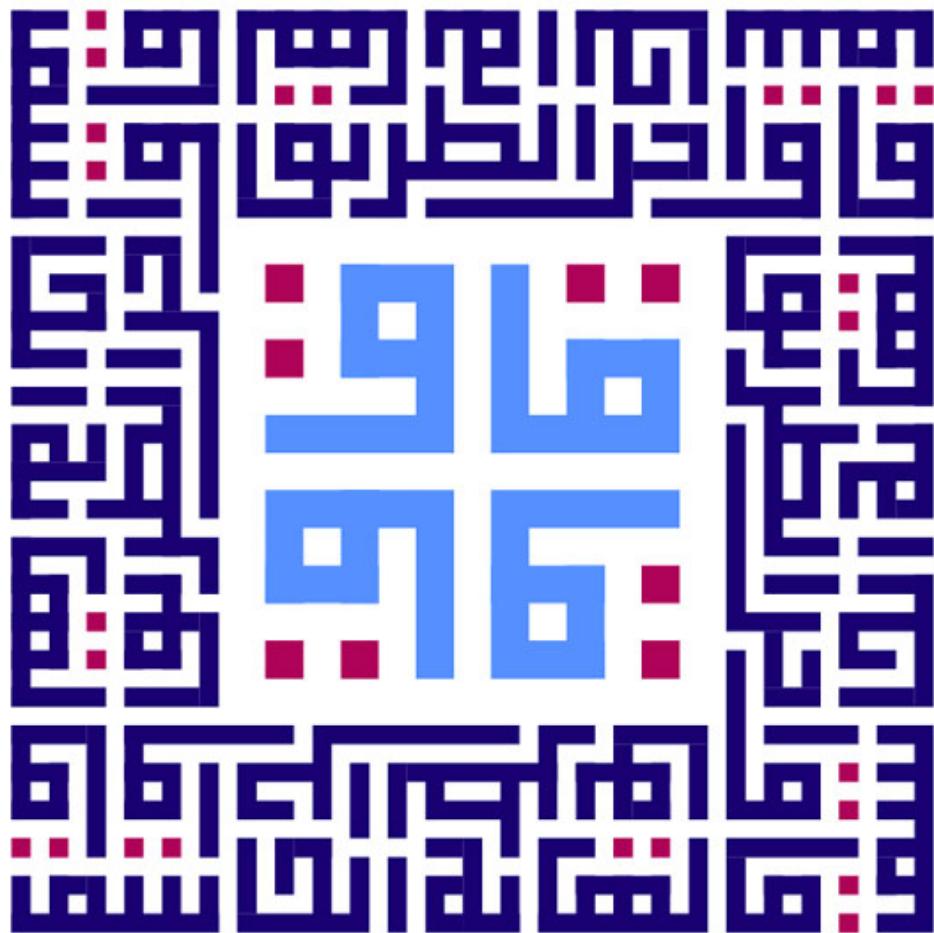
I rotate the design and scale that up: much better. There is a pleasing contrast in scales, but the central design is still small and intricate enough not to jar.





Step 9: Colours

I finalize it with colours, picking out the pattern of dots in a contrasting hue.



This was an insight into how composing in Square Kufic may go. Work processes are highly personal and develop

organically with practice. All you need to begin exploring this style are the grids included here, a pencil and an eraser—and patience, as it requires much trial and error in the beginning. I recommend starting with individual words on a square grid before moving on to multiple-word compositions, skewed grids, and finally the triangular grid!