QR POETRY

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Introduction

The QR code was developed in 1994 by a Japanese company, as a form of scanning at high speed that allowed tracking vehicles during the manufacturing process. [1] Unlike the vertical barcode, the QR is a two-dimensional barcode that allows much more information to be stored (hundreds of times): up to 4296 alphanumeric characters. On the other hand, up to 30% of errors can be autocorrected, being the QR readable even in case of noticeable damage. For example, the code in figure 1 is perfectly readable, the text corresponds to the first QR poem I wrote, and can be read with a computer program or a mobile app like QR Code Reader (Android, 2018).

Figure 1. QR code to which two central parts were erased on purpose.

The complexity of the image increases proportionally to the number of characters stored. The image in figure 2 (left) corresponds to the text "barcode error", only 12 characters, while the figure on the right corresponds to a complete sonnet: *Soneto de Repente* by Lope de Vega.

[1] https://en.wikipedia.org/wiki/QR_code

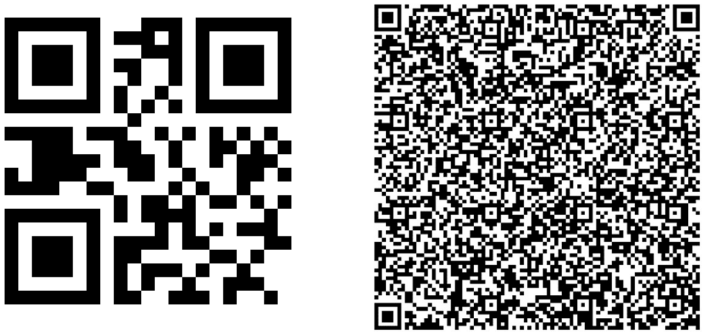

Figure 2. Left: "barcode error". Right: full text of the poem *Soneto de Repente* by Lope de Vega. To decode, print the squares or display them on screen at a size no smaller than 10 x 10 cm.

In short, a single QR code can hold around 8 complete sonnets! We are in the presence of an absolutely rational and codified translation from the textual to the visual. QR poetry could start in the form of one or more texts to be transformed into QR codes and organized visually on a page, or conversely, already generated QR codes could be organized to create a text, whether random or not.

Applications in literature and poetry

Taking into account the storage capacity of QR codes, it is expected that they can have many applications in the field of literature, being obvious the possibility of storing or printing extensive texts using very few storage units or printed pages. As an example of application, walls and floors have been covered with QR codes containing texts and coded poems.[2] It is also possible to intervene the external part of the QR image, such as the "Easter eggs" armed with QR codes, each of them containing a poem, for educational purposes.[3] The commercial initiative "A poem from us" (the site is no longer active but for sale) uses the same simple idea: a QR image = a poem, in order to create "object poems".[4] In the 2015 edition of the *Antología Itaú de Cuento Digital 2015*, a story by César Lobos presented in QR codes with images complementing the text won the first prize.[5]

Of course, poems or other texts can be stored with this code, but this is not what I understand as QR poetry. QR poetry should make use of the visuality of QR codes. There are several ways to do this: QR images can be intervened with colors or other additional internal images, without losing legibility. In addition, QR images can be combined with each other, or with texts, in a visual poem arrangement, either in the space of the page, or on a website, or in a video. That is, a QR poem can be defined as an image, or a set of static images, or part of a video, consisting of one or more (usually several) QR codes, which together make up a text or set of alphanumeric texts related between them. That is, on the one hand, the encoded texts are related to each other, for example, because they are part of a larger text (such as the story by César Lobos), and on the other hand the QR images are related to each other spatiotemporally, forming a single piece or a set of visually related pieces.

[2] http://architectsindependent.blogspot.com.ar/2010/11/qr-code-wallpaper-read-coded-poem.html.
[3] https://www.teacherspayteachers.com/Product/FREE-Poetry-Easter-Egg-Hunt-with-QR-Codes-1784405.
[4] https://www.builtinchicago.org/blog/poem-us-poetry-age-social-media-and-qr-codes.
[5] https://www.antologiaitau2015.org/codigos (thanks to Claudia Kozak for the info).

(Visual) QR Poetry: first trials

The one that I call *First Static Poem* was written in the form of text. When coding it with a computer program (such as CodeTwo QRCode Desktop Reader & Generator 1.1.1.17), it was transformed into the QR code of figure 1, which in this case has two parts that have been deleted with an image editing software. In any case, you can decode and read the text with the program or app mentioned above. Moreover, it is possible to combine QR codes with texts inserted inside the image. In figure 3 the image of figure 1 is shown, but containing text inserted in the "gaps" generated when part of the code is erased. Thus, the linear text interacts with the encoded text, generating a poem that must be decoded and also read.

Figure 3. *First Poem*, with incorporated linear text.

At this point we must make clear that some programs or apps encode text or characters to QR images and vice versa, that is, they also **DE**code QR codes to text or characters, while some applications only scan and decode the QR image. Many times the characters are not even exposed to the user, as for example in the scan that uses whatsapp to connect and log into a computer. Figure 4 shows a whatsapp code and the corresponding decoding, which as can be seen is encrypted and therefore is not a readable text.

1@HO8moJfF+M4egvogEdG1T+Hp5Cds6PsYjCLIFbVKVS/MaJIgJCVYw6S6,EOkxV0JNjdCK1OPT0G2DuDxW+h
8fIR+ohH9IHXqmhjw=,Tg4oMb7oq4WWjUwqFCYM0A==

Figure 4. QR code to start a whatsapp web session, and its corresponding decoding.

In any case, QR coding is undoubtedly a powerful tool for converting verb into *visual*, texts in "chess grids". A courageous idea arose then, perhaps bordering on heresy: converting the Bible to QR codes. Given its size, many coded images are needed to represent it. As an example, the complete Apocalypse of St. John is shown in figure 5. Each column contains a chapter of the Apocalypse.

The sonnet is a very old poetry format recognized in several countries of the world. A QR image can store any sonnet, since the number of characters would never exceed the maximum allowed by QR coding. As an example, the 14 lines of *Soneto de Repente* mentioned above, contains only 539 characters. It could then be created a sonnet made up of sonnets. If we define each syllable of the sonnet as a QR image, each QR code is the translation of a different sonnet. The sonnets (and therefore the QR drawings), should be repeated at the end of each line following the rules of consonant rhyme of the sonnet. Perhaps the most classical Spanish sonnet is composed of 4-4-3-3 lines by verse, all hendecasyllabic. Therefore, a QR sonnet can contain a maximum of 14 x 11 = 154 sonnets, but by counting the repeated ones at the end of each line so that it can "rhyme" (20 repetitions doing it with two codes at the end of each line), we would have in total: 134 sonnets.

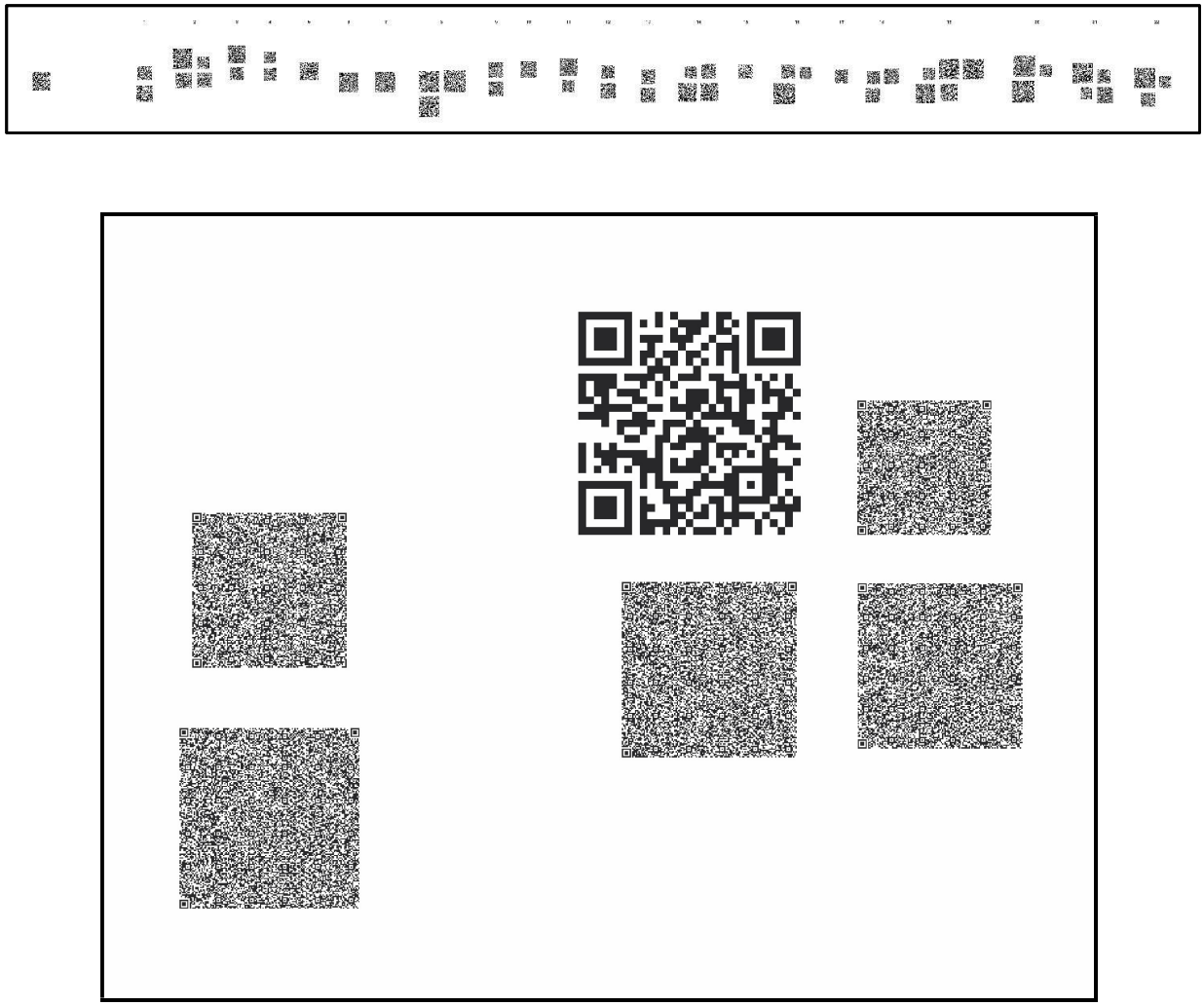

Figure 5. *Apocalypse of St. John* in QR code. Above: Complete text in Spanish following a pathway. Each column of codes represents one of the 22 chapters of the Apocalypse. (Not decodable at this scale). Bottom: detail that shows chapters 1 and 2 (left and right). In order to read the text by decoding, they must be displayed (or printed) at a size not smaller than 10 cm on each side.

The QR sonnet of figures 6 and 7 consists of 56 sonnets, and information about the format of the sonnet and the conceptual basis with which the work was created, in the form of QR codes, was added. The 154 QR images are made up of the 56 sonnets and the mentioned information, repeated in some cases throughout the visual poem (as well as the syllables are repeated in the textual languages).

In another scheme, each character of the sonnet could be defined as a QR image. In that case, the QR poem would have a much larger number of sonnets, for example 539 (a sonnet = a character), if we emulate the extension of *Soneto de Repente*.

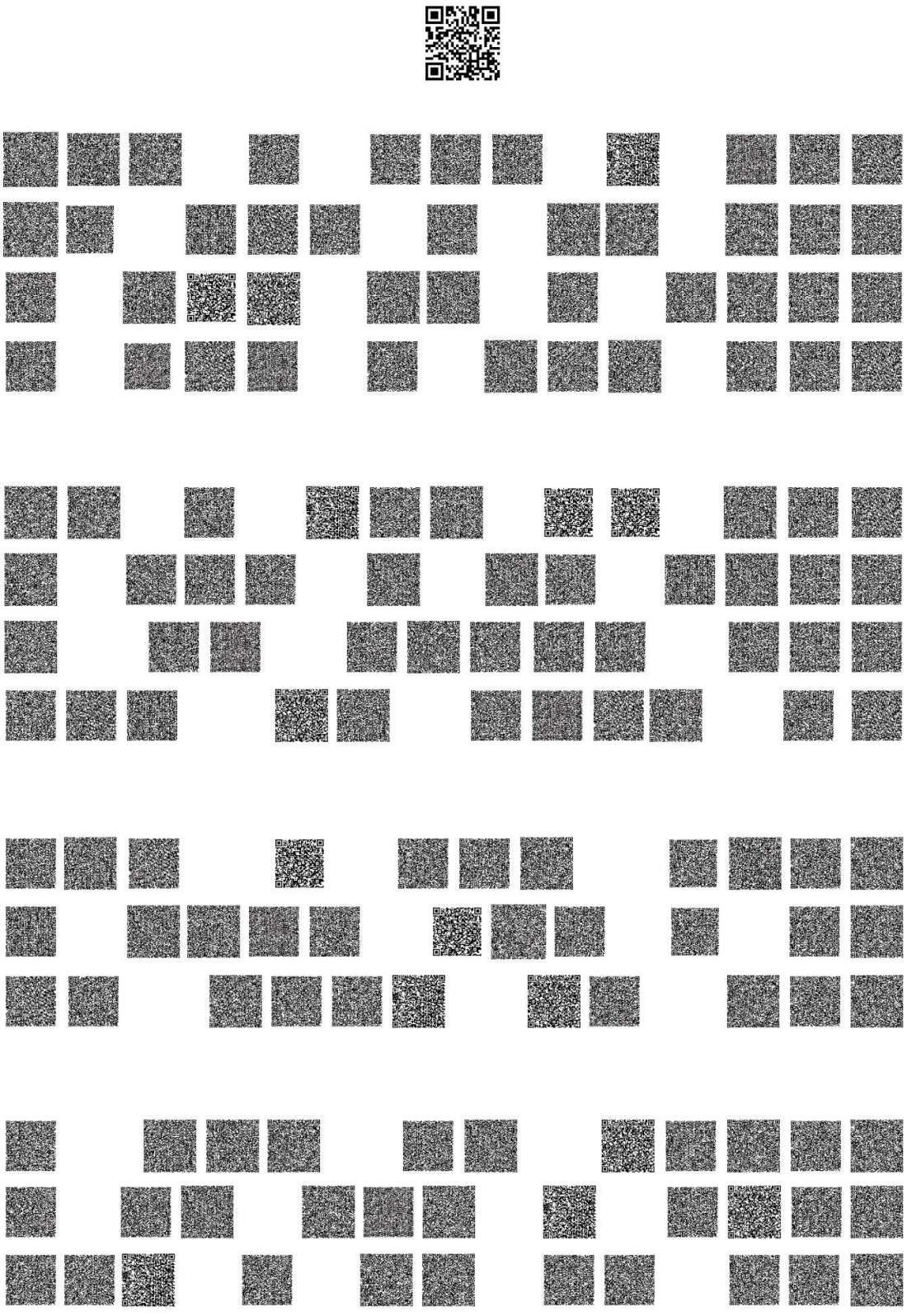

Figure 6. First version of a QR sonnet. (Not decodable at this scale).

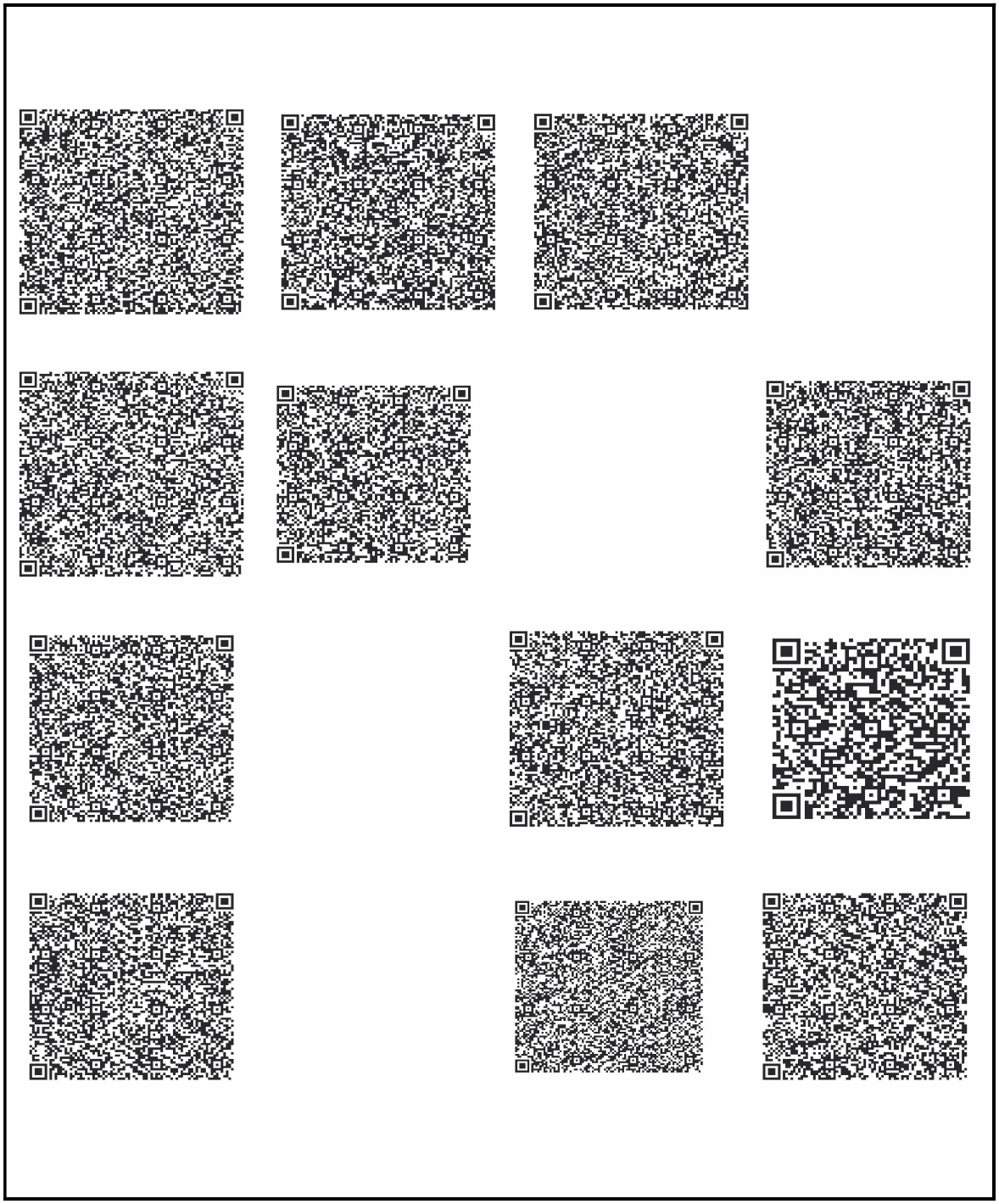

Figure 7. Fragment of the first verse of the sonnet, at the proper resolution to be decoded.

The QR images can also be combined with each other, and since there is the possibility of deleting parts of the image without loss of information, thanks to its auto-correction protocol, it is possible to place QR codes inside QR codes, and maintain the decoding capacity. In the following example (figure 8), the text of the QR image

"guest" is relatively complex, and bilingual, while the inner images represent short texts that are repeated and express: “ALL” and “NOTHING” (“TODO” and “NADA”).

The long text is the following:

QR en-in QR

(Código encerrado en código)
A TODO o NADA
Arsenicales huellas calza tu coneja\ cuando la codiacal murisma \ superfluamente clavícula \
Aspersiones pretensan canibalas de Madero cronopuerto \ Orzomujo de planicie calvicia talla \
Parénquima esquizoidea subreptiza co-roja JMCalleja \ olala pisingalla TODO solenoidica \
En brisasbrasas rasputinescas trotescas colosalamente ondiNADAs

(Code enclosed in code)
For ALL or NOTHING
Arsenical footprints fit your female rabbit \ when the codeacal murism \ superfluously clavicle \
Aspersions pretension Canibalas of Madero chronoport \ Orzomujo of prairie baldicia sculpts \
Schizoid parenchyma, surreptitious, co-red JMCalleja \ pisingalla ohlala ALL solenoidic \
In rasputinesques jogginesques breezeembers colossalltly waveNOTHINGs

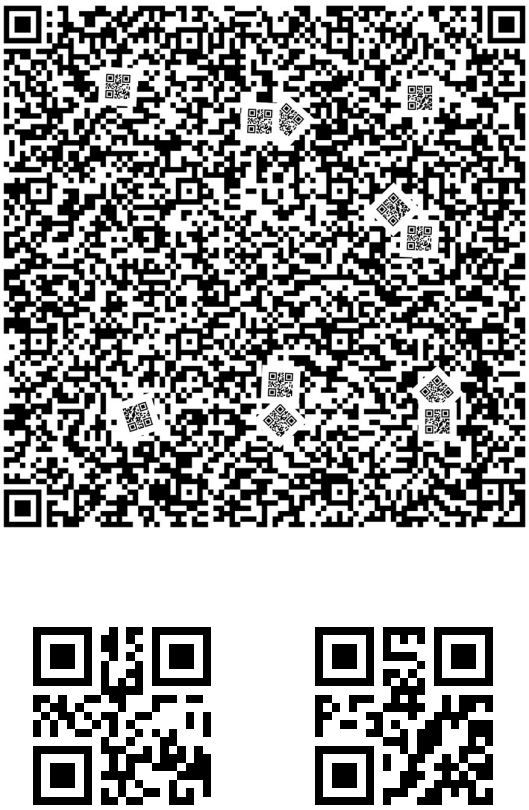

Figure 8. Above: QR images combined: short texts within an extensive text. Below: Short texts represented inside the image.

A world of colours

It is possible to use colors and other transformations of the QR code, and maintain its readability. The poem in figure 9 shows different formats and colorations of a QR code that contains the same text (bilingual) in all the images used:

Es seguro https://www.qrcode-monkey.com/#text

About FAQ Crome APP QR CODE API
DONATE
English Deutsch Español
URL TEXT EMAIL PHONE SMS VCARD MECARD
LOCATION FACEBOOK TWITTER YOU TUBE
WIFI EVENT BITCOIN

Enter content
Set colors
Add logo image
Customize design
Create QR Code
Download PNG

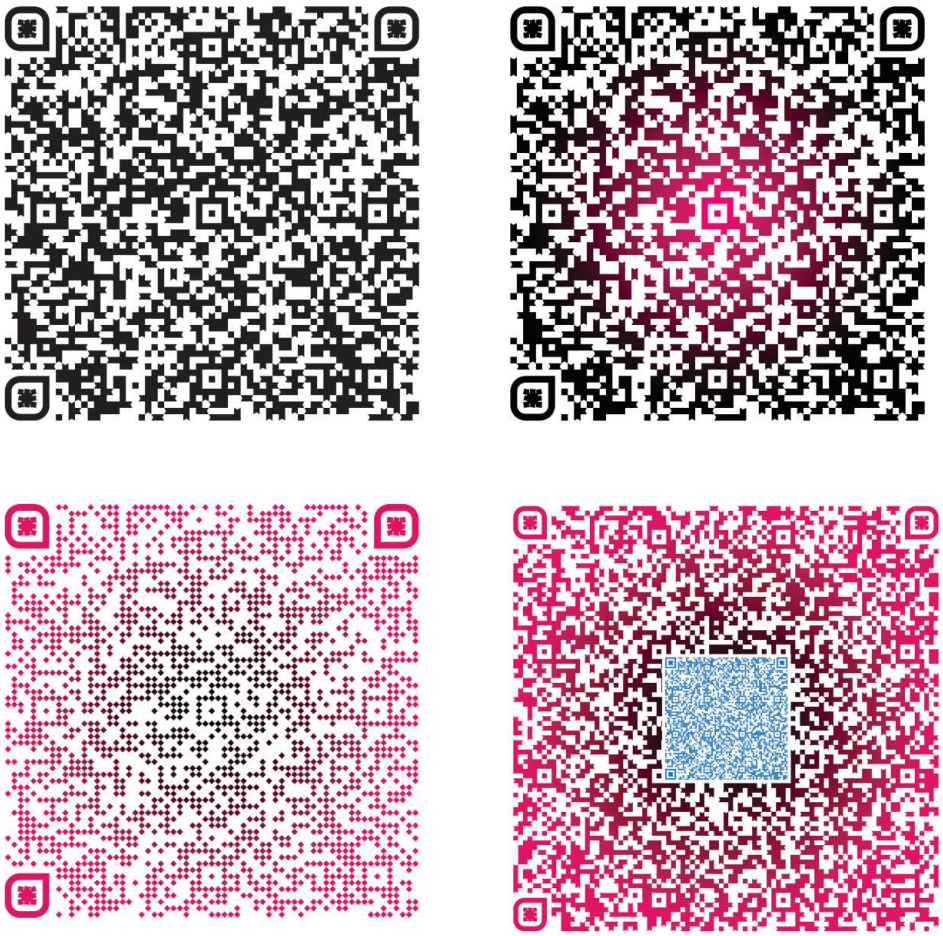

Figure 9. QR images in black and white and color, containing the same text.

In the poem of figure 10 the QR images dialogue with each other. Some of them are questions, other answers, listed in the table below. The question and its consequent answer are color-coded. But of course, each reader will be able to find alternative combinations of questions and answers (approximately 10^2).

¿Por Qué Romper saciando ser?	Maderas ahuecadas	MARRÓN
¿Qué Ronda la códiga miseria?	Carrousel programado	MULTICOLOR
¿Quizá Repita pasión programática?	Aliento celeste	CELESTE
¿Qué Rayos?	Truenen relámpagos	AMARILLO Y NEGRO
¿Quién Restrega alas de sopor urbano?	Cardenal cansado	ROJO
¿Quinta Rúbrica modifica su sello?	Aclaradudas fácticas	GRIS
¿Licita el remate de Queso Roquefort?	Apesta carroña	AZUL
¿Queremos Robar?	Con K´s y PRO´s	VIOLETA
¿En Quimera Resisten alimañas verdes?	Intentan supervivencia esférica	VERDE
¿Quieren Rezar?	Cruces, joyas, halos	DORADO

Texts that give rise to the QR poem of Figure 9. Each question or answer represents a QR image. Right column: color code.

Figure 10. Color QR poem "Questions and Answers".

QR images from the web

As expected, www is full of QR images used as codes or simply as a game. Figure 11 shows a poem composed by using some of these codes.

Figure 11. Poem composed of QR images downloaded from the web.

Moving texts and images

A text poem can be transformed into a sequence of QR codes to be decoded. This imposes somehow a challenge or game, since the viewer must decode the images (fast) as the animation proceeds. An example of this can be seen at https://www.youtube.com/watch?v=urX7ZaQHfQc

Another interesting experiment is to make a performance, recording the changes of the QR image live by entering a text that is continuously recoded as the text is written (i.e., as characters are added): https://www.youtube.com/watch?v=93HeqaGAQ-8

I hope that the previous thoughts will inspire many more ideas to poets and writers all over the world, since as I have tried to suggest, the possibilities of QR codes in literature are almost endless!