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تقنيات التهجين في تصميم الخطوط الطباعية العربية

The Hybrid techniques by Arabic Typeface design

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Abstract

"More than ever before, emerged Arabic type designers have the chance to share ideas and knowledge with European, and American colleagues. With the claim traditional letterforms can't fulfill the modern global demands, the legibility and readability shaped the core discussions about the future of Arabic typography. The discussion is closely linked with different interpretations for the meaning of hybridization of Arabic type. The first point of view explained hybridization as adjusting tool, where Latin typographic rules applied to Arabic typeface and known as matchmaking. (Smitshuijzen-AbiFares, H. 2007, 18) The second based on creating two scripts like the Latin and the Arabic simultaneously and upon unified structure and known as bilingual. Others understood hybridization as an invitation to rediscover own heritage by using old grids or traditional letter-components of archaic styles like Naskh or Kufi, as bases for new typefaces. However the three interpretations seem to be contradicted in their aesthetical and economical functions, but from micro perspective, they complement each other, and enriched the contemporary Arabic typographic language.

The relativity-limited number of research that focused on clarifying the variations of hybridization concepts and techniques in Arabic typeface design, create difficulties and inconsistency by graphic design courses and practice. The main objective of the paper is to clarify to graphic design students and emerged Arabic typeface designers how to choose freely the adequate method for creating new fonts, which can fulfill contemporary demands, such as website, mobile applications, street signage, TV captions, and printed body text.

The research will describe hybridization: Its meaning and diversity in Arabic typeface design (chapter 2). Chapter (3) will briefly explore the meaning of a letterform and anatomy, and suggested new Arabic type anatomy. In chapter (4) the conclusion will be defined on the light of suggested practical technique for Arabic typefaces design, where the major steps will be described and illustrated."

Arabic Typeface, Arabic Type Classification, Arabic Typography

Hybridization: History, letterform, and anatomy

The term hybrid stands out of the noun hybridization that signifies the process of combining different varieties of organisms to create a hybrid. (Longman dictionary 2012, 504) "Tahjien" is the Arabic word for hybridization. According to Al-Mawrid dictionary it means as much as

crossbreeding; hybridizing genetics the act of mixing different species or varieties of animal or plants and thus to produce hybrids. (Baalbaki 1995, 383) In design, the meaning of hybridization doesn't stop by the physical act of mixing or remixing or overlapping of two or more different "traits" or "alleles" together. In its core, hybridization has more to do with mixed ideas and concepts, and the action of re-mixing, reviving, and extracting. Through out the history of writing and printing stands hybridization behind the existence of many archaic styles. (Compare Friedrich 1966, Jensen 1925, Gelb 1959) By the beginning of the 20th century the modernization of Egypt, Syria, Lebanon, Iraq, and Morocco, was closely connected with hybrid activities, which found place on a later stage in the rest of the Arabic countries. It had started with the spreading of western ideas and systems that strongly appear in architect, fashion, painting, sculpture and print graphics, and not primarily in typeface design or typography. Same while, great European artists like Picasso learned how to get inspired from African masks, and Monte from oriental bright colors and light. Egyptian artists like Mahmud Mokhtar (1891-1934), Mahmud Said (1897-1964), transferred their European experiences with modernism to their countries, and created hybrid visual language that reflected expressionism, surrealism, etc. The fact that such pioneers opened the path to modernize Arabic typeface design confused researchers like Smitshuijzen, where the modernization of Arabic typefaces described as a mere European project (Smitshuijzen, E. 2015, 19)

However, we have to admit that Smitshuijzen's Arabic font specimen book (2015) is one of the greatest efforts we ever seen in our field. Important was the raised issue about the lack of unified terminologies and categories by the Arabic typeface anatomy and classification. (Smitshuijzen 2015) Reasons behind that are not clearly explained! Hypothetically, the intensive usage of hybridization's techniques (Latin and/or to Arabic) by Arabic type designers, along with the lack of Arabic researchers, and type designers, who are interested on examining and analyzing the typeface variations as a result of different functional aspects, build the main reasons behind this dilemma. It is quite obvious that most of today's Arabic designers are using hybrid ideas, borrowing design techniques and features from successful Latin typefaces such as Frutiger, Helvetica, and Universe, without knowing how to classify or categorize their new creation! Some of them used the term "Grotesk" because their fonts maybe based on one the above-mentioned Grotesk fonts others used terms like "Hybrid", "Post-modern" or "Black Headlines

."

Figure 1: The form construction in Arabic and Latin alphabets
Abdalla 2016.

Arabic hybrid attempts between 1940s and 2000s

On the light of serious hybrid attempts in Arabic typeface design, hybridization will briefly explained as concept with various techniques. Since the 1940s, the concept of hybridization was known among the Arabic pioneer typeface designers. In 1947 the Lebanese Nasri Khattar (1991-1998) finalized his simplified set of thirty Arabic letters. (Khoury 2014, 102) The unified Arabic typeface (UA) appeared in two versions: Unified-Detached and Unified Attached. By the detached version, Khattar, broke the traditional Arabic writing system, and separate the letters like in the Latin script. Khattar's went through other project, where he simplified the letterforms and established other typefaces "Simplified Naskh" in two variations with set of 60-65 letters. A similar idea of "simplifying" has been acquired and patented in 1949 by Said Bustany but with unified set consists of 35 Arabic letters. (Ibid. 125) By the 1990s produced the German company Transotype "Unified Arabic" as decals along with other fonts: Beiruti, Kufic, Al-Raya, and Neo-Naskhi. (Smitshuijzen-AbiFares, H. 2007, 10). The new waves of simplified or unified typefaces could serve the modern technologies at this time, but the idea of detaching letters have been rejected by most of the Arabic readers. However, the UA project remains important as an invitation for creating hybrid forms and finding new solution for contemporary Arabic typefaces. In contra, the Naskh-based font from H. Zapf's for the Egyptian newspaper Al-Ahram (by the 1960s) has been used successfully and later found followers from all over the world, such as the Thomas Milo, who had done great efforts to design a platform called "Tasmeem" and is the founder of Deco Type, the first in the industry to introduce the concept of intelligent fonts (Ruqah in 1986) and to develop Arabic script solutions based on systematic research into the Islamic calligraphy. (Milo 2002)

Between the 1960s and the 1970s, appeared different hybridizations' attempts stands out of the cooperation between European designers and Arabic calligraphers such as the typefaces from Lyubov Alexeyevna Kuznetsova: Cairo, Naskhi Aswan, Naskhi Book, and Kuznetsova's Ruqaa in the 1960s; Azardbud Display, Zarrin Hatt, Vostok, Kuznetsova's Abridge, Beyrouth, and Gorot in the 1970s; and PT Naskh Ahmad, PT Basra, PT Damascus, PT Nastaliq, and PT Thuluth. (AbiFares 2001, 210) The new typefaces were mainly revivals of

old styles, and didn't reflect great modernization attempt. Other hybrid wave based on remixed of traditional letterforms with modern typographical treatments.

The trail of Yahya Bouteméne in 1952 based on totally Latinizing Arabic letterforms, where the traditional proportions disregarded and replaced with Latin letterforms that have been filliped, re-combined, and re-modified. (Khoury 2012, 122)

In the 1980s and the 1990s appeared serious academic attempts in Egypt, and in Lebanon. In 1983 commissioned the Ministry of Transport the Egyptian designer F. Gouda to design the traffic signs of Alexandria – Cairo desert road, and subsequently applied them on the all highways of Egypt in the same year. Goudas' font based not only on simple Kufi with unified stoke thickness and curvy edges, but also on his observation for the way of usage of Grotesk in European applications. In 1990s published several Arabic designers their attempts for modernizing body text fonts that based on Naskh style. (Abdalla 1997, 266-295) The unified counter-forms, the enlarged loops and the excluding of any blocked counter-forms, become a standard. Along with the usage of unified x-height, decreased ascenders and descenders by matchmaking or bilingual projects of the 2000s, appeared once again the revived old concept of Arabic-Arabic mixing method (Naskh with Kufi), side by side with the creation of modular typefaces upon huge variation of grids' systems. (Abdalla 2017)

Hybridizations' techniques

The matchmaking technique

The three well-known techniques by Arabic font design are the matchmaking, the bilingual, and the traditional. They are resulted out of workshops, projects, Master and PhD theses, and innovative ideas from European and Arabic type designers, typographers, and calligraphers. (Smitshuijzen – AbiFares 2007, 18) The matchmaking and the bilingual techniques ended up with almost the same results, where the Arabic and the Latin letterforms look similar. Even by differ type functions i.e. body text, or display, or headline, letterforms should indicate the hybrid process in their stroke qualities and proportion in both scripts in the same style, and point size.

The term matchmaking is coined by Huda Smitshuijzen–AbiFares in 2004, and has been executed as a project in April 2005 between a group of Dutch and Arabic type designers. (Ibid, 20) The technique based on designing new Arabic typeface upon the following criteria:

1) "The Arabic font and its Latin counterpart were to have the same visual size at the same point size.
2) The Arabic fonts are to be designed in two weights: a regular or book weight for running text, and a bold weight for headings (excluding italics, which are not a common convention in Arabic typesetting).
3) The Arabic fonts would have the same "look and feel" as the Latin font, with similar design details like stem weight, color, letter contrast and stroke endings.
4) The results should be truly bilingual fonts.
5) The fonts should accommodate the Farsi as well as the Arabic languages in their character set.
6) The fonts are to be professionally produced to work on commonly used Arabic DTP software.
7) New Arabic typefaces based on existed Latin typefaces.
8) The Arabic letterforms based partly on calligraphic traditional techniques. Changes could be executed, especially in proportion or/and other characteristics." (Ibid, 21-22)

While we can argue about the core concept by this manifesto, mainly the usage of Latin as a benchmark for the Arabic form-quality, and not as inspiration tool, it's important to

mention that most of the results own strong flavors of the classical styles Kufi and/or Naskh. There is no doubt that Khatt foundation is a respectable institution and a platform for outstanding Arabic typeface designers, who are welling to renew the Arabic typographic language. But for emerged designers it will be useful to get inspired from its outcome, rather than following its concept. For example the typeface "Sada" designed by Pascal Zoghbi, reflect harmonically combination of two contradict resources. Same while its letterforms' components based on numbers of rounded and stiff strokes that mirroring a smoothness beautiful rhythm in the move from a stroke thickness to another, and from one character to another without creating any visual distortion. Even though the word image of Sada indicates in its visual semantics, a foreign resource, it lives harmoniously side-by-side to other traditional with different heights. Zoghbi succeeded to create new word image, a style, and even a model, that based on the skeleton of Arabic archetypal without losing his hybrid way of thinking. However, the rest of the outcomes reflect well-regulated mixture of Arabic and Latin typefaces, where each script can be used for its own. The idea of matchmaking invited us to learn more about legibility, to understand the typographical language of modernism from hybrid perspective, and to gain more knowledge about our Arabic visual readings' habits.

The Bilingual Hybridization: Latin with Arabic

By the 1990s the demand for multilingual typefaces has been increased, especially in the fields of corporate branding, online graphic design applications and street signage in the Middle East. The hybridization process crossed the act of mere simultaneous development of Arabic and Latin letterforms, it is now represent a verso versa manipulation of characteristics, form-spirit, and global visual aesthetics. The technique depends on much more closer cooperation between designers rather than the one of matchmaking technique. Designers of the two scripts chose certain class to unify the virtual lines (i.e. the ladder) in both scripts. In contra to the Latin script, which based on five main heights (x-height, cap-height, ascender, descender, and baseline), the Arabic script can only unify the descender and ascender lines, but allowing the multiple heights in the spaces between the baseline and the ascender, and between the baseline and the descender (Figure 3). Unlike the matchmaking, the bilingual technique is closely connected to the time of creating, and with the cultural environment of the used languages. Only through a deep understanding for the traditional rules of both scripts, the modernization of Arabic typefaces will be more likely possible. Bilingual technique shouldn't be seen as equally distributed number of elements in both scripts. The chosen type class or model in both scripts are the real regulators for any future step. Hybrid means here as much as removing contradictories, remixing, and following unified characteristics and proportions simultaneously in the Latin and in the Arabic typeface versions. Designers have the freedom to select any class. They are not limited up to certain anatomic rules of one of the old or the new models.

The Hybridization Arabic-Arabic

Hybridization techniques are not limited up to the relation Latin-Arabic and/or verso versa. It includes also the relation Arabic-Arabic that includes the renewing of old letterforms upon modern functional needs such as newspaper's headlines, and body text, etc. The newly created class "Modern: Semi-Geometric: NasKufi" is a good example for this technique. (Abdalla 2017, 5)

Designer's benefit from the clear form-contrast of the Naskh, and the relatively economic proportion of the simple Kufi. Astonishing is that the stiffness of Kufi reflects a lot of common features with the linear Grotesk, and the idea of modern typography. (Abdalla 1997, 120) While the Kufi based on limited number of virtual lines (between four and five lines), the Naskh is based on at least seven virtual lines. The Arabic-Arabic fonts can include the classes "Naskh-Sahafi", "Naskh-Linear", "Naskh-Jadid" and "Kufi-Jadid". (Abdalla 2017)

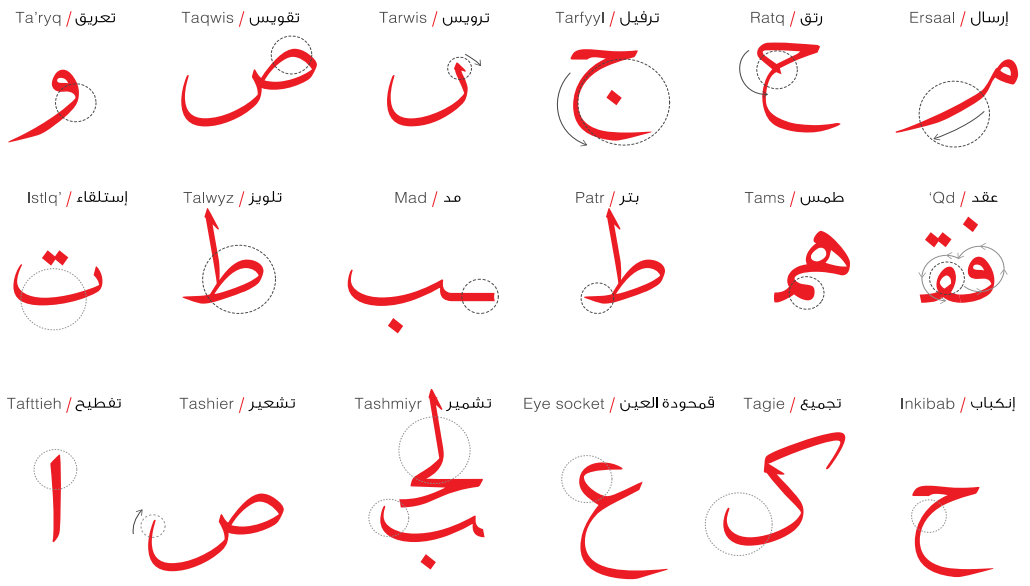

Figure 2: The traditional Arabic calligraphic terms. Gacek (2001), Bahnasi (1995), Jaburi (1999).
Abdalla 2016.

Elements: Letterform, type anatomy, proportion

The Letterform

A Letterform is composed out of one or several strokes that acquired especial qualities to build an "archetype". An archetype is the model of a particular letter, and is what distinguishes it from other letters and makes it recognizable. (Aicher 1988, 166-167) A group of letters or archetypes that share common characteristics are described as alphabet or script.
Each script has its own specific system of writing, and physical construction or anatomy. A script contains of certain number of letters that have been codified and passed along over the generations. Letterforms remind us with other images of many objects. They are somehow iconic and originally derived from pictographic drawings-like the hieroglyphs of the ancient Egyptians-representing real-world objects. But from the time of Heidelberg till today, there was enough time for the western typographers and type designers to understand the image of a letter as a preeminent over its pictorial origin. The visual qualities of the Latin form drove modern typography at every level: Starting from the anatomic images of each letter and giving names for each part of it, till

structuring the entire typographic grid systems of a printed or displayed page. (Touborg 2011, 16-50) However, because of the relatively short experience with typography in the Arabic world (almost one hundred year), different typographic experiments are still in progress. Interestingly, the core structure or the skeleton of the Arabic and

The Latin alphabet based on twenty-six letters, which built out of visual system contains lines and spaces where letterforms described as codes for our understanding of typography. The Uppercases or capital letters are the oldest forms in the alphabet, and the most simply drawn. The capital letters are made of a variety of linear forms: straight vertical and horizontal strokes, diagonal strokes, and circular strokes whose inherent qualities are simplicity and differentiation, as illustrated in figure 1. The small letters are more complex and characterized by rounded strokes, with more different heights.

The Arabic script contains of twenty-eight primary letters that have been built out of visual system contains lines and connection system where letterforms changed their shapes according to their position in the word. Twenty-three letters have four form-variations: isolated, initial, medial, and final. Seven letters have only two alternative forms. In some references, the Hamza considered as glottal stop that comes

the Latin letters are based on three main strokes: Horizontal, Vertical, and Diagonal; and two geometric shapes: The circle, and the half-circle. Three main criteria

distinguish the Arabic from the Latin: The connections' system, the writing's direction from the right to the left, and the anatomic nature of some classes. (Figure 1)

in three vowels Alif, Waw, and Yaa, in other references the Lam-Alif and increase the number to twenty-nine. (Jensen 1925, 130) Out of the twenty-eight letters there are eighteen basic letterforms, and with adding the Lam-Alif it will be nineteen. (Bahnasi 1999, Kühnel 1972) The Arabic language uses a miniature letter or small letter-like shape, the hamza, as an addition to an existing character to create a few extra characters. In order to help the pronunciation of the spoken sound, Arabic script contains of four vocalization marks-lines and four vocalization miniatures. (Milo 2002, 124) In a few cases vocalization marks are necessary additions for avoiding uncertainty. Therefore, in most cases vocalization marks are used only sparsely. For calligraphic aesthetical function, calligraphers created embellishment marks, where the Arabic script have marks, some identical to the vocalization marks that are used for making the text look nicer such as names, titles, or quotations from the Quran. (Abbott 1938)

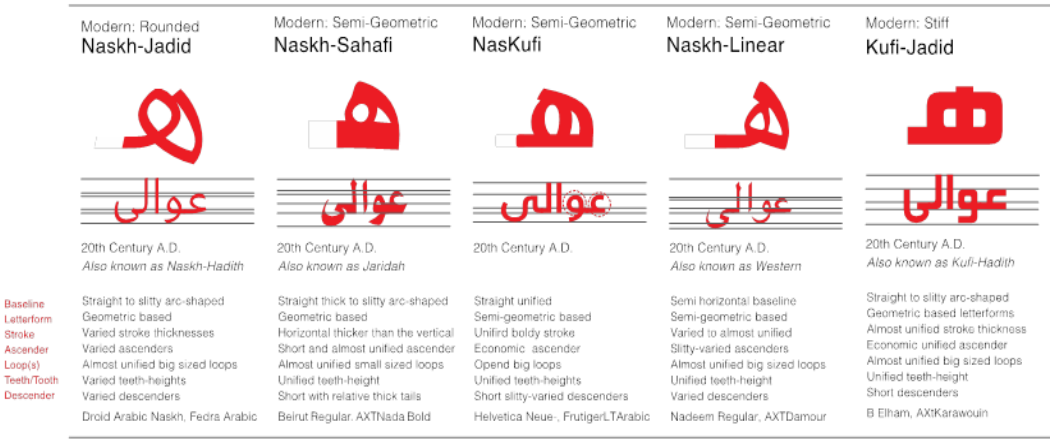

Figure 3: The form construction in Arabic and Latin alphabets. Abdalla *2016.*

The Arabic type anatomy

It is hard to believe that Arabic type designers couldn't establish a comprehensive and agreeable Arabic type anatomy. Most of the new Arabic typefaces are inspired or designed through intensive cooperation between foreign type designers, and Arabic typographers or calligraphers. (Smitshuijzen-AbiFares 2007, 17-23) From one side the traditional terms of the Arabic calligraphy, especially of the rounded or cursive ductus, are not common any more. From other side the huge number of the newly designed Arabic typefaces based on hybrid characteristics and anatomy, which have less to do with the traditional terms. However, in this research an initial attempt has been created to combine traditional terms of Arabic letterforms with the limited number of recently integrated typographic terms. Part of the still in use common calligraphic terms among professional calligraphers, have been compared with the described terms by trusted references such Abdelkebir (1995), Al-Jaburi (1999), Bahnasi (1995), Abdalla (1997), and Gacek (2001). In a new designed infographics, the old terms will appear side by side to the three added terms x-height, loop-height, and tooth-height. Some of the nineteen traditional calligraphic terms of Thuluth have comparable terms in Latin; others are generally assigned to the Arabic rounded ductus, the Naskh, as following:

1) Asabe = Fingers (pl.): All the stems of the letters in Alif, and Lam.

2) Zulf = Serif: A serif-like short diagonal stroke mostly by the start of Alif, and Baa. (Gacek 2001, 63)

3) Hagib =Eyebrow: The upper-part of the bow by Ain, Yaa-isolated. Also called half moon = Helal.

4) Qafaa = Nape: The right backside of the neck of Alif, Baa, and Taa.

5) Mahgr or Ain = Socket or Eye: All curvy closed counters like in Feh, Mim.

6) Raas = Head: The Upper part of letters such as Alif Mim, Sad, Qaf, Waw,

7) Qaws = Arch: A curved part of a loop, bowl, or an eye in letters Mim, Sad, Qaf, Waw.

8) Sinn = Tooth: A half-nib of a calamus that indicate as well all small vertical strokes of the Seen, Baa-mid, Yaa-mid, etc. that are above the baseline and below the Alif. (Gacek 2001, 72)

9) Matmous = Blocked counter: Usually with style Naskhi and Muhaqaq. Closed the counters of letters that have a small almond knotted shape like the Ain, Mim, and Waw.

10) Sadr = Chest: Usually with rounded styles. The middle part of the Yaa or Qaf that link the upper part with the lower part together. Function like the "spine" by the Latin.

11) Arqafah = Vein: The rounded or curvy shape by letters like the Ain, Mim, Yaa, and Waw that linked the upper part with the lower one.

12) Kasah, Hawd = Bowl or Girdle: The curved lower part of the character that encloses the circular or curved parts (counter) of some letters such as Nun, Qaf, Sad.

13) Lawzah = Almond-shape: All letters that formed in oval figure, such as Sad, Taa, etc. (Gacek 2001, 133)

14) Dhail or Thanb = Tail: The curved end of the lower part of the character that encloses the circular or open counter of Nun, Qaf, Sad, Waw.

15) Sharah = Stem of Taa.

16) Odhon = Ear: The upper part of the Ha-middle.

17) Khatt el-Istawa or Sattr = Baseline.

18) Nozoul = Descender.

19) Saed = Ascender.

20) Mistarah: Virtual lines or guidelines like ascenders, and descenders (Gacek 2001, 68)

21) X-height: (Lat.) has no equivalent term in Arabic

22) Loop-height = the height of Fatha or Eye = Ain in Arabic. Assigned to all the

23) almond shapes or heads of (Waw, Dad, Sad, Taa, and Ain).
24) Tooth-height: The term tooth means in Arabic Sinah, and assigned to the letters (Seen, Shin) and all the heights that have short stems and positioned bellow the Alif.

The Proportion

Without proportion, letterforms will be meaningless. Proportion describes the division of strokes within certain glyph or space and establishes visual balanced from. (Puhalla 2011, 112) Proportion means as much as compering one stroke to another, or one letter to another. To construct a letter, to form it, or to shape it, are three different actions by scribing, or designing a letterform. Talented calligraphers have skills and abilities to use reed or quill pens, or speed roll nibs to construct and to form letters in one or more action. They know by heart the correct measurement and direction by which each stroke will be connected to another stroke to form a letter. (Tselentis 2011, 9-13)

By Arabic and Latin calligraphic measurements systems, everything starts with the size, angle, and shape of a dot, which is made out of chosen nib or pen width. By the Latin calligraphers create number of points out looks like a ladder, where the chosen nib width determines the proportional relation between the baseline and the lowest descending and the baseline and the heights ascending. The Arabic script compiles letters–exactly like the Latin- out of strokes with different sizes and shapes. (Gacek 2001, 25) The only different is that each stroke is measured in relation to the Alif height, and not upon the unified Latin ladder system. A compiled letter called "Harf Mujmaa", where every stroke is measured upon numbers and size of a dot (nib-width). (Bahnasi 1995, 13) This way known as dot system=Nidham Noqtah. (Figure 6)

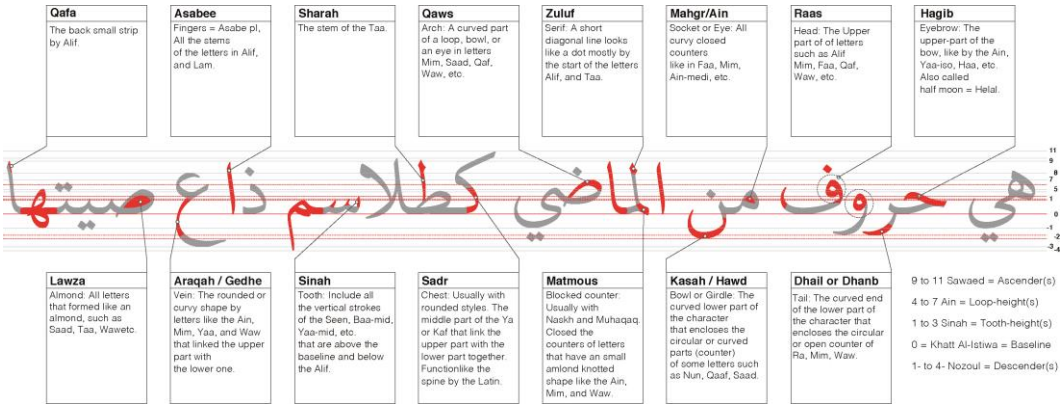

Figure 4: The Arabic type anatomy. *Abdalla 2017.*

The main measuring system by the Arabic calligraphy has been created by Ibn Muqlah (885-940 A.D.), and known as the circle system (Nidham Al-Dirah). The height of the Alif determines the diameter of the circle, the width of the letter "Baa" and the proportion for the rest of the letters. (Fig. 5) In his intensive study about the aesthetical rules of the Arabic script by Ibn Muqlah, explained Maher Raef (1929-1999) (1972) how Ibn Muqlah connected between the proportion of letterforms with the human anatomy, and the musical notes. His interesting argument based on three main recourses: Al-

Qalqashandi (1355-1418), Rasail Ikhwan al Safa (the Brethren of Sincerity or Purity, between the 8th and the 10th century A.D.), and the calligraphic style of the pioneer Egyptian calligrapher Said Ibrahim (1897-1994).

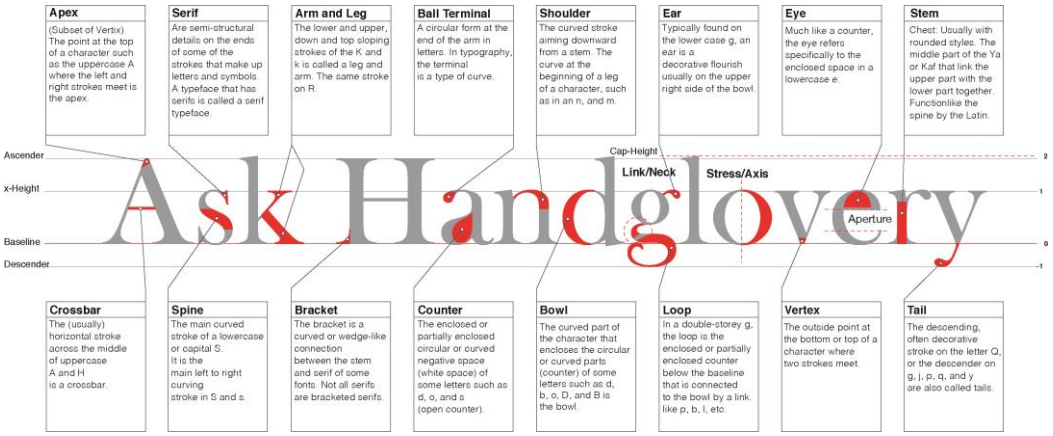

Figure 5: The Latin type anatomy. After Close 2012, Aicher 1988, and Ambrose 2005. *Abdalla 2016.*

Conclusion: Steps of designing new font

In conclusion, there are many issues can be discussed about hybridization within Arabic typeface design: The misunderstanding for the core of matchmaking techniques, the enhancement of the used font design methods, the finding of new ways of typographic visual expressions, etc. Through the search for conventional writings like graffiti and alike, and also go back to own history, and re-read the quality of old profane Arabic documents, a future integration of foreign characteristics will be limited up to the inspiration level and not taken as a benchmark for contemporary form-quality.

These ideas, among others, shape the most challenging issues that need to be researched, revived, or clarified. Therefor, the results of the paper is a small step that can help emerged graphic designer, students, and lectures of Arabic typography, and typeface design, to understand hybridization have different concepts and processes, where designers can partly reject to run behind fashionable or strange letterforms, instate focusing on the functions of their future typefaces. From practical point of view, the research do suggest design steps, which started with the finding of type design project, and ended up with designed typefaces, as following:

1) Searching after typographic a design project
2) Writing a design Brief
3) Creating a dynamic mood-board, and mind-map
4) Analyzing type classes, and finding the proper model.
5) Sketching, and writing on the guidance of font metric or grid.
6) Digitalizing, and creating the first digital draft.
7) Creating transferable sheet.
8) Testing and Offering your font to foundries.

Searching for typographic design project

All Arabic and Latin type classes including the calligraphic ductus, the aesthetical and the technical aspects are subjects of type design research. Today's Arabic typeface designers are more fortunate. The technical obstacles by programming Arabic characters have been solved. Historical and technical references about Arabic letterforms and typefaces are available than ever before. New styles have been created and can be used as models, and big numbers of font foundries offering Arabic typefaces online. Therefore emerged Arabic typeface designers don't have to follow previous generations, and repeat their previous efforts. Former type designers' generations saw themselves as paleographers, epigraphers, art historian, type historian, and typeface programmers.

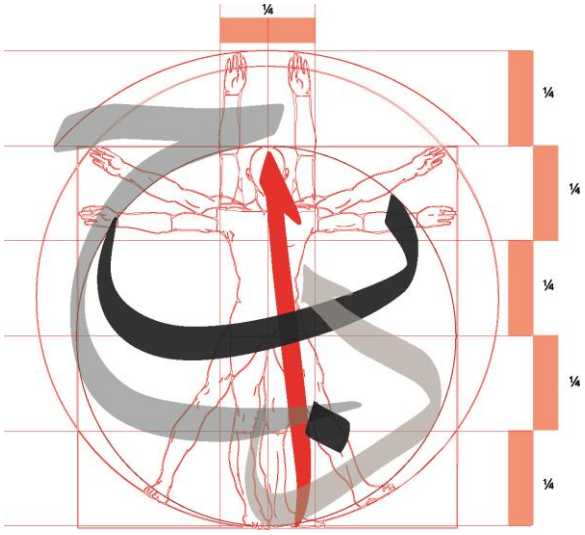

Figure 6: The proportional Circle system after Rayef (1975). Abdalla 2016.

From a market point of view, there are needs for every kind of typefaces, starting with body-text, corporate, display, and headline. The Arabic modular typefaces that based grids like square Kufi are still in demand. Unquestionably, there is massif needs to create bilingual or multilingual typefaces that based on traditional typographic treatments of chosen scripts: such as the Latin and the Arabic. Through narrowing down the project problem and limiting its objectives, the research will lead to better results. Even with the integration of aesthetical and semantical perspectives in relation to certain Zeitgeist, letterforms remain the core of any type design problem. The design research is not limited up to reading, and writing, but it includes observations of reader's behaviors, testing reading's quality, surveys, imagining and getting inspired, are tools can be used, analyzed and revised simultaneously side by side to sketching and lettering.

Writing a design brief

A typeface design brief embrace a background overview, defines the objectives, and indicates the characteristics of the new typeface. By the background

overview the motivations behind starting the design project will be described. It could be aesthetical such as the inspiration from nature, or geometric pattern, or old typeface; or functional such as discovering shortage in number of certain type class or enhancing specific type function; or experimental, where certain typographic rules will be broken or modified upon new criteria. Type design objectives can clarify briefly what is aimed or sought. It can be supported with asking questions such as: How the future typeface can solve certain typographic problem? Or which communicative function will be fulfilled? Such as fulfilling aesthetical requirements, or serving commercial activity, or certain local language and cultural environment. The objectives can contain number of languages, the readers and their backgrounds, the form-function as body text or headline, and the medium is it for displaying online/offline or for printed matters.

The brief can go further and suggest a set of characteristics e.g. a visual profile that based on keywords that best describe the aimed design, and can build understandable imaginary such as: Oriental, calligraphic, familiar, sturdy, crisp, legible, serious, rational, sincere, honest, approachable, contemporary, simple, charming, direct, balanced. In many cases it is to advice to write short sentences include the competitors and describe their weakness, and end up with schedule, and budget, where a timeline and suggested fees can be added.

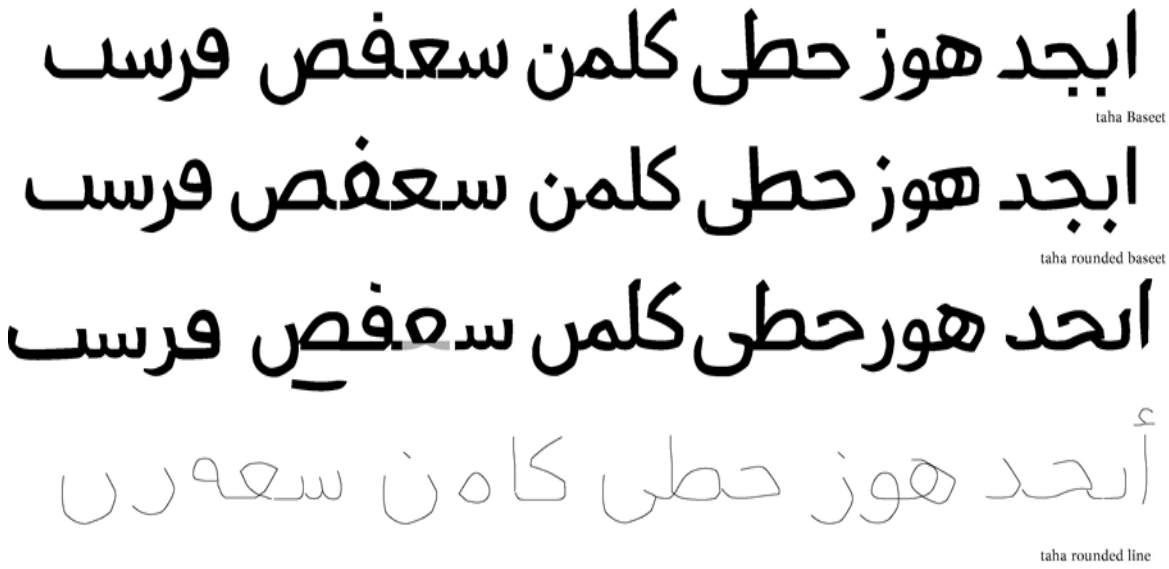

Figure 7: Digital drafts for Taha typeface, 2009.
Abdalla 2016

Creating a dynamic mood board and mind map

A dynamic mood board allows to change and replace, or to overlay different photos, to integrate materials, and to display traced letters and specimens. It delivers different stories and reflects the design stages. A mood-board can include also sketches, and objects based on the main criteria of the mind map. It is to advice to split the board into unequal four main sections that include: A) A chosen class with similar

specimens to what aimed to be designed; B) Successful typographical weaves in graphic design; C) Any designed object(s), including architectural design; D) Photos from nature or/and natural materials that reflect organic lines, shapes, relations, from which you can get inspired. It to advice to have well-written caption for every specimen, figure, and photo as following: title, or class-name and generics name, calligrapher or typographer, material, date, and place.

Analyzing type classes and understanding form-language

Visual phenomena like "natural" symmetry are closely linked with typeface design. They appeared innately by lettering and causing optical illusions. For example, readers will consider a freely written letter such as the O-form, accurate in its symmetrical image, whilst a designed O-form in which the left half is reversed mirror-like from the right half, will look optically wrong! The non-natural or mechanical adjustment by type design has the consequence of the elimination of what can be called the "rhythmical" movement. Rhythm is the magical keyword by the two main extremes the modular and the un-modular typefaces. In an extreme case, modular letterforms can be constructed out of small and limited number of repeated and identical strokes like the digital letters that based on simple grid. Other modular letterforms are shaped out of more complicated and overlapped diagonal, vertical, and horizontal lines such as the Islamic patterns. In mechanical-like movements, modular strokes are regularly repeated and creating almost unified letterforms that needs time to be identified. In contra, the un-modular typefaces have natural rhythmic movements reflecting harmonic effects, where the combinations of repeated strokes within the entire alphabet vary. The reason behind is the calligraphic treatments that create legible

body text typefaces. The typographic understanding for the writing rules, where grids or patterns are firmly rejected, create "wavy" relation between form and space: Letterforms will vary in their proportions, and through optical illusion, a harmonic group of letters will be built, and not illegible group of beautiful letters.

However, according to the brief's content and its objectives, the identification of category, to which the targeted design will belong, can narrowing down the number of examined type classes or grid-systems. Especially by the un-modular typefaces, it is much easier for designers to choose out of Vox classification for Latin, or Abdalla classification for Arabic a class [(2017)], and analyzes its typefaces.

The process of visual analysis of modular typefaces is mainly focuses on the micro geometric unite that create series of letterforms and not on the entire gained impressions of repeated patterns. There three main types of grid systems: A) Straight overlapped lines: based on vertical and horizontal lines (like Caro paper), or vertical, horizontal, and diagonal lines; B) Circles: overlapped or beside each other drawn circles like the rosette pattern; C) Lines and circles: Overlapped circles and lines. (Figure 9)

By the bilingual design projects, the visual analysis of modular or un-modular typefaces and the variations in-between can use any Arabic group of letters beside the Lain "Handglovery". The Arabic group of letters can includes the main nineteen letters, such as the Abgad Hawaz Hata Kalmin etc., or an understandable free of choice sentence, like in figure 4. The examination primarily focuses on the skeleton and secondly on the shapes and the endings of letters. The side-by-side analysis of both scripts will show all needed information about the main characteristics

and getting an idea how to change, enhance, or even to innovate a new class. The analysis examines as well the color i.e. the dark or light effect that stands out the stroke thickness and form-construction.

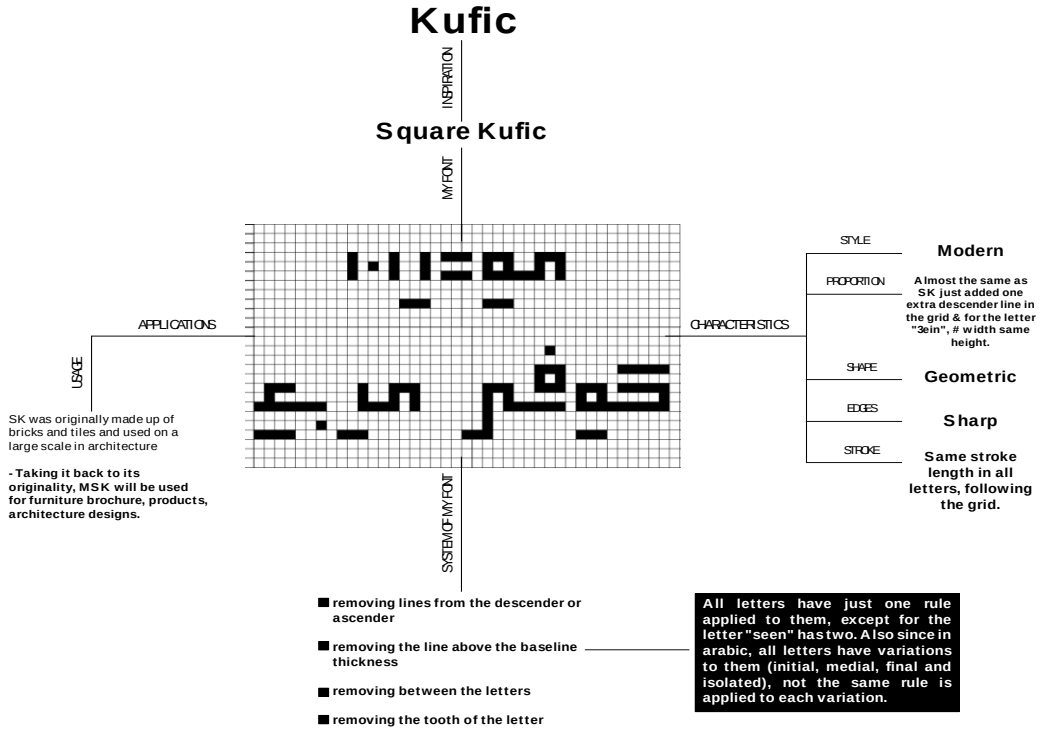

Figure 8: Example of mind map for new Kufi.
Nadeen Ashkar 2016.

Sketching and lettering

How to start sketching? Is there is any particular letter to stat with? Sketching can start with lettering or with writing certain sentences that contains most of the nineteen main Arabic letters. (Refer to chapter 3). Letters could be performed with pencils, nibs, or with any other tool on tracing or Caro or plain paper. By hybrid Arabic-Arabic typeface the typographic proportion of the "Mistarah" e.g. the virtual lines (baseline, ascender, descender, the different heights). By the Arabic ascent and descent may or may not include distance added by accents or diacritical marks. After every trial write clearly one or two lines with your new typeface. In case of designing modular typeface: Extracting and analyzing the different grids of typefaces. For experimental type design, 3-D letters can be formed out of clay, noodles, or any other martial. (Compare Lupton and Phillips 2008) The

qualities of the used materials will be reflected in the shape and form of each letter, and can include the textures. In case of bilingual it is good to sketch both scripts using the same nib width and virtual working lines or ladder. Write initial words that can include the main Arabic letterforms beside the Latin "Handglovery".

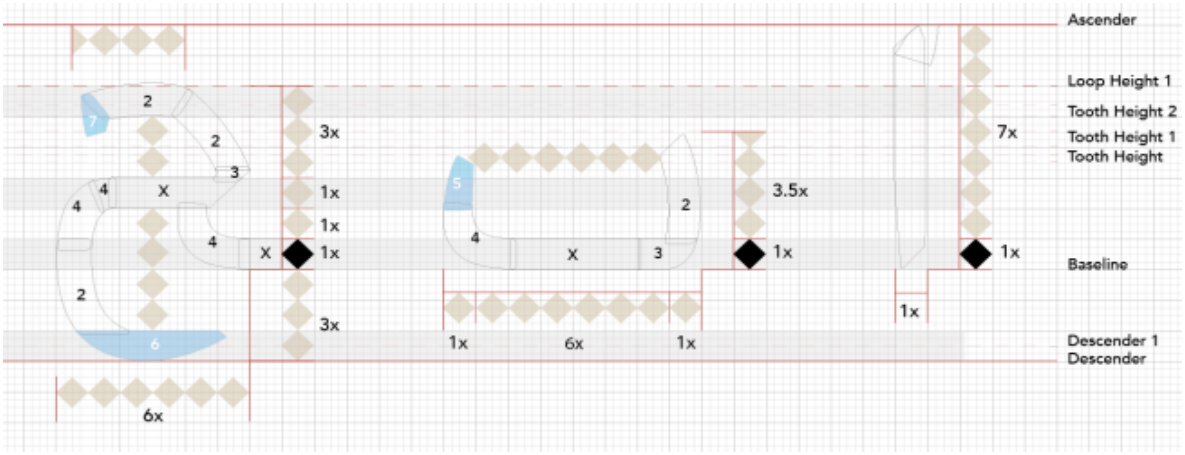

Figure 9: Taha typeface components.
Abdalla 2014.

Digitalizing, and creating the first digital draft

The transferring process can be performed through scanning or redrawing the sketched letters with digital pen tablet in a program like Illustrator. The new illustrator file should use point as measurement unit, and created three layers: First for grid or ladder or Mistarah; second for scanned letters; third for the newly created and digitally adjusted. Transferred letter-shapes may look incorrect and need enhancement. The same used techniques by manual sketches (modular or un-modular) will be repeated in digital environment. By un-modular typefaces, the Mistarah or the ladder will be redrawn with all the virtual lines, preferably in saved in separate layer. The first digital file will adjust all transferred letterforms through reducing the number of anchor points and unifying letter thicknesses.

The transferring process of modular typefaces has the same steps like the un-modular with one exception, which is the background layer. Instate of the Mistarah, designers will redraw the grid or the pattern digitally. It is useful to multiply the gird and make few trails by using the "Live paint Bucket" tool. Grids could be changed and adjusted upon the needs for bold/light, stiff/rounded, etc. In addition to the background grid or Mistarah, there are other helpful tools could be created in illustrator to adjust and finalize the new typeface, such as:

1) Components: The used strokes that formed all characters of the typeface.
2) Protractor: Angled-Guide for the endings and characters in the typeface.
3) Shapes: Are the basic geometrical forms used to shape a stroke (part) such as: Line, triangle, square, Half Circle/ellipse.
4) Blind text: In Latin (Lorem ipsum dolor sit) and in Arabic can be created or copied from one of the known websites.

Creating transferable file

A transferable file is an Illustrator file with one art board in a size of 1000x1000pts. It is created in order to export every letter from Illustrator to one of the font applications (FontLab, Fontographer, Glyphs) through copy and past the character into the open glyph window. Characters will be automatically positioned correctly, with the dimensions situated nicely on the baseline. There are many explanations about exporting characters on the internet, but one of the most important steps is to create a layer for each letter and rename it with the position of the letter in the word such as by the letter Sheen: Initial = sheen-ar.init; medial = sheen-ar.medi; Final = sheen-ar.fina; Isolated = sheen-ar.

Testing and Offering the font to foundries

When all characters are carefully exported into any of the above mentioned font program, general adjustment should be done in order enable to save as a font and test it. Checking the anchor points and generally all points can be followed with adjustment of kennings, which takes more time by Arabic script and needs expertise, like by hinting or instructing font. Finally, designers can offer her/his font to big font foundries, like Linotype, or through direct sale on the Internet.

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الملخص:

إن النقد المكثف لعوامل الوضوح والقراءة للخطوط التيبوغرافيا العربية أدي إلي ظهور أنواع متعددة من تقنيات التهجين التيبوغرافية. تبعاً، توالدت تفسيرات مختلفة لمعني التهجين. فتوجد مجموعة فسرت التهجين على أن الحلول التيبوغرافية بالخط اللاتيني هي الأساس لبناء خطوط عربية طباعية، وعرفت تلك التقنية بالمزواجة التيبوغرافية. وهناك من فسره علي أساس بناء خطوط عربية ولاتينية بالتوازي على أسس متداخلة وجامعة لتيبوغرافيات الأبجدية العربية واللاتينية، وتعرف تلك التقنية بالثنائية اللغوية. كما يوجد فريق ثالث تفهم التهجين على أنه دعوة للخوض في الإرث البصري والثقافي للخطوط الكاليجرفية والأستفادة من تركيبة أجزاء الحروف، أو إبداع خطوط جديدة قائمة علي وحدات قياس أو أنماط قديمة مثل الزخارف الإسلامية الهندسية.

وتتحدد مشكلة البحث في تنوع تلك التفسيرات مع عدم وجود توضيح لها يشتمل علي المزج بين النواحي الثقافية والسيميوطيقية، والعملية، مما أدي إلي قصور في تدريس مواد التيبوغرافيا والخطوط العربية، وإلي تحديد دور مصمم الخط العربي علي المزاوجة التيبوغرافية. فيهدف البحث إلى الكشف عن تلك الجوانب التيبوغرافية بأبعادها التاريخية والتقنية، وتقديم لطلاب الجرافيك ومصممي الخطوط العربية الجدد، تفسيرات لمعني التهجين *(الفصل الأول)* وملخص عن تشريح الحرف العربي واللاتيني *(الفصل الثاني)*. وينتهي البحث بوضح مقترح لخطوات تصميم حرف طباعي عربي جديد، يستطيع تلبية متطلبات تيبوغرافية جديدة، مثل خطوط الشاشة، والعناوين، وغيرهما من خطوط تخدم احتياجات القارئ للغة العربية.

الكلمات المفتاحية :

تقنيات تصميم الخط المهجن المطبوع، الخط الطباعي المنمذج *(الموديول)* ، تصميم الخط العربي المطبوع