Harmonization of Arabic and Latin script

Possibilities and obstacles

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Introduction

This essay discusses the possibilities and obstacles raised by the task of designing a typeface family for the Arabic and the Latin script. The first part highlights issues of general concern that are worthwhile to mention in order to construct a frame of discourse. This frame is not strictly confined to typeface design but also includes considerations of related fields in order to achieve the goal of a context sensitive discussion of the topic.

The argument continues with a description of aspects of typeface design for the harmonization of the Arabic and the Latin script. First the idea of harmonization is examined for it is a term that might be misleading and therefore has to be defined. The discussion advances by highlighting crucial points that have to be considered in the design of a typeface family for both scripts.

The methods of description and analysis will then be applied to a choice of case studies. These consist of two groups – typefaces that include both scripts which where not designed with the particular aim of harmonization in mind, and typefaces especially conceived to fulfil the needs of both scripts in a balanced manner.

Finally the author wants to mention his own limitation of not being a native reader of the Arabic script. Although this essay was researched with great care and is based on sincere reasoning he gladly acknowledges corrections and clarifications.

1 Towards a valid discourse

At the date of writing the FontShop library offers around 40.000 digital typefaces, the vast majority of them Latin-script designs (fontshop.de, 12.12.05). The number of Arabic typefaces on the market is marginal compared to the number of mostly Latin designs and additionally the qualitative level of Arabic fonts is often unsatisfactory. It is remarkable that the users of one of the widest spread scripts in the world are confined to a few dozen typefaces.¹

The reasons for this disparity are diverse and hard to track exactly, but one can assume that the general economic dominance of the Western hemisphere plays an important role.²

In the historical evolution the limitations of typographic technology to portray the Arabic script authentically posed another serious obstacle. Because the printed script used to be inferior to the high level of calligraphy, mechanical text production spread slowly throughout the Arab world. Only with the 20th century, or the beginning of mass production and communication, the high demand for print-production outweighed the concerns about aesthetic values (Safadi Y. 1980).

Further one should mention the historically important entwinement of written Arabic and the Islamic word of God. During the spread of Islam the Arabic script and language were seen as the exclusive messenger of the Muslim teaching – hence the believer had to read the Qur'an only in Arabic

¹ This disparity becomes even more striking when taking the prominence of Greek typeface design in relation to its use into account

Demand and possibilities for a more active Arabic typeface design scene are restricted by the generally less developed economies and education systems of the Arab world.

and translations were not recognised (Al Samman T. 1980). This explicit linkage between divine message and its visual representation caused that developments of the script always had to deal with inherent religious connotations. Regularly authors refer to this connection as a hindrance for the flourishing of Arabic typography (Smitshuijzen Abi-Farès H. 2001).

It is out of the scope of this essay to discuss the reasons for this relative underdevelopment. What is necessary to note is the fact of a different evolution of Arabic and Latin typography. This has to be emphasized because a recurring element in the debate about Arabic typography is the inappropriate adoption of descriptive criteria of the Latin script. A plausible reason for this inconsiderate approach may be that the majority of design publications stem from Europe or North America, but also voices from the Middle East do not hesitate to judge Arabic typography solely in relation to its Latin counterpart (see for example Smitshuijzen H. 2001 and Khera P. 2003). This hints at a Western influence on the discourse about Arabic typography. Although this as such is not necessarily harmful, domination of one kind of ideas, values and assumptions might overshadow different approaches which are less prominent. Eventually influence becomes questionable, when it imposes structures of thought on other models. The comparison of Arabic with Latin typography, based on historically developed terms and assumptions of the latter is such an undertaking. By using a frame of discussion shaped by 500 years of Latin printing history, the discourse neglects the autonomy of Arabic typography. The possibility of developments different to those of Western typography has to be acknowledged, otherwise the discourse risks to facilitate cultural imperialism. In order to prevent this, a semantically conscious discussion should be brought forward.

By borrowing from linguistic analysis, we can try to understand that different cultural backgrounds have implications on the very perception of seemingly objective facts.3 Culture-bound predispositions in perception can be influenced by the visual representation of language and language itself. As Florian Coulmas points out "writing [...] not only maps, but also imposes structure" (Coulmas F. 1989; p.39). Accordingly, the way we conceive of linguistic structures is influenced by our written language. 4 If one accepts that native readers of varying scripts describe and perceive the visual representation of spoken language each in a different way, one has to be careful in applying terms and conceptions of the Latin script on the Arabic script and vice versa. Thus a person, educated in a Latin-script dominated environment will necessarily perceive an Arabic text in a different manner than a native Arabic reader. Depending on the level of knowledge about the foreign script, non-native readers apply terms and descriptions rooted in and suited to their own native script⁵. From such a viewpoint emerges a superficial description of shapes and the resulting judgements are bound to the familiar shapes of one's native script. A discussion on this level is nei-

^{3 &}quot;[...] users of markedly different grammars are pointed by their grammars toward different types of observations and different evaluations of externally similar facts of observation, and hence are not equivalent as observers but must arrive at somewhat different views of the world" (Whorf B. 1956; p.221)

⁴ A very convincing hint at this fact is that in two West African languages without a literary tradition no word for "word" exists at all (Coulmas F. 1989; p.40).

^{5 &}quot;Arabic [...] can be characterized as linear, musical, rhythmic, fluid, dynamic, decorative, individualistic, contemplative, mystical, and asymmetric [...] Latin letters can be perceived as formal, impersonal, rigid, separate, symmetrical, static, grey, geometric, vertical and mechanical." (Blankenship S. 2003; p.61)

ther enlightening nor supportive for independent advancements in Arabic typography. Emil Ruder notes that "unfamiliar writing forms hold an appeal for us even if we cannot read them; we enjoy them as formal patterns comparable to a work of art. If we could read them, we should automatically lose interest in them as form" (Ruder E. quoted from Grace T. 2003, p.2). The step to recognize a foreign script as a representation of language, rather than a collection of interesting abstract shapes takes some effort. An effort that has to be made to ensure a description of non-Latin scripts in their own right.

1.1 Consequences for the typographic practice

A telling example of the consequences caused by a semantically unconscious discourse is the approach brought forward by Yasar Abar (Khera P. 2003). He suggests to be influenced in his design not by the Latin script, but by some of its design principles – the idea of a single baseline and a xheight – and accordingly to be able to preserve the cultural integrity of the script [Figure 1]. This assumption is superficial, for it is rather the underlying structure, than the stylistic shaping that defines a script. By implementing a single baseline and a x-height Arabic becomes distorted – it is being latinized. The fundamentally changed, or even inverted proportions of letter shapes form an obstacle in the recognition of memorized word images. 6 Hrant Papazian argues that because of the different use of vertical space in different scripts equalization of the skeletal structure deteriorates the integrity: "By replacing a script's traditional proportions with arbitrary ones inherited from the Latin master we weaken its natural formation of word shapes - the key to efficient reading" (Papazian H. 2004; p.15). Accordingly readability suffers from the artificial ideal of equal proportions. Yet one should note that the question of readability is not adequately researched for most non-Latin scripts⁷. Sound decisions in accord with readability need empirical data to inform the choices of typeface designers – there is a high demand for future studies in this field.

Experimental approaches in Arabic typeface design like the one described above, should not be rejected in principal. However it is imperative to question how experiments are undertaken. Do they stem from pragmatic reasoning, or are they simply copying existing approaches without reflection on their practical reasons and merits? Experiment has to scrutinize its aim and its origin to be authentic. The eurocentric⁸ notion, that Latin typography should serve as a role model for typographic cultures with a shorter history should be re-evaluated in order to initiate and emphasize efforts that stem from the very culture a design is aimed at. A true and original evolution of Arabic typography can not be achieved by forcing ideas and values of the Latin model on to it – it has to flourish in its own right.



Figure 1Example of the application of Latin design principles to the Arabic script

⁶ Gerrit Noordzij is even more drastic in his rejection of unconventional letter forms: "[...] shapes that do not confirm to convention are just not writing" (Noordzij G. 2005; p.9) Writing being used by the author as a overarching definition of the visual representation of language.

⁷ Also for the Latin script the question of readability is still heavily disputed and reliable empirical data to underline common assumptions is rare.

^{8 &}quot;Eurocentrism is a cultural phenomenon in the sense that it assumes the existence of irreducibly distinct cultural invariants that shape the historical paths of different peoples. Eurocentrism is therefore anti-universalist, since it is not interested in seeking possible general laws of human evolution. But it does present itself as universalist, for it claims that imitation of the Western model by all peoples is the only solution to the challenges of our time" (Amir S. 1989; p.7)

2 The concept of harmonization

Except for possibly very few examples, a designer who is aiming to produce a font family for more than one script will be a native reader and speaker of one, but not the other(s). This in itself poses a reasonable obstacle. The skill of the native reader to spot the minute details that decide if a peculiar shape looks common and natural is a difficult learning process for the foreign designer. Thomas Grace refers to these details as 'critical events' and asks: "In designing a variation on an unfamiliar script, how can decisions be made as to which features of a character comprise the 'critical event', and which parts are ornamental?" (Grace T. 2003; p.4). As he continues, this question can be remedied to some extent by thorough study of the script, the language and the cultural background the foreigner is not familiar with. Nevertheless the designer often still depends on the judgements of native readers to make sound decisions suiting the eye of the intended audience.

Harmonizing two different scripts raises further questions. Exemplary for the occurring issues are Arabic and Latin with their almost antithetic structures: Opposed writing directions, one with joining, the other with separate characters, a very strong calligraphic influence on the one, and an independent typographic aesthetic on the other hand. When set together the typographer faces various script and language dependent problems such as different beginnings and endings, varying text lengths, different apparent text sizes, unbalanced colour of text blocks on the page, different use of the Cartesian space that results in different leading and therefore registration etc. The goal of harmonization on the level of typeface design is to solve as many of these obstacles as possible, without distorting one of the scripts involved, or harming its cultural authenticity. It is clear that some attributes are out of the range of possible influence – no typeface designer will try to change the direction of a script. 10 Therefore the designer has to decide which features are subject to harmonization and which are out of the scope of his undertaking. Some aspects are more important than others because, as Robert Bringhurst notes, "the more closely different alphabets are mixed, the more important it becomes that they should be close in color and in size, no matter how superficially different in form" (Bringhurst R. 2002; p.107).



Figure 2
Differences in use of the Cartesian space

2.1 Apparent size

For Arabic and Latin have a completely different structure it is useful to analyse the respective use of the Cartesian space. Whereas the Latin script divides the used space in roughly 3 different areas, the shapes of the Arabic script in its simplest form can be grouped in 5 areas on the vertical axis¹¹ [Figure 2]. This results in more differentiation of shapes and accordingly to a more varied and moving pattern in text. Further the wide range of ascending and descending elements is accompanied by relatively small shapes and

⁹ I am using this term here like Peter Enneson suggested on Typophile: "Cartesian space is space conceived in rectilinear (x,y, or x,y,z) coordinate terms. For type this means thinking about how different typefaces or different script systems use vertical (x) space and horizontal (y) space." (typophile.com, 2.12.05)

¹⁰ Interestingly similarly radical (and by the Latin script influenced) proposals have been made in the quest to reform the Arabic language and script but none of these extreme solutions have been widely accepted and implemented (Hunziker H. 1985).

¹¹ For both scripts this arrangement could be more detailed but is not necessary for the intended illustration.



Figure 3
Distortion in order to achieve equal proportions between Latin and Arabic

counters along the joining line of the letters. These elements constitute inherent characteristics of the Arabic script and although they may cause a smaller appearance compared to the Latin script it is artificial to solve this by stretching the Arabic teeth height to match the Latin x-height [Figure 3]. Apart from the distortion that erases distinctive features and differences between shapes, necessary room for diacritic dots and vocalization marks would be lost. Whereas diacritic dots are needed, few Arabic publications are set with full vocalization. Depending on the intended use of a typeface, the designer should inform his choices regarding the space assigned for vocalization marks because they also influence the optical size (Bringhurst R. 2002; p.113).

For similar pragmatic and aesthetic reasons the opposite approach to compress the Latin x-height to fit the Arabic teeth is not satisfactory, therefore the designer has to find different solutions to the aforementioned problems. A first step is the analysis of the extremes in character size and how they relate to each other. By optically equalizing the tallest characters of both scripts one can judge what other measures have to be taken to let both scripts look balanced side by side.

2.2 Colour

The weight of a typeface is one of the main features that decide over its look on the page in a block of text. The weight distribution of Arabic and Latin is opposed – the emphasis lies on the horizontal and vertical parts respectively. Because the human eye perceives horizontal strokes thicker than verticals of the same weight, the designer has to deal with fundamental differences in colour distribution. Further one has to take into account, that the Arabic script uses vertical space in much more variety than the Latin script which allows less possible shape constructions. Because of this formal limitation, Latin displays most information between baseline and xheight. This causes a stronger line-formation than in Arabic¹². Thus assigning the same leading to both scripts of the same point size results in a very generous leading on the Latin side, whereas the Arabic shows a conventional interlinear space. The varying whitespace between lines of text adds to unequal colour in text blocks. Accordingly weight adjustement has to go beyond the level of character shapes. To achieve an even colour balance questions of bi-script typography have to be considered.

2.3 Contrast and modulation

The issue of contrast and modulation is closely related to that of colour, for they are partly interdependent. But whereas the colour changes the prominence, contrast and stroke modulation have mainly implications for the character of the text. Accordingly harmony in regard of equal importance of the two scripts can be achieved without modifications of the character. It depends on the intended combination of Arabic and Latin, whether differences in character should be minimized or even emphasized. For single foreign script words in a continuous text it can be desirable to preserve differences in character, while the same content set parallely in different scripts

¹² Language dependent frequency of letters is another crucial element that influences the structure and colour of a text block. Gerrit Noordzij points out that during the formation of the Latin script in the Middle Ages the document most often written was the Bible in Latin language and therefore represents the archetypical environment for the forms we know today. The shaping of the script was conceived for the rules of this specific language (Noordzij G. 2005; p.82).

should usually have the same appearance. If the latter is chosen, the type designer needs to adjust modulation and contrast of both scripts to make for a harmonious design. Issues to observe for this undertaking are associated to the design tools the designer assumes as determinants of shape formation. Here it is noteable that whereas Latin calligraphy witnessed a fundamental change in style with the introduction of the pointed pen, Arabic calligraphy never applied this tool. For the Latin script the pointed pen dominated the design of printed types from the middle of the 18th until the 20th century (Noordzij G. 2005; p.72). The resulting differences in shape formation, especially on the level of contrast and modulation, are crucial. This development in Latin writing is essential to understand the different progression of Arabic calligraphy and successively typography.

Nevertheless the tools a designer envisions for his design must not implicitly be the traditional tools of the scripts, but might as well be defined to some extent by the designer – limitation to the characteristics of a reed-nib is neither useful nor necessary. The crucial element in any case is the consistent application of selected features. These could include joins of letters, in- and out-strokes, terminals, curve shaping, writing-speed, stress, etc. Designing the two scripts in accord with tool definitions and script structures is the challenging task the typeface designer is confronted with.

2.4 Stylistic elements

The possibilities to harmonize stylistic elements are limited. In case of a Latin serif typeface, the treatment of serifs has only very little influence on the Arabic companion for there are no comparable elements. Vice versa there is no need and reason to design Latin accents in accord with Arabic diacritic dots. Both elements are subject to different rules and considerations.

However it is possible and certainly not harmful to aim for a similar character of Arabic and Latin. By writing and drawing both scripts the designer will necessarily shape them in his personal style and both will correspond to each other. Certainly one has to familiarize oneself beforehand to the foreign script to get an insight into the formation and construction of shapes. Just like the character in the design of a single script doesn't need to be forced by deliberate introduction of features, the harmonious character of numerous scripts comes from pragmatical considerations: "The good craftsman seeks out the commonplace and tries to master it knowing that originality comes of neccesity and not of searching" (Johnston E. quoted from Noordzij G. 2000; p.58). In case of the addition of a script to an existing design, elaborate analysis of the model has to be undertaken.

3 Case studies

For ease of comparison the following case studies will be sorted into two groups – first designs that cater for both scripts without being initially designed for that purpose, and second typefaces that were conceived for multi-script setting.

The typefaces are set according to the line spacing the Arabic script needs – a common practice in bi-script setting¹³. For some of the typefaces

¹³ The opposite approach to use the Latin line-spacing for Arabic text is basically unfeasible because the Arabic lines of text would collide.

it was necessary to adjust the point size to have the same optical appearance – if that was the case, both variations are shown. The corresponding examples are shown in the appendix where all settings are given at the bottom of the test sheets.

3.1.1 Microsoft Times New Roman

This typeface is implemented in all major operating systems and therefore it is discussed for its ubiquity and resulting status of role-model.

When typeset without correction, the Latin text is bigger than the Arabic. One has to increase the Arabic by around 1,5 points to arrive at a comparable optical size. This measure, does not, however, remedy the remarkable differences in colour. By increasing the size of the Arabic text, the grey value comes closer to that of the Latin counterpart, but also irregularities in the pattern become more obvious. These changes in colour are not script related, but a sign of unsatisfactory design. Exemplary for the level of craftsmanship is the Gim letter family, which is too dark and therefore remarkably stands out and accordingly adds to the uneven appearance. Further the constraints of the simplified Arabic design do not contribute positively to a harmonious image – the heavy joining line produces accumulations of black on the page. The contrast of the Latin characters is more pronounced and the stroke modulation more detailed and precisely defined.

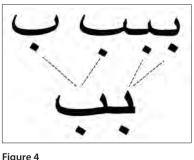
In summary one can observe, that support for the Arabic script was added without much concern of harmonization. 15

3.1.2 Linotype Nazanin OpenType

In 2005 Linotype Library added Latin support to their Arabic typefaces during the conversion from the Type 1 format to Open Type. *Nazanin*, originally designed and produced in 1978 by Linotype in Altrincham, UK, (linotype.com 12.1.06), was complemented by a modified version of Hermann Zapf's 1950 designed *Palatino*.

The apparent size is convincingly adjusted – both scripts can be used side by side without modifications in point size. Although Latin is slightly darker in text setting, it does not vary to such extent, that it significantly deteriorates the harmony of a page in both scripts. Differences in character are more significant, because the Arabic design is smoother – the crispness of *Palatino* is nowhere to be found in *Nazanin*. Accordingly there are also notable variations of contrast, Arabic being very calmly modulated with little differences between thick and thin, and Latin showing pronounced and abrupt changes of direction and thickness.

Overall *Nazanin* can be described as a solution which successfully preserves, in spite of the inherent restrictions of the combination of existing typefaces, distinct characteristics of Arabic and Latin.



The concept of "Simplified Arabic"

^{14 &}quot;Simplified Arabic" is the term Linotype used for their simplification method of the Arabic script in order to accommodate the needs of Linotype composition. Letters which usually need 4 representation forms are depicted with two and letters with two forms are restricted to one in this approach [Figure 4], (Linotype and Machinery Limited, n.d.).

¹⁵ Microsoft Arial even uses the same Arabic character representations as Times New Roman although the Latin design is completely different. This is exemplary for decisions based on economic calculation without considerations of aesthetic or cultural values.



Figure 5Minion Pro in dark grey and Adobe Arabic in light grey.

3.1.3 Adobe Arabic

Adobe issued 2005 a complementary Arabic font to Robert Slimbach's *Minion Pro* which was published 2000 (adobe.com, 12.1.06). The *Adobe Arabic* typeface, designed by Tim Holloway, uses the Latin set of *Minion Pro* in a slightly wider and heavier version [Figure 5]. The problem of apparent size differences between both scripts is solved without restriction – both typefaces look equally prominent on a page in bi-script layout.

Colour balance is very even with a minute overhang towards the Latin. This is surprising to note, for a heavier version of *Minion* was chosen consciously. The reasons for this decision are open to speculation, in any case the slight variation in colour causes no irritation at all.

Contrast and modulation are close, but not exactly equal – the Arabic in this example tends more to monolinear shapes than the Latin. Curve formation and modulation are closely related in terms of detail and execution. This constitutes a deciding factor for the general proximity in character.

3.2.1 Microsoft Tahoma

Microsoft issued *Tahoma* as part of their on-screen typefaces for Windows 95. ¹⁶ The Latin was designed by Matthew Carter and Monotype staff added the Arabic repertoire according to the specified design principles (Smitshuijzen Abi-Farès H. 2001).

Arabic and Latin look equal in size in spite of the relatively big x-height of the latter. This is achieved by tall shapes along the joining line and very open counters in the Arabic design. Additionally some characters that are usually descending are shifted up notably. The resulting minimalist descending elements make for an unconventional character¹⁷. It is however observable, that no economical benefits resulted from this measure. Because of the density of elements on top of the joining line more leading becomes necessary. Further it forced the introduction of small diacritic dots that might diminish in small sizes – a possible deterioration of readability.

The colour of the Arabic is significantly brighter and not evenly distributed. The abundance of elements in the area on top of the joining line causes too high density in some letter combinations.

Although close in character and proportions, the Arabic is less satisfactory than the Latin design for the mentioned reasons.

3.2.2 Microsoft Arabic Typesetting

The Arabic Typesetting typeface of 2002 was designed by John Hudson and Mamoun Sakkal, working on Latin and Arabic respectively. To ensure an authentic Arabic design the creators inverted the until then common design process: "In designing typefaces with coordinated Arabic and Latin scripts, the trend has been to adjust the Arabic proportions to match the Latin. In Arabic Typesetting, we tried for the first time to design the Latin to match the Arabic by providing longer ascenders and descenders, and reducing the impact of capital letters since Arabic does not have such a feature" (Hudson J. & Sakkal M. 2002). Accordingly the Arabic has a very strong traditional calligraphic touch and makes extensive use of ligatures. Although of comparable optical size,

¹⁶ Although designs for on-screen rendering are subject to different problems, the topic of harmonization can be discussed independently.

¹⁷ The proximity in proportions to Latin is obvious and might be intended.

Arabic and Latin vary in some respects remarkably. The Arabic is very light, not only in comparison to the Latin design. It has to be used in relatively large point sizes which is contradictory for a design with the intended use of text setting.

Though the solution to increase the Latin ascenders and descenders improves the overall harmony, it is aesthetically not very beneficial. Also the character of the two scripts differs considerably – the outspoken calligraphic nature of the Arabic contrast strongly with the fairly static and conservative Latin design.

3.2.3 Koufiya by Nadine Chahine

In 2003 Nadine Chahine designed *Koufiya* during the Master of Arts course in typeface design at the University of Reading, Great Britain. The stated aim of this undertaking was a harmonious and equal image in bi-script setting without confessions to each cultural background (Chahine N. 2003; p.19). *Koufiya* is also exceptional because it is the only discussed Arabic design based on the Kufiq calligraphic style.

Arabic and Latin look well harmonized in terms of size and weight. Colour balance of the text blocks is even the closest of all designs in this study. Further it is the only example wherein the Latin design has a more playful character and the Arabic appears more rigid. This is due to the Kufiq inspiration and the pronounced verticals. It is even notable that these verticals appear too heavy and therefore stand out of the page – a deterioration of the textpattern.

However one has to mention that this version of the typeface is not the final result and has to be judged as a beta-version, whereas all other examples are available for purchase.

Conclusion

As aforementioned, contemporary Arabic typography has other options than imitation of existing patterns and ideas to flourish alongside the Latin type-world. The chosen case studies show a variety of approaches with varying success. Experiments in various directions are possible and desirable for the evolution of Arabic typography as an autonomous and emancipated realm. As Mamoun Sakkal stated, the "need for compatibility between Latin and Arabic has a positive impact on Arabic typography as long as we do not make our goal merely to imitate the aesthetics of Latin typography. That is, we should keep a balance between the authentic personality of Arabic and the need to modify it in some ways to make it more compatible with Latin" (sakkal.com, 20.12.05).

The comparatively short history of Arabic Typography and hence its relative underdevelopment should not be read as a drawback that has to be remedied with radical and short-sighted methods. Rather one should acknowledge it as a vast field of possibilities and unexplored territory that offers challenging problems which demand original solutions from type-face designers and typographers alike.

Works cited

adobe.com, http://studio.adobe.com/us/type/main.jsp, visited 12. January 2006 Al Samman Tarif, 'Der Koran und die Schrift', in *Kultur des Islam. Ausstellung der Handschriften- und Inkunabelsammlung der Österreichischen Nationalbibliothek*, Österreichische Nationalbibliothek, Vienna, 1980, pp.32–41

Amir Samin, Eurocentrism, Zed books, London, 1989

Blankenship Sherry, 'Cultural considerations: Arabic calligraphy and Latin typography' in *Design Issues,* Vol. 19, No.2 (2003) pp.60–63

Bringhurst Robert, *The elements of typographic style,* 2nd ed., Hartley & Marks, Vancouver, 2002

Chahine Nadine, Koufiya, specimen, Online Publication 2003,

www.personal.rdg.ac.uk/ ~lts98gl/MATD/Koufiya_specimen.pdf, downloaded 20. December 2004

Coulmas Florian, *The writing systems of the world,* Basil Blackwell, Oxford & Cambridge, 1989 **fontshop.de,** http://www.fontshop.de, visited 12. December 2005

Grace Thomas, *Considerations for the design of foreign-script typefaces,* Dissertation, University of Reading, 2003.

Hudson John & Sakkal Mamoun, *Arabic Typesetting,* specimen, Online Publication 2002, http://www.middleeastmedievalists.org/ArabType.pdf, downloaded 29. December 2004 **Hunziker Hans Jürg,** 'Aspects of Arabic script reform' in *Swiss Typographic Monthly Magazine,* No.4 (1985) pp.1–36

Khera Paul, 'Has Yasar Abbar developed the Arab world's answer to Univers?' in *Eye magazine*, Vol. 13, No.50 (2003) pp.30–37

Linotype and Machinery Limited, *Yakout, A fine simplified Arabic design for Linotype composition,* Altrincham, n.d.

linotype.com, http://www.linotype.com, visited 12. January 2006

Noordzij Gerrit, *Letterletter*, Hartley and Marks, Vancouver, 2000

Noordzij Gerrit, *The Stroke. Theory of writing,* translated by Peter Enneson, Hyphen Press, London, 2005

Papazian Hrant, 'Latinization: prevention and cure' in *Spatium Magazin für Typografie*, No.4 (2004)

Safadi Yasin, 'Printing in Arabic', in *The Monotype Recorder*, New Series No.2 (1980) pp.2-7 Sakkal Mamoun, Stuart Tayler interviews Mamoun Sakkal, December 17, 2004, http://www.sakkal.com/articles/Modern_Arabic_Typography.html, visited 20. December 2005

Smitshuijzen Abi-Farès Huda, *Arabic typography. A comprehensive sourcebook,* Saqi Books, London, 2001

typophile.com, http://typophile.com/node/16454, visited 2. December 2005 **Whorf Benjamin Lee**, *Language*, *thought and reality*, Massachusetts Institute of Technology, Cambridge, Massachusetts, 1956

Illustrations

Figure 1: Khera Paul, 'Has Yasar Abbar developed the Arab world's answer to Univers?' in *Eye magazine,* Vol. 13, No. 50 (2003), p.34, (131%)

Figure 2: Microsoft Times New Roman

Figure 3: ibid. digitally distorted

Figure 4: Linotype and Machinery Limited, *Yakout*, *A fine simplified Arabic design for Linotype composition*, Altrincham, n.d., (80%)

Figure 5: Adobe Arabic and Minion Pro

Appendix

Case studies

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Examples of bi-script layout

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- a) Abbasieen hospital business card, from the author's collection, Damascus 2002, (100%)
- b) Iran Air ticket, from the author's collection, Tehran 2005, (100%)
- c) Bahadi Myriem, Gadouar Laïla, Aitsimelmi Farid, Lahsen Taibi, Harrap's L'arabe utile en voyage, Chambers Harrap Publishers Ltd, Edinburgh, 2004, pp.92-93, (100%) p.23
- **d) Langenscheidts,** *Sprachführer Arabisch, Redewendungen und Wörter für die Reise,* Langenscheidt KG, Berlin und München, 1979, pp.38-39 (100%) p.24
- **e) Langenscheidts,** *Taschenwörterbuch Arabisch*, Langenscheidt KG, Berlin und München, 1976, pp.66-67 (100%)

p.25

f) Schukry Kamil, Humberdrotz Rudolf, Metoula Sprachführer Ägyptisch Arabisch, Langenscheidt KG, Berlin und München, 1967, pp.38-39 (100%)

p.26

g) Minke Georg, Construction manual for earthquake resistant houses built of earth, X-CHANGE culture-science, Wien, 2005, p.9 (100%)

p.27

h) Chajjam Omar, Wie Wasser im Strom, wie Wüstenwind, Gedichte eines Mystikers, Verlag Edition Orient, Meerbusch 1992, no page numbers (90%)

Universal Declaration of Human Rights Preamble

الإعلان العالمي لحقوق الإنسان (أ) الديباحة

Whereas recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world, whereas disregard and contempt for human rights have resulted in barbarous acts which have outraged the conscience of mankind, and the advent of a world in which human beings shall enjoy freedom of speech and belief and freedom from fear and want has been proclaimed as the highest aspiration of the common people, whereas recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world, whereas disregard and contempt for human rights have resulted in barbarous acts which have outraged the conscience of mankind, and the advent of a world in which human beings shall enjoy freedom of speech and belief and freedom from fear and want has been

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الإعلان العالمي لحقوق الإنسان (أ) الديباحة

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Latin: 10/13pt & 12/14pt Arabic: 10/13pt & 12/14pt

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Universal Declaration of Human Rights Preamble

الإعلان العالمي لحقوق الإنسان (أ) الديباجة

Whereas recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world, whereas disregard and contempt for human rights have resulted in barbarous acts which have outraged the conscience of mankind, and the advent of a world in which human beings shall enjoy freedom of speech and belief and freedom from fear and want has been proclaimed as the highest aspiration of the common people, whereas recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world, whereas disregard and contempt for human rights have resulted in barbarous acts which have outraged the conscience of mankind, and the advent of a world

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Latin: 10/14,5 & 12/17 Arabic: 11,5/14,5 & 14,5/17

Universal Declaration of Human Rights Preamble

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Latin: 10/13 & 12/15 Arabic: 10/13 & 12/15

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Universal Declaration of Human Rights Preamble

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الإعلان العالمي لحقوق الإنسان (أ) الديباجة

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Universal Declaration of Human Rights Preamble

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Latin: 10/15 & 12/17 Arabic: 12,5/15 & 15/17

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Latin: 10/15 & 12/16 Arabic: 10/15 & 12/17



Adobe Arabic - as shipped by the manufacturer

Universal Declaration of Human Rights Preamble

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Universal Declaration of Human Rights

Preamble

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الإعلان العالمي لحقوق الإنسان (أ)

الديباجة

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Universal Declaration of Human Rights Preamble

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Text is the Preamble to the Universal Declaration of Human Rights, Arabic and English Source: United Nations Department of Public Information, http://www.unhchr.ch/udhr/navigate/alpha.htm



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Universal Declaration of Human Rights Preamble الإعلان العالمي لحقوق الإنسان (أ) الديباجة

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Koufiya - during development

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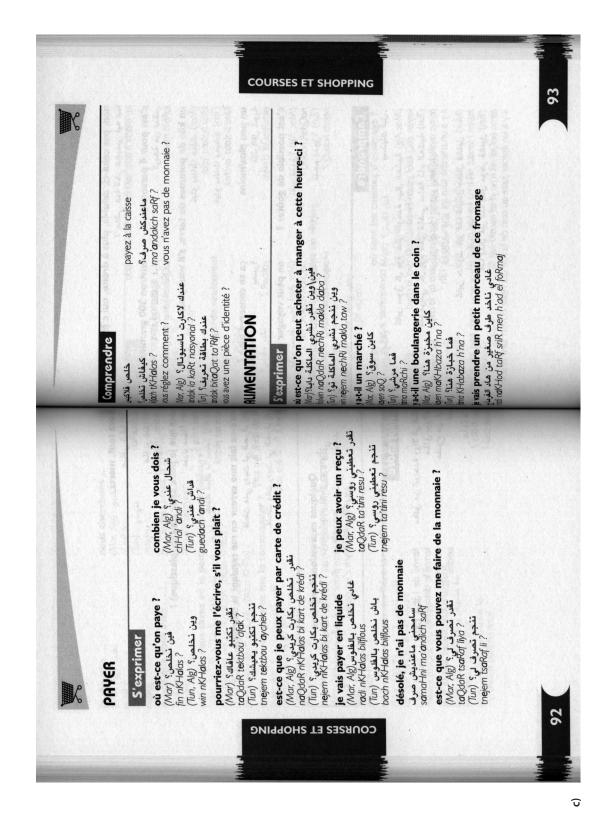
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ال المعاورة المنافرة	hetrauern (-re; -) اران (اال ران (-اد) المحقالة المحقالة المحقالة المحقالة (المان المحقالة المحتالة المحقالة المحتالة المحقالة المحتالة ا
سلوك (۱	.3

mieten يستأجر jißta' gar Mieter مستأجر mußta' gir; Dauer مستاجر ~ a'ßli; Unter من الباطن م mil-bā'tin Putzīrau خدامة ehad-dā'me jiŧa'h-har يطهر renovieren يعدد jiga'd-did tapezieren ينجد jira'g-gid umziehen نجد jira's-sil; Umzug المخار 'isā'l vermieten عنال jira'g-gar; Vermieter مأجر jira'g-gar;

Hotel, Pension

loka'ndit nom, penßijo'n (Siehe auch Gruppen Bade- und Kurort, Café, Restaurant, Essen und Trinken, Reise, Speisen, Sport, Vergnügen, Toilettenartikel, Verkehrsmittel, Zeit, Zahlwörter)

Kann ich ein Zimmer haben? ؟ عندك اودة لي ٩ ٩ مندك اودة لي

dak ō'da li'j-je? Haben Sie (möblierte) Zimmer? عندك اودة مفروشة؟ ^ca'ndak ōda mafrū'scha?

Ich möchte ein Zimmer mit einem Bett (zwei

Wünsehen Sie ein Balkonzimmer nach dem Garten? تحسب اودة ببلكون عالجنينة؟ fiħi'bb ō'da bibalkō'n ^cag-ginē'ne?

Das ist ganz gleich, wenn das Zimmer nur geräumig und ruhig ist und eine schöne Aus-(زى بعضه ما دامت الاودة واسعة وهادية sieht hat sajj ba saj ba dā'mit [[وتطل على منظر كويس] elōda ωa'β'a ωiha'dje, ωit-tu'll 'ala ma'nsir kuωa′j-jiß

Wieviel kostet es pro Nacht (Woche, Monat)? الشهر)؛ (في الجمعة، في الشهر)؛ ugri'tha kām fi-lē'le, (fil-gu'm'a, fisch-scha'hr) Das ist mir zu teuer. Können Sie nichts ablassen? دى فالية على تقدر تنقص الاجرة di γa'lje جاو'j-je, ti''dar tina''، el-u'gra?

dachi'lha داخلها الخدمة؟ ?dachi'lha el-chi'dme?

Haben Sie vielleicht ein besseres (billigeres, Haben Sie vielleient ein besseres (binigeres, größeres, kleineres) Zimmer? عندك اوردة احسن اكبر، اصفر) إ (a'r-ehaß, a'kbar, a'βγar)?

Kann ich es sehen? اقدر اشوفها؟ (Kann ich es sehen? ان طلبت حجز اوردة العداد المعادلة المعاد

a'na tala'bt ħags ō'da

Wir haben es reserviert جوزناها hagasnā'ha Wie lange gedenken Sie zu bleiben? راح تقيد rāħ to'? Gud a'ddi ē? Drei Tage (Wochen) (בּב וַשֵּי ta'lat-tij-jā'm, (gu'ma')

Gut, ich nehme das Zimmer طيب اخد الاوة دي ta'jjib ā'chud el-ō'da di

Bitte holen Sie mein Gepäck vom Bahnhof min fa'dlak hāt schu'nati mil-maħa't-ta

Geben Sie volle Pension? بتدوا بنسيون كامل؟ biti'ddu penßjö'n kā'mil?

Wann wird gespeist? امتى معاد الاكل! imta ma a'd el-akl?

من فضلكم البسا بورتات ?Darf ich um Ihre Pässe bitten min faðlu'kum el-baßabortā't

Wünschen Sie den Kaffee in Ihrem Zimmer? ? tiħi'bb el-futū'r fil-ō'da تحب الفطور في الاودة؟

Wollen Sie etwas anzahlen? تسمح تدفع شيء مقدم؟ ti'ßmaħ ti'dfaʿ schēʿ muʾa'd-dam?

Ich möchte die Rechnung gleich bezahlen, da ich morgen früh abreise عاوز ادفع الحسا بالاني قرْ ois a'dfa' el-hißā'b li'a'n- مسافر بكرة بدرى] ni mißā'fir bo'kra ba'dri

Wann wünschen Sie geweckt zu werden? ? tiħi'bb ti'ßħa i'mta تحب تصحى امتى؟

After the earthquake of Bam in December 2003 the author visited Iran several times and developed new proposals for earthquake resistant vault structures built of mud bricks, one of which was added to this edition.

INTRODUCTION

The solutions proposed in this manual concentrate on low-cost single-story houses, built from earth in rural areas of earthquake-prone zones. They are based on research projects carried out at the Forschungslabor für Experimentelles Bauen (Building Research Laboratory) of the University of Kassel, Germany, on the analysis of earthquake damage in Latin America, on studying relevant literature and on the implementation of several test structures in Germany and prototype houses in Guatemala, Ecuador and Chile.

Using locally available building materials as well as the skills of local craftsmen should be considered for the design of seismic-resistant (earth-quake-proof) houses and it should be proved that the solutions are accepted by the users.

Earth as a building material has lost its credibility mainly because of the fact that most modern houses with earth walls could not withstand earthquakes, and also since earth is considered as the building material for the poor. In this context it is worth mentioning that a census conducted by the Salvadorian Government after the earthquake in January and February 2001 states that adobe houses were not worse affected than other houses.

In many areas of the Andes regions building

استفاده إذ معالى ماجتمه وجود در هر محل و نيز مهارت منايد در طراحي خانعني موجود در هر محل خانعاي معاهد در برابر زمين (خبد زلزله) مورد تأمل قرار گيرند. از سوي ديگر بايد اثبات شود كه اين راحله مورد پذيرش

aāhob

إمحلهاي ارأته شده در اين مقاله معطوف به خانههاي المحلهاي ارائه شده در اين مقاله معطوف به خانههاي يك طبقه با قيمت مناسب، واقع در مناطق روستايي ارائه خيز هستند كه از خاك ساخته شده اند، مبناي اين المحلهاي ورؤهاي وازه خانها بهاه شده در آزمايشگاه وحلهاي بلوژهاي در آزمايشگاه كاسل آلمان، تجزيه و تحليل تحقيقات ساختمان دانشگاه كاسل آلمان، تجزيه و تحليل خسارتهاي باشي از شينابرن در آمريكاي لاتين، بررسي ادبيات مربوطه و انجام چندين آزمايش سازهاي در آلمان و همچنين بر روي نمونه عنه بي اي خلاحات مدار در وي نمونه عنه اي در الحات موجنين بر روي نمونه عنه اي در الحات اكواتمالا، اكووادور و شيلي مي باشد.

مؤلف بعد از زارمی بم (در سال ۲۰۰۲م. ۱۲۸۲۱ ه. ش.) چندین بار به ایران سفر کرده و روشهایی برای ساخت طاق های خشتی مقلوم در برابر زازانه تکمیل نموده که نمونه ای ان دراین کتاب ارائه شده است. 6

ئائوانى دئم كمردان كسس را	كرراه يتاودان مسعميدار
برائية خشم ويش شان کسرا	مرئج بميته د مرک ت کرا

Darfst du dich selbst, doch nicht die andern quälen.

Laß sie am Feuer deines Zorns nicht schwelen;

Verletze nicht der andern Menschen Seelen,

Wenn es nach ew'gem Frieden dich verlangt,

مي بوئس بورماه كي ماهكهاه بيدار بي بديارا چون محدیمکیزگس مسه دارا مالی نوش کرتنایرن کشیدارا

قرئن كەمىيى كلام خوانىدادرا گەگاە ئەبردوام خوان ئدادرا درخط بالرائق بهت مشم كندر بمسمجه مؤانداورا

Schenk ein den Wein im Mondenschein! Der Mond Da niemand uns das Morgen heut' verspricht, Wird oft uns suchen und entdeckt uns nicht, Frag jetzt in düstre Herzenskammer Licht,

Seht den Korân, als höchstes Wort geschätzt, Ob in das Glas das rechte Maß geätzt. Doch liest man überall und jederzeit, Ihn lesen heute sie zu allerletzt,