

Unification of ‘Diwani’ and ‘Ottoman’ Siyaq Numbers

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1 Introduction

This document references the following proposals:

- “Proposal to Encode Diwani Siyaq Numbers in Unicode” (L2/15-066R)
<http://www.unicode.org/L2/L2015/15066r-diwani-siyaq.pdf>
- “Proposal to Encode Ottoman Siyaq Numbers in Unicode” (L2/15-072R2)
<http://www.unicode.org/L2/L2015/15072r2-ottoman-siyaq.pdf>

Initial research in 2007 on the encoding of Siyaq numbers in Unicode identified three distinctive regional systems. These are the systems used historically in India, Iran, and Turkey. An apparent fourth system was identified in Antoine Paulin Pihan’s *Exposé des signes de numération usités chez les peuples orientaux anciens et modernes* (Paris: L’imprimerie impériale, 1860). This source shows printed charts for the ‘Diwani’ notation system, whose numbers are related to those of the Siyaq systems. As a preliminary measure, four Siyaq blocks were allocated to the Roadmap for the SMP: ‘Diwani’, ‘Indic’, ‘Ottoman’, and ‘Persian’ Siyaq Numbers. Ongoing research affirms the distinctiveness of the ‘Indic’, ‘Ottoman’, and ‘Persian’ blocks. But, it calls into question the need for a separate block for ‘Diwani Siyaq Numbers’.

There are four major issues regarding the ‘Diwani Siyaq Numbers’ block:

- *Provenance* The block is based entirely upon a chart of ‘Diwani’ characters in Pihan (1860), which is itself derived from a table in *Grammaire Arabe* by Silvestre de Sacy (Paris: L’imprimerie royale, 1831). Neither source provides details regarding the provenance of the numbers, apart from stating that they are used for administrative purposes. It is evident that Pihan’s ‘Diwani’ forms are simply a reproduction of those found in de Sacy’s table.
- *Distinctiveness* The ‘Diwani’ numbers in Pihan are nearly identical to the ‘Turkish’ (= ‘Ottoman’) forms shown in the same source. The differences may be considered stylistic as the corresponding numbers for all units in both sets have the same underlying graphical structures. The graphical differences between the ‘Diwani’ and ‘Turkish’ forms result from the use of different typefaces. Moreover,

the ‘Diwani’ forms also occur in Ottoman documents. The evidence suggests that ‘Diwani’ numbers are not sufficiently distinct from ‘Ottoman’ numbers to warrant encoding in a separate Siyaq block.

- *Nomenclature* A *diwān* is a financial administrative office. ‘Diwani’ or *diwānī* refers to the style of writing used in financial and other administrative documents, as well as systems of numerical notation and accounting. The term is not specific to a particular region and refers generically to administrative offices of Arabicate and Persianate governments throughout the Middle East, Central Asia, and South Asia. Also, it is not a specific style or system of Siyaq notation, but is synonymous with ‘Siyaq’. A secondary source on Abbasid accountancy of the 10th century describes the numbers as ‘Diwani’, but the term is also used in studies of Ottoman accounts from the 20th century, ie. *erkam-ı divaniye*.
- *Scope* It is possible that de Sacy’s ‘Diwani’ numbers represent a style of Siyaq associated with Arab states that prevailed before the rise of the Ottomans. But, the Siyaq numbers and notation system attested in the available pre-Ottoman records, such as those of the Abbasid (10th c.) and Ilkhanate (14th c.) regimes, exhibit a high degree of uniformity with Ottoman records. The overlap between the ‘Diwani’ and ‘Ottoman’ forms of Siyaq and their consistent usage over time further supports the merging of the two blocks.

2 Basis for Unification

This section compares the repertoires of ‘Diwani’ and ‘Ottoman’ Siyaq Numbers.

2.1 Primary numbers

	Diwani		Ottoman	
	Regular	Alternate	Regular	Alternate
ONE	ا	—	ا	—
TWO	لا	—	ا	ء
THREE	ع	لا	ع	لا
FOUR	لعا	لعو	او	لعا
FIVE	حا	ح	م	حا
SIX	س	س	س	س
SEVEN	بع	بع	او	بع
EIGHT	ها	ح	ح	ها
NINE	لعا	لعو	لو	لعا

The regular and alternate forms of THREE through NINE are reversed in the two systems. Nonetheless, the corresponding forms are identical.

2.2 Tens

	Diwani		Ottoman	
	Regular	Alternate	Regular	Alternate
TEN	ع	٤	٤	ع
TWENTY	٤٤		٤٤	
THIRTY	٤٣		٤٣	
FORTY	٤٤٤		٤٤٤	
FIFTY	٤٥		٤٥	
SIXTY	٤٦		٤٦	
SEVENTY	٤٧		٤٧	
EIGHTY	٤٨		٤٨	
NINETY	٤٩		٤٩	

The forms of the tens are uniform in both sets. The chief difference is the forms of TEN.

2.3 Hundreds

	Diwani		Ottoman	
	Regular	Alternate	Regular	Alternate
ONE HUNDRED	١٠٠		١٠٠	
TWO HUNDRED	٢٠٠		٢٠٠	
THREE HUNDRED	٣٠٠	٣٠٠	٣٠٠	
FOUR HUNDRED	٤٠٠	٤٠٠	٤٠٠	٤٠٠
FIVE HUNDRED	٥٠٠		٥٠٠	
SIX HUNDRED	٦٠٠		٦٠٠	٦٠٠
SEVEN HUNDRED	٧٠٠	٧٠٠	٧٠٠	
EIGHT HUNDRED	٨٠٠		٨٠٠	
NINE HUNDRED	٩٠٠		٩٠٠	

The difference between the hundreds is style of writing the loop of the terminal for THREE HUNDRED through NINE HUNDRED. In some 'Diwani' forms the terminal is looped below the baseline before rising; in some 'Ottoman' forms the terminal curves upwards before being looped.

2.4 Thousands

	Diwani		Ottoman	
	Regular	Alternate	Regular	Alternate
ONE THOUSAND	الف	الف	الف	
TWO THOUSAND	الفى		الفى	الفى
THREE THOUSAND	سالفى		سالفى	
FOUR THOUSAND	لعلف		لعلف	
FIVE THOUSAND	حالف		حالف	
SIX THOUSAND	سالف		سالف	
SEVEN THOUSAND	بعالف		بعالف	
EIGHT THOUSAND	هالف		هالف	
NINE THOUSAND	عالف		عالف	

The forms of the thousands are highly regular in the two sets.

2.5 Ten thousands

	Diwani		Ottoman	
	Regular	Alternate	Regular	Alternate
TEN THOUSAND	عالف		عالف	عالف
TWENTY THOUSAND	عالف	عالف	عالف	عالف
THIRTY THOUSAND	سلا		سلا	
FORTY THOUSAND	لعللا		لعللا	
FIFTY THOUSAND	حلا		حلا	
SIXTY THOUSAND	سلا		سلا	
SEVENTY THOUSAND	بعلا		بعلا	
EIGHTY THOUSAND	سلا		سلا	
NINETY THOUSAND	علا		علا	

The primary difference is the terminal, which is placed at the baseline in the 'Diwani' forms and raised in the 'Ottoman' forms.

3 Recommendation

An analysis of available records from the Abbasid period through to the Ottomans show a single system of Siyaq notation. The ‘Diwani’ and ‘Ottoman’ forms may be considered styles of writing Siyaq numbers. Based upon the information presented in this here, the following actions are recommended:

- Unify the ‘Diwani Siyaq Numbers’ and ‘Ottoman Siyaq Numbers’ within in a new block to be named ‘Arabic Siyaq Numbers’. This block will be used for Siyaq numbers used in the Middle East.
- Encode distinctive characters in the ‘Diwani’ or ‘Ottoman’ Siyaq repertoires as alternate forms in the ‘Arabic Siyaq Numbers’ block.

A request to withdraw proposals for ‘Diwani Siyaq Numbers’ and ‘Ottoman Siyaq Numbers’ is forthcoming and will be followed by a formal proposal to encode ‘Arabic Siyaq Numbers’.

4 Acknowledgments

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