

KO-RO-NO-WE-SA

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Mycenaean palaeography: the “*pa-i-to* Epigraphic Project.” An integrative approach to Linear B tablets from Knossos

Alessandro Greco

Since 2016, the *pa-i-to* project worked on a small batch of Linear B tablets of Knossos, characterized by the presence of the toponymic reference *pa-i-to*. Referring to previous publications for the definition of the methods, themes and approach adopted by our team¹, it is our intention here to provide some of the most significant results obtained from our palaeographic research on the important scribe 117.

If 3D and RTI technologies allowed us to refine the pinacological and philological analysis of the tablets² with regard to palaeography, they have also proved capable of imposing a revision in the traditional approach to the study of scribal hands. As already noted,³ although the hands of Mycenaean scribes have been precisely individuated through the palaeographic works of a series of scholars,⁴ we still lack a palaeographic approach that can be verified and retraced.⁵ Scholars have often followed the methodological lines highlighted by Emmett Bennett Jr., but then they have practically enforced an ‘intuitive’ study of signs. This approach has caused shortcomings in the methodological apparatus, with the partial exception of studies by Tom Palaima and Jan Driessen.⁶

¹ GRECO & FLOUDA 2017; FLOUDA & GRECO 2021; GRECO *et al.* forthcoming. See also FLOUDA & NOTTI, this volume.

² FLOUDA & NOTTI, this volume.

³ GRECO & FLOUDA 2017; FLOUDA & GRECO 2021; GRECO *et al.* forthcoming.

⁴ *MT* I, 440-441; *MT* II, 90; DRIESSEN 2000; FIRTH & MELENA 2016a-b; OLIVIER 1967; PALAIMA 1988; for bibliography, see also GRECO *et al.* forthcoming; DONATO 2020, 9-45.

⁵ DONATO 2020; FLOUDA & GRECO 2021.

⁶ DONATO 2020, 9-46; FLOUDA & GRECO 2021; GRECO *et al.* forthcoming.

These shortcomings include the absence of a study on the order and direction of the traits which compose the syllabograms; also, the absence of a definition and a systematization of the different characteristics of the scribes, their trends, their graphic characters, namely the very elements which graphology calls ‘graphological sign’⁷ and which include the whole set of elements we call *ductus*. These factors have certainly been evaluated and taken into consideration by scholars with excellent results, but, with rare exceptions, very few define them clearly or even list them.⁸

This methodological attitude is evident, mainly, in the work of Jean-Pierre Olivier, who, commenting on Bennett’s ‘manifesto’ of Mycenaean paleography, concludes that “certes, il y aurait moyen de préciser tel ou tel point de l’exposé du père de la paléographie mycénienne.... mais cela me paraît assez inutile: un simple examen de la reproduction du «syllabaire» *des différents scribes et des planches photographiques en apprendra plus que pages analysant le tracé des signes*.”⁹ But, after the autoptic analysis of tablets of the *pa-i-to* set, we realized the risks inherent in the use of these tables, which represent, together with the tables of Driessen, the only source for a palaeographic study on the scribes of Knossos for a Mycenologist. For example, for an effective inter-scribal comparison of the syllabograms *75, *we*, and *03 *pa*,¹⁰ the drawings of Olivier are of little use, as they reproduce the signs in their ‘calligraphic’ form, typical of the larger syllabograms which Hand 117 writes at the beginning of the tablet, but which occur rarely if compared to the ‘cursive’ forms usually adopted by this scribe. As a matter of fact, Hand 117 traces *we* predominantly like a ‘2’ and not as the elegant *reverse* S of the table by Olivier, apparently in a very similar way to SOME minuscole scribe of the Room of the Chariot Tablets. As a consequence, the tables by Driessen¹¹ also represent a graphic ‘distance’ between these scribes, which may not be so pronounced. The same is valid for the syllabogram *03 *pa*: Hand 117 usually writes its two strokes with a large groove, almost constantly

⁷ MASSEI 1997, 43: “Con il termine ‘segno’ si intende, nel linguaggio proprio del test della scrittura, ogni particolarità della grafia che sia stato possibile catalogare.”

⁸ But see how they emerged, in the case of the *vexata quaestio* of the tablets of Chania: FLOUDA & GRECO 2021, 142-145.

⁹ OLIVIER 1967, 29.

¹⁰ See also the case of the syllabogram *13 *me* of Hand 102, in GRECO *et al.* forthcoming.

¹¹ DRIESSEN 2000.

horizontal and rarely oblique, often a little arched, and almost always set back from the axis constituted by the vertical line, while the upper stroke is on average longer than the one written below, as reproduced below (Fig. 1). We do not know what led Olivier to make these choices in his tables of scribes, but it would certainly be precious for us to know.

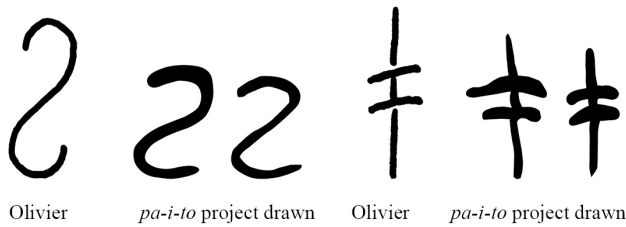


Fig. 1. Syllabograms *75 *we*, and *03 *pa*.

In order to overcome these methodological gaps, a ‘protocol’ of palaeographic approach was established for the analysis of the *pa-i-to* group tablets, based on the study of the modern principles of graphological and graphotechnical disciplines.¹² As a first result, it was possible to verify that the methodological problems highlighted for Mycenaean palaeography are the same that afflict these disciplines as well: a certain tendency to prefer an intuitive and a purely calligraphic-morphological approach. But, since graphology often represents an important tool for the graphotechnic appraisal in court, graphologists had to focus on getting the discipline out of this ‘intuitive’ sphere, with a constant effort to systematize and objectify the investigative practices and tools. In other words, they finally produced the formulation of a purely scientific method.¹³

If the effort of objectification of the graphotechnic approach obviously has provided an easy-to-apply methodological support for our study,¹⁴ much more problematic has been the discovery that the traditional method of handwriting analysis (Italian: ‘perizia calligrafica’) is considered by the graphotechnic field to be unreliable, if not completely outdated, because it gives rise to easy errors.¹⁵ This approach relies

¹² MASSEI 1997; CROTTI *et al.* 2011.

¹³ CROTTI *et al.* 2011; DONATO 2020, 47-78.

¹⁴ GRECO *et al.* forthcoming.

¹⁵ CROTTI *et al.* 2011, 68 e 80. The inefficiency of the method was decreed with a sentence of the Supreme Court of Cassation.

mainly on the study of the morphology of the letters for the identification of the writer, and till now it has been the quasi-sole approach model used by mycenologists.

The graphometric approach of Nosch,¹⁶ to date, represents the only alternative palaeographic method adopted in Mycenology. Graphometry¹⁷ is the technique which deals with the measurement of the so-called graphological signs.¹⁸ This approach is undoubtedly useful, as it allows to study the dimensions of signs, in particular the dimensional and dynamic relationships between the graphic forms. Nosch provided an accurate study of the measures of the LANA logogram and attempted to derive executive constants between the traits.¹⁹ However, her study has highlighted what, in the literature, is considered the intrinsic weakness of the graphometric method: the tendency, after the rigorous phase of measurements, to degrade itself in the comparison phase, since it tends to settle for tolerances and to make use of averages and ranges of variation.²⁰

Therefore, the approach of the graphotechnic expert who makes use of the most useful tools, adopted by various disciplines, for the identification of a graphic personality should be favoured. The aforementioned tools can be graphometry, graphology, the signalling-descriptive method etc.²¹, but it is essential to underline that it is not the analysis of the signs *per se* which allows the identification of a hand, but rather an investigation that embarks from the *movement* and *dynamic relationships* between every graphic element that make up a graphic phenomenon. As a matter of fact, only by analysing the documents in terms of the dynamic relation between the signs that compose a syllabogram, between the syllabograms that make up a word, between the words that make up a line, and, finally, the whole text that makes up the layout, it will be possible to define the graphic behaviour ('gesto grafico') and the specific personal characteristics ('idiotismi') of a scribe. To this end, once the terminology for the identification of the signs composing a syllabogram, and a tool for the definition both of their direction and of

¹⁶ NOSCH 2007.

¹⁷ MASSEI 1997, 56-65; CROTTI *et al.* 2011, 68-70.

¹⁸ MASSEI 1997, 44-45.

¹⁹ NOSCH 2007, 15-23.

²⁰ CROTTI *et al.* 2011, 69.

²¹ CROTTI *et al.* 2011, 63-78.

their order (sequence) of execution²² have been produced, the palaeographic investigation adopted by the *pa-i-to* Project team has followed these steps:

1. Layout methods;
2. Relationship between line, words, logograms and the general layout;
3. Spatial relationship between words;
4. Spatial relationship between signs;
5. Similarities between syllabograms;
6. Sequence of signs which compose a syllabogram;
7. Direction of every single sign that composes a syllabogram;
8. Morphological investigation of syllabograms and logograms;
9. Definition of the scribe's graphic personality.

Comparing this scheme with those elaborated by other scholars,²³ few differences can be seen, but it is clear that all mycenologists, as we have seen, with the exception of Driessen, have adhered to it more in terms of principle than of system. This is shown, for example, by the study of the direction and the order of the strokes which were considered fundamental²⁴ albeit never reported, or by the lack of any hint to the dynamic relationships between the words and the lines, and between the syllabograms and the single signs which compose them. Finally, no one has attempted to elaborate a final identikit of the graphic personalities identified.

In the following part of my paper, some diagnostic examples of the validity of the adopted method have been preferred to the complete description of each step, impossible for reasons of space. The case study focuses on scribe 117.

²² GRECO *et al.* forthcoming.

²³ DRIESSEN 2000, 35-36; *MT I*, 440-441; *MT II*, 90; OLIVIER 1967, 27-32; PALAIMA 1988, 21-27.

²⁴ OLIVIER 1967, 29.

Layout and the word-unit

The great scribe of Knossos does not pay particular attention to the right margin of the tablet. The information reported, in fact, never tends to be so extensive as to require specific attention. Towards the left, however, some peculiarities can be found, as the palm leaf-shaped tablets generally influence the direction and the size of the first written word. Since the measuring of the distances between the first word and the edges of the tablet, as we have seen, can be very useful, but needs the admission of a wide range of variability, we adopted a simpler method, that is to say, to individuate nine types of trends, described in Fig. 2.









- 1 = The lemma runs horizontally, regardless of the edges of the tablet
- 2  The lower part of the lemma runs horizontally, but the syllabograms get bigger towards the right, following the upper edges of the tablet
- 3  The lower part of the lemma runs horizontally, but the syllabograms get smaller towards the right
- 4  The upper part of the lemma runs horizontally, but the syllabograms get smaller towards the right
- 5  The upper part of the lemma runs horizontally, but the syllabograms get bigger towards the right, following the lower edges of the tablet
- 6  The lemma gets smaller towards the right
- 7  The lemma gets bigger towards the right, following both the edges of the tablet
- 8  The lemma runs toward the bottom, following the lower edges of the tablet. All syllabograms share the same dimension
- 9  The lemma runs toward the top, following the upper edges of the tablet. All syllabograms share the same dimension

Fig. 2. Types of trends.

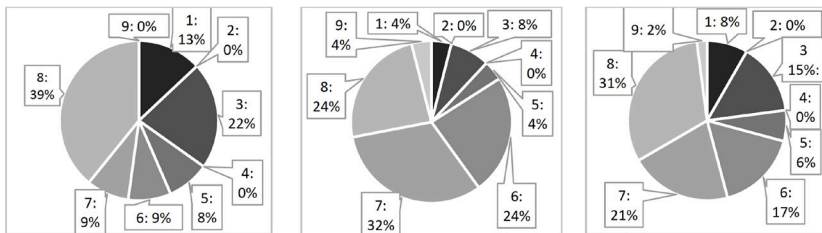


Fig. 3. a. The type of trend of the first word written by scribe 117 on the sample of documents submitted to RTI (set *pa-i-to*), b. The type of trend of the first word written by scribe 117 on the sample of documents of the *ku-ta-to* set (based on *CoMIK* drawings), c. The type of trend of the first word written by scribe 117 on the sample of documents of both the *ku-ta-to* + *pa-i-to* sets.

In the documents analysed with the RTIs (the *pa-i-to* set), and in those viewed through the *CoMIK* apographs (set *ku-ta-to*), Hand 117 tends mainly to write the anthroponym slightly inclined (type 8 – 31%), or

to widen the body of the word to the right (type 7 – 21%) (Fig. 3c). The different statistics between the *pa-i-to* group (Fig. 3a) and the *ku-ta-to* group (Fig. 3b) are probably due to a greater care exercised by the scribe during the compilation of the *pa-i-to* group, where type 8 prevails together with the tidier type 1, while in the *ku-ta-to* set the words tend to follow both the edges of the document (type 7), prevailing in percentage also over the types 8 + 1. Examining the cases of *pa-i-to* + *ku-ta-to*, however, a prevalence of the 8 + 1 group can be found. A marked tendency to type 7, on the contrary, is noted in the **Dk(2)** set, written by 119, where it reaches the 67% of cases (Fig. 4).

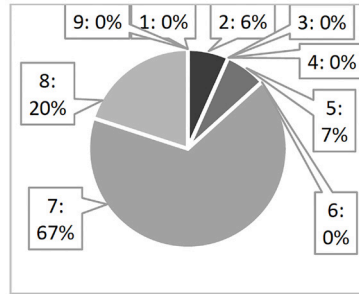


Fig. 4. The types of trend in Hand 119 (set *ku-ta-to*), based on *CoMIK* drawings.

The difference between Hand 117 and Hand 119 may be a clue of greater care and/or experience of Hand 117 (the absence of type 1 in Hand 119, in particular, is surprising), but it is also probably the effect of the specific tendency of this scribe for the graphological sign of the ‘methodical difference’,²⁵ which induces him to progressively reduce the size of the syllabograms in the terminal part of the word, as demonstrated by the considerable incidence of types 3 and 6 as well.

An interesting trend has also emerged through the analysis of the relationship between line and text + logograms, particularly when a word or logogram is written above the line: scribe 117 seems more imprecise when he writes the logograms than when he writes the syllabic part, so much so that out of 25 logograms written above a line, as many as 20 cross the line below, while for nine names in the same position the crossing occurs only three times.²⁶ Undoubtedly, this occurs because the line was written before the data relating to the animals, but the high percentage of logograms cutting the line with respect to the names,²⁷ particularly in the *pa-i-to* set, is compatible with the hypothesis that Hand 117

²⁵ FLOUDA & GRECO 2021, 162-163.

²⁶ But it should be noted that two out of these three tablets belong to the groups **Dm** and **Dn**, and therefore were not necessarily written together with those of the *pa-i-to* set *stricto sensu*: cf. GRECO 2014.

²⁷ A very similar trend can be noted also in the *ku-ta-to* set, by Hand 117 and Hand 119.

first compiled the main text (name + toponym + collector), and only successively²⁸ proceeded to complete the data relating to the animals.

Similarities and sequences

A useful tool for the definition of the executive order of traits used by scribe 117 for writing a syllabogram is represented by the signalling-descriptive method.²⁹ It consists in grouping the syllabograms on the basis of mutual similarity (or the similarity of even only parts of them) to define the order (and characteristics) of execution which are likely to be identical, in the same hand, even in different signs. This criterion is mentioned by Olivier³⁰ and Palaima,³¹ but the scientific validity of this method recognized by the graphotechnic discipline has encouraged a more structured approach which was adopted by the *pa-i-to* Project.

Consequently, we proceeded to define some tables of affinity between the syllabograms and/or a part of them. An example is the affinity between *03 *pa*, *05 *to*, *41 *si*, and *106 *ovis*, which share a vertical line crossed by two parallel traits. For an easier analysis, each sign was labelled with a roman numeral: it identifies each sign but not the sequence followed for its transcription (Fig. 5).

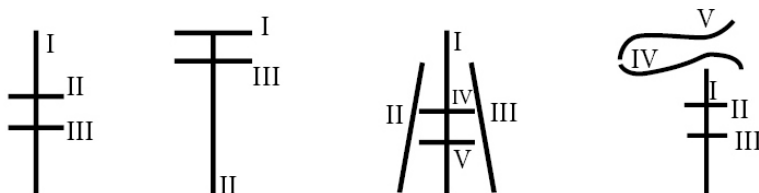


Fig. 5. *03 *pa*, *05 *to*, *41 *si* and *106 *ovis* transcribed.

This approach has helped us solve some uncertainties dealing with the sequence of execution of the syllabogram *pa*. The ‘standard’ order of traits adopted by Hand 117 for this syllabogram seems to be 1^I<(2^{II}?, 3^{III}?), that is to say, 117 traces first sign I and then cuts it with the other two horizontal strokes, whose order of execution, however, is not de-

²⁸ Keeping the tablets moist, cf. FLOUDA & NOTTI, this volume.

²⁹ CROTTI *et al.* 2011, 72-77.

³⁰ OLIVIER 1967, 29-30.

³¹ PALAIMA 1992-1993, 276.

tectable as we have demonstrated in a previous work,³² By avoiding using a 'logical' (top-down) deduction for guessing the original order of II and III, we were able to demonstrate that Hand 117 traced first II and then III, on the basis of a dynamic analysis of the relations between the syllabograms *pa* and *i* and between *i* and *to* in the word *pa-i-to*.³³ This sequence was confirmed also by some cases³⁴ where, in the transcription of the syllabogram *pa*, the strokes III shift and deform the strokes II, a proof that II was traced before.

A similar method allowed the verification of the 'standard' sequence used by Hand 117 to trace the syllabogram *to*. In the sample of texts at our disposal, the dominant sequence is $1^I, 2^{II?} < 3^{III?}$,³⁵ which, again, doesn't help in defining the absolute order of transcription of the traits, because I is separate from II. But, on one hand the dynamic analysis led to think, as we have seen, that trait I was drawn before II and III, and, on the other, there are seven cases where trait II cuts the stroke I,³⁶ a proof that Hand 117 traced first the upper line, then the vertical one, and finally the lower horizontal stroke, according to a sequence $1^I < 2^{II} < 3^{III}$.

The comparison with the logogram *ovis* and the syllabogram *si* provided other evidence about the absolute sequence of execution of the strokes of *pa* and, consequently, of *to*, as well as the ones of these same signs. For example, in *ovis* the executive sequence of strokes I, II and III is almost always ambiguous (as in *pa*), but, even in this case, in some tablets, stroke III deforms II.³⁷ The same thing can be said for syllabogram *si*, where, in **Da 1164**, the lower horizontal stroke deforms the upper.

Through the graphometric analysis, it was possible to find another clue that for two horizontal parallel strokes Hand 117 used to write the

³² GRECO *et al.* forthcoming.

³³ In the execution of the word *pa-i-to*, when Hand 117 draws the vertical line of *i*, it fails to take the right distance from the previous *pa*, and so the virtual spaces between the two syllabograms overlap; on the contrary, when Hand 117 traces *to*, the overlap with the virtual space of the previous *i* never occurs. This is a clue that Hand 117 traces the upper horizontal stroke of *to* first, and can consequently take the distance from the previous syllabogram with greater precision. See DONATO 2018, 110-112; FLOUDA & GRECO 2021, 162-136 and, in particular, GRECO *et al.* forthcoming.

³⁴ **Da 1163**, **Da 1164**, **Dm 1184** and **Dv 1085**.

³⁵ The sign I, isolated (indicated by '!'), may have been traced first, while II is cut by III, so that only the relative sequence II-III is sure (but not the absolute sequence I - II- III; as a consequence in the formula we have to indicate II and III both with '?'). See GRECO *et al.* forthcoming.

³⁶ **Da 1156**, **Da 1163**, **Da 1173 lat.inf**, **Da 8201**, **Db 1160**, **Db 1464**, **Dd 1157**, **Dd 1171**.

³⁷ **De 1585.A**, **Dg 1158.b**, **Dm 1184**, **Dn 1094.1**.

upper one first and then the lower: when Hand 117 draws two horizontal superimposed strokes in sequence, he almost always executes the lower one shorter and less accurately.

Hand 117 & 101	<i>pa</i> (40 cases) Hand 117	<i>to</i> (37 cases) Hand 117	<i>si</i> (14 cases) Hand 117	OVIS (48 cases) Hand 117
Upper stroke longer than lower	29	33	7	33
Upper stroke identical to lower	2		1	3
Upper stroke shorter than lower	2		1	4
Not verifiable	7	4	5	8

This attitude, which is ultimately to be traced back to an ‘executive haste’, also allows us to define the absolute sequence in the incision of the two isolated strokes II and III of the syllabogram *si*, since on average stroke III is shorter (and less carefully made) than II, as it can be seen in the table below.

	<i>si</i> (14 cases) Hand 117
Left stroke longer than right stroke	8
Left stroke identic to right stroke	2
Left stroke shorter than right stroke	2
No definibile	2

Spatial relationship between signs and scribe’s graphic personality

The comparison between similar groups of signs has allowed us not only to solve specific problems of the sequences of traits, but also to define a specific ‘graphological sign’ characteristic of Hand 117, the ‘executive haste.’ This graphic feature is proven not only in the execution of the syllabogram, but also, in broader terms, in the word-unit; in fact, when Hand 117 writes two successive identical signs, as in the case of *we* and *jo* of *we-we-si-jo-jo*, he tends, on average, to render the second syllabogram of the couple more cursive and less accurate (Figs. 7-9), exactly as it happens when he reproduces two similar elements within the same syllabogram.³⁸ The set of graphic features linked to this ‘haste’ probably

³⁸ DONATO 2020, 103-154.

leads also to the tendency of Hand 117 to reduce the dimension of the last two syllabograms of a word (graphological sign of ‘methodical difference’)³⁹ (see the word *pa-i-to* in Fig. 6).

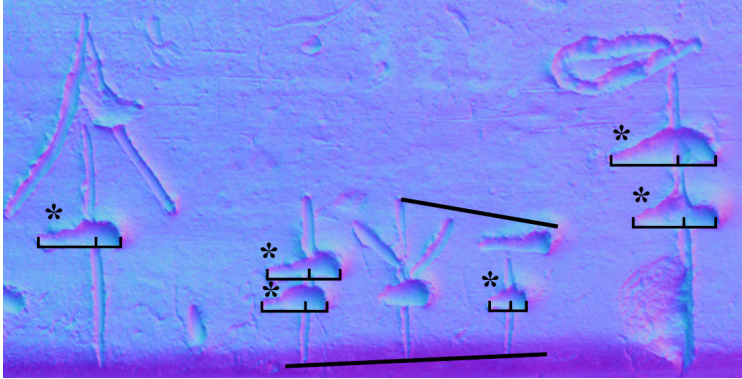


Fig. 6. Da 1173 (© *pa-i-to* Project).

Another typical feature of Hand 117, already identified, is the tendency, when he traces crossed lines, to set back the horizontal strokes towards the left, with respect to the central vertical axis (asterisk in Fig. 6).⁴⁰ In the case of *pa*, *to*, *si* and *ovis* of the documents at our disposal, this trend is recognized in the vast majority of cases.

Hand 117 & 101	<i>pa</i> (40 cases) Hand 117	<i>to</i> (37 cases) Hand 117	<i>si</i> (14 cases) Hand 117	OVIS (48 cases) Hand 117
Higher stroke set back	33	15	4	39
Higher stroke advanced	1	13	3	1
Higher stroke centered	2	5	3	1
Not verifiable	x	4	4	7
Lower stroke set back	24	23	2	35
Lower stroke advanced	7	7	2	2
Lower stroke centered	4	2	2	2
Not verifiable	5	6	4	9
lower stroke is missing			4	

³⁹ FLOUDA & GRECO 2021, 162-163.

⁴⁰ FLOUDA & GRECO 2021, 162-163.

As can be seen, the case of *si* is a little anomalous; this phenomenon is due to the presence of the lateral lines II and III, which reduce the space for IV and V. It can also be noted that, in the transcription of the syllabogram, the 'haste' of Hand 117 on one hand, and the reduced space on the other hand, often lead the scribe to omit the stroke V, and this represents another peculiarity of 117.

Morphological investigation

With regard to the morphology of syllabograms, a calligraphic approach that paid attention to the dynamic interaction between signs and syllabograms has made it possible to collect many diagnostic data that recur in a relevant percentage of cases.⁴¹ These data represent what we could call a syllabographic 'identikit': their immediate applications will emerge from the example of the syllabogram *75 *we* (Fig. 7):

When Hand 117 writes this syllabogram, he proceeds in a significant percentage of cases:

- 1) to trace the line from top to bottom
- 2) to make a first sinuous curve (x) with an oblique stylus, so as to create a small clay shifting
- 3) to execute the section that joins the two curves (i2) with a quasi-straight line and, on average, with faster execution speed; as a consequence this forces Hand 117:
- 4) to make the lower curve (y) sharp-cornered, with a less oblique stylus

We also observed on average that:

- 5) the swelling of the lower concavity (y) exceeds to the left of the starting point of the sign (α);
- 6) the swelling of the upper concavity (x) exceeds to the right of the end point of the sign (ω).

Moreover, when we have two signs *we* in sequence, as in the word-unit *we-we-si-jo*, the following characteristics can be also found in the second *we*:

⁴¹ All statistics can be found in DONATO 2020, 107-123.

- 1) lower sinuosity;
- 2) a little bit lower position;
- 3) smaller dimension (due to the ‘methodical difference’);

While as regards the trait, we can observe

- 1) a shorter i1 section;
- 2) i2 and i3 become more straight.

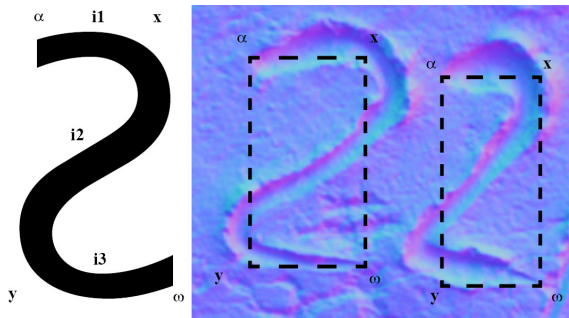


Fig. 7. DONATO 2020, 108, 119.

Thanks to this kind of ‘syllabic identikits’ we have been able to attribute to Hand 117 the tablet fragment **X 9606**, whose syllabograms *we* and *si*⁴² present all typical features of the graphic personality of Hand 117 (Fig. 8).



Fig. 8. Tablet X 9606 (after CoMIK).

⁴² DONATO 2020, 135-154.

By applying the same method to the syllabogram *36 *jo* and observing it in the doubled sequence *jo-jo*, it has also been possible to attribute the fragment **X 9436** (Fig. 9) to Hand 117, because the reported syllabograms share many features with the *jo* written by this scribe. These are:

- 1) very wide and deep horizontal traits, creating important clay shifting towards the right;
- 2) the hook traced with a trait running from top to bottom and from left to right with an oblique stylus so as to create small clay shifting on the upper curve, towards the right;
- 3) tendency to trace the vertical hooked line as mostly orthogonal;
- 4) reproduction of the second *jo* slightly lower than the first;
- 5) reproduction of the second *jo* smaller than the first (methodical difference);
- 6) reproduction of the hook of the second *jo* in the sequence *jo-jo*, more cursive than the first.



Fig. 9. Tablet X 9436 (after *CoMIK*).

The only persisting doubt relates to the horizontal strokes, which although wide and ‘coarse’ are more regular than the similar traits of Hand 117, which tend, on average, to a slight curvature. But straight horizontal traits are also documented in Hand 117.

Since it was possible to analyse only a very small batch of documents through the RTI, we were not able to study in depth all the syllabograms of Hand 117. For this reason, in the case of **Dp 1061** (Fig. 10), which has been doubtfully attributed to Hand 117, it was not possible to reach a definitive conclusion. Nevertheless, it has been possible to highlight the

idiosyncratic elements that left the attribution in doubt: a starting point, at least, for future investigations.



Fig. 10. Tablet Dp 1061 (© *pa-i-to* Project).

The following elements lead one to doubt this attribution:

- 1) the vertical lines traced in this tablet are much wider than those usually drawn by Hand 117;
- 2) the horizontal strokes, although wide and deep like those of Hand 117, are, on average, less curved or tend to be traced with a slight double curve, which is not characteristic of Hand 117.
- 3) the syllabogram *pa* presents an advancement of the horizontal traits with respect to the vertical one: a rare feature for Hand 117;
- 4) The syllabogram *28 *i* presents some anomalies with respect to the *ductus* of Hand 117:
 - a) it is well spaced from the preceding syllabogram *pa*, as opposed to the general practice of Hand 117;⁴³
 - b) the first stroke on the left is very long and well traced compared to the same strokes of Hand 117, who generally tends to make them more oblique, smaller, less accurate, and written at a certain distance from the horizontal trait;
 - b) by observing the order of the traits that compose the syllabogram, it emerges that the horizontal stroke cuts all the others. This sequence never occurs in Hand 117 in the 36 recurrences of this syllabogram available in our group of tablets, but, in the same sample, it occurs three times in the nine recurrences attributable to other scribes;

⁴³ FLOUDA & GRECO 2021, 162-163.

- 5) The signs for 'hundred', although made according to the sequence used by Hand 117 (i.e. the left curved line first and then the right one), are well rounded and small, traced slowly or carefully amended to provide a calligraphic form; on the contrary, on average, Hand 117 traces this numeral larger, more cursive, less accentuated, and with the left semicircle a little bit cornered.

Only a complete study of Hand 117 and of the other scribes could make it possible to dispel the doubt about the attribution of this tablet, just as only a study carried out on the entire archive of Knossos will be able to provide a precise picture of the graphic personality of 117 and his colleagues. However, we hope to have provided at least a framework of the tools and guidelines we have adopted to produce a study which is methodologically correct, open to the scientific community, and verifiable at any time during its investigation.

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