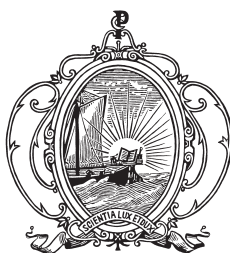# PROCEEDINGS OF THE TENTH INTERNATIONAL CONGRESS OF EGYPTOLOGISTS

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EGYPTIAN VERB CLASSIFIERS

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Disposition

Classifiers on nouns in Written Egyptian and the relations between them and the classified elements have been treated in a systematic way by Orly Goldwasser[1]. However, little attention has been given to Egyptian verb classifiers until now. In order to provide a unified model that is practical to account for the use of any classifier irrespectively of its distribution, the well-known types of relations between the classifier and the classified have to be supplemented by another one. In addition to what has been described as *taxonomic*, *schematic*, and *meronymic* relations, a new set of relations must be introduced for explaining classifiers on verbs.

In this paper, the strategies for creating classifiers and for choosing the classifier on a linguistic element referring to an action, state or event shall be discussed. I will start with a short discussion of why the notion of "classifier" is more appropriate than the traditional term "determinative", which most Egyptologists without a special interest in the topic but also a few scholars working in the field still prefer.

The second section is about *semantic role* (or: *thematic*) relations. It will be shown that this type of relations, among others AGENT, UNDERGOER, EXPERIENCER, is not only suitable to define the interactions between the entities referred to by a classifier and the objects designated by the lexeme, word or phrase, but also shows many parallels with other parts of the grammar and thus probably reflects some sort of cognitive structures. A case study on verb classification in a Late Egyptian hieratic text will provide additional evidence for the hypothesis that Egyptian classifier usage may give us insight into how human categorisation works.

Finally, it will be shown that *hybridity* – the interaction of list-based and rule-based data processing – played an essential role in the Egyptian writing system in general as well as in the strategies of classifier assignment and verb categorisation.

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[1] O. GOLDWASSER, *Prophets, lovers and giraffes: Wor(l)d classification in Ancient Egypt. With an appendix by Matthias Müller*, Göttinger Orientforschungen Reihe IV: Ägypten 38.3 = Classification and Categorization in Ancient Egypt 3 (Wiesbaden, 2002).

On the notion of "classifier"

In contrast to Spoken Egyptian, which has noun classes (more precisely: gender) but does without overt grammatical classification in the narrower sense, Written Egyptian exhibits classifiers that are attached to nominal as well as verbal lexemes on a regular basis – and occasionally also to linguistic units of other levels, namely words or even more complex phrases. Egyptian classifiers are those hieroglyphs which were conventionally called "determinatives". Whereas some Egyptologists still stick to the traditional term, Orly Goldwasser has shown in some path-breaking books and articles[2] that their status of being classifiers is beyond question. Notwithstanding the fact that a so-called "determinative" does not correspond with a segmental element of Spoken Egyptian, it has both form and meaning, thus indisputably fits to the definition of a morpheme and has a function similar to that of classifiers of spoken languages, since it overtly assigns the element it is attached to a particular semantic class.

Angela McDonald[3] has tried to challenge the view that Egyptian "determinatives" are classifiers by claiming that the existence of properties not mentioned explicitly in the definition of Keith Allan[4] would be at odds with defining the respective elements as classifiers. Her line of reasoning is as follows: (a) "determinatives are confined solely to the script and were never voiced"; (b) "in many classifier languages, classifiers are obligatory"; (c) "it is extremely common for Egyptian words to have multiple classifiers"; and (d) "the application of determinatives often seems to go beyond any simply classificatory function"[5]. None of these claims is particularly convincing, since the substance of the linguistic medium is irrelevant for deciding whether or not a certain morph is a classifier. It must be stressed that written language is a linguistic system which is rather autonomous of – though systematically related to – spoken language[6]. The circumstance that a particular classifier may have a $\varnothing$-allomorph has also little to do with its function, and already Allan gave examples of classifiers the use of which is not obligatory in all distributions[7]. Whereas it is true that there are Egyptian classifier constructions employing several classifiers, it seems exaggerating to describe them as "extremely common" without specifying the chronolect one is talking about.

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[2] See among others GOLDWASSER, *Prophets*; O. GOLDWASSER, 'On the new definition of classifier languages and scripts', *Lingua Aegyptia* 14 (2006), 473-84.
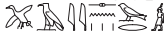
[3] A. MCDONALD, '[Review of] Orly Goldwasser, *Prophets, Lovers and Giraffes: Wor(l)d Classification in Ancient Egypt*', *Lingua Aegyptia* 12 (2004), 235-44.

[4] K. ALLAN, 'Classifiers', *Language* 53 (1977), 285-311.

[5] MCDONALD, *Lingua Aegyptia* 12 (2004), 235-44.

[6] Cf. F. KAMMERZELL, 'Aristoteles, Derrida und die ägyptische Phonologie. Zu systematischen Verschiedenheiten von geschriebener und gesprochener Sprache', in: *Sesto Congresso Internazionale di Egittologia. Atti*, vol. 2 (Turin, 1993), 243-51.

[7] ALLAN, *Language* 53 (1977), 285-311.

In any case, it is misleading to speak of "words" taking more than one "determinative", since in multiple classifier constructions of Earlier Egyptian the classifying elements often refer to different linguistic levels respectively so that it might be more appropriate to speak of embedding of classifier constructions instead of one entity with several classifiers[8]. As A. Aikhenwald[9] mentions cases of co-occurrences of several classifiers in spoken languages too, McDonald's attempt to stress the difference between Written Egyptian and so-called "classifier languages" cannot base upon this feature. Finally, the only example which is discussed to demonstrate that hieroglyphic "determinatives" should have had functions which were without parallels in other languages is far from being unusual as compared with the instances of reclassification brought up by Allan[10] and even links Written Egyptian closer with other classifier systems. In the Late Egyptian clause quoted under (1) the hieroglyph 𓀒 ⟨CAPTIVE⟩ is not only used as a phrasal classifier on the expression 𓂋 𓏇 𓏤 py⸗sn- wr "their chief", which is the subject of the third person stative form 𓂧𓈖𓇉 ḏnḥ "is pinioned" and refers to the undergoer of the verbal action, but also appears on the verb itself.

(1)

p3.3.j·j·z·n.3	wr.r.CAPTIVE	d·n·ḥ.CAPTIVE	r	H3T.t.1	z·z·mwt.t.HORSE
py⸗sn-	wr	ḏnḥ	r-	ḥ3.t-	ssm.wt⸗f
DEM.-3P	SBST.	STAT.:3SM	PREP.	SBST.-FEM.	SBST.-FEM.:PL.
their	chief	is pinioned	to	front	horses

"(…) their chief is pinioned before his horses (…)"
(Libyan War Inscription of Ramses III at Medinet Habu, c. 1175 BCE)[11]

This case of an identical classifier occurring both on a noun phrase and on a verb could be described as a concordial classifier construction (in Allan's terminology), the more so if we compare it with the almost contemporary clause cited under (2). In this case the undergoer of the action is a falcon and the very verb ḏnḥ "pinion" instead of 𓀒 ⟨CAPTIVE⟩ takes the classifier 𓆃 ⟨WING⟩.

(2)

t·w	t·w	d·n·ḥ·t.WING	b·j·w·k.FALCON.DIVINE
t-	t-	ḏnḥ	bjk
PRES.1	IMPERS.	INF.	SBST.
	one	pinion	falcon

"(…) and one even pins down the falcon (…)"
(pAnastasi V 8,8-9,1, c. 1200 BCE, DZA 31.634.880)

A similar situation is illustrated under (3), where the classifier ⟨DIVINE⟩ is repeated after the third person singluar stative ending that is coreferential with the noun *nṯr* "god".

(3)						
j·w	p3·3	NṮR_DIVINE	ḤTP·t.p.w·PAPYRUS·3_DIVINE	m	p3·3	j·m·m·w·BUNDLE.HOUSE
jw-	*p-*	*nṯr*	*ḥtp.w*	*m-*	*p-*	*jm3w*
CMPLR.	DEF.ART.	SBST.	STAT.-3SM	PREP.	DEF.ART.	SBST.
while	the	god	has rested	in	the	tent

"(…) while the god stayed in the tent" (Wenamun 1,47, 11th cent. BCE)[12]

Cases as such are not confined to Later Egyptian but may occur already in the Pyramid Texts, compare example (4), where the attributive adjective on the substantive *ds* "knife" for once shows the classifier ⟨KNIFE⟩.

(4)					
ḥr·r	j·s	d.s·DS·1	s·SPD·d·KNIFE	z·w3·3	ḫ·t·t·HEAD AND NECK
ḥr(.j)	*-js*	*ds*	*spd*	*zw3*	*ḫt.t*
PREP.-ADJVR.	POSTP.	SBST.	NPA.	NPA.	SBST.-FEM.
being under	like	knife	sharp	cutting	throat

"(…) like one who carries a sharp throat-cutting knife (…)" (Pyr. 270c^W, c. 2300 BCE)[13]

However, it cannot be denied that cases of "concordial classifiers" like the ones quoted are rare in Written Egyptian and have to be considered rather untypical. Egyptian graphemic classifiers are attached to nominal lexemes as well as other parts of speech and "denote perceived or imputed characteristics" of the entity to which the associated element refers[14], but only exceptionally constitute agreement classes like in examples (1) to (4). This is true not only in the case of Hieroglyphic-Egyptian classifiers but also in respect of comparable graphemes in Mesopotamian cuneiform or Chinese writing and will give reason to slightly extend the definition of what a classifier system should be considered, when a new typology of classifiers will be established[15].

[12] A.H. GARDINER, *Late-Egyptian stories*, Bibliotheca Aegyptiaca 1 (Bruxelles, 1932), 66,2.

[13] K. SETHE, *Die altägyptischen Pyramidentexte nach den Papierabdrücken und Photographien des Berliner Museums neu herausgegeben und erläutert* (Leipzig, 1908-1922), I 146,4.

[14] Cf. ALLAN, *Language* 53 (1977), 285-311.

[15] One should note, however, that C. GRINEVALD ('A morphosyntactic typology of classifiers', in: G. SENFT [ed.], *Systems of nominal classification*, Language, culture and cognition 4 [Cambridge, 2000], 62-9) does not include "concordial classifiers" in her typology of classifiers, but rather considered agreement a possible secondary function of different types of classifiers. This assumption is well supported by the Egyptian case.

Another argument brought forward by some scholars against explaining the hiero-glyphic "determinatives" as graphemic classifiers sets off from the circumstance that there are many unique classifiers – at least in the earlier sub-corpora of Hieroglyphic Egyptian – which share similarities with repeaters of classifier systems in spoken languages[16]. Whereas it is true that a repeater in general does not reveal more infor-mation about the mental categorisation of the world than the classified element itself and thus lacks one of the functions of classifiers used on a larger quantity of elements, it cannot be denied that even a class with a single member is a class. Moreover, indicating the membership of entities in a particular category is not the only purpose classifiers are employed for, and unique hieroglyphs do share enough functions with other classifiers that they are included in what has been considered a classifier since the pioneer work of Keith Allan[17]. A look into the more recent study of C. Grinevald[18] will show that the current definition of a classifier system is even closer to the Egyptian system.

As a consequence, I daresay that there is no way to avoid the use of the term "classi-fier", lest one should wish to isolate Egyptological studies from other, theoretically more advanced disciplines.

Semantic role relations

Verbs typically refer to activities, processes, events, and states – all entities which cannot be designated iconically as straightforwardly as physical objects. Instead of creating non-iconic, arbitrary signs as verb classifiers – which, at least theoretically, would have been an option – another strategy was chosen, namely to indicate one or more than one actant(s) of the respective verb. Actant here in general means a proto-typical actant, not the authentic actant showing up in the actual utterance[19]. If we com-pare the relations between what the classifier refers to and the meaning of the classified verb in Hieroglyphic Egyptian with modern linguistic theories, we will find an astonish-ing degree of similarity. Notwithstanding whether one prefers Generative Semantics, Case Grammar, X-bar Syntax, later developments of Generative Grammar or less abstract approaches of Functional Grammar, the meaning of verbal lexemes will often be defined by means of their valency and sort of actants, compare the case of *drink* under (5):

(5) *drink*   V   [activity, trans.,…]
              NP_1 [agent]: animate

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[16] By using the term *unique* (or *repeater-like*) classifier I refer to those classifiers which are used on a single lexeme respectively and hence refer to the same meaning as the classified element. In contrast to repeaters of spoken language, a unique classifier is not identical in shape with the linguistic unit to which it is attached, this usually being written by a sequence of phonograms.

[17] ALLAN, *Language* 53 (1977), 295.

[18] GRINEVALD, in: SENFT (ed.), *Systems*, 62-9.

[19] A few exceptions to this have been discussed above and are the focus of Eliese-Sophia Lincke's contribution to this volume (see p. 1425-34).

NP$_2$ [undergoer / patient]: inanimate, liquid
(P NP$_x$ [source]: reservoir of liquid)
(P NP$_y$ [location]: almost any place)

Drink is a transitive verb and denotes an activity which is usually performed by an animate AGENT on an inanimate UNDERGOER which can be further specified as liquid. Another entity that might play a prominent role in a "drinking event" is the SOURCE (a glass, bottle, other type of vessel or even body of water). It is exactly these roles that had been chosen as the most significant among all possible options for creating and selecting verb classifiers in Old Egyptian. In (6) the classifier represents (parts of) a man drinking from a vessel, that is a combination of a prototypical AGENT and a SOURCE. The example under (7) instead shows a classifier referring to a prototypical UNDERGOER, and in (8) the semantic role relation is that of SOURCE.

(6)   (7)   (8)
s·wr^{-r}·MAN+VESSEL   s·wr^{-r}·WATER   s·wr^{-r}·VESSEL
swr-   *swr-*   *swr-*
VB.   VB.   VB.
drink   drink   drink

The principles are obvious enough and I need not go into detail but can just present an inventory of semantic role relations that seem sufficient to deal with perhaps not all but the great majority of cases.

(9)   AGENT   in: "call"
      EXPERIENCER   in: "be angry"
      UNDERGOER (or: PATIENT)   in: "slaughter"
      INSTRUMENT   in: "enchain"
      SOURCE   in: "drink"
      GOAL   in: "sit down"
      LOCATION   in: "sit"
      MOVER   in: "fall"
      ZERO   in: "be(come) red"
      {*CAUSEE*   in: "feed"}
      {*ABSENTEE*   in: "be dark"}

A few years ago, I suggested a set of eight semantic role relations[20] consisting of AGENT, UNDERGOER, INSTRUMENT, SOURCE, GOAL, LOCATION, EXPERIENCER, and *CAUSEE*.

[20] F. KAMMERZELL, 'Auszug aus dem Abschlußbericht des deutsch-israelischen Kooperationsprojekts 'Typologie und Gebrauch der ägyptischen Hieroglyphenschrift'', printed as an appendix in: LINCKE, *Das Schriftsystem*, 151-9.

To cope with a few cases not covered by this model, *ABSENTEE* was added as a further role. Whereas there is little doubt that the first seven types find substantiation in Egyptian texts, a considerable improvement of the list has been recently achieved by Eliese-Sophia Lincke[21]. She has found evidence for the additional roles of MOVER and ZERO (the representatives of which were subsumed under EXPERIENCER in my original approach) and has given good reason for disposing of the roles of *CAUSEE* and *ABSENTEE*. On this basis, we may describe several practicable strategies for creating a classifier referring to an activity, state or event in written Old Egyptian:

1. The designer of the classifier can choose a prototypical actant of the respective verb and then decide on a suitable iconic sign according to the routine of noun classifier generation (cf., e.g., 👁️ ⟨BROKEN VESSEL⟩, representing the semantic role of UNDER-GOER in *sḏ* "break").

2. A combination of several prototypical actants can be taken as the point of departure to form a composite hieroglyph. This "juxtaposition of actants" often results in a higher degree of lucidity (cf., e.g., 🗡️ ⟨BUNDLE AND KNIFE⟩, representing UND & INSTR in *šꜥ-* "cut off").

3. One or more prototypical actant(s) can be represented iconically in a posture or in a mutual relatedness which is characteristic for the respective activity (cf., e.g., 🌾 ⟨MAN+SICKLE+CEREAL⟩, representing AG+INST+UND in *ꜣzḫ* "harvest").

Option no. 3 is particular common in case of activities classified via indicating the AGENT. If only one of the other semantic role relations has been selected, the grapheme is often generated according to strategy no. 1.

The examples presented in this chapter have been taken exclusively from the Pyramid Texts, in most cases from version **W**. It must be stressed that in this source the system of categorisation underlying the usage of verb classifiers is not yet as abstract as in later periods of Egyptian language history. Many verbs regularly appear without classifier, and while there are a few semantic categories constituted by the use of particular verb classifiers, classifiers are not used as a tool for organising the entirety of verbal lexemes in a network of categories.

When we examine the principles of verb classification in Later Egyptian, considerable changes can be observed. It turns out that not all classifiers are assigned according to semantic role relations. Instead, we find a system which combines the aforesaid manners with other routines.

[21] LINCKE, *Das Schriftsystem*.

A case study on Late Egyptian verb classification

Up to now only few observations, the empirical base of which cannot be considered shared knowledge of most Egyptologists, have been put forward. I will now present a practical application of the theoretical model in order to show how the system of verb classification underlying a particular corpus – in my case a single text – worked and how it had become modified during its long time of usage. It will turn out that the semantic issues, which until now stood in the center of interest, are not the only factors establishing Egyptian verb categorisation by means of classifier usage. This in the end will make our model a bit more complex, but at the same time offers some insight into processes of human cognition that might be of interest beyond the limits of Egyptian language studies.

For various reasons, I choose the Story of Wenamun of Papyrus Moscow 120 as the point of departure: it is Late Egyptian and written in hieratic, both being scarcely treated in context with our topic. The text is both long enough to promise significant results and not too extensive for being discussed in a condensed paper[22].

Recording all instances of classifier constructions with verbal lexemes (including ∅-classifier) results in this scenario: All in all, for the extant parts of the Story of Wenamun the writer used 45 different classifier complexes on verbs. Each classifier complex consists either of one single classifier – including ∅ – or of a sequence of several classifiers. In the case of multiple classifier constructions, it is usually the final element that sets up the main class[23]. The following major categories are set apart by the classifying elements:

Class I: ∅

  I-1: ∅ (7 verbs / 221 instances, ∅-frequency 31.6)
    jrj- "do" (77), *ḏd-* "say" (71), *rdj-* "give" (44), *wnn-* "be" (12), *jmj-* "give!" (7), *m-* "do not!" (5), *ḫpr-* "become" (5)
  I-2/III-5: ∅ ~ 𝔸 (1 verb / 23 instances)
    jnj- "fetch, bring" (16+7)
  see also II-7: ⏤ ~ ∅

The core group of Class I consists of seven verbal lexemes which never carry a classifier (I-1). They are used as auxiliaries or otherwise show a certain degree of grammaticalisation.

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[22] A more comprehensive analysis (including information on the original hieratic sign forms) is given in a longer article on the same topic that will be published in a collective volume on verb classification edited by Bill McGregor, Eva Schultze-Berndt and Thekla Wiebusch.

[23] It must be stressed that the multiple classifier constructions of Late Egyptian fundamentally differ from those cases of double classification in Old Egyptian which Eliese-Sophia Lincke (LINCKE, *Das Schriftsystem* and in this volume, p. 1425-34) has discussed. Here we do not deal with level-1 and level-2 classifiers attached to lexemes and words respectively, but with sequences of classifiers which as a whole are assigned to lexemes. Level-2 classification also exists in Late Egyptian but is not dealt with in this paper.

Another common feature of Class I verbs, which might have favoured their usage without any classifier, is their high frequency.

Class II: ⸗

- II-1: ⸗ (15 verbs / 51 instances / ∅-frequency 3.4)
  ꜥꜣ- "be great" (12), *gmj-* "find" (10), *sḏm-* "hear, understand" (4), *wꜣḥ-* "put" (3), *mḥ-* "fill" (3), *rḫ-* "know, can" (3), *špsj-* "be noble" (3), *grg-* "found" (3), *dꜣ-y-* "let leave" (3), *ḏbꜥ-* "replace" (2), *ꜥpr-* "supply" (1), *wḥm-* "repeat" (1), *nfr-* "be beneficient" (1), *ḥtp-* "rest" (1), *tm-* "do not" (1)
- II-2: ⸗ (1 verb / 3 instances)
  ḫꜣw- "be in trance" (3)
- II-3: ⸗ (1 verb / 2 instances)
  ršw- "rejoice" (2)
- II-4: ⸗ (1 verb / 1 instance)
  qnw- "be many" (1)
- II-5: ⸗ (1 verb / 2 instances)
  wdn- "offer" (2)
- II-6/XIV-1: ⸗ ~ ⸗ (1 verb / 4 instances)
  smn- "stay, wait" (2+2)
- II-7: ⸗ ~ ∅ (4 verbs / 16 instances / ∅-frequency 4.0)
  ꜥnḫ- "live" (6+1), *wḏꜣ-* "prosper" (1+1), *snb-* "be healthy" (4+1), *ḫꜥj-* "appear, shine" (1+1)[24]
  see also IV-2: ⸗, VI-7: ⸗, XV-1: ⸗

The grapheme ⸗ ⟨PAPYRUS ROLL⟩ may be best described as a residual classifier in Late Egyptian, since Class II includes verbs denoting activities ("fill", "find", "offer", "put", "replace", "supply"), processes ("live", "prosper", "shine"), and states ("be great", "be many", "be noble", "stay") that have little in common. In contrast to the other verb classifiers, ⸗ ⟨PAPYRUS ROLL⟩ in most cases does not refer to the carrier of a particular semantic role of the verb, since concepts like "hear", "find", "be great", "live", "offer", "replace" are not at all interrelated with the depicted object papyrus. Thus, there is no iconic relationship between ⸗ and the meaning of the classified element. Class II is not only semantically heterogeneous but also shows the highest degree of overlapping with other classes. The function of ⸗ ⟨PAPYRUS ROLL⟩ is to mark a certain verb as neither being one of the most frequent verbal lexemes with auxiliary functions (that carry no classifier at all) nor belonging to one of the semantically more consistent categories defined by classifiers like ⟨WALKING LEGS⟩, ⟨EYE TOUCHED UP WITH PAINT⟩, ⟨MAN WITH HAND TO MOUTH⟩, etc.


[24] This group is labeled as II-7 (and not I-3/II-7) because all of its members appear with ∅-classifier only under well-defined conditions (cf. above).

Class III: 𓂾

III-1: 𓂾 (20 verbs / 97 instances / ∅-frequency 4.9)

jyj-/jwj- "come" (19), *h3b-* "send" (11), *š(m)j-* "go" (11), *wḫ3-* "search" (8), *wḏ-* "send out" (7), *prj-* "come out" (6), *h3j-* "go down, fall" (6), *ḫ3ʿ-* "put, throw" (6), *pḥ-* "reach" (5), *ʿḥʿ-* "stand (up)" (4), *jwd-* "intervene" (2), *wḏ-* "depart" (2), *ḥw3-* "throw, drive" (2), *spr-* "arrive" (2), *nʿj-* "travel" (1), *dwn-* "rise" (1), *zš-* "pass" (1), *ʿq-* "enter" (1), *mj-* "come!" (1), *sʿḥʿ-* "make stand up, warn" (1)

III-2: 𓂾̇ (4 verbs / 17 instances / ∅-frequency 4.3)

wpj- "send" (11), *mšʿ-* "travel" (3), *mz-* "go" (2), *wʿr-* "flee" (1)

III-3: 𓂾 ~ 𓂾̇ (1 verb / 3 instances)

ḥnj "run away" (2+1)

III-4: 𓂾 (1 verb / 3 instances)

rwj- "leave" (3)

III-5/I-2: 𓂾 ~ ∅ (1 verb / 23 instances)

jnj- "fetch, bring" (7+16)

Class III is characterised by the classifier 𓂾 ⟨WALKING LEGS⟩, contains verbs of motion and dislocation and is both one of the largest and one of the semantically most homogeneous groups. The semantic role relation between 𓂾 ⟨WALKING LEGS⟩ and the classified lexeme may be described either as INSTRUMENT (human legs as a prototypical instrument of moving) or as a case of AGENT with meronymic relation COMPONENT// INTEGRAL OBJECT (parts of a human being, which is conceived as a prototypical agent of moving).

Class IV: 𓀒

IV-1: 𓀒 (2 verbs / 4 instances / ∅-frequency 2.0)

šzp- "receive" (3), *ḫʾb-* "celebrate" (1)

IV-2: 𓀒 (6 verbs / 16 instances / ∅-frequency 2.7)

sḫn- "do business" (7), *jtḥ-* "haul" (3), *mnḫ-* "be skillful" (2), *šwj-* "unload" (2), *b3k-* "serve" (1), *z3w-* "break" (1)

IV-3: 𓀒 (2 verbs / 8 instances / ∅-frequency 4.0)

3tp- "load" (7), *f3j-* "carry" (1)

IV-4: 𓀒 (1 verb / 1 instance)

ḫnj- "sail" (1)

IV-5: 𓀒 𓏤 𓈖 𓀒 (1 verb / 1 instance)

ḫwj- "flow, beat [of waves]" (1)

IV-6/V-5: 𓀒 ~ 𓏌 (1 verb / 4 instances)

šʿ(d)- "fell" (1+3)

IV-7/X-2: 𓀒 ~ 𓏌 (1 verb / 2 instances)

mjnj- "moor" (1+1)

IV-8/V-6: 𓀒 ~ 𓏌 (1 verb / 2 instances)

sḏr- "sleep, lie, spend the night" (1+1)

Most lexemes marked by 𓀜 ⟨MAN STRIKING WITH STICK⟩ and thus belonging to Class IV denote activities (exception: *mnḫ*- "be skillful") the performance of which needs a certain amount of energy and effort. A single verb does not fit to this explanation: *sḏr*- "sleep, lie, spend the night". One can only guess for which reason this lexeme could carry the classifier 𓀜 ⟨MAN STRIKING WITH STICK⟩ or 𓂡 ⟨FOREARM WITH HAND HOLDING STICK⟩[25].

Class V: 𓂡

    V-1: 𓂡 (1 verbs / 2 instances)
wsr- "be strong" (2)
    V-2: 𓂺 (3 verbs / 3 instances / ∅-frequency 1.0)
ʿrʿr- "assign" (1), *wš*- "force one's way" (1), *qnqn*- "blast" (1)
    V-3: 𓂻 (1 verb / 19 instances)
ṯ3j- "steal, take hold" (19)
    V-4: 𓂽 (1 verb / 1 instance)
wn- "open" (1)
    V-5/IV-6: 𓏦𓂻 ~ 𓏦𓀜 (1 verb / 4 instances)
šʿ(d)- "fell" (3+1)
    V-6/IV-8: 𓉴 ~ 𓉴𓏥𓀜 (1 verb / 2 instances)
*sḏr*- "sleep, lie, spend the night" (1+1)
    V-7/XI-1: 𓂻 ~ 𓌪 (1 verb / 5 instances)
ḥdb- "kill" (4+1)
    V-8/X-1: 𓂺 ~ 𓍱 (1 verb / 2 instances)
ḫbr- "do business" (1+1)

Class V verbs, exhibiting 𓂡 ⟨FOREARM WITH HAND HOLDING STICK⟩, in most cases also denote energetic actions. It is impossible to tell apart common semantic features of this group from those of Class IV. There are not only nearly synonymous lexemes partitioned among the two groups (for instance *šn*- "do business" and *ḫbr*- "do business") but also verbs displaying a variation of 𓀜 ⟨MAN STRIKING WITH STICK⟩ and 𓂡 ⟨FOREARM WITH HAND HOLDING STICK⟩ (for instance *sḏr*- "sleep", *šʿ(d)*- "fell"). Apparently, these two hieroglyphs are not distinctive in meaning but rather appear in complementary distribution according to space: when the classifier for energetic actions came to stand under another character, the writer of our text always choose the low sign 𓂡

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[25] A somewhat far-fetched though not impossible explanation might run as follows: Forms of *sḏr*- "sleep" classified with 𓀜 or 𓂡 came into fashion at the same period when a new word 𓂝𓏤𓂡 *ḏrj*- "be(come) strong, sturdy, robust" entered the Egyptian lexicon. This would have triggered a reinterpretation of *sḏr*- "sleep" as an alleged causative formation *s.ḏr*- with a meaning like "strengthen, refresh, restore (oneself)", and as a result the classifier of *ḏrj*- would have been assigned also to *sḏr*- "sleep".

⟨FOREARM WITH HAND HOLDING STICK⟩, whereas 𓀜 ⟨MAN STRIKING WITH STICK⟩ was selected consistently, if the whole height of the line was available. As a consequence, Classes IV and V should be defined as constituting a single Class IV/V.

Class VI: 𓀁

>   VI-1: 𓀁 (10 verbs / 23 instances / ∅-frequency 2.3)
>   ˁš- "read out" (6), j- "say" (4), mdw- "speak" (3), ḥsj- "sing" (2), mrj- "love, wish" (2), gr- "be(come) silent" (2), wm- "eat" (1), mtr- "give testimony" (1), swj- "drink" (1), sft̲- "bless" (1)

>   VI-2: 𓀁 ~ ×𓀁 (1 verb / 3 instances)
>   wšb- "reply" (1+2)

>   VI-3: ⌣𓀁 (4 verbs / 5 instances / ∅-frequency 1.3)
>   jry "yes [< (I) will do]" (2), ˁrˁr "carry out (an order)" (1), sgp "shout" (1), dbḥ "beg" (1)

>   VI-4: 𓌻𓀁 (1 verb / 2 instances)
>   rmj- "weep" (2)

>   VI-5: 𓀜𓀁 (1 verb / 1 instance)
>   wšd- "salute" (1)

>   VI-6: 𓏴𓀁 (1 verb / 1 instance)
>   ḥn- "entrust" (1)

>   VI-7: 𓄿𓀁 ~ 𓀒𓀁 (1 verb / 2 instances)
>   swg- "be childish" (1+1)

>   VI-8: ⌣ ⌢ 𓀁 (1 verb / 1 instance)
>   sbꜣ- "learn" (1)

>   VI-9/IX-4: 𓀁 ~ 𓅯 (1 verb / 2 instances)
>   ḥdn- "be(come) angry" (1*1)

Class VI verbs show the classifier 𓀁 ⟨MAN WITH HAND TO MOUTH⟩ and refer to various sorts of verbal communication, emotions, and food intake.

Class VII: 𓁹

>   VII-1: 𓁹 (3 verbs / 18 instances / ∅-frequency 6.0)
>   ptr- "see" (15), nwj- "watch" (2), ˁm- "understand" (1)

Class VII verbs are characterised by the classifier 𓁹 ⟨EYE TOUCHED UP WITH PAINT⟩ and consistently refer to processes of visual perception.

Class VIII: 𓌪

>   VIII-1: 𓌪 (1 verb / 2 instances)
>   mwt- "die" (2)

The cursive substitute for 𓀏 ⟨MAN WITH BLOOD STREAMING FROM HIS HEAD⟩, 𓌪, is only attested on the verb mwt- "die" in pMoscow 120. Other verbs which could be

marked as belonging to Class VIII but do not occur within the Story of Wenamun are *wḏ₃-* "pass away", *ḫpj-* "pass away" and *šnj-* "be in pain, suffer".

Class IX: 𓅪

> IX-1: 𓅪 (4 verbs / 7 instances / ∅-frequency 1.8)
>   *ʿḏ₃-* "be wrong" (3), *grg-* "be unjust" (2), *mr-* "be painful" (1), *qnd-* "rage" (1)
> IX-2: 𓅫 (1 verbs / 5 instances)
>   *mn-* "be not" (5)
> IX-3: 𓀉 𓅪 (1 verb / 2 instances)
>   *ḥmsj-* "sit" (2)
> IX-4/VI-9: 𓅪 ~ 𓀐 (1 verb / 2 instances)
>   *ḫdn-* "be(come) angry" (1*1)

Class IX encloses verbs which typically refer to harmful states and processes. The only exception to this rule is *ḥmsj-* "sit" (IX-3). In Middle Egyptian texts *ḥmsj-* usually had been classified by 𓀉 ⟨MAN SINKING TO GROUND FROM FATIGUE⟩ or 𓀎 ⟨CHILD⟩ and in this way resembled verbs like *wrḏ-* "be(come) weary", *bdš-* "faint", *gnn-* "be(come) weak, be(come) soft". In Late Egyptian all verbs of this group could carry the additional classifier 𓅪 ⟨SPARROW⟩, and it is by pure chance that category IX-3 is represented only by its peripheral member *ḥmsj-* "sit" in the Story of Wenamun.

    Dissimilar from the practice of earlier times when the grapheme 𓅪 ⟨SPARROW⟩ had been confined to verbs like "be poor", "be small" and indeed represented a prototypical actant of the respective verb, the Late Egyptian usage of this classifier was not any longer governed by semantic role relations: the sparrow is not (and was not considered by the Egyptians either) a prototypical EXPERIENCER of "being wrong" or "being angry". With respect to our corpus the grapheme 𓅪 ⟨SPARROW⟩ should be better considered a non-iconic classifier constituting a hyper-category of events and states which were regarded as negative or undesirable. Its function being not semantic but rather pragmatic, it has some similarities with emoticons like ☹ in modern internet communication[26], which, however, often do not pertain to lexemes, but to whole phrases.

Class X: 𓌟

> X-1/V-8: 𓌟 ~ 𓏴 (1 verb / 2 instances)
>   *ḫbr-* "do business" (1+1)
> X-2/IV-7: 𓏭𓌟 ~ 𓏭𓌟𓀁 (1 verb / 2 instances)
>   *mjnj-* "moor" (1+1)
> see also V-4: 𓌟𓀁

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[26] Accordingly, it is noteworthy that the only overlapping of Class IX with another category in the Story of Wenamun is with Class VI, which includes verbs referring to emotions.

Class X contains lexemes denoting activities done by ship or with a ship. The same verbs as well as others of a similar meaning (e.g. ḫbr- "do business", ẖnj- "sail", sḫn- "do business", šwj- "unload") often belong to Class IV or V.

Class XI: ⟍

    XI-1/V-7: ⟍ ~ ⟋ (1 verb / 5 instances)
      ẖdb- "kill" (1+4)
    see also IV-6/V-5: ⟋ ~ ⟋

Verbs performed with a sharp instrument could be classified by ⟍ ⟨KNIFE⟩ or ⟋ ⟨KNIFE PLUS FOREARM WITH HAND HOLDING STICK⟩ and constitute Class XI. Examples from outside of our corpus are bḫs- "hunt", mꜣꜥ- "sacrifice", dm- "sharpen, be(come) sharp".

Class XII: ▭

    XII-1: ▭ (1 verb / 2 instances)
      dns- "be heavy, serious" (2)

Inside as well as outside of our corpus, the hieroglyph ▭ ⟨STONE⟩ was only infrequently used as a verb classifier. Other verbal lexemes which could carry the sign ▭ ⟨STONE⟩ and thus belong to Class XII are wdn- "be heavy" and, exceptionally, ḫꜣj- "weigh, measure".

Class XIII: ▢

    XIII-1: ◁▢ (1 verb / 4 instances)
      ḏdḥ- "arrest" (4)

The grapheme ▢ ⟨HOUSE⟩ is a common noun classifier marking lexemes which refer to houses, dwellings, and other types of localities. It was hardly ever used on verbs. Examples from other Late Egyptian texts are ḫtm- "shut, close, seal" and the infinitive mjn.t "to depart (from life)", which, however, probably got the classifier ▢ ⟨HOUSE⟩ because of its association with the formally similar noun mjnw.t "harbor".

Class XIV: ⎶

    XIV-1/II-6: ⎶ ~ ⎶ (1 verb / 4 instances)
      smn- "stay, wait" (2+2)
    see also II-5: ⎶, XII-1: ⎶▭

There are no common semantic features justifying the use of the classifier ⎶ ⟨PESTLE AND MORTAR⟩ on the verbs wdn- "offer", dns- "be heavy, serious" and smn- "stay, wait" in the Story of Wenamun. In earlier times ⎶ ⟨PESTLE AND MORTAR⟩ had served

as a classifier for verbs like *zḥm-* "pound", *zmn-* (> *smn-*) "press down", *wdn-* "be heavy", and *dns-* "be heavy". The lexemes *smn-* "stay, wait" and *wdn-* "offer" later got the same classifier – not for semantic reasons but because of their being homonymous with the respective roots of the original group.

Class XV: 𓏏

    XV-1: ⸗𓏏 (1 verb / 1 instance)
        m3ꜥ- "be correct" (1)

This usage of the hieroglyph 𓏏 ⟨FEATHER⟩ following the ⸗ ⟨PAPYRUS ROLL⟩ is exceptional and originated from its earlier use as a unique classifier or logogram in writings of the noun *m3ꜥ.t* "truth". In other Late Egyptian texts the verb *m3ꜥ-* "be correct, be true" could be classified by the reverse sequence 𓏏⸗ ⟨FEATHER PLUS PAPYRUS ROLL⟩ and thus would constitute a sub-category of Class II.

    By now, we have gained a rather precise picture about the specific way of verb classifying in the Story of Wenamun:

- Seven function verbs represent more than one third (221 of 594 or 37%) of all the instances and are constantly – and efficiently – written with ∅-classifier (Class I).
- About two thirds of the lexemes (75 of 114) belong to the five categories embracing activities, processes, and states which, according to the shape of the main classifiers, were perceived as being connected with human actants: movements (Class III, prototypically performed by foot, 𓂾), energetic actions (Class IV/V, prototypically realised by hand, 𓂡 / ⸗), verbal communication, emotions and food intake (Class VI, done with the mouth, 𓀁), visual perception (Class VII, achieved by means of the eyesight, 𓁹), and dying (Class VIII, 𓏱 < 𓀐). These five major classes cover 44% of all the instances (263 of 594).
- In addition, a handful of smaller classes assemble more specific verbs referring to activities and states that are linked with ships (Class X, 𓊛), sharp tools (Class XI, 𓌪), buildings (Class XIII, 𓉐) or heavy objects (Class XII, 𓎶). These groups tend to overlap with Classes IV/V or II and are probably the least stable categories.
- Actions, states, and events ostensibly perceived as negative or destructive are arranged in a category of their own (Class IX, 𓅪).
- A considerable number (24 of 114) of verbs apparently cannot be easily attributed to one of the above-mentioned categories and carry the residual classifier (Class II, ⸗). This class covers 77 (13%) of all the instances.
- A few verbs got their particular classifiers for extra-semantic reasons (e.g., phonetic similarity with other lexemes).

The diagram of Figure 1 provides overall information about how the verbal lexemes, as well as the individual instances, are distributed among the major categories. The

Figure 1. The system of verb classifiers in the Story of Wenamun.

lexemes are given by means of English paraphrases, the font size correlates with the respective number of instances.

Typical for Late Egyptian as compared with the earlier chronolects is the frequent usage of more than one classifier on a particular verb. A detailed analysis of sub-categorisation by means of pre-final classifiers is not presented in this paper, but the reader already should have got an idea about the general principles and may consult Figure 1 for further information. The comparatively high quantity of multiple classifier constructions in our corpus can be explained as the result of a historical process, since verbs which carry two classifiers in Late Egyptian often would have appeared in earlier periods with only one – in general with the one coming first. Certain single-classifier verbs of Late Egyptian (especially those of Class II) still lacked a classifier at all in Old Egyptian texts. Others originally had a more specific, often unique classifier. This implies that the original system of Earlier Egyptian had changed considerably. There had been many more smaller or even single member classes in Old Egyptian. In Late Egyptian, these were lumped together into larger categories by means of getting an additional classifier.

Hybridity of classification strategies in Written Egyptian

Hybridity plays an important role in the Egyptian writing system – and probably in any other as well. Astonishingly enough (at least for advocates of the superiority of the alphabet), the clear-cut situation of a writing system consisting of nothing but a fixed list of elementary signs and an unambiguous set of grapho-phonemic correspondence (GPC) rules that is used to form strings of letters which directly correlate with sequences of phonemes is only rarely found in the history of human communication. The *International Phonetic Alphabet* is perhaps the best example, and the earliest Semitic and Greek alphabets came close to this "ideal", but soon – for good reasons – were modified and enriched by means of non-alphabetic elements (e.g. spaces, diacritics, logograms like numbers and abbreviations, punctuation). Usually a more complex sort of interaction between list-based and rule-based information processing can be observed on various levels of written communication: If we contrast different options of writing numerals – e.g. Modern Italian *uno*, *due*, *tre* versus *1*, *2*, *3* – the notations by means of phonograms are obviously rule-based (i.e. governed by noticeably regular GPC rules), whereas the use of logograms requires list-based knowledge. So it seems as if we deal with a cut between the rule-based use of phonograms (which for their part constitute a list) on the one hand and the list-based use of logograms on the other hand. This situation must not be generalised: one needs more than a simple set of GPC rules to write and read Modern English *one*, *two*, *three*, and the interpretation of the Roman logograms *I*, *II*, *III* does not entirely depend on the internalisation of a sign list but is also governed by a set of rules. Moreover, the development of Western writing since long has resulted in an increasing usage of meaningful, often iconic graphemes like ☎, ♟, ⚕, ⅄, 🚃, 🍽, 🔁, 🔋, ⊗, ♥, ☺. Some of these were imported into script from pictographic systems, others might have been generated creatively in the very process of writing, but many of them, due to their iconic shape, tend to be self-explanatory to those who are familiar with the conventions of sign formation.

The interplay of diverse strategies of information processing in Written Egyptian is not unlike this scenario – in particular if we look at the writing system of the Old Kingdom Pyramid Texts. That not all hieroglyphic graphemes extant in the Pyramid Texts may be considered members of a conventionalised sign inventory is obvious for more than one reason:

- Almost one half (693 from a total of 1504) of the graphemes attested in the sources **W**, **T**, **M**, and **N** have a frequency lower than three, and about one third of the whole collection, 495 graphemes, show up each in a single instance only[27]! Hence it is

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[27] The quantitative facts about grapheme "inventories" and distribution within the Pyramid Texts have been provided by Daniel Werning on the basis of files that were made between 2000 and 2003 by Henrike

utterly implausible that writers/readers of the Pyramid Texts had learned in advance an inventory of many hundreds of logograms and classifiers which was of so little practical use[28].

• Inspecting the quantity and distribution of graphemes as well as the grapheme-token-relation (GTR) within the four sub-corpora **W**, **T**, **M**, and **N** reveals that only a core group of 255 graphemes occurs in all four sources (but represent more than 90% of all the tokens, cf. Figure 2), that further 151 appear in three pyramids, and that the number of signs not belonging to this more or less conventionalised set of about 400 hieroglyphs ("core set 3") relates with the size of the respective corpus (cf. Figure 3). The statistics for cumulative sub-corpora (Figure 4) shows an absolute increase of numbers with growing corpus size. The larger the corpus, however, the smaller the ratio between graphemes and tokens. This indicates that the rate of grapheme number increase is lower than that of corpus growth – which is exactly what one should expect in case of open classes of linguistic elements. These observations give further evidence for assuming that a considerable number of graphemes were generated only during the process of text production.

Distribution	Graphemes	Tokens	Proportion	**W**	**T**	**M**	**N**
Attested in all four pyramids ("core set 4")	255	160,854	92.7%	255	255	255	255
Attested in three pyramids ("core set 3")	151	5,220	3.0%	91	93	126	143
Attested in two pyramids	300	4,978	2.9%	68	79	213	240
Attested in one pyramid	798	2,491	1.4%	175	166	138	319
Total	1,504	173,543	100.0%	589	593	732	957

Figure 2. Amount and distribution of graphemes within four sub-corpora
of the Pyramid Texts.

Sub-corpus	Tokens	Graphemes	GTR	Graphemes	GTR	Graphemes	GTR
				(without "core set 4")		(without "core set 3")	
W	29,348	589	2.01%	334	1.14%	243	0.83%
T	25,600	593	2.32%	338	1.32%	245	0.96%

[28] Anyone mistrusting this idea should answer the following question: If all hieroglyphs were members of a well-defined set and if it would have been only by chance that many of them are attested so rarely, the existence of how many graphemes has to be expected which were, also "by chance", never written at all?

Sub-corpus	Tokens	Graphemes	GTR	Graphemes	GTR	Graphemes	GTR
				(without "core set 4")		(without "core set 3")	
M	42,729	732	1.71%	477	1.12%	351	0.82%
N	82,342	957	1.16%	702	0.85%	559	0.68%

Figure 3. Corpus size and amount of graphemes.

Sub-corpus	Tokens	Graphemes	GTR	Graphemes	GTR	Graphemes	GTR
				(without "core set 4")		(without "core set 3")	
W	29,348	589	2.01%	334	1.14%	243	0.83%
W.T	54,948	843	1.53%	588	1.07%	446	0.81%
W.T.M	97,677	1,185	1.21%	930	0.95%	779	0.80%
W.T.M.N	173,543	1,504	0.87%	1,249	0.72%	1,098	0.63%

Figure 4. Cumulative corpus size and amount of graphemes.

Of course, it must be admitted that it means an oversimplification to define exactly those signs which occur in all or in at least three of the four sub-corpora as members of the core group and to consider this the fixed, list-based inventory only on the basis of quantitative evidence. There are hieroglyphs that by chance or for extra-linguistic reasons have a limited distribution but nevertheless should be considered part of the core inventory known by every scribe (e.g. the phonogram 𓃹 ⟨wn⟩, which was regularly replaced in **M**, or 𓄫 ⟨BULL⟩, used only in **W** and **T**). On the other hand, we find a few hieroglyphs attested in all sub-corpora which even so appear extremely infrequently and perhaps might be considered more untypical members (e.g. 𓄹 ⟨APRON⟩, representing no more than five tokens). An in-depth analysis has to include not only quantitative data but would result in a comparable scenario. In any case, even within "core set 4" and "core set 3" we can clearly discern an innermost core (see Figure 5).

This "core of the core" consists of the elementary phonograms corresponding with a single consonant and includes 107,352 of all the tokens, implying that close to two thirds (62%) of the hieroglyphs attested in the four sub-corpora of the Pyramid Texts are "alphabetic" signs[29]. While the 24 graphemes of the innermost core (Figure 5, black areas) are not iconic and had to be known by the writer/reader as list-based information, the interplay of list-based and rule-based data processing played an important

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[29] This fact links Egyptian closer with modern Western scripts and disproves all those who regard hieroglyphic writing as one of the less practical systems in the history of human communication.
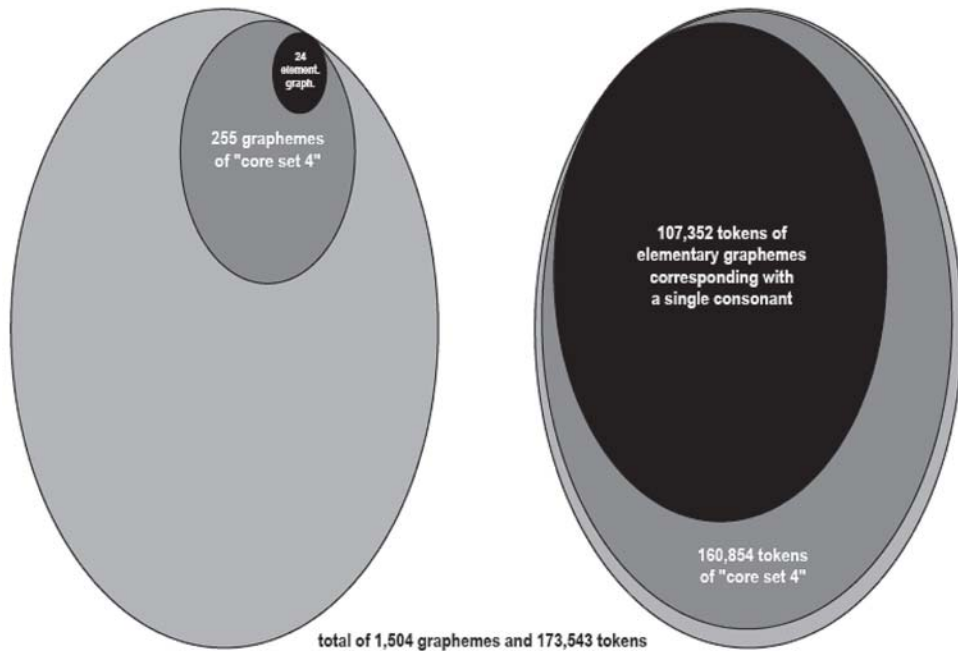
Figure 5.

role already in the case of the hieroglyphs belonging to "core set 4" (Figure 5, dark grey areas): most of them served as logograms, classifiers and/or phonograms corresponding with sequences of two or three consonants, and they were often accompanied by interpreting "alphabetic" signs. In addition, many core set hieroglyphs are iconic and thus – though being definitely conventionalised – provided information about their particular function by means of their shape. Ultimately, the hieroglyphs from outside the core sets, which make up almost three quarters of all the graphemes but cover less than 5% of the tokens (Figure 5, light grey areas), due to their iconic shapes tend to be self-explanatory to anyone acquainted with the rules of sign formation. The majority of them were unique classifiers, the repeater-like usage of which made their respective interpretation even easier.

Hybridity is not only of crucial relevance in the working of the hieroglyphic writing system as a whole, but also can be observed within the narrower sphere of verb classification. Within the Pyramid Texts, the use of classifiers on verbs was not obligatory. Especially in sub-corpus **W**, the majority of verbal lexemes never got a classifier. The number of unique classifiers, each of which was used on one particular lexeme only, is also considerable – and further grew in the later sub-corpora of the Pyramid Texts.

Only a few signs, among them ⟨WALKING LEGS⟩, ⟨RUNING LEGS⟩, ⟨ARMS IN GESTURE OF NEGATION⟩, ⟨SHIP⟩, ⟨KNIFE⟩, constituted what may be described as semantic categories structuring (parts of) the lexicon in a more general way.

In a later period, the replacement of many unique classifiers and increasing conventionalisation resulted in more verbal lexemes being classified by fewer classifiers. As a consequence, a decrease in the individual classifiers' specificity was inevitable. As a result of this and of the trend towards every verb exhibiting a classifier – which could be ⟨∅⟩ – the usage of classifiers more and more mirrored an overall structuring of the lexicon. How this might have been achieved in a particular Late Egyptian text, has been shown above in some detail.

Besides the observations on the hybridity of writing systems, a few other results of this paper are perhaps not without relevance in a more general perspective:

- Whereas most classifiers labeled as "verb(al) classifiers" in linguistic literature are in fact elements that are attached to the verb but refer to the actual nominal arguments of the verb[30], Written Egyptian has a genuine system of classifying verbal lexemes. In those cases where the semantics of the verb classifier is still overt the classifying element, as a rule, is not related to *actual* but to *prototypical* actants.

- In choosing a classifier for an action, state or event, the Egyptian scribes favoured those graphemes which were linked with thematic relations that are in a prominent position on the hierarchy of grammaticalisation in many spoken languages too: hieroglyphic classifiers hinting at AGENT, MOVER, EXPERIENCER, UNDERGOER or INSTRUMENT are much more common than those corresponding with LOCATION, SOURCE or GOAL already in Old Egyptian. Later Egyptian shows dominance of the thematic roles of AGENT, MOVER, and EXPERIENCER over those of INSTRUMENT, UNDERGOER, GOAL, SOURCE, and LOCATION.

- When comparing the structure of the Late Egyptian system of verb classifiers with the principles of verb classification in dissimilar and undeniably unrelated languages, it is intriguing to notice a considerable degree of similarity. In a paper given on the occasion of the *10th International Cognitive Linguistics Conference* (2007, Kraków), Eva Schultze-Berndt has demonstrated that in the Australian language Jaminjung the architecture of the verb categorisation system shows eight to ten major categories which are further supplemented or/and subdivided into close to forty classes. In Jaminjung there is a strict distinction between visual perception, auditory perception, and perception by the lower senses. Verbs of motion and positional verbs (like "stand", "sit", "lie") play an important role, and there are also special classifiers indicating the instrument involved in a particular activity (among others: sharp instruments, like in Egyptian). Another typical feature shared

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[30] GRINEVALD, in: SENFT (ed.), *Systems*, 67-8 and 91.

by Jaminjung and Written Egyptian is the practice of a "natural" categorisation depending on more than a single set of distinctive criteria.

Thus it seems that the system and usage of graphemic classifiers reflects the circumstance that the human mind is particularly well developed for hybrid information processing.

Abbreviations

⟨ ⟩	enclose descriptive renderings of Egyptian graphemes within the main text	W	Pyramid Texts of King Unas
		N	Pyramid Texts of King Pepi II
		NP	nominal phrase
[ ]	enclose semantic features	NPA.	neutral participle active
" "	enclose English translations	P	preposition
3P	third person plural	PL.	plural
3SM	third person singular masculine	POSTP.	postposition
ADJVR.	adjectiviser	PREP.	preposition
AG	agent	PRES.1	first present (of Later Egyptian)
CMPLR.	complementiser	Pyr.	Pyramid Texts (see SETHE, *Pyramidentexte* [see n. 13])
DEF.ART.	definite article		
DEM.	demonstrative pronoun	SBST.	substantive
FEM.	feminine	STAT.	stative
IMPERS.	impersonal	T	Pyramid Texts of King Teti
INF.	infinitive	UND	undergoer
INST	instrument	V	verb
LOC	location	M	Pyramid Texts of King Merenre

In the transliterations of glossed texts (second line), the following principles are followed: phonograms are rendered in standard letters, which are set ^{above the line} when the respective grapheme serves as an interpretant. Logograms are given in CAPITAL LETTERS, classifiers in descriptive renderings _{below the line}. A dot · separates individual graphemes.