

Identification and Annotation of Body Part Multiword Expressions in Old Egyptian

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Abstract

This paper presents the preliminary results of an ongoing study on the diachronic and synchronic use of multiword expressions (MWEs) in Egyptian, begun when I joined the COST Action *Universality, Diversity and Idiosyncrasy in Language Technology* (UniDive, CA21167). It analyzes, as a case study, Old Egyptian body part MWEs based on lexicographic and textual resources, and its aim is both to open up a research line in Egyptology, where the study of MWEs has been neglected, and to contribute to Natural Language Processing studies by determining the rules governing the morpho-syntactic formation of Old Egyptian body part MWEs in order to facilitate the identification of other types of MWEs.

Keywords: Old Egyptian, Multiword Expression, Body Part

1. Introduction

Egyptian is one of the longest lived languages in history. This Afroasiatic language knew the following phases:

- Old Egyptian (ca. 2700–2000 BC).
- Middle Egyptian (ca. 2000–1400 BC).
- Late Egyptian (ca. 1300–700 BC).
- Demotic (7th century BC to 5th century CE).
- Coptic (4th century to 14th century CE).

This paper shows the existence of MWEs in one of the oldest known languages in human history, as they are attested in texts dating from the early third millennium BC (see example 15, below).¹ It focuses on the use of body part MWEs in Old Egyptian, analyzes their typology and identifies rules for their formation. This paper has seven parts. It begins with a brief introduction to the topic (§ 1) and a definition of “body part multiword expression” (§ 2). The methodological approach applied to the identification and annotation of Old Egyptian body part MWEs (§ 3) is followed by examples of each body part noun used in Old Egyptian MWEs (§ 4). A typology of Old Egyptian body part MWEs (§ 5) and an explanation of the rules governing their formation (§ 6) are developed on the basis of the examples collected during the research. Finally, the next phases of this research are outlined in the conclusion (§ 7).

2. A Definition of a Body Part Multiword Expression

It is assumed that “body” and “body parts” are universal concepts (Wierzbicka, 2007) which can be used with a metonymic and metaphoric meaning (Ganfi, Piunno and Mereu, 2023). A body part MWE may be defined as a sequence of at least two lexicalized components, one of which is a body part name, whose semantic idiosyncrasy results from the association between the body part with a figurative

meaning and another component(s) (*cf.* the definition of MWE in Savary *et al.*, 2018; Baldwin and Kim, 2010). Body part MWEs are common in modern and ancient languages, e.g.:

1. English:

LM: “Listen to your heart.”²

FT: “Act according to your feelings.”

2. Latin (Plaut., *Asin.* 729):

nec	caput	nec	pes
neither-neg	head	nor-neg	foot

LM: “Neither head nor foot.”

FT: “Completely wrong.”

3. Arabic:

القلب	ضعيف
<i>al-qalb</i>	<i>d'if</i>
the heart-M.SG.DET	weak-M.SG

LM: “A weak one of heart.”

FT: “A coward.”

3. Methodology

Although multiple forms of figurative language, such as simile and metaphor have been extensively studied in Egyptology,³ the study of MWEs remains unexplored. Old Egyptian body part MWEs was chosen as a case study for this work because of the occasional metonymic and metaphoric use of body part nouns (see § 2, above)—a factor that facilitates the identification of MWEs in any language (see examples 1–3, above). Lexical compounds with an idiosyncratic meaning consisting of a body part noun in a close relationship with its head word were considered as MWEs, as for example:

¹ Earlier instances of MWEs may be found in Sumerian texts from the Early Dynastic Period (ca. 2900 BC).

² LM stands for “literal meaning” and FL for “free translation”.

³ For the state of the art in Egyptian figurative language, see Hsu 2023.

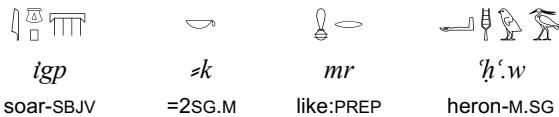
4. CG 20543, 5:



LT: “One who enters the heart of his mistress.”
 FT: “A confidant of his mistress.”

Metaphorical expressions used to establish a figurative comparison of two entities by means of a “comparison marker”, such as *mr* “like” in Old Egyptian were disregarded in this research, for example:

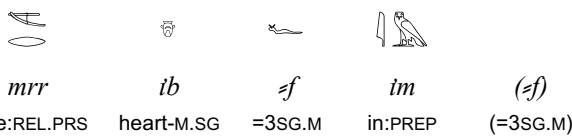
5. Pyramid Texts § 293a:



LM: “You shall soar (skyward) as a heron.”
 FT: “You shall fly over the clouds.”

A fuzzy boundary represents the case where the body part noun has a metonymic meaning, while the head word retains its literal meaning. Such cases were included as MWEs in this research (see identification tests 2 and 3, below), as for example:

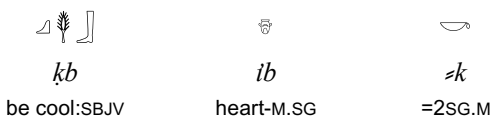
6*. Pyramid Texts § 1592e:



LM: “(... any place) which his heart (i.e. will) loves.”
 FT: “(... any place) which he desires.”

Body part MWEs are clearly identified when its figurative meaning results from the close association of the body part noun with its head word, as for example:

7. Pyramid Texts § 22b:



LM: “Your heart may be cool.”
 FT: “You may be calm (i.e. satisfied).”

In Egyptian the figurative meaning of a body part MWE is often related to the idiosyncrasy of this language, as the following example shows:

8. Pyramid Texts § 417b:



The figurative meaning of this expression is “enemy”, for it derives from the Egyptian custom of decorating sandals with the image of foes:



Fig. 1: Foot-end of mummy cartonnage (Veldmeijer, 2014)

Although MWEs are not identified in Hannig’s Old Egyptian dictionary, it provides extensive references to the meaning of each Egyptian word and lexical compound:

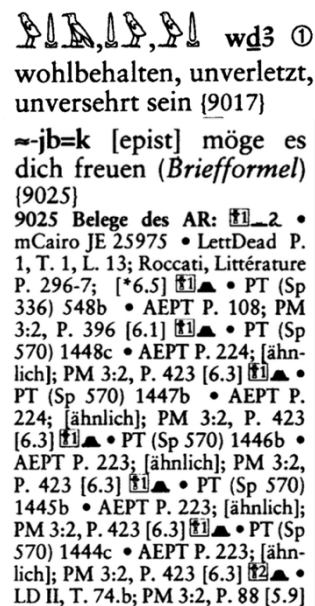


Fig. 2: Textual references to the MWE *w₃ ib* “be happy” (Hannig 2003: 398-399)

I checked the references of body part nouns potentially used in MWEs against the editions of hieroglyphic texts. Instances of body part nouns with a literal meaning have been disregarded (see validation test 1, below), while instances of body part nouns in figurative association with other words have been considered body part MWEs according to the definition given in section 2 (see above). In addition, I used the textual database of the *Thesaurus Linguae Aegyptiae* to find further instances of body part MWEs in Old Egyptian texts. After selecting and entering them into an Excel list, I manually annotated the most eloquent examples of Old Egyptian body part MWEs

in a Word file for lack of a digital resource.⁴ Such examples have a clear meaning and syntactic structure. As it can be seen here, they were annotated with the reference source and following the Leipzig Glossing Rules.⁵ They are provided with a literal meaning (LM) and a free translation (FT), for example:

9. Pyramid Texts § 293a:

<i>nčm</i>	<i>ib</i>	<i>n(.i)</i>	[<i>Wniš</i>]
be sweet-SBJV	heart-M.SG	of-M.SG	Unas-KN

LM: "The heart of [Unas] shall be sweet."

FT: "[Unas] shall be kind."

The selection and identification of Old Egyptian body part MWEs was carried out using a series of verification tests:

Test 1. Does the body part noun have a literal meaning?

— Yes ⇒ It is not an MWE, for example:

10. Pyramid Texts § 49 Nt:

<i>nčr</i>	<i>n</i>	<i>z</i> <i>k</i>	<i>ʿ</i>	<i>ʃ</i>
seize-IMP	for:PREP	=2SG.M	arm-M.SG	=3SG.M

LM: "Seize for yourself his arm."

FT: "Seize his arm!"

— No ⇒ Test 2.

Test 2. Does the body part noun have a metonymic meaning?

— Yes ⇒ It is a potential MWE ⇒ Test 3. Ex.:

11. Pyramid Texts § 1675b:

<i>ššm</i>	<i>čw</i>	<i>ib</i>	<i>z</i> <i>k</i>
guide-SBJV	=2SG.M	heart-M.SG	=2SG.M

LT: "Your heart shall guide you."

FT: "Your will shall guide you."

— No ⇒ It is not an MWE, see test 1.

Test 3. Is the body part noun used with an idiosyncratic meaning in close syntactic relationship with a head word?

— Yes ⇒ It is an MWE, for example:

12. Pyramid Texts § 116a:

<i>inč</i>	<i>(z)</i>	<i>hr</i>	<i>z</i> <i>k</i>
ask-SBJV	=1SG	face-M.SG	=2SG.M

LT: "May (I) ask your face."

FT: "Hail to you!"

— No. It is a fuzzy MWE consisting of a body part noun with a metonymic meaning (see test 2). It has been marked with an asterisk in this paper, see ex. 6*, 16*, 27*, 32* and 43*.

Test 4. Is the body part noun used in a lexicalized expression with an idiosyncratic meaning?

— Yes ⇒ It is an MWE. This is the usual case for complex prepositions (CPs), for example:

13. Pyramid Texts § 54b:

<i>β</i>	<i>hft</i>	<i>hr</i>	<i>ʃ</i>
lift up:IMP	in front of:PREP	face-M.SG	=3SG.M

LM: "Lift up in front of his face."

FT: "Lift up before him"

It should also be noted that body part MWEs are occasionally attested in some scenes, which are annotated here in order to illustrate their meaning, for example:

14. Davies, 1900, pl. III, cf. fig. 3:

<i>wčʒ</i>	<i>ib</i>	<i>z</i> <i>k</i>	<i>(i)r</i>	<i>šy</i>
be hale-SBJV	heart-M.SG	=2SG.M	concerning:PREP	crocodile-M.SG

LM: "Your heart shall be hale concerning the crocodile."

FT: "You shall be happy of having escaped from the crocodile."

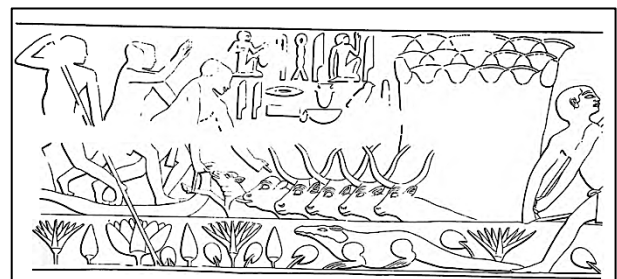


Fig. 3: A cow escapes from the crocodile

In Old Egyptian the frequency of body part MWEs varies depending on the body part noun—the commonest body part MWEs are those consisting of *ib* "heart" (no less than 63 types of MWEs)⁶ and ' "arm" (no less than 24 types of MWEs), while the less common body part MWEs are those consisting of *ir.t* "eye", *n.t* "nail" and *hps* "biceps" which are attested in less than five types of MWEs. The following Old Egyptian body part nouns are used in MWEs (see examples in § 4, below):

⁴ I am working on the first treebank of Egyptian sentences syntactically analyzed in Universal Dependencies. Its initial release is planned for Mai 2024. This treebank will include MWEs to be published as a corpus in PARSEME.

⁵ Di Biase-Dyson, Kammerzell and Werning (2009) adapted the Leipzig Glossing Rules for the study of Egyptian texts.

⁶ I discussed the use of Old Egyptian MWEs containing *ib* in a poster I presented at the second general meeting of

UniDive (Università di Napoli "L'Orientale", 8–9 February 2024). The 63 types of Old Egyptian MWEs containing *ib* are analyzed one by one in my forthcoming article "Old Egyptian Multiword Expressions consisting of a head word and *ib* 'heart'".

Spelling	Transcription	Literal meaning
	<i>iwf</i>	flesh
	<i>ib</i>	heart
	<i>ir.t</i>	eye
	ʿ	arm
	ʿ <i>n.t</i>	nail
	<i>r</i> ʿ	mouth
	<i>rmn</i>	shoulder
	<i>rṯ</i>	foot
	<i>ḥr</i>	face
	<i>ḥʿ.t</i>	forehead
	<i>ḥʿ.ti</i>	heart
	<i>ḥpš</i>	strong arm (biceps)
	<i>ḥ.t</i>	belly
	<i>šʿ</i>	back
	<i>šni</i>	hair
	<i>tp</i>	head
	<i>č.t</i>	body
	<i>čbʿ</i>	finger
	<i>čr.t</i>	hand

Table 1: Body part nouns used in Old Egyptian MWEs

4. Evidence

The earliest instances of body part MWEs in Egyptian date from the Early Dynastic Period (ca. 2900–2730 BC), for example:

15. Petrie, 1901 (vol. 2, pl. III), cf. fig. 4:



imʿ

be kind:PTCP (M.SG)



ib

heart-M.SG

LM: “One who is kind of heart.”

FT: “A well-liked one.”

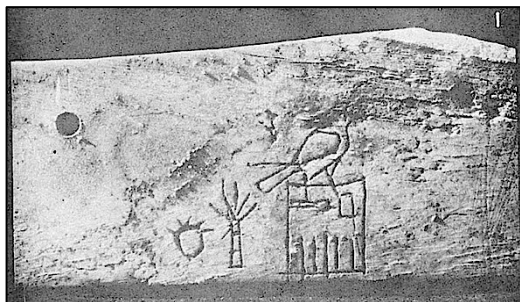


Fig. 4: An Abydos tablet

As the following examples show, body part nouns listed in table 1 (see above) are used to form Old Egyptian MWEs.

16. Example of *iwf* (Sethe, 1933, 14,5):

prr *ʿf* *r* *ʿf* *m* *i(w)f* *ʿf*
 go:PRS =3SG.M PTCL =3SG.M with:PREP flesh-M.SG =3SG.M

LM: “He goes off for him with his flesh.”

FT: “He goes off, certainly at his own risk.”

17. Example of *ib* (Brunner, 1937, 62,79):

ḥʿk *ib* *nb*
 be hostile-PTCP(M.SG) heart-M.SG every-M.SG

LM: “Everyone who is hostile of heart.”

FT: “Any evil-minded person.”

18. Example of *ir.t* (Černý, 1961, 7):

n *psg* (*ʿi*) *m* *ir.ti* *n(.t)* *nfr*
 not-NEG spit:PT =1SG in:PREP eye-F.DU of-F good-M.SG

LM: “(I) did not spit in the two eyes of a good one.”

FT: “(I) did not spit on the eyes of a good man (i.e. I did not humiliate a good man).”

19. Example of ʿ (Pyramid Texts, § 213a):

m *ḥnw* ʿ *ʿk*
 in:PREP interior-M.SG arm-M.SG =2SG.M

LM: “(...) in the interior of your arm.”

FT: “(...) within your embrace.”

20. Example of ʿ*n.t* (Moussa/Altenmüller, 1977, 79 and fig. 10), cf. fig. 5:

ir[.t] ʿ*n.(w)t*
 make:INF nail-F.PL

LM: “Making the nails.”

FT: “Cutting nails (or manicure/pedicure).”



Fig. 5: A man pedicuring another man

21. Example of *r*ʿ (Pyramid Texts, § 1299a):

rč *ʿk* *r*ʿ *ʿk* *n(.t)* *R*ʿ
 give:FUT =2SG.M mouth-M.SG =2SG.M of-M.SG Ra-GN

LM: “You will give your mouth to Ra.”

27 FT: “You will speak with Ra.”


22. Example of *rmn* (Pyramid Texts, § 813a):


hms.y *ʃ* *hr* *rmn(.wi)* *ʃ*
 sit:FUT =3SG.M on:PREP shoulder-M.DU =3SG.M

LM: “He will sit on his two shoulders.”

FT: “He will sit himself beside him.”


23. Example of *rʃ* (Kanawati 1997, fig. 41):


ič *n* *ʃk* *rʃ(.wi)* *ʃk*
 take:IMP for:PREP =2SG.M foot-M.DU =2SG.M

LM: “Take for you your two feet.”

FT: “Move!”

24. Example of *hr* (Pyramid Texts, § 613a):


š:hč *ʃsn* *hr* *ʃk*
 make bright:SUBJV =3PL face-M.SG =2SG.M

LM: “They shall make your face bright.”

FT: “They shall make you glad.”

25. Example of *hʃ.t* (Pyramid Texts, § 407d):


iw *mk.t* *Wniś* *m* *hʃ.t*
 PTCL place-F.SG Unas-KG at:PREP forehead-F.SG

LM: “The place of Unas is at the forehead.”

FT: “Unas’ place is ahead.”

26. Example of *hʃ.ti* (Pyramid Texts, § 2024a):


ʃ *hʃ.ti* *ʃk*
 be great:SUBJV heart-M.SG =2SG.M

LM: “Your heart shall be great.”

FT: “Be proud!”


27*. Example of *hps̄* (Fischer, 1961, 47):


ir *m* *hps̄* *ʃ*
 act-PTCP(M.SG) with:PREP biceps-M.SG =3SG.M

LM: “One who acted with his biceps.”

FT: “One who acts on his own.”


28. Example of *h.t* (Pyramid Texts, § 1c):


sʃ *pw* *Tti* *n(.t)* *h.t* *(ʃt)*
 son-M.SG COP Teti-KN of-M.SG belly-F.SG =1SG

LM: “Teti is the son of (my) belly.”

FT: “Teti is (my) bodily (i.e. biological) son.”


29. Example of *sʃ* (Sethe, 1933, 111,8):


hr *sʃ* *hʃś.t*
 on:PREP back-M.SG foreign land-F.SG

LM: “(...) on the back of the foreign land.”

FT: “(...) at the far end of the foreign land.”


30. Example of *šni* (Petrie, 1900, pl. XXVB):


šni *tʃ*
 hair-M.SG earth-M.SG

LM: “Hair of the earth.”

FT: “Vegetation.”


31. Example of *tp* (Pyramid Texts, § 989a):


m *tp* *hrw*
 in:PREP head-M.SG day-M.SG

LM: “(...) in the head of the day.”

FT: “(...) at dawn.”

32*. Example of *č.t* (Pyramid Texts, § 762b):


mʃw *ʃk* *č.t* *ʃk*
 speak:SUBJV =2SG.M body-M.SG =2SG.M

LM: “You shall speak (of) your body.”

FT: “You shall speak (of) yourself.”

33. Example of *čbʻ* (Pyramid Texts, § 372a):


r *čbʻ(.wi)* *ʃ*
 to:PREP finger-M.DU =3SG.M

LM: “(...) to his two fingers.”

FT: “(...) at his side.”

34. Example of *čr.t* (Brunner, 1937, 42,3):


ink *pgʃ* *čr.t*
 1SG open-PTCP(M.SG) hand-F.SG

LM: “I am one who opens the hand.”

FT: “I am a generous one.”

5. Typology

Old Egyptian body part MWEs can be classified according to universal typology as nominal, prepositional and verbal.⁷ In nominal multiword expressions (NMWEs) the head word accompanying the body part noun can be a noun, an infinitive, an adjective or a participle. The head word of prepositional multiword expressions (PMWEs) can only be a preposition. In verbal multiword expressions (VMWEs) the head word must be a verb form (except if it is a nominalized verb form which is considered an NMWE).

5.1 Nominal Multiword Expressions

A body part noun can be the head or the modifier of an NMWE. If it is the former, it usually means a physical object, for example:

⁷ See Baldwin and Kim, 2010, 274–279.

35. Goedicke, 1994, 73, I.9, cf. fig. 6:



LM: "An arm (made) of wood."
 FT: "An incense burner (in the shape of an arm)."



Fig. 6: A ritualist holding an incense burner (Walters Art Museum 22216)

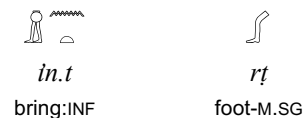
If the body part noun is used as a modifier, the head of the NMWE can be a noun, an infinitive, and an adjective or a participle:

36. Example of a noun as the head of an NMWE (Junker, 1943, fig. 43):



LM: "A warm man of heart."
 FT: "A hard-working man."

37. Example of an infinitive as the head of an NMWE (Paget, 1898, pl. XXXVIII), cf. fig. 7:



LM: "Bringing the foot."
 FT: "Erasing the footprint (a ritual ceremony)."

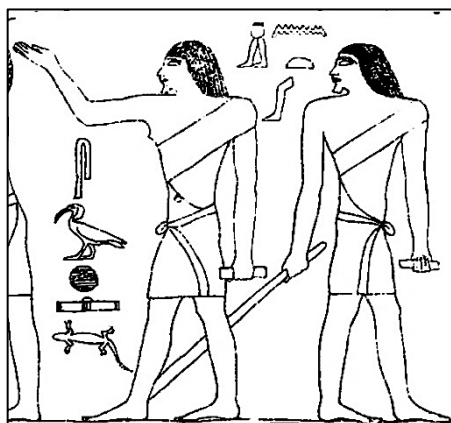
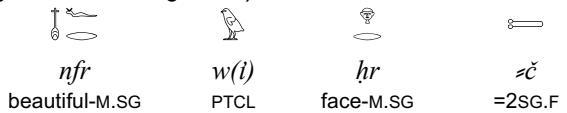


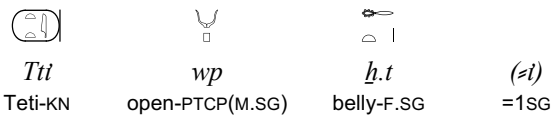
Fig. 7: A ritualist "erasing the footprint"

38. Example of an adjective as the head of an NMWE (Pyramid Texts, § 195c):



LM: "How beautiful is your (f.) face."
 FT: "How nice is to see you."

39. Example of a participle as the head of an NMWE (Pyramid Texts, § 1a):



LM: "(...) Teti who opened (my) belly."
 FT: "(...) Teti, (my) first-born."

5.2 Prepositional Multiword Expressions

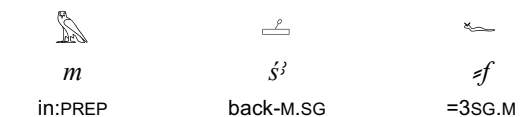
Body part nouns are used as modifiers in prepositional multiword expressions. Two types of PMWEs can be found in Old Egyptian: prepositional idioms (PIs) and complex prepositions (CPs).

40. Example of a prepositional idiom (Sethe, 1933, 162,11):



LM: "(...) under the arm of (my) eldest son."
 FT: "(...) under the care of (my) eldest son."

41. Example of a complex preposition (Sethe, 1933, 126,2):

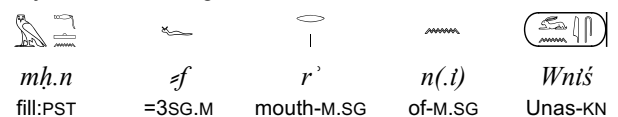


LM: "(...) in his back."
 FT: "(...) behind him."

5.3 Verbal Multiword Expressions

Body part nouns are also modifiers in VMWEs. Old Egyptian body part VMWEs are usually verbal idioms (IDs) consisting of a verb as a head and a body part noun with a figurative meaning, for example:

42. Pyramid Texts, § 425a:



LM: "(...) he filled the mouth of Unas."
 FT: "(...) he fed Unas."

Light Verb Constructions consisting of a "light" verb and a noun denoting an event or a state, such as "make a speech"⁸ are hardly found in Old Egyptian body part VMWEs. However, the metonymic meaning of body part nouns occasionally refers to an action which modifies the meaning of the expression, for example:

⁸ Cf. Savary et al., 2018, 99 and 102; Baldwin and Kim, 2010, 277.

43*. Duell, 1938, pl. 162, cf. fig. 8:

<i>ir</i>	<i>(=i)</i>	<i>r</i>	<i>ib</i>	<i>≠k</i>
do:SBJV	=1SG	according to-PREP	heart-M.SG	=2SG.M

LM: "(I) shall do according to your will (lit.: heart)."
 FT: "(I) will do what you want."

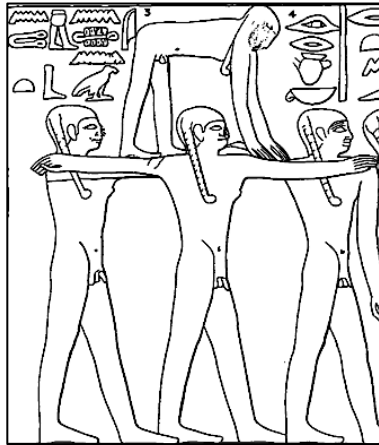


Fig. 8: A boy following the instructions of his friends

6. Formation Rules

The formation of Old Egyptian body part MWEs follows strict morpho-syntactic rules, which are useful not only for understanding how an MWE was used in Old Egyptian, but also for identifying other types of MWEs. Five formation rules are derived from the morpho-syntactic analysis of Old Egyptian body part MWEs:

1) A verb stem in a VMWE can be transformed into an infinitive in an NMWE, cf.:

44. Example of a VMWE consisting of the subjunctive *ʕw + ib* (Pyramid Texts, § 715c):

<i>ʕw</i>	<i>ib</i>	<i>n(.i)</i>	<i>nčr(.w)</i>	<i>m</i>	<i>Ttī</i>
be long:SBJV	heart-M.SG	of-M.SG	god-M.PL	in-PREP	Teti-KN

LM: "The heart of the gods shall be long in Teti."
 FT: "The gods shall be glad over Teti."

45. Example of an NMWE consisting of the infinitive *ʕw.t + ib* (Pyramid Texts § 1175a):

<i>tʕ</i>	<i>m</i>	<i>ʕw.t</i>	<i>ib</i>
earth-M.SG	in-PREP	length-F.SG	heart-M.SG

LM: "The earth is in length of heart."
 FT: "The earth is in joy."

2) A verb stem in a VMWE can be transformed into a participle in an NMWE, cf.:

46. Example of a VMWE consisting of the verb form *i:wn + hr* (Pyramid Texts, 391c):

<i>i:wn</i>	<i>hr</i>	<i>nčr</i>	<i>n</i>	<i>Wnīs</i>
open:PASS.FUT	face-M.SG	god-M.SG	to-PREP	Unas-KN

LM: "The face of the god will be open to Unas."
 FT: "The god will view the king with favour."

47. Example of an NMWE consisting of the participle *wn + hr* (Sethe, 1933, 149,1):

<i>wn</i>	<i>hr</i>	<i>n</i>	<i>{h}<č>ʕm(.w)</i>
open-PTCP(M.SG)	face-F.SG	to-PREP	troops-M.PL

LM: "One who opens the face to the troops."
 FT: "One who views the troops with favour."

Note that deverbal constructions resulting from a VMWE into an NMWE are also found in other languages, such as English:

"She makes decisions quickly" > "She is a quick decision maker" (see Savary *et al.*, forthcoming).

3) A preposition in a PMWE can be transformed into a nisba adjective in an NMWE,⁹ cf.:

48. Example of a PMWE consisting of the preposition *hr + ʕ* (Sethe, 1933, 162,11):

<i>hr</i>	<i>ʕ</i>	<i>šʕ</i>	<i>(=i)</i>	<i>šmš.w</i>
under-PREP	arm-M.SG	son-M.SG	=1SG	eldest-M.SG

LM: "(...) under the arm of (my) eldest son."
 FT: "(...) under the care of (my) eldest son."

49. Example of an NMWE consisting of the nisba adjective *hr.(i)w + ʕ* (Pyramid Texts, § 1236b):

<i>hr.(i)w</i>	<i>ʕ</i>	<i>Wšr(.w)</i>
those who is under-M.PL	arm-M.SG	Osiris-GN

LM: "Those who are under the arm of Osiris."
 FT: "Those who are under the care of Osiris."

4) The nisba adjective resulting from a preposition can be used as a noun in an NMWE, for example:

50. Goedicke, 1968, 27:

<i>hr.(i)</i>	<i>ʕ</i>
one who is under-M.SG	arm-M.SG


LM: "One who is under the arm."
 FT: "One who is under the care (i.e. assistant)."

Note that the usual transformation of a preposition in a PMWE into a nisba adjective or a noun in an NMWE is an idiosyncratic feature of Old Egyptian hardly found in other languages. This is a common way for the formation of Egyptian titles, for example the title *hr.(i) tp* "great chief" is derived from the PMWE *hr tp* "on the head", cf.:

⁹ In Semitic languages, such as Arabic, "nisba" is used to label an ending added to nouns, and rarely to prepositions and pronouns, to form (relative) adjectives and nouns (see

Schulz 2010, 86). The addition of the nisba ending to prepositions to form adjectives and nouns is a common feature in Egyptian.

51. Pyramid Texts 1487a:




 šw =k hr tp =k

 shade-M.SG =2SG.M on:PREP head-M.SG =2SG.M

 LM: "Your shade is on your head."

 FT: "Your shade is over you."

52. Sethe 1933, 254,4:



 hr(.i) tp n(.i) šp³.t


 one who is on-M.SG head-M.SG of-M.SG nome-F.SG

 LM: "One who is on the head of the nome."

 FT: "Great chief of the nome (i.e. nomarch)."

5) An NMWE consisting of a noun as its head word can be transformed into a PMWE by adding a preposition before the noun, cf.:

53. Example of an NMWE consisting of the nouns *ś.t* + *ib* (CG 1485):




 hm-nčr ś.t ib nb =f

 priest-TITLE place-F.SG heart-M.SG lord-M.SG =3SG.M

 LM: "The priest of the place of the heart of his lord."

 FT: "The priest beloved of his lord (i.e. the favourite priest of his lord)."

54. Example of a PMWE consisting of the preposition *mr* + *ś.t ib* (Sethe, 1933, 56,19):



 mr ś.t ib n.t hm =f

 like:PREP place-M.SG heart-M.SG of-F.SG majesty-M.SG =3SG.M

LM: "(I used to act) like the place of the heart of his majesty."
 FT: "(I used to act) at the request of his majesty."

7. Conclusion

This research leads to the following preliminary results:

1) The existence of MWEs is indisputable in Old Egyptian, which means that they are as old as the Pyramids of Giza.

2) Body part nouns are used in Old Egyptian to form MWEs, which means that Old Egyptian phrases containing a body part noun with a metonymic meaning are potential candidates to be identified as MWEs.

3) The typology of body part MWEs in Old Egyptian is similar to that applying to MWEs in other languages.

Research on MWEs in Egyptian will be continued in these two phases:

1) Publication of the selected examples in PARSEME after having annotated them manually in the Universal Dependencies treebank "Egyptian-UJaen".

2) Identification and classification of new Old Egyptian MWEs following the rules discussed in this paper and the identification tests suggested in Savary *et al.*, 2018.

Once the synchronic study of MWEs in Old Egyptian is completed, their analysis in later stages of Egyptian will follow in order to detect changes during their historical development. This will contribute not only to the confirmation of the universal categorization of MWEs, based mostly on modern Indo-European languages, but also to the development and refinement of universal rules concerning the formation of MWEs. The end result of this research will be a manually annotated digital corpus of Egyptian MWEs published in PARSEME and a lexicon of Egyptian MWEs.

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9. Bibliographical References

- Baldwin, T. and Kim, S. N. (2010). Multiword Expressions. In: N. Indurkha and F. J. Damerau (eds.) *Handbook of Natural Language Processing*. Boca Raton, London, New York, pp. 267–292.
- Brunner, H. (1937). *Die Texte aus den Gräbern der Herakleopolitenzeit von Siut*. Glückstadt.
- CG 1485 = Borchardt, L. 1937–1964. *Catalogue général des antiquités égyptiennes du Musée du Caire. Denkmäler des Alten Reiches*. Cairo.
- CG 20543 = Lange, H. O. and Schäfer, H. 1902–1925. *Catalogue général des antiquités égyptiennes du Musée du Caire. Grab- und Denksteine des Mittleren Reichs* (4 vols.), Berlin.
- Černý, J. (1961). The Stela of Merer in Cracow. *The Journal of Egyptian Archaeology* 47:5–9.
- Davies, N. G. (1900). *The Mastaba of Ptahhetep and Akhetetep at Saqqarah*. London.
- Di Biase-Dyson, C., Kammerzell, F. and Werning, D. A. (2009). Glossing Ancient Egyptian. Suggestions for adapting the Leipzig Glossing Rules. *Lingua Aegyptia* 17:343–366.
- Duell, P. (1938). *The Mastaba of Mereruka. Part II*. Chicago.
- Fischer, H. G. (1961). The Nubian Mercenaries of Gebelein during the First Intermediate Period. *Kush. Journal of the Sudan Antiquities Service* 9:44–80.
- Ganfi, V., Piuanno, V. and Mereu, L. (2023). Body part metaphors in phraseological expressions. *Languages in Contrast* 23(1):1–33.
- Goedicke, H. (1968). Four Hieratic Ostraca of the Old Kingdom. *The Journal of Egyptian Archaeology* 54:22–30.
- Goedicke, H. (1994). A Cult Inventory of the Eight Dynasty from Coptos. *Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo* 50:71–85.
- Hsu, S.-W. (2023). Figurative Language. In: A. Stauder, W. Wendrich (eds.) *UCLA Encyclopedia of Egyptology*, Los Angeles.
- Junker, H. (1943). *Giza VI. Die Mastabas des Nfr (Nefer), Kdfj (Kedfi), Kḥj (Kahjef) und die westlich anschließenden Grabanlagen*, Vienna and Leipzig.
- Kanawati, N. and Hassan, A. (1997). *The Teti Cemetery at Saqqara. Volume II. The Tomb of*

- Ankhemahor*. The Australian Centre for Egyptology Reports 9, Wiltshire.
- Moussa, A. and Altenmüller, H. (1977). *Das Grab des Nianchchnum und Chnumhotep*. Mainz am Rhein.
- Paget, R. F. 1898. The Tomb of Ptah-hetep. In: J. E. Quibell (ed.) *The Ramesseum*. London.
- Petrie, W. M. F. (1900). *Dendereh. Extra Plates*. London.
- Petrie, W. M. F. (1901). *The Royal Tombs of the Earliest Dynasties. Part II*. London.
- Pyramid Texts* = Sethe, K. (1908–1922). *Die altägyptischen Pyramidentexte nach den Papierabdrücken und Photographien des Berliner Museums* (4 vols.). Leipzig.
- Savary, A. et al. (2018). PARSEME multilingual corpus of verbal multiword expressions. In: S. Markantonatou et al. (eds.) *Multiword Expressions at Length and in Depth. Extended Papers from the MWE 2017 Workshop*. Berlin, pp. 87–148.
- Savary, A. et al. forthcoming. Guidelines for Nominal MWEs.
- Schulz, E. (2010). *A Student Grammar of Modern Standard Arabic*, Cambridge.
- Sethe, K. (1933). *Urkunden des Alten Reichs*. Leipzig.
- Veldmeijer, A. J. (2014). *Footwear in Ancient Egypt: The Medelhavsmuseet Collection*. Världskulturmuseerna.
- Wierzbicka, A. (2007). Bodies and their parts: An NSM approach to semantic typology. *Language Sciences*, 29:14–65.

10. Language Resource References

- Hannig, R. 2003. *Ägyptisches Wörterbuch I. Altes Reich und Erste Zwischenzeit*. Mainz am Rhein.
- Thesaurus Linguae Aegyptiae:
<https://thesaurus-linguae-aegyptiae.de/home>