

Structuring the Lexicon

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0. INTRODUCTION

The quest for meaning is a task that every Egyptologist faces on a daily basis when it comes to understanding Egyptian texts. If this quest is sometimes hindered by a puzzling grammar or a complex construction, it is very often the case that the meaning of a sentence is obscured by words whose meaning can only be guessed. Yet, a significant number of studies in lexicology (whose results are more or less integrated in the lexicographical tools) have been published since the birth of Egyptology.¹ But, in this specific field (as in many other sub-fields of Egyptology), one can see a real paradox at work: apart from a few exceptions, one can hardly find any theoretical discussions in the specialized literature² about lexicological/graphical issues. And, in our view, this could be the very reason why the quest for meaning often turns out to be problematic: the times of empirical studies were doubtlessly necessary, but we now drastically need a thorough methodological basis to structure the Egyptian lexicon.³

Considering this, we will try to propose some clues regarding three essential questions. The first one is methodological: “How does one find the proper way to the meaning in lexicology?” To reach this goal, we have devised what we call a “lexical trail” (cf. §2). The second question has to do with the description of meaning: “How does one find and objectivize the semic features one can use to account for the meaning of a lexical entry?” And the last one is about the

1 Working on a dead language (with the aggravating circumstance of an interrupted tradition of knowledge), scholars have naturally devoted a great deal of time and energy to this quest for meaning.

2 The most suggestive discussions are generally to be found in critical reviews, see *inter alia* G. ROQUET, ‘Aspects critiques de la méthode appliquée à la reconstruction comparative du lexique égyptien ancien’, in *Chronique d’Égypte* 57/113 (1982), p. 14-54 (critical analysis of W. WARD, *The Four Egyptian Homographic Roots b3. Etymological and Egypto-Semitic Studies*, Studia Pohl : Series Maior. Dissertationes scientificae de rebus orientis antiqui, 6 [Rome, 1978]) ; D. MEEKS, ‘Les emprunts Égyptiens aux langues sémitiques durant le Nouvel Empire et la Troisième Période Intermédiaire. Les aléas du comparatisme’, in *Bibliotheca Orientalis* 54 (1997), col. 32-61 ; D. MEEKS, ‘Dictionnaires et lexicographie de l’égyptien ancien. Méthodes et résultats’, in *Bibliotheca Orientalis* 56 (1999), col. 569-594 ; C. PEUST, ‘Über ägyptische Lexikographie. 1. Zum Ptolemaic Lexikon von Penelope Wilson ; 2. Versuch eines quantitativen Vergleichs der Textkorpora antiker Sprache’, in *Lingua Aegyptia* 7 (2000), p. 245-260 ; D. MEEKS, ‘Aspect de la lexicographie égyptienne’, in *Bibliotheca Orientalis* 59 (2002), col. 5-18 ; D. MEEKS, review of R. HANNIG, *Ägyptisches Wörterbuch I. Altes Reich und Erste Zwischenzeit*, Hannig-Lexica 4 (Mainz am Rhein, 2003), in *Lingua Aegyptia* 13 (2005), p. 231-263 ; L. PANTALACCI, ‘À l’aube du III^e millénaire, où en est la lexicographie égyptienne ?’, in *Bibliotheca Orientalis* 62 (2005), col. 14-20.

3 Already in the late 1940s, A. Gardiner (‘The First Two Pages of the *Wörterbuch*’, in *Journal of Egyptian Archaeology* 34 [1948], p. 12) said about lexicography: “it will require years of careful thought, discussion, and perhaps prolonged controversy before the subject can be considered to stand on a truly satisfactory basis.”

theoretical frame we want to work with in lexicography: “How does one organize the meanings between lexemes of one or several ‘vocables’⁴?”

The development of the *Ramses-Project*⁵ worked as a catalyst prompting us to revisit how to handle lexical semantics. Indeed, for the first time, this database gives the opportunity to investigate fully paradigmatic and syntagmatic relations in the Late Egyptian lexicon, a necessary condition for dealing with the three issues mentioned above.

1. Lexical Semantics: linking lexicology and lexicography

From a methodological viewpoint, it seems nearly impossible to handle lexical semantics properly and, thus, efficiently structure the lexicon of any language without integrating the complementary perspectives offered by lexicology and lexicography.

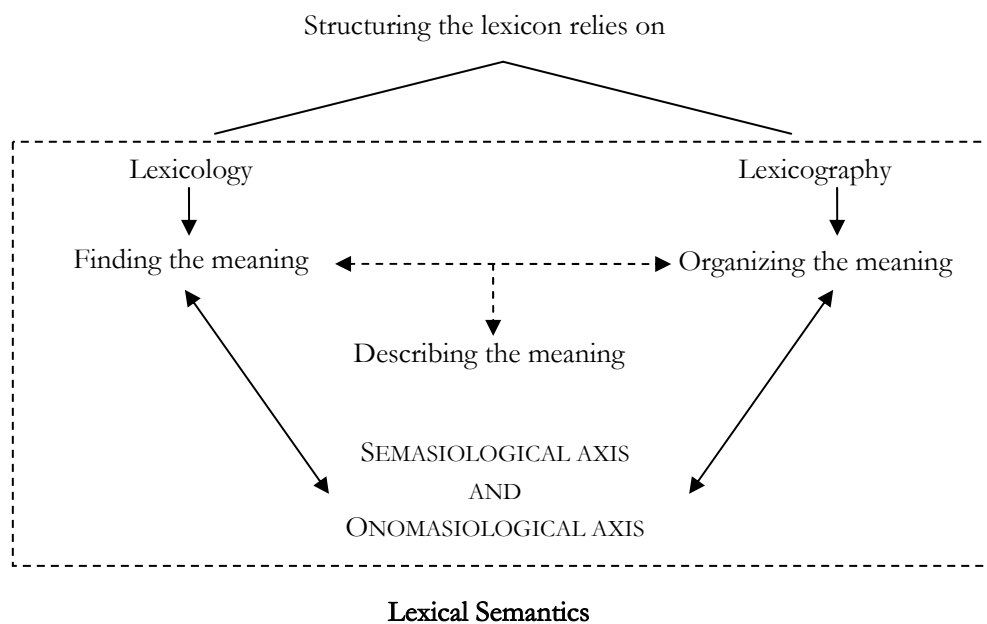


Fig. 1. The organization of lexical semantics

Figure 1 sums up how lexical semantics should ideally work. It is a combination of two genuinely interrelated domains: lexicology, whose main purpose is to find the meaning (cf. §2), and lexicography, whose function is to organize the meaning.⁶ Neither strategy can work

4 In order to avoid ambiguities, I.A. Mel’čuk’s terminology is used (see e.g. I.A. MEL’ČUK *et al.*, *Dictionnaire explicatif et combinatoire du français contemporain*, Recherches lexico-sémantiques 1 [Montréal, 1984], p. XIV: “Les auteurs font une distinction importante entre un lexème et un vocable, un lexème étant un mot pris dans une acception, et le regroupement de certains lexèmes ayant le même signifiant et des affinités sémantiques constituant une superunité appelée vocable.”).

5 See St. POLIS, ‘Le projet Ramsès’, box in J. WINAND, ‘Un siècle d’Égyptologie à l’Université de Liège’, in Eug. WARMENBOL (ed.), *La caravane du Caire. L’Égypte sur d’autres rives*, p. 180; J. WINAND, St. POLIS & S. ROSMORDUC, ‘*Ramses*. An Annotated Corpus of Late Egyptian’, this volume; S. ROSMORDUC, St. POLIS & J. WINAND, ‘*Ramses*. A new Research Tool in Philology and Linguistics’, forthcoming in *Informatique et Égyptologie*.

6 Lexicology is diachronic in essence for a dead language like Ancient Egyptian; the meaning of a word cannot be indisputably established without taking into account its occurrences in the succeeding stages of the

independently, without an appropriate way of describing the meaning (cf. §3-4), and both must rely on studying the data dialectically from the semasiological and the onomasiological viewpoints.⁷

2. Lexicology: Toward a Systematic “Lexical Trail”

The specialized literature in lexicology is impressive and diverse, but, as already mentioned, methodological notes are rather sparse (cf. n. 2). Generally speaking, scholars usually put an extreme emphasis on exhaustiveness in lexical studies. This can be understood in many ways, but it may at least be translated into two basic rules:

1. the first one is most probably what one usually has in mind when thinking of exhaustiveness: be exhaustive when gathering the data. In this respect, tools like the *Thesaurus Linguae Aegyptiae*⁸ or *Ramses* (cf. n. 5) should help both in gathering the data and in studying the syntagmatic distribution of the lexemes;
2. the second rule has to do with our own practices in lexicology: a multi-level approach is here strongly recommended, if not mandatory. Every bit of information we can gain is needed for a dead language like Ancient Egyptian; so, even if one sticks to a purely synchronic study, one is not in a position to neglect, for example, what the etymology or the analysis of the graphic system⁹ can bring. Obviously, every point of

language (on this idea, cf. D. MEEKS, ‘Les emprunts Égyptiens aux langues sémitiques’, col. 56: “*De manière générale, un mot ne peut s’étudier que sur la totalité des exemples qui en sont connus au long de son histoire. Isoler, au sein de ces exemples, les seuls qui appartiennent à la tranche chronologique choisie peut mener à des conclusions erronées, spécialement sur le plan sémantique*”). When it comes to lexicography, however, a strict organization of the semantic features is needed; hence, a synchronic perspective is required, that is a frame where syntagmatic distributions and contexts of use can conceivably be studied in depth for each lexeme (on the importance of the environment pattern, see A. SHISHA-HALEVY, review of P. CHERIX, *Étude de lexicographie copte. Chénouté. Le discours en présence de Flavien (Les noms et les verbes)*, Cahiers de la Revue Biblique 18 (Paris, 1979), in *Chronique d’Égypte* 55 [1980], p. 338-339; against the synchronic perspective in lexicography, see D. MEEKS, review of R. HANNIG, *Ägyptisches Wörterbuch I*, p. 232).

7 Semasiology is the viewpoint almost unanimously adopted by Egyptologists when looking at the meanings of a word in context (this approach is sometimes explicit, see e.g. E. IVERSEN, ‘Tp3-tp3w. A Semasiological Study’, in *CRIPEL* 13 [1991], p. 65-69), but some have also paid some attention to the onomasiological one (see J. WINAND, ‘Champ sémantique et structure en égyptien ancien, les verbes exprimant la vision’, in *Studien zur altägyptischen Kultur* 13 [1986], 293-314; L. DEPUYDT, ‘Die “Verben des Sehens”: Semantische Grundzüge am Beispiel des Ägyptischen’, in *Orientalia* 57 [1988], p. 1-13; Chr. CANNUYER, ‘Recherches sur l’onomasiologie du feu en Ancien Égyptien’, in *Zeitschrift für Ägyptische Sprache und Altertumskunde* 117 [1990], p. 103-111). As is well-known, the latter view was favoured in the *Onomastica* of ancient Egypt (cf. J. OSING, *The Carlsberg Papyri 2. Hieratische Papyri aus Tebtunis I. Text*, CNI Publication 17 [Copenhagen, 1998], esp. p. 31-34).

8 Cf. <http://aaew.bbaw.de/tla/>

9 The study of classifiers (see esp. the project *Classifiers and Categorization in Ancient Egypt*, <http://ancientneareast.huji.ac.il/ProjectsEgyptology.asp>) deserves a special mention here, for structuring the lexicon is a central preoccupation (explicitly stated in the title of W. SMOCZYŃSKI, ‘Seeking Structure in the Lexicon. On some Cognitive-functional Aspects of Determinative Assignment’, in *Lingua Aegyptia* 6 [1999], p. 153-162).

view on the lexicon does not come without its own methodological problems, but this should not deter us from using it.

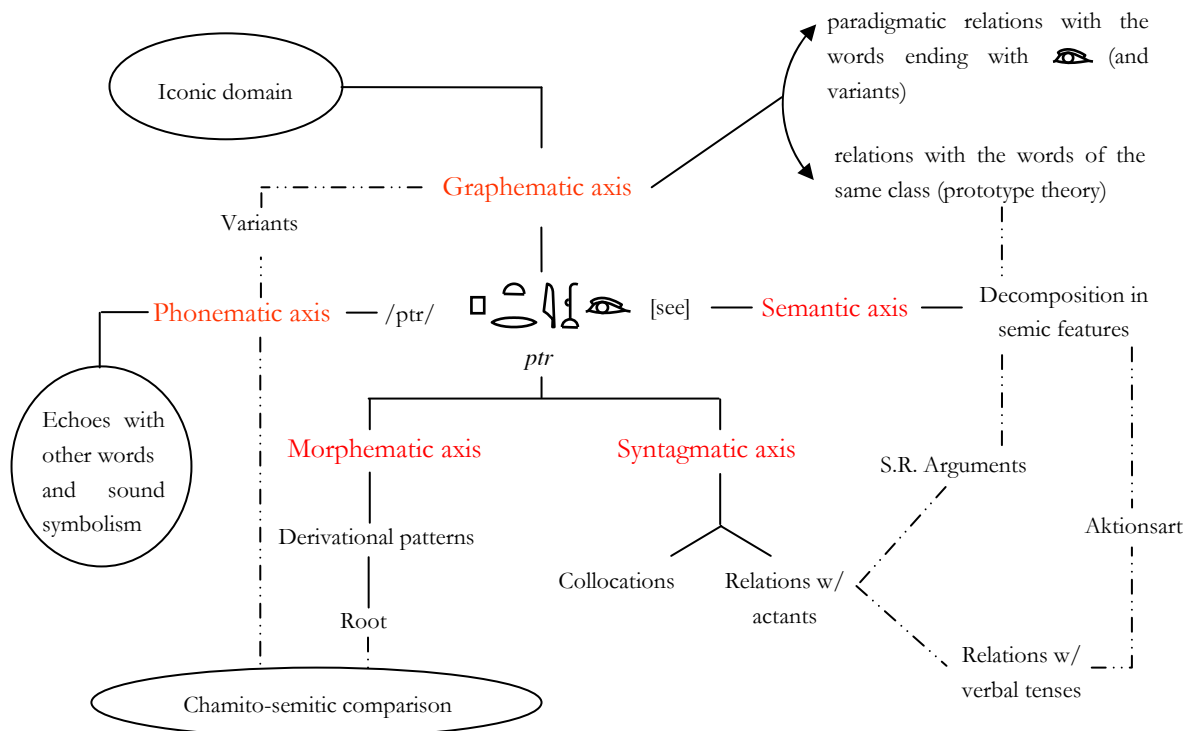


Fig. 2. The “lexical trail”

Figure 2 gives a general overview of what we dubbed the “lexical trail”, considering, as shown above, that a ‘vocale’ must be analyzed along different axes:¹⁰

1. the graphematic axis has to do with the script. It also opens a window onto what can be called the iconic domain, which studies the relation words can have with iconography in its broadest acceptance as can be seen, for instance, on the temple walls or in tombs. The study of the classifiers (cf. n. 9) links the lexeme under study with the other lexemes sharing the same classifier; but this should not be confused with the onomasiological study *stricto sensu* (cf. §5);
2. spellings of a lexeme, with all possible variants, give the relevant material for studying its phonological structure. Therefrom, echoes with other words and sound symbolism give access to rhetoric and poetics;
3. the morphematic axis has to do with the family of words a lexeme belongs to: this means going back to the root, establishing the derivational patterns, and, if possible, connecting the lexeme with its Afro-asiatic cognates;
4. the syntagmatic axis is clearly instrumental in the quest for meaning. The collocations and the argumental structure must be systematically studied (cf. n. 6).

10 Even if, for convenience of publication, a two-dimensional presentation of the lexical trail is given, we are aware that those axes are essentially different; hence, a multidimensional viewing would be closer to a realistic analysis.

The last axis to be considered is the semantic one: from the semasiological viewpoint, the most important operation is of course the decomposition of the meaning into its semic features. But, also entering the picture are the semantic roles of the arguments that are part of the argumental structure, and for the verbal lexemes, the Aktionsart. Finally, and this point is too often neglected, there is no way of studying a lexeme in isolation. Here comes in the onomasiological viewpoint, which is the organization of lexemes belonging to the same semantic domain; in this case, the semantic domain would be that of all verbs expressing vision.

3. Describing the Meaning and Dealing with Semic Features

When looking at fig. 2, it clearly appears that the semantic axis stands in a relation of dependency if compared with the other axes. Before taking a concrete example of the decomposition into semic features, two points need to be emphasized:

- as far as possible, a description of the meaning that is really true to the facts should be based on internal, language specific criteria. This means that a semantic description of a language is better if one stays within this language, without importing the semantic features that are inevitably attached to one's own language.¹¹
- a semantic description obviously starts with a list of all possible meanings of the word under study. But it does not stop there. The senses must be organized in a meaningful way. It's up to the lexicographer to show the semantic bridges that link all meanings of a word. This also applies at the onomasiological level when it comes to structuring a notional domain.

The word *phwy* 'back' has been chosen as a test example.¹² A complete analysis of the material available strongly suggests a primary division according to the basic semic feature [ORIENTATION]. When *phwy* is part of an entity that possesses an intrinsic or a conventional orientation, it means 'rear-part, back'.¹³ Its most common antonym is *h3.t*, with which it is also graphically linked (𐤑 vs. 𐤓). The opposition between front and back can be viewed either as static or dynamic [\pm DYNAMIC]. In the latter case, one mentally constructs a path from the beginning to the end of an object or an activity (sequential scanning);¹⁴ it should be noted that dynamicity, as it is considered here, implies an intrinsic temporality. From a cognitive point of

11 We immediately acknowledge the practical difficulty when it comes to dead languages, but cf. below.

12 We cannot go into every detail of the Lexical Trail due to lack of space. Our conception will be made clear by showing the main examples: the specific senses *phwy* can take in context have not been taken into account here, but they can easily be derived from the general diagram given below.

13 See e.g. *ist phwj n mšc nht n hm.f r [...] p3 h3t pr r t3 in.t [...]* "now, the rear of his majesty's powerful army [...] while] the avant-garde has entered the valley" (*Ann. Th. III*, 74-76 = *Urk. IV*, 654, 6-7); *mtw.i dd c d3, iw.i r phwy pr* "if I lie, I'll be in the back of the house" (*Mes*, N 35).

14 *iw k3.k r rdt.t iry.i phwy.i hcw.i m hnw* "your *k3* is going to let me spend the end of my lifetime in the Residence" (*Sinuhe*, B 203-204). When the salience of the beginning is no longer perceived, one can find meanings like 'outcome, rest': *hrw pn šd p3 ph hq n n3 ih.w n p3 hm-ntr tpy in [p3 sš pn-t3]-hw.t-nht* "this day of levying the rest of the money of the high priest of Amon's oxen by [...]" (*KRI VI* 593,16-594,1).

view, this contrasts with a static perception of an object, which is perceived *en bloc* (summary scanning).¹⁵

If the entity to which *phwy* applies is not oriented, *phwy* means ‘tip, border’.¹⁶ Instead of an opposition between beginning and end, the central notions here are those of midst/center and tip/borders. This class can then be subcategorized into one- and two-dimensional entities respectively. This primary organization of the semantics of *phwy* can be summarized in a hierarchical tree:

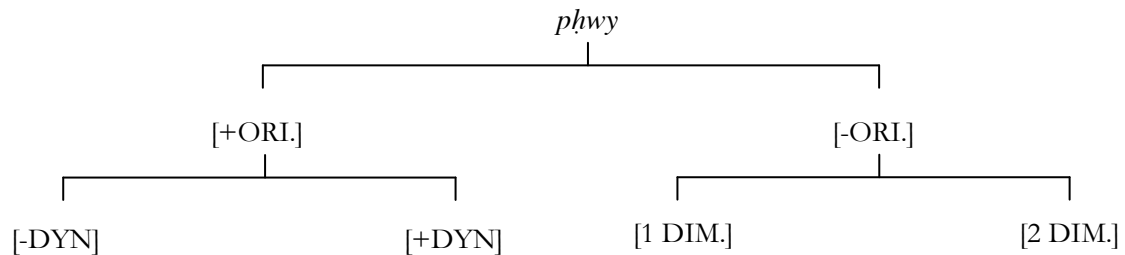
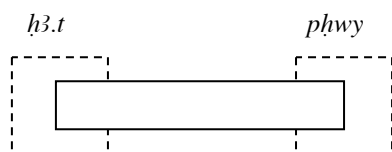


Fig. 3. Primary semic features of *phwy*

Graphs are very useful to grasp the basic semantic issues at a cognitive level:

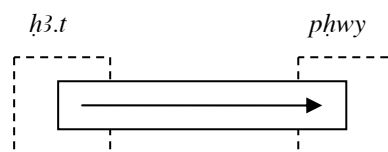
I. ORIENTED

I.A. Static



hindquarters, back, rear

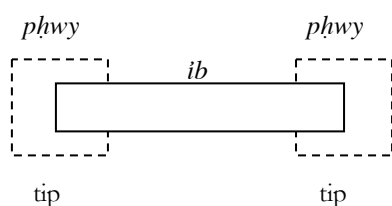
I.B. Dynamic



end, outcome, rest

II. NOT ORIENTED

II.A. One-dimensional entities



II.B. Two-dimensional entities

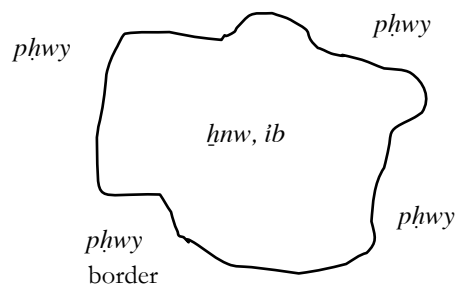


Fig. 4. Graphic representation of the basic senses of *phwy*

15 See R. LANGACKER, *Foundations of Cognitive Grammar*, I, Stanford, 1987, p. 78-80; J. WINAND, *Temps et aspect en égyptien ancien. Une approche sémantique*, Probleme der Ägyptologie 25 (Leyde-Boston, 2006), p. 95-96.

16 See e.g. *ph.n.n phwy w3w3.t* “we have reached the extremity of W.” (*Shipwreck Sailor*, 8-9) and P. *Smith* 8,14-15 for the meaning ‘tip’.

Some remarks are in order here:

- Structuring the meaning of a word, at the semasiological level, one cannot totally ignore the onomasiological level. In this specific case, the two main branches of the semantic tree are partly accounted for by the different organizational structure of the synonyms and antonyms of *phwy*. When *phwy* is applied to an oriented (or orientable) entity, the antonym is *h3.t*; *phwy* also enters the semantic field of other words that can be opposed to *h3.t*, like *h3* ‘back’, *ʕrk* ‘end’, but also *rd/rdwy* ‘foot/the feet’. If *phwy* is part of the definition of an unoriented entity, it stands in opposition to words like *ib* ‘heart’, *hnw* ‘inside’; it also shares approximately the same semantic field as *drw* ‘limit’, *t(3)š* ‘boundary’, and *gs* ‘side’.¹⁷
- The semic features that structure the basic meaning of *phwy* are primitives in the sense of A. Wierzbicka.¹⁸ They must be considered as invariants, with a universal value. They do not need to have lexical equivalents in the Egyptian lexicon. This is in sharp contrast with what can be observed at a deeper level of semantic analysis.
- The organisation of the meanings of a ‘vocale’ must satisfy different criteria. Firstly, the grouping of the meanings must be consistent with the distribution of the synonyms/antonyms. In the case of *phwy*, one can clearly distinguish two main branches based on this criterion. Secondly, the hierarchy of the secondary meanings must be validated by what is called the semantic bridges:¹⁹ two meanings of a word can be related if there is a semantic operation that leads from one meaning to another. The commonest operations are extension, metaphor, restriction, metonymy and polysemy (*sensu lato*).

As a conclusion, here is how the meanings of *phwy* can be distributed:

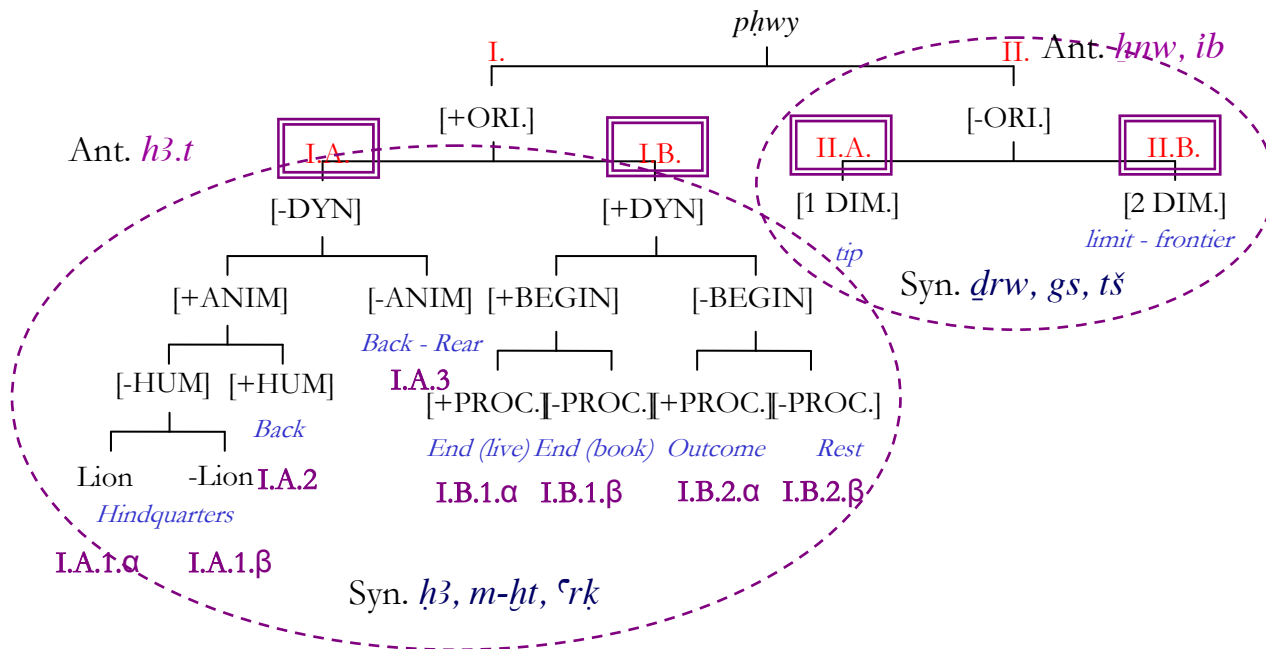


Fig. 5. Semantic organization of *phwy*

17 For a first glimpse at the onomasiological organization, see below.

18 A. WIERZBICKA, *Semantics. Primes and Universals*, Oxford, OUP, 1996.

19 On this notion, see I.A. MEL'ČUK *et al.*, *Dictionnaire explicatif et combinatoire du français contemporain*, Recherches lexicos-sémantiques 2 (Montréal, 1988), p. 28-29.

As already noted, the main distribution splits *phwy* in two domains (I and II) that belong to two distinct notional fields as shown by the respective sets of synonyms/antonyms.

If one has a closer look at the left branch of the tree, starting from the bottom up to the higher nodes, it is fairly easy to justify the proposed hierarchy from a semantic viewpoint: the meaning ‘back’ is an extension of the more fundamental meaning ‘hindquarter’ (directly derived from the hieroglyphic spelling); and from ‘back’, the meaning ‘rear’ [- ANIMATE] is easily derived metaphorically.

It is now clear enough that a semantic field cannot be organized taking the vocable as a workable unit: its structure is built with lexemes only. In our example, *phwy* is a vocable that manifests itself through many lexemes. A vocable does not have synonyms nor antonyms; lexemes do.

4. A Theoretical Framework for Lexicography

The organization of the meanings in a vocable has an immediate impact on how dictionaries should be arranged. In the next figure, a small part of the tree above has been reconsidered. The Roman numbers refer to the general subdivisions of a vocable. In our example, the two main subdivisions (I and II) are supported by the evidence coming from the organization of the Egyptian lexicon itself: to each subdivision belongs a different set of synonyms and antonyms. In each group, other groupings have been made according to some very general (possibly universal) semic features like ORIENTATION or DYNAMICITY. The Arabic numbers help visualizing the organizational structure of the lexemes: the transition from one lexeme to another must be made explicit (semantic bridge). In our example, the meaning ‘back’ of an animate entity is an extension of the original sense of *phwy*. The meaning ‘back’ can then be metaphorically applied to non animate entities.

I.A. [+ORI]&[-DYN]	1.a. hindquarters of a lion
	1.b. hindquarters of other quadrupeds
By extension	2. someone’s back
Metaphorically	3. back, rear of an oriented entity (house, boat, army, etc.)

Fig. 6. The first part of the dictionary entry for *phwy*

5. Conclusion

To sum up, we would like to insist once more on the relevance of distinguishing sharply ‘vocables’ and ‘lexemes’. A lexeme is a word taken in a given acception; a vocable is made of a group of lexemes that share the same signifier (*signifiant*) and have some demonstrable semantic features in common. As noted above, the semantic relationships in a lexicon involve the lexemes only. The vocable *phwy* has neither antonyms nor synonyms: but lexemes belonging to this vocable have.

Defining the semantic structure of the lexemes within a vocable cannot be done satisfactorily by leaving aside the onomasiological point of view. As a final example, we suggest a possible path leading from *phwy* ‘back’ to *tm* ‘neg. aux.’. This shows how distinct semantic fields may be put in relation with one another by partial overlapping or contiguity.

As can be expected, a semantic field can be accessed from another field only by its periphery. For instance, *tp* cannot directly come into contact with *nfr* via the core meaning of the latter ‘perfect, achieved’. The two lexemes *tp* and *nfr* that make the contact possible are not central in the organization of the vocables *tp* and *nfr*: both must be derived from the more basic lexeme *tp*₍₁₎ ‘head’ and *nfr*₍₁₎ ‘completion’ respectively.²⁰

- *pḥwy*₍₁₎ [ANT.] *ḥ3.t*
- *ḥ3.t* “front” [SYN.] *tp*₍₁₎ “head” (horizontal to vertical spatiality)
- *tp*₍₁₎ [POLYS. LINK] *tp*₍₂₎ “summum” (from physical to social)
- *tp*₍₂₎ [PLESIO.] *nfr*₍₁₎ “best” (from social to ethic)
- *nfr*₍₁₎ [POLYS. LINK] *nfr*₍₂₎ “perfect” (from ethic to completeness)
- *nfr*₍₂₎ [SYN.] *tm*₍₁₎ “complete” (two kinds of completeness)
- *tm*₍₁₎ [POLYS. LINK] *tm*₍₂₎ “neg. aux.” (from completeness to negation)

20 The numerical index given to the lexemes are purely illustrative. They do not preclude detailed research that has yet to be done for each lexeme.