On multiword lexical units and their role in maritime dictionaries

[1] **Boris Pritchard**

ID: 1028

Professor of Linuistics

Abstract

Multi-word lexical units are a typical feature of specialized dictionaries, in particular monolingual and bilingual maritime dictionaries. The paper studies the concept of the multi-word lexical unit and considers the similarities and differences of their selection and presentation in monolingual and bilingual maritime dictionaries. The work analyses such issues as the classification of multi-word lexical units by their form and syntactic/semantic structure. Two classes of examples of multi-word lexical units are studied and contrasted across a number of languages: true maritime multi-word terms and specialized multi-word terms which include items from the general lexicon.

1. Introduction

Recent lexicological and lexicographic research shows that the concept of the basic lexicographic entry (e.g. a headword or lexeme) should not only include single words but also lexical units consisting of more than just one 'typographical unit' (Svensen 1991). This is particularly important in learners' dictionaries and in specialized bilingual dictionaries.

Language-in-use opens the path to various combinations of words but some word combinations in everyday language production are more likely to occur (Hill & Lewis 1997). Therefore, the dictionary word-list should also include complex lexical units such as phrasal words, multiple lexical units (Landau 1984: 144, 239), i.e. the units known in modern lexicology and lexicography as 'multi-word lexical units' (MWLU) or 'multi-word units'. A very general definition suitable for this work is the one describing a MWLU as any "lexical unit consisting of a fixed combination of more than one word"[1]. Multi-word lexical units are one of the open issues in modern theoretical and practical lexicography. They are also the subject of interest of the grammatical description of vocabulary, acquisition and learning as well as teaching of vocabulary.

As shown above, uncertainties about the metalexicographic labelling of those units also extend to the problem of their definition, identification, linguistic and lexicographic description and classification. For illustration purposes, here is a list of labels assigned to such units in lexicological theory an practice as a result of various approaches: *multi-word lexical units, multi-word units ; multi(-)words, multi word expressions, phrases, lexical*

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[1] cf. project EAGLES – EAGLET DB, 2001, http://coral.lili.uni-bielefeld.de)
[1] Corresponding author;
Faculty of Maritime Studies   University of Rijeka, Croatia

phrases, lexical collocations, phraseological units, lexical associations; synchronic word families; lexical combinations, set combinations, complex lexemes, lexeme clusters, synthèmes, locutions, compound lexical item, compounds (cf. Zgusta 1971, Landau 1987, Svensen 1991, Cowie 1992, Pritchard 1998, Jackson 2002, etc.).

The following are some of the most relevant questions to be resolved when dealing with multi word lexical units in modern lexicography:

- methods of identifying and evaluating of these units in a corpus,

- methods of their (meta)lexicographic description and classification,

- treatment of MWLUs in monolingual and multi-lingual dictionaries (general, specialized),

- which kinds of MWLU's are to be inserted into the world-list (macrostructure) of a dictionary,

- how and to what extent are MWLUs dealt with in the dictionary microstructure (i.e. dictionary entries), etc.

This paper tries to present possible answers to some of the questions above as applied to the specific field of maritime lexicography, both monolingual and multi-lingual.

2. On some theoretical and practical issues in defining and identifying MWLU

2.1 As far as the nature of their creation is concerned, MWLUs are still and uncharted area in lexicology and lexicography. What can be stated with certainty is that they are a powerful means of lexical creation, especially in specialized languages (technical, legal, maritime, science and technology, etc.). A functional analysis of collocations (one of the most frequent forms of MWLUs), on the one hand, emphasises the universality of their creation and occurrence (cf. Weigand 2000) and restrictions with respect of the typology of languages (*language-based MWLU's*). Lexical semantics and computational linguistics have contributed a great deal lately to the understanding of the nature of multi-word lexical units. However, the main problem still remains unsolved, i.e. whether and to what extent MWLUs are a matter of individual's free lexical choice or of syntactic-semantic restrictions in communication and discourse (e.g. collocational restrictions). Therefore the creation of the mechanisms for a formal description of grammatical structures and lexical composition is a prerequisite for understanding the process of creating MWLUs as well as for their identification and retrieval from a corpus of texts or lexical / conceptual databases. This means determining the morpho-syntactic, semantic, and pragmatic (possibly also extralinguistic) conditions under which a *collocator* (e.g. a headword) naturally and semantically attracts only particular *collocates*. The choice of the type of collocator normally depends on the type of the headword (the syntactic and semantic carrier or superordinate in the word combination). This is clearly evidenced in the example of the LDB for Oxford-Hachette English-French Dictionary (OHFD):

- ***verb headwords*** have as collocators **nouns that are typical subjects** of the verb as in : *merge*:...<co>roads, rivers</co> *se rejoindre*; ...,   ROADS / RIVERS MERGE

[1] Corresponding author;
Faculty of Maritime Studies   University of Rijeka, Croatia

nouns that are typical objects of the verb as in *merge*: ...<lo>*to* & hw. *sth into* <u>ou</u> *with sth*</lo> incorporer qch en qch <co>company, group</co>...
  MERGE INTO / WITH sth INTO

- *adjective headwords* have as collocators **nouns that typically are modified by the adjective** as in messy:...(<ic>untidy</ic>) <co>house, room</co> en désordre;

  MESSY HOUSE / ROOM

- *noun headwords* have as collocators one of the following:

  (**for deverbal nouns**) nouns that are the

  (a) object of the cognate verb as in management: ... (<ic>of business, company, hotel</ic>) gestion,

     or … MANAGEMENT OF BUSINESS / HOTEL that are

  (b) subject of the cognate verb as in maturation: ...(<ic>of whisky, wine</ic>)

     vieillissement .   MATURATION OF WHISKY / WINE, itd.

It must be stated, however, that there is no theory preventing a speaker of a language from generating unusual, sometimes even questionable lexical combinations. This also applies to native speakers as claimed by Copes take (2001): *"Even the best existing formal grammars of natural languages generate a large proportion of utterances which sound silted, ugly or simply wrong to native speakers"*.

As a result, MWLUs represent a special kind of lexicographic units which call for the same linguistic and lexicographic description as applied to other, single-word units no matter whether they appear on the macrostructural or microstructural level of a dictionary.

The term *multi-word lexical unit* will be used here as a lexicographic label for all sets or fixed lexical combinations arising out of syntagmatic relations. They are entered into a dictionary:

(a) on the headword level, thus becoming part of the dictionary macrostructure (word-list), e.g. *cargo batten, cargo boom, cargo capacity, cargo container, cargo handling, cargo liner, cargo plan; general cargo; supercargo*;

or inserted

(b) in the dictionary entry (article) as sub-entries on the microstructure level (Pritchard 1998), e.g. *cargo equipment*: *cargo pump, cargo tank area, cargo heater, cargo manifold, deck cargo line*.

Very often in specialized dictionaries they are found on both levels. The number of MWLUs often depends on the nature of the language on the left-hand side of the bilingual or multi-lingual dictionary (L1). Thus English or German maritime dictionaries are likely to be richer in MWLUs than, say, Italian, French or Croatian, when appearing as L1 head-words (the left-

[1] Corresponding author;
Faculty of Maritime Studies   University of Rijeka, Croatia

hand side of the dictionary). Further, the number of MWLUs in specialized, technical or terminological dictionaries (e.g. maritime) tends to largely outnumber that in general language dictionaries. The means of presenting MWLUs in a dictionary will also depend on the lexicographic traditions in some maritime countries. Therefore, being language-specific, MWLUs have a different status with reference to different languages, specific terminological purposes, lexicographic traditions and cultures.

Finally, though a part of MWLUs can be subjected to the existing mechanisms of linguistic description, especially when using procedures and operations of corpus lexicography (morphosyntactic an semantic rules on combining several words into new single lexical item), the major part of MWLUs remains outside the scope of formal description because these are the units which:

- are not entirely predictable on the basis of grammatical rules only,

- vary according to language due to convention rather than rules,

- are dependent on free choice though they tend to enter certain settled word combinations under fairly definite rules (Landau 1994).

2.2   Identifying and classification of MWLUs

The definition and description of MWLUs is in many ways dependent of the linguistic approach to this lexical phenomenon. Therefore one can speak about morphosyntactic, semantic, cognitive-conceptual, lexicographic, typographic/graphic and other approaches.

In his *Manual of Lexicography*, Ladislav Zgusta (1971) maintains that these are the combinations of word rections, free combinations and set combinations. He also defines MWLU's as words 'which recur very frequently' and as word combinations which have a 'lexical meaning as a whole' (1971:142-3), offering nine important criteria for identifying multiword lexical units (1971: 144-151), of which we quote the following:

- impossibility of substitution of elements in a MWLU (commutation test)

- impossibility to add other lexical elements to a set combination

- impossibility of deriving meaning of the whole from the meaning of single parts

- the likelihood of co-occurrence of one element being 'severely or exclusively restricted' to a particular combination (*to and fro, old man*)

- synonyms of MWLUs may be single units

- one (single) word in one language may correspond to a multiword lexical unit in another (Engl. *connecting rod* = Italian *biella*), etc.

In the morpho-syntactic approach the MWLU is defined as a sequence of words functioning as a single grammatical unit (Biber et al. 1999), e.g. *heave up (anchor)* = 'lift/hoist/weigh', *beat up* =('sail close-hauled'). They differ from free combinations in the same way as compounds differ from phrases because MWLUs only allow for a restricted

[1] Corresponding author;
Faculty of Maritime Studies   University of Rijeka, Croatia

possibility of substitution. Compound nouns, for example, can be considered as a single word because they can be written as a single word (*life boat, life-boat, lifeboat*). It can be questioned whether these are one or two separate words, i.e. a compound or a modifier + noun head. Quirk et al. (1985/1997) claim that *multi-word units* are lexical combinations such as *drink up, dispose of, get away with*, verbal phrases, etc. only when they lexically and semantically (grammatically and semantically) function as a single word (p. 1150), e.g.:

e.g.   [we] [disposed *of*] [the problem]   vs.   [we] [disposed] [*of* the problem].

Luzon and Campoy (2001) specify yet another kind of MWLU based on the structure: 'linking verb of transition' + adjective (e.g. VERB: *become, come, fall, get, go, grow, prove, run, turn* + ADJ: *clear, aware, available, silent, ill, loose, caught, fired, drunk; wrong, mad, bankrupt, sour, green; older, larger, rich, quiet; difficult, impossible; high, short, wild, hot, free, cold; sour, nasty, white, blue*).

According to the syntactic-semantic/lexicological approach, MWLUs are those lexical combinations which are substitutable for a single-word synonym, i.e. any MWLU as a lexical entity represents a single concept (Zgusta 1971: 144). This definition is based on the concept of the 'lexical unit' based on Cruse 1986 as 'a lexical form with a single sense'. Thus, *heave up* (<lift the anchor>) and *heave to* (<reduce speed in heavy weather to reduce strain and stress on the ship>) represent two different lexical units. Similarly, Biber et al. (1999) claim that MWLUs assume the meanings which cannot be predicted from the meanings of individual members of a MWLU.

In the cognitive-conceptual approach heavy emphasis is placed on conceptual definition of a lexical unit, no matter whether it is single or complex (Svensen 1991). Therefore they are the "phrases which are not entirely predictable on the basis of standard grammar rules and lexical entries" (Copestake, A. 2001).

For the purpose of this study the principles of the lexicographic approach to defining MWLUs are adopted. Under the general lexicographic definition multi-word lexical units are most frequently regarded as recurrent combinations, fixed combinations, collocations etc., for which there are numerous examples in bilingual or multilingual maritime dictionaries. This is especially important in the context of multilingual relations (contrastive analysis, translation) where MWLUs are identified as multi-word phrases under individual index features so that phrases can be translated 'as a unit rather than as individual words' (*BBI Dictionary of English Word Combinations*, 1997), or, as Lehmann (2002) puts it "certain (multi-word) expressions must be translated as units, and cannot be simply combined from the translations of the parts".

The frequency principle is one of the cornerstones of corpus lexicography. Thus, two definitions of MWLUs are quoted here:

- "Collocates are identifiable formally as the occurrence of identical word immediately noticeable in a vertical reading of the concordance: the only step in abstraction needed is to identify collocates as syntagmatic and determined by frequency of occurrence." (i.e. to set a context span); Tognini-Bonelli *Journal of Lexicography* 1994:201, and

[1] Corresponding author;
Faculty of Maritime Studies   University of Rijeka, Croatia

- Phrases can be identified in a text by matching against a dictionary or lexicon of known phrases, or by using statistical procedures which recognise frequently co-occurring words as potential phrases (GLDB[2])

The short survey above shows that it is impossible to arrive at a generally acceptable definition of multi-word lexical units. This is why *multi-word lexical units* are often associated and identified with *collocations* – one of the most frequent types of multi-word lexical units. According to Palmer (1981: 77-9) a collocation is a lexical combination resulting from three types of restrictions: a) from a specific semantic relation between two words and the structural meaning of their members (*collocational meaning*), b) from distributional patterns obtaining between the elements of a collocation (*collocational range*) and c) from the so called 'true' collocational relations that cannot be classified under any of the above relations. Since the nature of collocations and most other types of MWLUs is arbitrary and independent on the meaning of their individual members, a close study on the syntagmatic level is necessary because the meaning of a single part of a MWLU 'depends not upon their function particular context-of-situation but upon their tendency to co-occur in texts.' (Lyons 1977:612).

3. Types of MWLUs

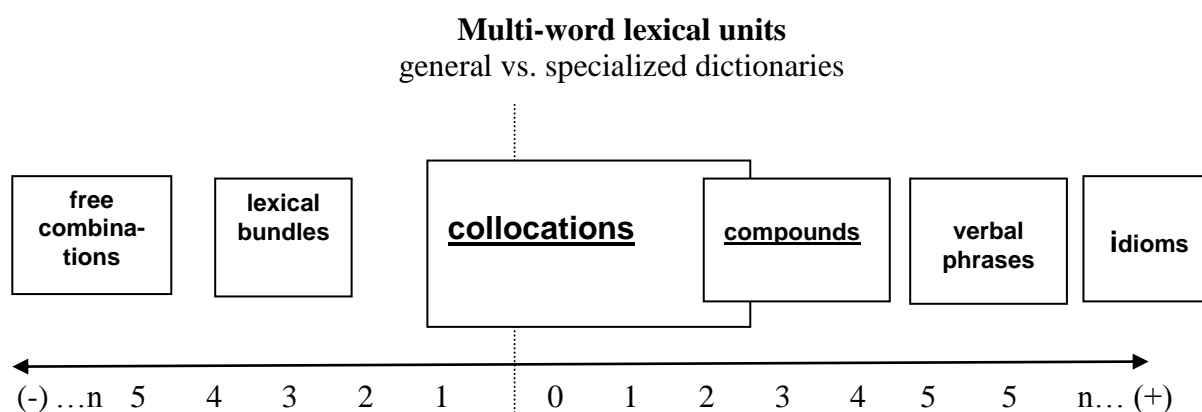Multi-word lexical units can be classified with reference to their linguistic (syntactic and semantic) features, i.e.:

a) morphosyntactic: formal characteristics (forms), formal in/variability of the members, syntactic constitutionality, irreversibility, grammatical structure, syntactic freedom restriction of combining

b) semantic: kinds of semantic relations among member units *('X is a kind/type of Y'*, hypernymy – hyponymy, paronymy), degree of semantic association among the member units, un/de/compositionality (semantic components), semantic substitutability of member units, semantic freedom and restriction of combining

c) conceptual: idiomaticity, degree of lexicalisation (e.g. V+N collocations in chain/cable work (*surge, snub, check, hold on, tauten, heave in, slacken, slack away, veer in, pay out, run out, veer out + CABLE/CHAIN*), and anchor work (*heave up, let go, drop, weigh, drag, dredge + ANCHOR*)

d) collocability: frequency of co-occurrence (on the paradigmatic axis) with respect to other lexical units; probability of co-occurrence (based on statistical measures such as general frequency, t-score, MI value)

e) pragmatic (arising from communicative acts): lexical bundles, lexical chunks, lexicalised sentence stems, ready-made (complex) units, synchronic word families (Biber et al. 1999), fixed phrases: *Heave and ho!, lay hold of the rope, terms and conditions, dead reckoning, mayday*, idiomatic phrases (*be in the same boat*, *dead marine*), whole sentences (utterances) of phatic phrases : *Have a good voyage; have a nice watch*".

Due to different degrees of semantic association and different grammatical distribution of their member elements, multi-word lexical units are not absolute lexical forms and can only be analysed as lexical units placed somewhere on the continuum between the two extremes: from the lowest mutual semantic dependence of member-elements to the indivisible, fixed phrases allowing very low or no substitutability. In the case of bilingual dictionaries, this is shown diagrammatically as follows:

Multi-word lexical units
general vs. specialized dictionaries

free combina-tions	lexical bundles	<u>collocations</u>	compounds	verbal phrases	idioms

(-) …n   5   4   3   2   1   0   1   2   3   4   5   5   n… (+)

The features for establishing the similarities and differences of the types of multi-word lexical units, as shown on the numerical scale above, are:
- formal invariability of member elements in a MWLU
- substitutability
- irreversibility
- degree of semantic interdependence on member elements
- semantic (un)decompositionability
- idiomaticity
- degree of lexicalisation
- freedom *vs.* restriction of combining

3. 1 Free combinations / syntactic compounds

Free combinations, also referred to as syntactic compounds (Lyons 1995 :535), are constantly created (and disappear just as well) in everyday spoken and written communication. They are the result of language production and are conditioned by the syntactic rules of linguistic creativity of an individual in a speech community. Member elements of such combinations are semantically least dependent, which is evidenced in English in the primary stress on each of the member (e.g. *incoming ship, early arrival*) or on the second member. Being a part of individual lexical creation, they are transparent though unstable and unlexicalised, idiosyncratic and ephemeral, appearing and disappearing in the act of communication. They are therefore not inserted into dictionaries. However, through repeated usage over a period of time, different contextualisations, and increasing idiomaticity

[1] Corresponding author;
Faculty of Maritime Studies   University of Rijeka, Croatia

they often become potential candidates for insertion in the dictionary, especially technical ones.

3.2   Compounds

Compounds are the most frequent multi-word lexical units in most kinds of dictionaries. They are a prominent feature of specialized, especially technical and maritime dictionaries. As a rule compounds[3] evolve from syntactic compounds, which once lexicalised assume more or less a specific meaning (Lyons 1977: 535), cf. "a '*house in the 'country*'" vs. *country `house*; *a white `house* vs. *the `White House* (and the classical example of *‚black`bird* vs. *`blackbird*) where '*a house in the country'* and '*a house painted white'* represent syntactic (phrasal) compounds whereas '*country house* and '*White House* are compounds which in the process of lexicalisation acquire primary stress on the first member as a result of placing this very member into focus and thus giving the combination as a single lexical unit, and not each member of the combination, a new meaning. This is comparable in maritime English to `*dead `weight* ('dead load', Ger.: 'Eigengewicht') and `*deadweight* ('carrying capacity of a ship', Ger.: 'Tragfähigkeit').

The basic features of compounds are: (i) primary stress on the first member element (unity of stress), (ii) unique written form: merged or hyphenated (*liferaft, life-raft*), (iii) the meaning cannot (generally) be inferred or predicted from the meanings of individual member elements, (iv) low syntactic variability/substitutability of parts as contrasted with free combinations, (v) the part of speech in English is determined by the head in the syntactic structure of the word combination or a superordinate (hypernym), which is usually the last element in the compound: *dead reckoning* (n), *waterproof, watertight* (adj), *inner-post* (n). Therefore, compounds are relatively invariable multi-word lexical units with a higher degree of idiomaticity and a lower degree of decomponibility.

Almost any part of speech can form compounds. The most frequent sub-division of compounds in maritime English are nominal compounds: *adj + N* and *N + N*. The semantic relations holding between the member-elements of these compounds in Maritime English are based on:
  (a) resemblance (*quay apron, deadwood, dead-lights, outboard engine*),
  (b) function (*liferaft, lifebelt, lifeboat, seaport*),
  (c) dominant or qualifying / specifying semantic trait (*cargo ship, container vessel, pilotage exemption certificate*),
  (d) function (*heaving line, mooring line, operating manual*)
  (e) part-whole-relationship (*bedplate, valve plate, large end bearing*), and
  (f) hyponymy, inclusion: 'Y is a kind/type/sort/part of X' or (*car-ferry, cylinder head*) or, vice versa, 'X is a kind/type/sort/part of Y' (*pier head, dead wind, log book*).

Most authors agree that prosodic elements (e.g. stress) add pragmatic value to the compounds because the reference meaning of the main (head) is somehow associated and mixed with the meaning of the premodifier. It must be stated here, however, that the semantic nature and lexicographic status of compounds, particularly in special English, are both open to different interpretations and, subsequently, classification of compounds, e.g. when deciding on the degree of their lexicalisation and whether or not to insert such a compound or looser MWLU (collocation) in a dictionary. Sometimes the degree of lexicalisation is reflected in the orthographic form or convention (e.g. *liferaft, life raft, life-raft*). The merged form is an

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[3] - "lexical units consisting of more than one base and functioning both grammatically and semantically as a single word" (Quirk et al. 1985/1997: 1567),
  - "independently existing bases combined to form new lexemes" (Biber et al. 1999)
[1] Corresponding author;
Faculty of Maritime Studies   University of Rijeka, Croatia

example of modern orthographic trends in British English, whereas the hyphenated forms prevail in American English. The lexicographic practice in most languages shows that compounds are regularly entered into the macrostructure (word-list) of specialized dictionaries (maritime dictionaries are no exception), i.e. among the list of main entries or headwords. Collocations and idioms, on the other hand, are usually placed as sub-entries or under the phraseological block within the article of the dictionary entry.

Biber et al. (1999) specify the following types of compounding in the English language (in the word class of nouns):

a) N + N (*linesman, master mariner, storekeeper, pumpman, maintenance manual*)
b) adj. + N (*deadweight, old man, flatfish, first mate, chief engineer*)
c) V + N (*give-way vessel, stand-on ship, warping winch; mooring line*)
d) N + adj (*failsafe, waterproof, user-friendly*)

These are also typical of maritime dictionaries, especially bilingual. While type a) and b) are very productive examples under c) and d) provide much closer mutual information holding between the components. Due to similar structural characteristics they prevail e.g. in English--German bilingual maritime dictionaries (Dluhy 1987, etc.).

3.3 Collocations

Collocations are multi-word lexical units created by more or less predictable syntagmatic co-occurrence of words (Pritchard 1998). The basic features of collocations are: recurrence, irreversibility, fixed character (settled form and usage), and different degree of lexicalisation (cf. Kalgreen 2002). Opposite to free combinations, the substitutability of their member-elements is much lower due to restrictions in the selection of possible words standing in syntagmatic relation to the other member of a collocation. These restrictions determine the meaning of the other member-element, though the meanings of each member remain transparent by keeping their own meanings. Recurrence in collocations also determines the collocational range for individual member-elements or a set of contexts within which such collocations may occur. Furthermore, collocations are used as a means of semantic discrimination of lexical pairs having similar meanings. (e.g. collocations in the Collins COBUILD WordBank, or technical and maritime English with adjectives *dead, heavy, high, low*).

General words have a greater collocational range than words of specific meaning. The verb *unload* for example, takes a number of nouns as its object (*cargo, heavy load, container, oil, livestock* etc.) whereas the specific verb *disembark* only takes a limited number of object nouns containing the constituent semantic feature [HUMAN] (*pilot, passenger*).

The research of collocations is a central issue in modern computational linguistics and corpus lexicography. For this purpose they are defined as 'associations between lexical words, so that the words co-occur more frequently than expected by chance (Biber et al. 1999: 988). In this sense they are statistically relevant associations but relatively less fixed in usage because the meanings of their constituent lexical elements are transparent. Research in corpus lexicography and computer-based retrieval of collocations from lexical and knowledge databases emphasises the necessity for their insertion into dictionaries, particularly specialized bilingual dictionaries. Frequency research and statistical measures for identifying and retrieval of collocations from databases confirm lexicographers' intuitions about collocations and their lexicographic evaluation.

Collocations are usually sub-divided into lexical and grammatical. Maritime dictionaries mainly deal with LEXICAL collocations:

N + prep (of) + N   *bill of lading, burden of proof, angle of repose,*

[1] Corresponding author;
Faculty of Maritime Studies   University of Rijeka, Croatia

| adj + N | *stopping distance, turning circle, marine incident*, *heaving line, clean B/L, claused B/L* |
| V + N (object) | *issue/sign/deliver/send + the Bill of Lading; make/enter/life/lodge/note/state + a sea protest* |

The first two types of collocations are frequently inserted into the macrostructure (list of headwords) of maritime dictionaries. Among the collocations of the *adj + noun* type the most frequent and productive ones are those consisting of deverbal adjectives (present and past participles). The last type of collocations normally appears as sub-entries within dictionary entries.

Collocations are language- and culture-specific, thus depending on the nature of the language and culture-specific conceptualisations. In English *laws* are 'passed' (*pass a law*) whereas in Croatian they are 'brought' (*donijeti zakon*), *bearings* or *sights* are 'taken' whereas in Croatian they are 'observed' or, literally, 'shot, 'taken down' (e.g. *snimati azimut, snimati zvijezde*), etc. In English the *Bill of Lading* is *signed, indorsed, presented*, but this compound noun does not necessarily take the same verbs as its objects in other languages. Collocations are particularly interesting for the maritime lexicographer (and the maritime English teacher) because they are indicators of the interlinguistic differences on the lexical level. This is very frequently reflected in the bilingual dictionaries of maritime law.

Though their member-elements remain more or less transparent, collocations as lexical entities are less transparent than compounds. They are however equally irreversible as compounds. This is particularly the case of strong, fixed collocations: *to and fro, wait and see; trial and error method, No Cure - No Pay, terms and conditions*).

Generic constituents in collocations have a higher collocational range (choice of collocates) than their hyponyms (*deliver a bill of lading* vs. *issue the B/L, sign the B/L, despatch the B/L, present the B/L, endorse a bill of lading, etc.*). Polysemic constituents, too, exhibit a higher collocational range, cf.: *deliver a bill of lading, deliver the cargo, deliver the ship, deliver a certificate* etc.. A maritime dictionary should evidence examples of such collocational range in the form of sub-entries.

Finally, in English it often difficult to decide whether a certain MWLU is a compound or a collocation, especially those structured syntactically as: *adj + N* and *N + N*. In specialized language terminologies it is safer to classify them as compounds used to name new concepts (denoting parts of a higher term or a special case of the referent indicated by the higher term in the MWLU

3.4 Verbal phrases

| N (subject) + V | *the courses were closing/opening.* |
| linking V + adj | **fall** *astern/ aboard/away/off/out;* **fall** *calm/home;* **go** *aboard/about/ahead/; go abaft/ashore/;* **go** *large/free;* **heave** *short;* **keep** *out of the way/away; keep clear/well clear;* **turn** *in/out/to/up; turn end-for-end/turtle* |

multi-verbs (Quirk 1985/1997):

| V + prep: | *heave up, heave to, heave in,* |
| V + adv: | *heave short, heave away.* |

The last type of word combinations is referred to as grammatical collocations (BBI 1985, 2000) and are regularly part of the sub-entry in a maritime dictionary, though for the purpose of dictionary user-friendliness and for training purposes they may sometimes be found on the headword level as well.

[1] Corresponding author;
Faculty of Maritime Studies   University of Rijeka, Croatia

3.5 Idioms

Idioms are expressions whose overall meaning cannot be understood or inferred completely from the meanings of their individual constituents, or as Sinclair 1999 puts is: "There are in English language a large number of phrases which occur in fairly regular patterns. They are called idioms if the meaning cannot be worked out from the usual meanings of the individual". They are surprisingly high even in such highly technical sub-sets of language as Maritime English. (e.g. *anchor man, monkey island, horse latitudes, dog watch, catwalk,* etc.). These words often extend their meaning and use to general English (*in the offing, steering committee, blow the gaff*) but are not the subject of this study.

4. Selecting MWLUs for insertion into maritime dictionaries – an analysis of selected maritime dictionaries

4.1 The problems of insertion of MWLUs into a dictionary arise out of the difficulties in defining and accounting for them lexicologically and lexicographically, i.e.:

- MWLUs cannot be completely predicted or generated on the basis of grammatical rules
- semantic equivalents (translations) of MWLUs in different languages vary because of the different conventions for their creation
- MWLUs are based on free choice though their form is fairly predictable (Landau 1984).

Furthermore, modern linguistic theories can describe only a limited number of subsets of vocabulary but not the vocabulary-in-use because their production is highly idiosyncratic (Mel'čuk 1994:61). Therefore most MWLUs remain outside the scope of formal description.

Insertion of MWLUs in a dictionary depends on the following:

- dictionary macrostructure (wordlists) and microstructure (within dictionary entries)
- nature of the language of the left-hand side of the dictionary (L1), thus making the MWLUs language-specific
- types of dictionaries (e.g. specialized vs; monolingual vs bilingual)
- lexicographic traditions (of a country and profession)
- free selection of the compiler (e.g. a lexicographer, subject expert, linguist)

Thus, English and Italian general dictionaries abound with MWLUs as sub-entries, assigning them labels for register or style, especially in the case of concepts from administration, administrative law, business and education. It should be noted in this context that both English and Italian general dictionaries, mono and bilingual, typically contain numerous MWLUs from general seamanship and maritime law / trade (e.g. along *deck* in LDOCE[4] we find the following MWLU headwords: *deck chair* and *deck-hands*, whereas such MWLUs as *on deck, lower/upper deck, all hands on deck*, and *clear the decks* are listed as subentries for the headword *deck*.

The number of MWLUs is the highest in specialized dictionaries, particularly bilingual. This is the result of the need for naming new referents and concepts created every day as a result of technological development and communication. Maritime dictionaries are no exception.

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[4] *Longman Dictionary of Current English (LDOCE)*,
http://ldoce.longmandictionariesonline.com/main/Home.html

[1] Corresponding author;
Faculty of Maritime Studies   University of Rijeka, Croatia

4.2 Maritime dictionaries cover various registers (nautical, technical, communicational, legal, etc.) and genres (terms for boat owners, ship terms, naval terms; maritime VHF communications, court hearings, check-lists, faxes, etc.). The main sources for maritime dictionaries are subject textbooks (from the various registers of maritime English), manuals, transcripts of spoken communication, maritime entries or labels in general dictionaries, glossaries and definitions in textbooks, handbooks (e.g. Bowditch, Admiralty Manual of Seamanship), almanacs (Browns Almanac), nautical publications (List of Lights, Tide Tables, etc.) or manuals, indexes, lexical databases (thesauri, information database); maritime periodicals & journals, etc.

In the past maritime dictionaries were comprehensive, though basically nautical terms or ship, sailing and sea terms were included in the wordlist. They were predominantly multilingual and contained quite a number of MWLUs (cf. early maritime dictionaries by Maynwaring 1625/1644, Falconer 1769, and those published in 19th and early 20th century: Paasch 1885/1894, Kerchove 1948). An exhaustive list of data on maritime lexicography can be found at the following websites: http://www.termisti.refer.org/nauterm/dicten.htm (by M. Van Campenhoudt) and Lars.Bruzelius@udac.se. Maritime dictionaries today they are both monolingual and bilingual but tend to be more specific in their scope. They are typically rich in multi-word lexical units as the most productive type of modern lexical units in maritime English.

Modern maritime dictionaries are written for three basic types of users:
- the modern seafarer (officers and ratings) and maritime colleges (nautical science, marine engineering, shipbuilding)
- the boat and yacht owner (pleasure craft) (cf.: www dictionaries and LDB)
- in-house users (terminologies and specialized terminological dictionaries, e.g. *Nedlloyd*)

This paper studies MWLUs in a variety of the dictionaries above and aims at drawing conclusions on the development of MWLU in the maritime lexicographic history. This will be shown in the form of tables containing MWLUs for a key word. The paper also offers the results of modern lexicographic procedures (software generating concordances and collocations) tested on a collection of MARS reports (Marine Accident Reporting Scheme, Nautical Institute, London).

4.3 The status of MWLUs in maritime dictionaries will be exemplified and analysed on the basis of the treatment in maritime lexicography of three lexemes: *DECK* (n), *DEAD* (adj), and *HEAVE* (v).

The principal difficulty for the compiler of any specialized dictionary is to decide whether (s)he is going to include only the terms specific to the subject-matter (register or genre in maritime English) or to include also semi-terminological, meta-technical and grammatical items. Reinhardt (1975) divides specialized vocabulary (Wortschatz eines Fachtextes) into terminological and general. Terminological vocabulary is further subdivided into the specialized terminology of a particular text and general terminological vocabulary ('allgemeines terminologisches Lexik'). General lexicon of a specialized text is sub-divided into factual ('Sachverhalt') and descriptive vocabulary. The major part of the vocabulary of a specialized text is occupied by functional words (articles, prepositions, conjunctions, adverbial and prepositional phrases) and semi-functional (semi-lexical words: *make, take, let, do, set, have; situation, place, name, time, manner*; quantifiers, etc.). Terms specific to one specific register or genre only make just 5 to 7 per cent of the total vocabulary of a specialized text/discourse (e.g. *fore-and-aft, halyard, starboard, bow, rudder*, etc.). The rest, about one third, is often represented by the very basic words of general English which

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[1] Corresponding author;
Faculty of Maritime Studies   University of Rijeka, Croatia

(a)   assume special meaning in the maritime co-text and context of situation (*clearance, cloth, head, arm, foot, leg of a voyage, eye, nail, nose*), and

(b)   collocate with other words on the synatgmatic level in order to name/lexicalize new concepts, i.e. MWLUs (compounds, collocations, idioms, phrases): *diesel engine, mayday, muster station, master station, land earth station, petty officer, finger pier, snap schackle*, *beat up.*

The number of the last ones is theoretically infinite. These lexical items are created every day and disappear just as well. However, only a limited number (though terminologically and lexicographically quite significant), passes the test of scope, usage, time and lexicalisation to become maritime compound, collocations or phrases, i.e. MWLUs in maritime dictionaries.

The dictionaries studied are the conventional paper dictionaries but also include a number of on-line maritime dictionaries on the internet[5]. The three key-words have been selected as representative of any maritime or specialized dictionary:

(a) *DECK* (n):   a shipbuilding and nautical term; used mainly as head of multi-word lexical units

(b) *DEAD* (adj): a general English word frequently used in specialized (often figurative) meaning in maritime English, especially as modifier in maritime MWLUs

(c) *HEAVE* (v): assuming specialized meanings in maritime multi-word units in English.

The paper studies:
-    the types of MWLUs containing the above key-words as their member-elements,
-    the frequency of their collocates,
-    semantics of the MWLU, and
-    the history of their appearance and development.

The conclusions that can be drawn from the analysis of these three key-words cannot, of course, account for a systematic analysis of MWLUs in maritime dictionaries but are indications of the features and trends in English maritime dictionaries, monolingual and bilingual.

In the tables below the dictionaries have been divided into nine monolingual ones (in addition to glosses de Kerchove's dictionary also offers translation equivalents) and seven bilingual dictionaries (Vandenberghe-Chaballes' and Garnier's dictionaries are multilingual). In some tables Bruno's bilingual conceptual dictionary is also included.

4.3.1 *DECK* and its collocates in multi-word lexical units
4.3.1.1 *DECK as the first member-element of nominal MWLUs. Pattern: 'DECK* + N'[6]:
Table 1

DECK + N	MONOLONGUAL DICTIONARIES									BILINGUAL							
	FA	DA	KR	LA	KM	SU	CO	BR	MA	SI	DL	VB	VK	BP	PR	CH	
hand			+	+				+		+	+	+	+	+	+	+	10
house			+	+	+				+	+	+	+		+	+	+	10
beam			+	+						+	+	+	+	+	+		8
cargo			+	+			+	+			+	+		+			7

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[5] For a detailed list of dictionaries studied or consulted in this study see References.

[6] For space limitations the tables here are shown in a largely reduced form (e.g., the whole Table 1 contains 181 different MWLUs containing the key-word *deck* in the above structure.
[1] Corresponding author;
Faculty of Maritime Studies   University of Rijeka, Croatia

light			+	+					+	+	+			+	+	7
line			+	+				+		+	+	+	+			7
log			+	+				+		+	+		+			6
pipe			+	+				+	+	+	+					6
plating			+						+	+	+			+	+	6
stopper		+	+	+					+	+	+					6
watch			+	+				+	+	+	+					6
erection(s)			+						+	+	+				+	5
head				+		+				+			+	+		5
load			+	+					+	+	+					5
officer			+	+					+	+			+			5
passage				+			+	+	+	+						5
plate			+					+	+	+	+					5
nail			+	+					+	+						4
paint			+						+	+	+					4
passenger			+						+	+	+					4
crane														+	+	2
department														+	+	2
fittings														+	+	2
girder														+	+	2
height													+		+	2
stores														+	+	2
stringer													+	+		2
boy															+	1
cadet															+	1
machinery														+		1
plan															+	1
plank													+			1
repairs															+	1
socket													+			1
web														+		1

Of the total of 232 recorded MWLU headwords or sub-entries containing the word *deck* as the collocator in the sixteen dictionaries studied, the noun *HOUSE* appears in ten dictionaries. This MWLU (i.e. its forms *deck house, deck-house, deckhouse*) is listed as headword in all the bilingual dictionaries and so are most of the rest of 232 collocates. Almost the same holds for the collocate *hand*.

As a term denoting a basic maritime concept this MWLU appears very early and persists in modern maritime dictionaries although their referent rarely exists on modern ships. Other frequent collocates of DECK occupying the same place as *house* are: (*DECK*) *cargo, pipe, stopper, watch; beam, light, line, load, log, passage, plate*; *nail, officer, paint, passenger, plating*, etc. Although very important, absolute frequency of co-occurrence is not the only criterion for evaluating the candidates for insertion of MWLUs in the dictionary. T-score and MI value measurements are statistically much more relevant but can be reliable only if applied to huge corpora. This is why it is necessary to establish a maritime English corpus, a kind of a Bank of Maritime English, to paraphrase Collins COBUILD corpus called WordBank (formerly Bank of English). In addition to the statistical analysis (corpora, LDB,

[1] Corresponding author;
Faculty of Maritime Studies   University of Rijeka, Croatia

KDB), the lexicographer's own experience, intuition and, above all, knowledge of subject-matter will all be the factors facilitating the final decision on the inclusion of a certain MWLU in a maritime (or any) dictionary. In our case this study will also have to encompass historical analysis to decide which MWLUs are part of permanent dictionary stock and which have simply disappeared with time. As a term, *deck house* will be definitely retained but a pragmatic note will have to be added with reference to the historical dimension of its use (e.g. a comment in the form of 'in older ships').

A semantic study is also useful in this respect. Thus, the MWLUs in the table above might be sub-divided according to their predominant semantic feature ([CONCRETE], [ANIMATE], [ABSTRACT], etc.) and the frequency of occurrence of MWLUs bearing such semantic traits, e.g.: [CONCRETE] - *deck house, deck cargo, deck pipe, deck stopper, deck beam, deck longitudinal, deck crane*; [ANIMATE] – *deck hand, deck officer, deck passenger, deck boy, deck cadet, deck watchman, deck gang,* etc.; [ABSTRACT] – *deck watch*, etc. This should be combined with the pragmatic study (field, node, tenor, etc.) adding labels such as 'structure' (*deck house, deck pipe, deck passage, deck erections, deck girder*), 'Anarchy' (*deck planking, deck-house cruiser, deck line*), 'equipment' (*deck stopper, deck light, deck machinery, deck crane, deck dowel, deck snatch-block*), 'cargo' (*deck cargo*), etc.

Less frequent MWLUs (even those with frequency 1) are sometimes lexicographically as interesting as the more frequent ones. In our case these include important terms to be retained or included in any maritime dictionary: *deck cabin, deck opening, deck cleat, deck gang, deck sheathing, deck sheer, deck house accommodation, deck transom of poop, deck landing mirror, deck equipment, deck scuttle, deck stringer angle bar, deck boat*).

4.3.1.2 *DECK as the second/last member-element of nominal MWLUs.* Pattern*: 'Adj/noun + DECK '*

Among the multi-word lexical units structured as '*Adj + DECK'* the following adjectives in the sixteen dictionaries consulted are the most frequent:

(i) *lower, flush, half, straight, upper, quarter, main*, *after, raised fore, exposed, movable, planked, angled, continuous, false, flying* (+ *DECK*)

whereas the most typical nouns pre-modifying or collocating with DECK ('*N + DECK*) as their head are:

(ii) *poop, bulkhead, or lop, shelter, promenade, bridge, boat, passenger, flight, tonnage, forecastle, embarkation, garage, hangar, splinter, vehicle* (+ *DECK*), etc.

Also to be noted is the use of adverbs and prepositions as pre-modifiers: '*teen deck, after deck, aft deck, below deck*. Another word combination, the prepositional phrase '*on deck*' mechanically belongs to the category above but deserves special lexicographic treatment since it appears as a sub-entry in the phraseological block of maritime as well as general dictionary entries.

The semantic relations holding between the member-elements of MWLUs with *deck* as key-word are more relevant lexicographically. Thus the list could be split into sub-sets of MWLUs according to the various semantic relations:

(i)   position of *DECK* in the ship's structure (*lower, poop, aft, after, or lop, 'teen, upper, main, quarter, bridge, forecastle + DECK*, etc.);

(ii)   function of *DECK* (*shelter, promenade, boat, anchor, car, embarkation, vehicle; take-off*);

(iii)   type/kind (*flush, straight, raised quarter deck, watertight + DECK*); etc.

Finally there are MWLU's representing idiomatic phrases and those showing transferred meaning and even metaphorical or figurative use (*on deck, deck awash; deck horse; to kiss

[1] Corresponding author;
Faculty of Maritime Studies   University of Rijeka, Croatia

the deck, to wash down the deck, to hit the deck). It is also worth noting again that bilingual maritime dictionaries account for about 70% of all MWLUs recorded in this study.

Almost all the MWLUs containing the word *deck* in some of the oldest maritime dictionaries (Mainwaring 1620/1623/1644[7], Smith 1626, Falconer 1768/1780, Dana 1841)[8] are also found in modern dictionaries, e.g. *lower deck, flush deck, fore and aft deck, half deck, poop deck, quarter deck, forecastle deck*. In de Kerchove's dictionary (1948/1961) the number of MWLUs containing our key-word *deck* is incomparably higher (58 entries) and these form the framework for modern maritime dictionary, especially concerning the terms covering naval architecture, ship design and structure, equipment and seamanship (*deck beam, deck stringer, deck ladder, deck superstructure*; *deck stopper; deck cargo, deck load; deck hand, deck officer* etc.). By far the richest in such collocates is the English-Chinese Maritime Dictionary, perhaps the most comprehensive bilingual maritime dictionary ever. The collocates are show as subentries rather than headwords. Thus we can register the following list of subentries of the wordform collocate+ headword *deck*: *~brake, ~hand, ~head, ~landing, ~mounting, ~loaded, ~molding, ~sheet, ~siding;* . On the other hand there is an array of collocates following the headword *deck* (including those listed in Table 1*): clear the ~, accommodation ~, alighting ~, anchor ~, automobiles ~, ballistic ~, bare ~, base ~ caisson ~, bathing ~, berth ~, boom ~s, bridge ~, bulkhead ~, buoy ~, cabin ~, cable ~, car ~, cargo ~, cattle ~, charging ~, coated, container ~, continuous, cross ~, sischarge valve, docking bridge ~, double, erection ~, exposed, flag ~, flying bridge, fore ~, forecastle, forward ~, galley, hangar ~, heliport, hold ~, hotel, house ~, intermediate, lifeboat ~, lowest passenger, main ~, mess, middle ~, mooring, motorcar ~, movable car, navigation ~,navigation bridge, observation ~, officers', open ~, orlop, pontoon ~, poop, promenade ~, raised for, ramp ~, safety, sheated ~, side, spar ~, steel, structural ~, trunk, topside ~, turret, upper ~, uppermost, waist ~, watertight, weather ~, well, winch, working~.*

For the purpose of comparison, the word *deck* was studied here as the key-word in MWLUs in the texts on marine accidents or near-accident (MARS reports obtainable on www.nautinst.org). These texts are heavily marked by register (nautical, safety) and genre (reports, one-sided accounts, comments, narratives, etc.) and provide a good material for generating candidate MWLUs for specialized maritime dictionaries and glossaries. The programme used here for generating frequency, collocates and concordances for a given key-word was tlCorpus[9]. Here are the results for *deck*:

Table 2   Some collocates for the key-word (node) *DECK*: Advanced Collocation - (*TlCorpus*):

9	deck cracking
9	deck officers
6	deck steam condenser
6	deck level
6	deck maintenance
5	deck plating
4	deck plating
4	deck level

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[7] MWLUs are an important feature of in Mainwaring's (also Maynwaring) "*Nomenclator Naualis*", the first English maritime dictionary), e.g. *Ieere-Capstaine, Iron-sick, Iury Mast* (Lancashire 2002)

[8] For details see: by Lars.Bruzelius@udac.se and http://www.termisti.refer.org/nauterm/dicten.htm

[9] tlCorpus 7.1.0.863 - Professional Concordance Software, http://tshwanedje.com/

[1] Corresponding author;

Faculty of Maritime Studies   University of Rijeka, Croatia

    4 deck stowage
    4 deck corrosion
    4 deck cargo
    4 deck area
    4 deck piping
    3 deck machinery
    3 deck manifold
    3 deck officers
    3 deck watch
    3 deck cadet
    3 deck discharge valve
    3 deck dry cargo
    3 deck hand

A sample of concordance lines for *deck* (total: 181 citations):

...of the cargo tanks on the main [[deck]] subjected them to damage and to heat

... the accommodation on the main [[deck]]. He ran down the ladder and saw thick smoke

...the starboard side of the main [[deck]]. He ordered the electrician to switch off

... and taking spray on the main [[deck]] from a southerly sea with the wind estimated

...harge crude oil. From the main [[deck]] he observed a slight trace of oil near the

...stem, the normal complement of [[deck]] officers being a Mate (C/O), Second Mate

... the second tier on bay 4 on [[deck]]. The Master stopped the loading temporarily

...lieved the cargo containers on [[deck]] shifted at the same time as the lurch. By

... the vessel had 1150 tonnes on [[deck]], a 55% excess. The vessel had already

The text processed contains over 90,000 words. As expected, *the* is the most frequent unit (10.7%) while the word *vessel* is the most frequent lexical word (0.68%). The word *deck* has 550 occurrences of 0.28%. The list of statistically measured collocates (picture of collocates) and the lists of collocates sorted from the menu (e.g. right-hand collocates of *deck* in Table 3) are a valuable source of information to the lexicographer in compiling the modern maritime dictionary. Thus, based on this very limited corpus-like text, when evaluating or amending entries in old or existing maritime dictionaries, or when writing new maritime dictionaries, the following MWLUs can taken into consideration for retention, insertion or reinterpretation in modern maritime dictionaries, depending on what type of maritime dictionary is about to be compiled :

- **'deck' + noun** (DECK + *officers / plating / stowage / piping / log book / manifold / watch / cadet / lighting / hands / crew / cargo licence / fittings / fitter*)
- **adj/noun + 'deck'** (*main / forward / tween / bridge / weather / embarkation / foc's'le / cargo / complement of / car / vehicle* + DECK).

The concordances obtained from this small corpus can help the lexicographer in resolving semantic and pragmatic problems (e.g. on the number and ordering of senses), in defining or describing the entry, and in exemplifying the use of a particular MWLU (e.g. *deck*) in various registers and genres of maritime English.

4.3.2 *DEAD* and its collocates in multi-word lexical units

Table 3

DEAD + *X*	MONOLINGUAL DICTIONARIES	BILINGUAL	

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[1] Corresponding author;
Faculty of Maritime Studies   University of Rijeka, Croatia

	FA	DA	KR	LA	KM	SU	CO	BR	MA	NE	SI	VB	DL	TH	PV	GA	VK	BP	PR	CH	
reckoning	+	+	+	+		+			+		+	+	+	+	+	+	+	+	+		15
-eye	+	+	+	+	+				+		+	+	+		+	+	+		+	+	14
light(s)	+	+	+		+	+			+		+	+	+	+			+		+	+	13
-weight			+	+	+	+		+		+	+	+	+					+	+	+	12
flat		+	+	+								+	+		+		+				11
freight			+	+	+	+		+				+	+	+	+			+	+		11
water	+	+	+	+	+	+			+			+	+	+	+						11
wood	+	+	+	+	+				+		+	+	+		+				+		11
work(s)	+		+	+	+	+					+	+	+	+			+		+		11
-head			+	+		+					+	+	+		+				+		8
man			+	+							+	+	+	+				+	+		8
-rise			+						+		+	+	+	+	+				+		8
weight cargo			+	+		+	+						+		+				+		7
ahead						+						+	+		+		+	+			6
calm	+			+								+	+	+					+		6
horse			+	+	+				+				+		+						6
rising	+	+		+							+				+			+			6
weight scale			+	+				+					+	+	+						6
astern						+						+	+		+			+			5
men			+		+				+		+		+								5
marine			+						+		+				+						4
centre																		+	+	+	3
slow																	+	+	+		3
line																		+	+		2
stop																		+			2
water																	+	+			2
Weight tonnage																		+	+		2
end																		+			1
load																	+				1
lock																				+	1
man alarm button																		+			1
point																			+		1
run																	+				1
ship																		+			1
smooth file																	+				1
space																	+				1
steam																	+				1
time																	+				1
weight capacity																		+			1

This table is just a part of the list of 148 MWLUs containing the adjective *dead* in the maritime dictionaries studied. In contrast to the statistics of the MWLUs including the word *deck*, the frequency of MWLUs containing the adjective *dead* is evenly distributed in monolingual and bilingual dictionaries. This is probably the result of the strong metaphorical and idiomatic power of the word *dead* which equally applies to general and specific uses of English. This is exemplified in our case in the following MWLUs showing idiomatic or

[1] Corresponding author;
Faculty of Maritime Studies   University of Rijeka, Croatia

figurative features of the word *dead* and its collocates, often with spelling variations (separate words, hyphenated, merged):

(a) naval architecture and shipbuilding: *dead flat, deadrise, deadrising*, *dead work* (=freeboard), *deadweight, deadweight tonnage, deadweight capacity*, *deadwood*, *dead load* etc.

(b) equipment: *dead(-)eye, dead men's eyes, dead head (*of an anchor buoy*), deadlight, dead ropes*

(c) business & law: *dead freight, dead horse, dead money, dead stock*

(d) seamanship: *dead man, dead on end, dead water, dead wind, dead tide, dead neap, dead engine, dead calm, dead slow ahead/astern*

(e) navigation: *dead reckoning* (folk etymology from 'deduced reckoning' or 'unrelieved' reckoning, cf. Mayne 2000), *dead reckoning position*

(f) sailor's jargon: *dead marine (*an empty bottle)

The metaphoric expressions above are now mostly dead metaphors, i.e. not felt as metaphors any more.

Another important characteristic of MWLUs with *dead* are phrasal expressions (adverbial and prepositional phrases) which should normally have a place both in the macro- and microstructure of maritime dictionaries: *dead ahead, dead astern, dead calm, dead on end, dead in the water, dead before the wind*.

4.2.4 *HEAVE* and its collocates in multi-word lexical units
Table 4

HEAVE	FA	DA	KR	LA	KM	CO	BR	MA	SI	VA	DL	TH	GA	VK	BP	PR	CH	
short		+	+	+				+	+	+	+				+	+		9
the lead	+		+	+				+		+	+					+		7
in (!)								+	+	+	+	+			+	+		7
tight/taut			+		+			+		+					+	+		6
up			+					+	+	+					+	+		6
down			+	+				+	+		+							5
in sight				+				+	+	+	+							5
and set				+				+	+		+							4
in stays		+		+					+		+					+		4
the log	+		+						+		+							4
around (!)			+						+		+				+			4
and away (!)									+		+				+	+		4
ahead (!)				+				+			+							3
astern				+					+		+							3
ho (!)								+	+		+							3
round									+	+	+							3
out									+		+					+		3
away														+	+	+		3
to														+	+	+		3
aback									+		+							2
and awash									+		+							2
astrain									+		+							2
taut									+	+								2
on															+	+		2
the line																+		1
etc.																		73

As expected, verbs offer a number of types of multi-word lexical combinations in the English maritime dictionaries. These vary with in/transitivity of the verb *heave*. The combinations involving intransitive *heave* are more idiomatic:

[1] Corresponding author;
Faculty of Maritime Studies   University of Rijeka, Croatia

- *HEAVE* + prep (*to/down/in/up/around/out/about*)
- HEAVE + adv/adj (short/tight/taut/stern/apeak/ahead)

The number of examples of MWLUs with transitive *heave* (+ direct object noun) is lower and less idiomatic (*HEAVE + the lead/the log/the top-masts/the ship alongside/a line/the longstay*). This structure is typical with the preposition *in*: *HEAVE in sight/in stays/in a rope/in the cable*).

Transitive *heave* is much more frequent in modern dictionaries:

- *heave anchor, heave another vessel, heave up anchor, heave in the line, heave on the line*, etc.

There is an unexpectedly high number of binomial expressions: *heave and set, heave and pawl, heave and wash, heave and hold, heave and rally, heave out and lash up*). Also, a number of verb + adverb MWLUs have been recorded (*heave cheerfully, heave handsomely*) as well as ship handling orders (*Heave and ho!, Heave and away! Heave in!*).

5. Conclusion

Multi-word lexical units are one of the principal issues and challenges in modern lexicography. They are a typical feature of vocabulary-in-use and are therefore represented in specialized dictionaries, particularly in bilingual maritime dictionaries. MWLUs are typical of almost all word classes and are found both on the dictionary macrostructure level, i.e. listed as headwords, as well as on the microstructure level (within the text of the dictionary entry, mostly in the form of sub-entries). Throughout history maritime dictionaries have contained wnumerous MWLUs. With the appearance of cognitive linguistics and corpus lexicography it is now possible to retrieve them automatically, under certain lexicological conditions.

However, in spite of technological progress, there are some open issues which modern lexicography, compilers of maritime dictionaries (paper and particularly electronic on-line dictionaries) included, will have to deal with in an attempt to make the dictionaries or lexicographic material more systematic and user-friendly. These include such open questions as:

- recognition and extraction of MWLUs from texts, lexical databases and knowledge databases,
- decisions on the issue of inserting MWLUs in the dictionary wordlists (headwords)
- lemmatisation of MWLUs,
- what is the headword of the MWLU (grammatical, or pragmatic) and how to present it in the dictionary, etc.
- phonemic and orthographic representation of MWLUs (stress, hyphenation, etc.)
- semantic relations within the member-elements of MWLUs (hyponymy, inclusion, etc.)
- classifying MWLUs: compounds vs collocations, verb phrases vs idioms
- systematicity of insertion of MWLUs in maritime dictionaries: into the wordlist or dictionary entries, or both?
- user-friendliness of the maritime dictionary: alphabetical or conceptual ordering of MWLUs, graphical presentation of MWLUs
- the problem of translation equivalents (there is rarely a 1:1 but rather increasingly a one-to-many relationship between MWLUs in two different languages), etc.

Maritime dictionaries therefore will have a future if satisfactory answers to the issues above are found. These issues can be reduced simply to the question of (a) systematic presentation of MWLUs and (b) their user-friendliness. Therefore, in addition to the conceptual arrangement and pragmatic information offered, systematic analysis and selection

[1] Corresponding author;
Faculty of Maritime Studies   University of Rijeka, Croatia

of the lexicographic material in search for MWLUs on the one hand, and their user-friendly presentation in the dictionary (electronic, on-line, or paper), on the other, will be the principal requirements for future maritime dictionaries.

[1] Corresponding author;
Faculty of Maritime Studies   University of Rijeka, Croatia

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[1] Corresponding author;
Faculty of Maritime Studies   University of Rijeka, Croatia

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[1] Corresponding author;
Faculty of Maritime Studies   University of Rijeka, Croatia

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[1] Corresponding author;
Faculty of Maritime Studies   University of Rijeka, Croatia