**Verbs of aqua-motion:**

**semantic domains and lexical systems**

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**Abstract**

This paper elaborates on an approach to the cross-linguistic comparison of lexical (sub)systems, which is based on the differentiation of typologically relevant semantic domains. We illustrate this approach exploring the conceptualization of motion / being in liquid medium (aqua-motion), within which four general domains (SWIMMING, SAILING, DRIFTING and FLOATING) are recognized. Using this distinction, we propose a typology of aqua-motion systems that distinguishes between 'rich', 'poor' and 'middle' systems of aqua-motion expressions depending on the lexical contrasts that the language displays.

## 1. Introduction[1]

It was argued during the recent decades that the differences that languages show in their lexicon can often be described in a more or less consistent way (see Talmy 1985; 2000; Goddard and Wiezbicka (eds) 1994; Newman (ed.) 1997; 2002; 2009; Koptjevskaja-Tamm 2008 *inter alia*).[2] Nonetheless, the methodology of cross-linguistic comparison of lexicons is far from being well-established. This paper contributes to the discussion of possible approaches to this issue by presenting a framework based on distinguishing between typologically relevant semantic domains within a single semantic field.[3]

We examine the expressions of motion / being in liquid medium, called **aqua-motion** henceforth (the term is due to Philippe Bourdin). Despite the apparent simplicity of aqua-motion,

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[1] This paper is a revised version of our earlier manuscript entitled "Domains of aqua-motion", whose parts were presented at the 21st Scandinavian Conference of Linguistics (Trondheim, June 2005) and the 6th Biennial Meeting of Association for Linguistic Typology (Padang, July 2005) as well as in a number of smaller workshops. We are grateful to the audience of these conferences, Mila Dimitrova-Vulchanova and two anonymous reviewers for their valuable comments. All errors are ours.

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[2] Much literature devoted to lexical typology was published in the late 2000s, that is already after the first versions of the present paper were prepared, so we could not consider all of it here.

[3] The terms 'semantic domain' and 'semantic field' are used here informally and refer to linguistically relevant ranges of meanings. These uses are not tied to any particular semantic theory.

languages exhibit a great deal of variation in the ways they convey the relevant semantics: while English possesses no less than four basic aqua-motion verbs (*swim*, *sail*, *float*, *drift*), there are languages like Turkish, which only have one verb of this kind, and languages like Indonesian, where the number of aqua-motion verbs is extremely large. This diversity may be depicted as a kind of variation in **lexical (sub)systems,** that is the types of correlations of semantic domains with their lexical representations.

Where does this diversity come from? How can we organize it and what parameters of cross-linguistic variation should we consider? We propose that this diversity is related to a large degree to a universal distinction between four semantic domains. This distinction can be taken as a basis for the comparison of this fragment of lexicon in different languages.[4]

The rest of the paper is structured as follows. Section 2 discusses certain general theoretical and methodological points we assume. Section 3 introduces the basic semantic domains of aqua-motion. Section 4 illustrates how the proposed distinction between these domains works for a language with a quite extensive inventory of the verbs that convey the semantics of aqua-motion, namely in Standard Indonesian. In Sections 5 we outline the diversity shown by the languages of our sample in respect of the expression of aqua-motion. Section 6 discusses a few complexities that may arise within our framework. The last section presents conclusions and perspectives on further research in the field.

## 2. Theoretical and methodological considerations

Following Talmy (1985)[5], we distinguish between several semantic components of the situations of motion, namely Figure, Ground, Manner, and Path. For example, the semantics of the clause *India is drifting into the continent Asia* can be 'dissected' in the following way: 'India (Figure) is moving (motion per se) into (Path) the continent Asia (Ground), and this movement is a kind of drifting

[4] For the reasons of space, we restrict our exposition to the explication of basic points. A more detailed discussion can be found in Maisak and Rakhilina 2007.

[5] See also Talmy 2000.

(Manner).' The same components minus Path are distinguished for posture situations.

An investigation into expressions of motion and location may focus on some of these components and / or the relations between them. For example, there has been quite a lot of study of the expression of Path and the interaction between Figure and Ground (see Fillmore 1983; 1997; Talmy 1985; Slobin 2004; Filipović 2008 among many others). Our study takes Manner as its subject.

Clearly, the diversity of Manner is much less predictable than the range of other parameters: the 'design' of this component is not well-defined. This issue can be approached in two ways. First, the semantic parameters determining the variation can be formulated deductively, starting from our knowledge of the situation of aqua-motion. Second, it may be possible to establish *tertium comparationis* inductively, by looking at the most frequent semantic distinctions found in languages. Below we follow the latter approach.[6]

Languages may exploit different means for contrasting between different manners of motion in liquid medium. Here we only list the most prominent of them.

(i) The use of different words is the clearest evidence for distinguishing between various manners of aqua-motion. One of the simplest examples of such a distinction is that found in English between *swimming*, *sailing*, *floating* and *drifting*, each of which reflects a certain manner of aqua-motion. However, the words to be considered in this respect need not necessarily be dedicated aqua-motion lexemes: numerous languages use general verbs of motion and location (such as 'go', 'come', or 'be') for some kinds of aqua-motion.

(ii) Many languages distinguish between manners of aqua-motion by using different morphosyntactic patterns. For example, the same verb can cover several kinds of aqua-motion, yet it may have different subcategorization frames in different contexts. Thus, the Russian aqua-motion

[6] The distinction between deductive and inductive approaches may be not that sharp as we present it. For example, we consider the approaches elaborated on in Malt et al. 2008 (studying a distinction between walking and running) and Majid et al. 2008 (investigating the conceptualization of cutting and breaking) to be mainly deductive, since these studies provided parameters for the relevant distinctions beforehand. However, it is clear that the choice of these parameters was partly affected by their preexisting knowledge on conceptualization.

verbs *plyt'* / *plavat'* can be used in much more contexts than any of its English translations (1)-(3).[7] However, the reference to Ground introduced by the preposition *po* 'along' is found out of the contexts of swimming (3). Moreover, only the sailing context admits the reference to the means of sailing, which is introduced by the preposition *na* 'on' (2).

Russian

(1) *Ja* *plyl* *kak* *ryba*.
I(NOM) AM(PST:M) like fish(NOM:SG)
'I was swimming like a fish.'

(2) *On* *plyl* *na* *plotu* *desjat'* *dnej* *bez*
he(NOM) AM(PST:M) on raft(LOC:SG) ten day(GEN:PL) without
*vody* *i* *edy*.
water(GEN:SG) and food(GEN:SG).
'He sailed on a raft for ten days without any water and food.'

(3) *Vot* *uže* *neskol'ko* *let,* *kak* *ja* *plavaju* *po* *Volge*.
PTCL already several year(GEN:PL) as I:NOM AM(1SG) along Volga
'It is already several years that I sail (float / *swim) along Volga.'

(iii) Probably the most unexpected criterion, which we nevertheless consider one of the most perfect and consistent, is the distribution of metaphorical extensions. Even when the two criteria mentioned above do not work perfectly, sometimes we find that only some meanings / uses of a given expression serve as a basis for a certain metaphor. For example, the idea of immersion is usually provided by verbs prototypically denoting swimming of animate beings (as in English *The meat swims in gravy*) and not by the verbs describing other kinds of aqua-motion.

[7] We gloss the aqua-motion verb as AM (for 'aqua-motion') in order not to impose its interpretation. The list of abbreviations used in glosses is given at the end of the paper. The representation of the data for the most part follows our sources, the grammatical analysis is maximally simplified.

Notably, the criteria listed above represent "anchors" that are frequently exploited for providing evidence for the relevance of some distinctions: the formal aspect, the syntagmatic (behavioural) aspect and the paradigmatic aspect. In this sense, lexical typology does not need any specific methodology.

The conclusions presented in this paper are based on the materials collected within a project which involved scholars of various languages (see note 1). We conducted a questionnaire which covered various kinds of situations and could be used as a starting point for investigation of various lexical systems. Importantly, while the questionnaire relied on data from few languages, it was already detailed much more than these languages required it to be. The participants of the project could further broaden the questionnaire according to the peculiarities of their subject languages. The data were either taken from corpora (including the web sources) or got through elicitation procedures.

INSERT TABLE 1 SOMEWHERE HERE

On the whole, we obtained information on conveying the idea of aqua-motion from fifty languages, whose list is given in Table 1. This language sample is a convenience sample, that is it is not intended to represent all known genetic and geographic linguistic groupings. Still, we believe that it gives some impression on how languages differ in the expression of aqua-motion. These data also let us make certain hypotheses on universal or nearly universal distinctions found in the conceptualization of aqua-motion. These distinctions are discussed immediately below.

**3. The basic domains of aqua-motion**

The most basic distinction that we propose is that between the semantic domains of SWIMMING, SAILING, DRIFTING and FLOATING. This distinction manifests itself in most languages of our sample more or less consistently and is highly abstract, which makes it a convenient point of departure for studying the linguistic variation.

The SWIMMING domain is associated with self-propelled motion of an animate Figure. The

predicates that serve for this domain presuppose much control and agentivity and are the default expressions of aqua-motion at least for humans, certain animals and fish.

SAILING predicates refer to motion of vessels or animates aboard. The situation denoted by predicates describing this domain also has a flavour of agentivity, yet this is not always the agentivity of Figure: examples like (4) represent this domain as well:[8]

(4) *But his seamanship skills were legendary; many of the passengers sailed on the Titanic because Captain Smith was in charge.*

The domains of FLOATING and DRIFTING cover the situations of 'passive', uncontrolled and non-agentive aqua-motion. Therefore it is the verbs belonging to these domains that are commonly found with inanimate Figures, albeit usually such predicates allow animate Figures as well. The main difference between the two domains is that DRIFTING is associated with motion of Figure occurring due to the motion of the liquid, while FLOATING only profiles (in the sense of Langacker 1987) being in / on the surface of liquid. The inclusion of FLOATING in aqua-motion may seem debatable, since this domain is even not necessarily associated with motion proper. Yet, in many languages, it is expressed with aqua-motion verbs. Cf. the following examples from Mandarin Chinese which demonstrate the use of the same verb for the expression of floating and drifting:

Mandarin Chinese (Rukodelnikova 2007: 602)

(5) *shù yè zài shuǐ miàn shàng piāo-zhe.*
tree leaf in water surface LOC AM-STAT
'The tree leaves are floating on the surface of water.'

(6) *zhè xiě shùlín shì cóng wǒ-men zhè lǐ piāo-xià-qu de.*
this CL wood COP from I-PL this LOC AM-move.down-go.away ATR
'This is the wood that drifted away from here.'

[8] SAILING verbs may differ in whether they allow such contexts, but the most neutral of them normally do so.

The fact that DRIFTING and FLOATING are often covered by the same lexical means could be an argument against the universal status of this distinction. But if we consider metaphors, we will find that DRIFTING and FLOATING give rise to very different extensions (Rakhilina 2007: 99-101). In particular, those expressions that describe drifting are often used metaphorically for conveying the idea of unobstructed movement, which may further develop into the expressions of slipping, flying, or the expressions of the loss of the form, the loss of control, penetration. At the same time, the expressions of floating may evolve into the expressions of emotional instability, unsteadiness, and random motion.

For the reasons of space, we cannot provide all data suggesting the division between the four domains of aqua-motion here – an interested reader is referred to the volume Maisak and Rakhilina (eds) 2007. But we will illustrate the proposed division for a single language, whose aqua-motion lexicon is significantly distinct and more complex than, say, that of English.

**4. An example: describing motion in liquid medium in Indonesian**

The subject language of this section is Standard Indonesian – an Austronesian language scattered across thousands of islands of the Malay archipelago.[9] Austronesians are known as navigators whose life depends closely on water. Not surprisingly, Standard Indonesian has a great number of aqua-motion verbs. Some of them show restricted distribution, others are more common. But despite their diversity, Indonesian aqua-motion verbs can be easily classified into four groups that correspond to the domains distinguished above, as is reflected in Table 1. The criteria according to which these groups are distinguished are mainly semantic and include agentivity and control, constraints on the ontological status of Figure, the presence / absence of interpretations related to directedness, as well as certain aspectual characteristics, in particular, the ability of a verb to refer to the final stage of a situation; see Lander and Kramarova 2007 and Lander 2008 for details.

[9] Standard Indonesian is a variety of Malay that is used as the official language of Indonesia. Note that some other Malay varieties have considerably different systems of aqua-motion expressions.

INSERT TABLE 2 SOMEWHERE HERE

For example, the verbs derived from the root *renang* normally can only refer to controlled situations with animate Figures and usually presuppose the absence of means that keep Figure on the surface:

Standard Indonesian

(7) *Paus abu-abu jarang terlihat berenang hingga ke darat.*
whale grey rarely be.seen AM up.to to land
'Grey whales are rarely observed swimming up to the land.'

Similarly, *menyelam* 'swim under the water; dive' presupposes control and appears almost exclusively with animates, the only exception being its occurrence with submarines. Only *renang*-verbs and *menyelam* can easily refer to the final stage of a situation:

Standard Indonesian

(8) *Saya sudah berenang ke pantai ini.*
I ASP AM to beach this
'I have already swam up to this beach.'

The SAILING domain in Indonesian is quite rich, but all verbs belonging to it are derived from nominal roots (which describe either means or place of movement). These verbs can denote the motion of a person aboard a vessel, and almost all of them – with the exception of verbs specifying the means of motion – can refer to the movement of vessels:

Standard Indonesian

(9) *Di tengah laut, se-jumlah kapal dan perahu terlihat sedang*

in middle sea one-number ship and boat be.seen ASP *berlayar.*

AM

'In the middle of the sea, one can see a number of sailing ships and boats.'

Some means-specified verbs show a further peculiarity: they require their Figure to control the motion and not simply to be a passenger; cf. the use of the verb *berakit* 'sail on a raft' in (10). This subclass of verbs may be less prototypical for the SAILING domain.

Standard Indonesian

(10) *Abang* *saya* *berakit* *ke* *sini.*

elder.brother I AM to here

'My elder brother sails here driving a raft.'

Finally, Indonesian possesses a number of aqua-motion words that combine with Figures of almost any kind, which usually describe situations that do not presuppose any control and sometimes even imply its absence.[10] For these verbs, there are good reasons to distinguish between the verbs that usually denote uncontrolled situations and the verbs that necessarily do so. The first of these classes consists of the verbs derived from the roots *apung* and *ambang*. Such verbs may occur even when the situation can be thought as controlled, yet the control component is obscured, as in (11). In this example, though the floating of the ship is apparently controlled, what is profiled is only the fact that it remains on the surface and does not sink. Note that in (12) taken from a story of people having suffered a shipwreck, the appearance of the same verb is definitely motivated by the wish to emphasize the absence of control of the situation.

Standard Indonesian

[10] Some of these verbs contain the prefix *ter-*, which explicitly marks the absence of control.

(11) *para awak* *bekerja* *keras* *untuk* *men-jaga* *agar* *kapal ...*
crew work hard for ACT-watch.over so.as.to ship
*tetap* *terapung*.
permanently AM
'...the crew worked hard watching over so as the ship stayed afloat.'

(12) *Selama* *satu* *malam* *kami* *terapung* *di* *tengah* *laut ...*
during one night we:EXCL AM in middle sea
'We were floating during one night in the middle of the sea…'

The second subclass includes at least of the verb *hanyut* 'drift (with the current)' (and possibly also *terombang-ambing* 'drift about (on water)') and always indicates the absence of control. It is also worth noting that it is *hanyut* that is typically met when the aqua-motion is strongly dynamic and driven by the directed current:

Standard Indonesian

(13) *Puluhan* *batu* *gunung* *dan* *potongan* *kayu* *hanyut* *terbawa* *arus*
dozen stone mountain and piece wood AM be.carried current
*sungai* *yang* *bergejolak*.
river REL flare.up
'Dozens of mountain stones and pieces of wood were carried by the current of the growing river.'

It is easy to notice that the distinction between the two classes of 'passive' aqua-motion verbs more or less corresponds to the distinction between FLOATING and DRIFTING proposed in Section 3.

Finally, for motion of ships and other large Figures Indonesian may exploit general verbs of motion and in FLOATING contexts the language also displays verbs of existence/location:

Standard Indonesian

(14) *Ke mana kapal pergi, selalu kembali ke pelabuhan.*
to where ship go always back to harbour
'Whenever a ship goes, it always returns to (its) harbour.'

(15) … *keruh-nya air danau itu di-akibatkan oleh kotoran-kotoran*
turbidity-PR.3 water lake that PASS-give.rise AG garbage-RDP
*yang ada di permukaan danau* …
REL be in surface lake
'… the turbidity of the lake was due to the garbage that was on the surface of the lake...'

The Indonesian data demonstrates that the distinction between SWIMMING, SAILING, FLOATING and DRIFTING is not based exclusively on English data and manifests itself as well in languages with more complex systems of aqua-motion expressions.

**5. Typology of aqua-motion systems**

Assuming that the contrast between SWIMMING, SAILING, DRIFTING and FLOATING is universal, it can be taken as a basis for measuring the richness of the aqua-motion fragment of the lexicon. In the following sections we will contrast between three types of aqua-motion system, which we call 'middle' systems, 'rich' systems and 'poor' systems. The main difference between them is the degree of the lexical elaboration of the aqua-motion semantic field.

It is important for us that unlike in simple classifications, there can be systems intermediate between types and that each type may serve as subject of a separate study.

*5.1. Poor systems*

In a poor aqua-motion lexical system, the distinction between SWIMMING, SAILING, DRIFTING and FLOATING is obscured or made peripheral. However, such systems are not homogeneous. On the one hand, there are languages like Slavic, where a single root covers all of the four domains. To cite one

example, Russian has only a pair of specific aqua-motion verbs *plyt'* and *plavat'*, which are (diachronically) morphologically related and differ roughly in iterativity and/or directedness of the process; cf.:

Russian

(16) a. *Sportsmen* / *lodka* / *brevno* *plyvët* *k* *beregu.*
sportsman(NOM:SG) boat(NOM:SG) log(NOM:SG) AM(3SG) towards bank(DAT:SG)
'A sportsman / boat / log is moving (in water) towards the bank.'

b. *Sportsmen* / *lodka* / *brevno* *plavaet* *nedaleko* *ot*
sportsman(NOM:SG) boat(NOM:SG) log(NOM:SG) AM(3SG) not.far from
*berega.*
bank(GEN:SG)
'A sportsman / boat / log is moving to and fro (in water) not far from the bank.'

Interestingly, however, in some systems similar to the Russian system, sometimes one observes more peripheral verbs associated with only one of the domains. This is the case, for instance, in German, where the verb *schwimmen* can operate in all four domains yet it coexists with the verbs *segeln* 'sail', *treiben* 'be carried by water', *driften* 'drift', which are more peripheral and restricted in use (Shemanaeva 2007). Similarly, in Lithuanian the whole range of aqua-motion contexts can be covered by the pair *plaukioti* (non-directed) / *plaukti* (directed) (17)-(18), but within the DRIFTING and FLOATING domains we observe several verbs that are used on a par with *plaukioti – plaukyti*, *plūduriuoti* (19) and *būti* 'be':

Lithuanian (Arkadiev 2007: 318, 321)

(17) *mes* *pamatėme,* *kad* *upe* *plaukia* *berniukas.*
we(NOM) see(PST:1PL) that river(INS:SG) AM(PRS:3) boy(NOM:SG)
'We saw that the boy was swimming / drifting along the river.'

(18) *žiūrime – laivas jau atsiskyręs nuo kranto ir*
look(PRS:1PL) ship(NOM:SG) already separate(APART.NOM:SG) from bank and
*plaukia Dauguva.*
AM(PRS:3) Daugava(INS:SG)
'We see: the ship has already moved away from the bank and is sailing along the Daugava river.'

(19) *Upėje plūduriuoja rąstas.*
river(LOC:SG) AM(PRS:3) log(NOM:SG)
'There is a log floating in the river (where there is no stream).'

On the other hand, there are poor systems that do not neutralize the distinctions between all of the domains of aqua-motion, but only single out one of them. Some systems of this kind are found in Northeast Caucasian languages, many of which usually exploit general verbs of motion and location for the description of aqua-motion. However, in the SWIMMING domain of these systems we observe dedicated expressions of aqua-motion which are essentially complex predicates; cf. (20) from Agul:

Agul (Maisak, Rostovtsev-Popiel, and Khurshudian, 2007: 700)

(20) *gadaji lepe q'aa nac'un qːirеʁiqtːi.*
boy(ERG) wave do(IPF:PRS) river(GEN) edge(POSTLAT)
'A boy is swimming (lit. making a wave) towards the river's bank.'

The data of such languages as Agul suggests a non-trivial generalization: if a language only has one dedicated aqua-motion expression, it can always be used for the expression of swimming. This, of course, reflects the general anthropocentricity of the language.

*5.2. Middle systems*

We characterize an aqua-motion system as 'middle' if it lexically distinguishes between SWIMMING,

SAILING and FLOATING/DRIFTING, optionally distinguish between FLOATING and DRIFTING, but does not display any additional contrasts. We do not insist that a middle system contrast FLOATING and DRIFTING, because as we said earlier, these domains are often conflated. Moreover, we do not require that such a system have dedicated verbs for all of the distinguished domains.

Middle systems are by no means numerous. In our sample, there are only three languages that strongly distinguish lexically between three manners of aqua-motion, among which two (Persian and Tamil) belong to the same Indo-Iranian area but one (Maninka) is spoken in Western Africa. All of these languages have distinct lexical items for SWIMMING and FLOATING/DRIFTING, but for the SAILING domain they use general verbs of motion. Cf. the following Maninka examples:

Maninka (Vydrine 2007: 732, 734, 736)

(21) *À bárá à námún kà nà kánkún` mà.*
3SG PERF 3SG AM INF come bank+ART to
'He swam up to the bank.'

(22) *Yírí kúdún` fún-nín jí` kàn.*
wood piece+ART AM-SPART water+ART on
'A piece of wood is floating / drifting in the water.'

(23) *Kúlún` yé nă kàn bá kánkún` mà.*
boat+ART IPF come CONT river bank+ART to
'The boat is sailing / drifting towards the bank.'

This is not likely to be a coincidence. Recall that in Indonesian the general verbs of motion such as 'go' and 'move' can also appear in the expressions of aqua-motion, and the preferable domain for them is SAILING. Presumably, in Persian, Tamil and Maninka we observe the same phenomenon. The only difference of these languages from Indonesian is that their systems lack additional contrasts,

though general verbs of motion covering the SAILING domain contrast this domain to the other two.[11]

In addition to languages showing trichotomy, we also observe languages that distinguish between all the four basic domains. English, with its *swim* vs. *sail* vs. *float* vs. *drift* distinction, manifests a typical example of such a system distinguishing four manners of aqua-motion. Of course, English may use other verbs for similar senses as well: as in many (if not most) languages, aqua-motion is sometimes expressed with general verbs of motion such as *come* and *go*, although this time they are irrelevant for our typology because they do not specify any domain that is not specified by other lexical means. Further, English sometimes employs a Latin-based verb *navigate*, which once was associated primarily with aqua-motion but does not seem to do so in the present-day language (cf. such examples as *We'll go in my car, and you can navigate*, which presumably need not be described as metaphorical). As in many other languages (such as Indonesian), the basic SAILING verb *sail* is derived from a noun, which possibly again points to the fact that it is not a native in the aqua-motion system.

*5.3. Systems intermediate between the middle type and the poor type*

In addition to clear poor and middle systems, there are also systems that can be qualified as poor and middle at the same time. Such systems distinguish between the basic domains of aqua-motion lexically, yet allow the most common aqua-motion predicates to cover several domains.

The existence of systems that can be assigned to two types at the same time results from the fact that in some domains several verbs may coexist and hence be not contrasted in any strict way. Then, like in a typical poor system, a single verb can be used for several domains, but for the expression of some manners of aqua-motion it can appear on a par with other words. If this leads to a contrast between exactly three or four domains we proposed, the system can also be classified as middle.

An example of such a system is Georgian, which has a verb root *curva* serving for all of the

[11] Curiously, in Armenian, whose system resembles 'middle' systems, general verbs of motion are used mainly in the FLOATING domain, while both SWIMMING and SAILING employ dedicated verbs (resp. *loɣal* and *navel*).

four domains:

Georgian (Maisak, Rostovtsev-Popiel and Khurshudian 2007: 716-717)

(24) *bavšvebi* *cur-av-dnen* *mdinare-ši* *nap'ir-tan* *axlos.*
child(NOM:PL) AM-VT-IMPERF:3PL river-in bank-with near
'The children were swimming in the river near the bank.'

(25) *isini* *t'ba-ši* *navit* *da-cur-av-dnen.*
they lake-in boat(INS) INDIR-AM-VT-IMPERF:3PL
'They were sailing with a boat on the lake.'

(26) *mori* *mdinare-ši* *mo-cur-av-s.*
log(NOM) river-in HERE-AM-VT-PRS:3SG
'A log is drifting along the river.'

(27) *ak* *xomaldi* *ča-i-ʒir-a* *da* *amžamad* *narčenebi*
here ship(NOM) DOWN-REFL-sink-AOR:3SG and now remain(NOM:PL)
*da-cur-av-s.*
INDIR-AM-VT-PRS:3SG
'Here a ship went down, so now its remains are floating.'

However, in the SAILING domain it competes with general verbs of motion (28) (as well as with a peripheral dedicated sailing verb *naosnoba*), while floating is regularly expressed with another dedicated aqua-motion verb *t'ivt'iv-* (29):

Georgian (Maisak, Rostovtsev-Popiel and Khurshudian 2007: 716)

(28) *gemi* *navsadgul-ši* *še-mo-vid-a.*
ship(NOM) harbour-in IN-HERE-go-AOR:3SG
'The ship sailed in the harbour.'

(29) *xe* *c'q'al-ši* *t'ivt'iv-eb-s.*

wood(NOM) water-in AM-VT-PRS:3SG

'The wood floats (that is does not sink).'

A similar, yet a different story is reported for Hindi by Khokhlova and Singh (2007). Here the verb *tairnaa* is found in the expressions of swimming, sailing and floating. However, in the SAILING domain it concurs with general verbs of motion, and in the FLOATING domain we also find the verb *utraanaa*. As concerns DRIFTING, it is expressed with the third aqua-motion verb *bahnaa*.

Qualifying such languages as belonging to two 'types' at the same time is justified as far as it adds additional perspectives and makes it possible to use data of these languages in recognizing generalizations concerning both poor and middle systems. However, we also admit the possibility that systems of this kind can be studied on their own.

*5.4. Rich systems*

Rich aqua-motion systems also distinguish between at least SWIMMING, SAILING and DRIFTING/FLOATING, but show additional lexical contrasts within at least some of the domains. The study of rich aqua-notion systems is a study of these contrasts, which manifest the linguistic diversity rather than any universal or near universal principles of categorization. Indeed, languages differ in which of the domains they elaborate and how many of them they elaborate.

In what follows, we will focus on those of the contrasts observed within SWIMMING, SAILING, DRIFTING and FLOATING that seem most widespread or are of special theoretical interest.

The SWIMMING domain usually does not show much complexity. Given the anthropocentric nature of language together with the fact that human aqua-motion (just as any aqua-motion of agentive species) is associated with this domain by default, one can expect to find a contrast based on humanness here. This expectation is only partly true, however: the human/non-human contrast is much more peripheral in the aqua-motion field than in other fragments of the language. However, languages with SWIMMING verbs restricted mainly to human Figures exist. Thus, the Komi-Zyrian root *vartč'*- is

used almost only for humans (and marginally for dogs)[12], while swimming of most animals and fish is conveyed with a different verb *uj-*:

Komi-Zyrian (Vostrikova 2007: 420–421)

(30) *d'et'inka* *vartč'ə* *bereglan'*.
boy AM(PRS:3) bank(ALL)
'The boy is swimming to the bank.'

(31) *star'ik* *dorə* *ujis* / **vartč'is* *č'eri* *i* *zavoditis* *šornitni*.
old.man edge(ILL) AM(PST:3) AM(PST:3) fish(NOM) and begin(PST:3) say(INF)
'The fish swam to the old man and began to speak.'

In some other languages, there are verbs referring to swimming whose subjects can only be human but whose use is restricted to the contexts related to sporting activities (cf. *swuyeng hata* in Korean).

The contrasts observed within the SAILING domain are also few, yet most often they are easily recognizable. Some of them, namely those related to the specification of the location and means, have been already illustrated in Section 2 with the Indonesian data. Other examples of verbs involving this kind of specification include the Nganasan verb *ŋəntə(u)-* 'sail on a wooden boat', the obsolete Portuguese verb *marear* 'sail the sea' and the Korean complex predicate *hanghay hata* 'sail the sea' (lit. 'navigation do'); cf.:

Korean (Lee and Maisak 2007: 650)

(32) *ilpon* *kisen-un* *cilwuhan* *hanghay* *han* *kkuth-ey*
Japanese ship-TOP boring(PART) navigation do(PART:PST) end-LOC
*hangkwu-ey* *tach-ul* *naylyessta*.

[12] This may be a consequence of the fact that this verb is derived of a verb with the meaning 'kick', which can not be used with many of the swimming animals.

port-LOC anchor-ACC lower(PST:DECL)

'After the boring sailing, the Japanese ship dropped anchor at the port.'

Remarkably many languages have or seem to have had special verbs for sailing proper, that is motion under sail. Sometimes – as in English (and also in Indonesian, where the basic SAILING verb *berlayar* is derived from the noun *layar* 'sail') – these verbs have already obtained more or less neutral semantics. In other cases, however, they retained their original semantic restrictions. Thus, Portuguese *velejar* and Dutch *zeilen* can express motion under sail only:

Dutch (Divjak, Lemmens 2007: 163)

(33) *Het maakt daarbij niet uit of ze zeilen of op de*
it make(PRS:3SG) in.addition not out or they AM(PRS:3PL) or on ART
*motor varen.*
engine AM(PRS:3PL)
'It does not matter whether they are sailing under sail or sailing on engine.'

An important distinction found within the DRIFTING domain is that between the directed motion and non-directed motion: while the parameter of directedness is found in other domains as well, it is here where it sometimes results in the contrast between several dedicated verbs. Again, Indonesian has already provided an example of this distinction (cf. the contrast between the verbs *hanyut* and *terombang-ambing*), but it is by no means restricted to Indonesian. Japanese, for instance, has at least two verbs of DRIFTING: while *nagareru* denotes passive motion driven by current, *tadayou* describes passive motion in different directions (to and fro):

Japanese (Panina 2007: 622, 630)

(34) *Yama no yōna koori ga nagarete kuru.*
mountain GEN similar ice NOM AM:CNV come

‘Ice floes which are similar to mountains drift here (with the stream).’

(35) *Kobune ga taikai o tadayou.*
boat NOM ocean ACC drift
‘The boat drifts in the ocean.’

Within the FLOATING domain, a clear cut-off line is found between ‘simple floating’ and ‘being in confined space’. The latter sometimes requires different expressions, which almost always involve existential or locative verbs. Thus, consider the following Arabic example:

Standard Arabic (Letuchiy 2007: 491)

(36) *tu:ğadu qit‘atu khubzin fi: al-ħasa’i.*
be.located(3F:SG) piece(NOM) bread(GEN) in ART-soup
‘There is a piece of bread in the soup.’

According to Letuchiy (2007) Arabic also possesses two dedicated FLOATING verbs *‘a:ma* (denoting directed drifting) and *Tafa:* (referring to floating up and being on the surface), so the appearance of a locative verb in (36) may at first look surprising. Note, however, that it is not obvious whether the ‘subject’ serves as Figure here, since quite often such utterances characterize the container in respect of its contents. Moreover, expressions like (36) are normally thetic. Clearly, it is this that relates the subdomain of ‘being in confined space’ to existential expressions, which are also thetic (Sasse 1987) and frequently characterize the location. Presumably, the semantic properties of this subdomain show too much deviations from any aqua-motion prototype, which can (albeit need not) be reflected by the choice of a non-aqua-motion verb.

**6. Conclusion and open ends**

This paper proposed a typology of aqua-motion lexical (sub)systems which is based on the differentiation between the SWIMMING, SAILING, DRIFTING, and FLOATING domains. It should be

emphasized once more that this distinction is not purely descriptive, since it is based on similarities between unrelated languages. The widespread occurrence of its manifestations points to the fact that it is not arbitrary and perhaps mirrors universal tendencies in conceptualization of aqua-motion.

We find it important, however, to briefly outline here the difficulties which are met while describing aqua-motion in terms of SWIMMING, SAILING, DRIFTING and FLOATING and which require specific treatment.

First, despite the fact that we presented the four domains as easily determinable, they seem to be non-homogeneous and presumably have more and less prototypical contexts. Certain less prototypical contexts may sometimes be expressed with a verb belonging to a different domain, which makes the borders between the domains somewhat fuzzy. For example, while individual species of fish are usually thought to swim, the motion of groups and schools of fish may be expressed by general verbs of motion, as is observed in Persian (Kuznetsova 2007: 243). Similarly, the motion of birds in water is sometimes considered less agentive than that of the prototypical swimming Figure and is covered by FLOATING verbs - this is the case, for instance in Standard Arabic (Letuchiy 2007: 486).

Second, such extensions of some domains at the expense of other domains may lead to the semantic reanalysis of aqua-motion verbs, which may get semantics that is not based on the distinction between SWIMMING, SAILING, DRIFTING and FLOATING. Thus in Hebrew, the root *šat*, which originally belonged to the FLOATING domain, is now used for the SAILING domain as well and instead is associated with a more abstract idea of aqua-motion without visible effort, a sort of 'gliding' on a surface (Arad 2007). An even more dramatic shift evidently occurred with the Russian verb pair *plyt'* / *plavat'* mentioned in the previous section (see Makeeva and Rakhilina 2004 for details). In Old Russian, these verbs were seemingly used almost exclusively for DRIFTING / FLOATING, yet currently they cover the whole range of aqua-motion contexts. A similar change happened in some Malay dialects of East Indonesia, where the verb *hanyut*, qualified as belonging to the DRIFTING domain in Section 4, appears in contexts which apparently presuppose control (Mark Donohue, pers.com.). In quite a few languages we also observe the use of the swimming verbs for the description of floating, as

in the following Indonesian example:

(37) *Sayur* *kol* *berenang.*
vegetable cabbage AM
'There is cabbage [in the soup, but it is a little and there does not seem to be anything else in the soup].'

Of course, this kind of shift requires an explanation and it is not always clear whether it should be based on the distinctions between various domains or some other semantic features.

Finally, the parameters that distinguish between the four domains are numerous and worthy of further investigation: presumably at least some of them may explain further diversity observed in rich aqua-motion systems. It should be noted that a possible clue to the organization of the semantic field examined here may be found in different degrees of semantic markedness of various verbs (Lander 2008), but we are aware that this is only one of the possible perspectives.

Despite these complexities, the very principle of the cross-linguistic comparison of lexical systems based on the distinguishing between various domains seems to be promising and may become a useful tool for discovering the laws that govern lexical structures of languages.

**Abbreviations**

ACC – accusative, ACT – active voice, AG – agent marker, ALL – allative, AOR – aorist, APART – active participle, ASP – aspectual particle, ART – article, ATR – attributive, CLR – classifier, CNV – converb, CONT – continuous, COP – copula, DAT – dative, DECL – declarative, ERG – ergative, EXCL – exclusive, F – feminine, GEN – genitive, ILL – illative, IMPERF – imperfect, INDIR – indefinite direction, INF – infinitive, INS – instrumental, IPF – imperfective, LOC – locative, M – masculine, NOM – nominative, PART – participle, PERF – perfect, PL – plural, POSTLAT – postlative, PR – possessor, PRS – present, RDP – reduplication, PST – past, PTCL – particle, EFL – reflexive, REL – relative marker, RSG – singular, ST – stative, SPART – stative participle, top – topic, VT – verbal theme.

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Table 1. Language sample.

| Family | Languages |
|---|---|
| Afro-Asiatic | Standard Arabic, Modern Hebrew |
| Austronesian | Standard Indonesian |
| Dravidian | Tamil |
| Indo-European | Ancient Greek, Armenian, Bengali, Bulgarian, Dutch, English, French, German, Gujarati, Hindi, Italian, Latin, Lithuanian, Macedonian, Panjabi, Persian, Polish, Portuguese, Rajasthani, Russian, Serbo-Croatian, Spanish, Swedish |
| Niger-Congo | Maninka |
| Northeast Caucasian | Agul, Avar, Ingush, Itsari Dargwa, Karata, Lak, Lezgian, Standard Dargwa |
| Northwest Caucasian | Adyghe, Kabardian |
| Sino-Tibetan | Mandarin Chinese |
| South Caucasian | Georgian |
| Turkic | Karachay-Balkar, Khakas, Turkish |
| Uralic | Finnish, Komi-Zyrian, Nganasan, Selkup, Udmurt |
| Isolates | Japanese, Korean |

Table 2. Aqua-motion verbs in Standard Indonesian.

| | |
|---|---|
| SWIMMING | **Neutral:** *renang*-verbs (*berenang*, *merenangi*) 'swim (in)'<br>**Specified:** *menyelam* 'plunge, swim under the water' |
| SAILING | **Neutral:** *berlayar, melayari* 'sail'<br>**Means-specified:** *berkapal* 'sail on a ship', *berperahu* 'sail on a boat', *berakit* 'sail on a raft', *berkayuh*, *berdayung* 'row', etc.<br>**Place-specified:** *mendanau* 'go in a lake', *melaut* 'go seaward', *menyelat* 'go in a channell', etc. |
| DRIFTING | *hanyut* 'drift (with the current)', *terombang-ambing* 'drift about (on water), swing to and fro' |
| FLOATING | *apung*-verbs (*terapung*, *mengapung*) 'float', *ambang*-verbs (*terambang*, *mengambang*) 'float' |