

## **Domains of aqua-motion: a case study in lexical typology<sup>1</sup>**

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updated version, May 2008

### **Abstract**

This paper elaborates on an approach to the cross-linguistical comparison of lexical (sub)systems based on distinguishing between typologically valid semantic domains. We illustrate this approach exploring the semantic field of motion / being in a liquid medium (aqua-motion), within which three general conceptual domains (SWIMMING, SAILING and FLOATING) are differentiated. On the basis of this tripartition, we suggest a typology of aqua-motion systems which distinguishes between rich, poor and ‘middle’ systems of aqua-motion

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<sup>1</sup> Earlier versions of this paper were presented at the 21<sup>st</sup> Scandinavian Conference of Linguistics (Trondheim, June 2005) and the 6<sup>th</sup> Biennial Meeting of Association for Linguistic Typology (Padang, July 2005). We are grateful to the audience of these conferences as well as to a number of scholars involved in the project “Lexical typology of aqua-motion”, who shared with us their knowledge of specific languages: Maya Arad (Modern Hebrew), Peter Arkadiev (Lithuanian), Charanjit Singh (Hindi), Dagmar Divjak (Dutch), Dmitry Ganenkov (Aghul), Ekaterina Golubkova (English), Valentin Gusev (Nganasan), Liudmila Khokhlova (Hindi), Victoria Khurshudian (Armenian), Maria Koptjevskaja-Tamm (Swedish), Svetlana Kramarova (Standard Indonesian), Julia Kuznetsova (Persian), Lee Su Hyon (Korean), Maarten Lemmens (Dutch), Alexander Letuchij (Standard Arabic), Solmaz Merdanova (Aghul), Arto Mustajoki (Finnish), Anna Panina (Japanese), Ekaterina Protassova (Finnish), Olga Shemanaeva (German), Anna Smirnitskaja (Tamil), Natalia Vostrikova (Komi), Valentin Vydrin (Maninka). Special thanks are due to Mila Dimitrova-Vulchanova for her valuable comments. All errors are ours. This work was supported by RGNF (Russian Foundation for Basic Research) under grant No. 05-06-80400.

expressions depending on what contrasts a given language displays within this semantic field.

## 1. Introduction

During the recent decades, a number of studies (such as Talmy 1985; 2000; Newman (ed.) 1997; 2002) articulated the point that the differences that languages show in their lexicon are not arbitrary. Nonetheless, the methodology of cross-linguistic comparison of lexicon remains far from being well-established. In this paper, we elaborate on an approach to this which is related to the distinguishing between typologically valid semantic domains within a concrete semantic field. In particular, we will examine the semantic field of motion / being in liquid medium, called **aqua-motion** henceforth (we owe this term to Philippe Bourdin), and propose that within it three main domains can be recognized. These domains, as we will show, can be taken as basis for the comparison of this fragment of lexicon in different languages.<sup>2</sup>

Aqua-motion seems to be a relatively simple semantic field. Similarly to other verbs of motion, the verbs discussed here at first glance enable a rather small number of lexical parameters. Leaving aside the Path, which follows rules that are seemingly more or less well-described (see Fillmore 1983; 1997 and Talmy 1985 among many others), these parameters are determined by two basic participants only, namely the Figure and the Ground. Despite this, languages appear to exhibit a great deal of variation in the ways they express aqua-motion concepts. For instance, we observe that while English possesses no less than four basic aqua-motion verbs (*swim, sail, float, drift*), there are languages such as Turkish, which have only one verb of this kind, and also languages such as Indonesian, where the number of aqua-motion verbs is rather large. This diversity may be depicted as a kind of variation in **lexical (sub)systems** (a more precise definition of this latter notion in relation to the topic of this paper will be given below).

But where does this diversity come from? How can we systematize it and which parameters of cross-

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<sup>2</sup> For the reasons of space, we restrict our exposition to the explication of basic points, providing a minimum of examples only. A more detailed discussion can be found in Maisak and Rakhilina 2007.

linguistic variation should we consider? The problems posed by these questions can be approached in two ways. First, the relevant semantic parameters can be formulated deductively, starting from our knowledge of the situation of aqua-motion. Second, it may be possible to establish *tertium comparationis* inductively, looking at the most frequent (or even universal) conceptual distinctions found in languages. Below we will follow the latter approach, the more so as parameters within the aqua-motion field by no means seem apparent to us.

The conclusions presented in this paper are based on the material collected within a special project, which involved scholars of various languages.<sup>3</sup> In this study of aqua-motion verbs we tried to combine the in-depth semantic description of particular lexemes in individual languages (on the basis of both native speaker judgments and data from corpora and dictionaries) with a typological approach revealing similarities and differences across them. Such type of cross-linguistic analysis of manner of motion verbs is still rare, although it is getting more and more popular during recent years; as an example cf. a substantial experimental study by Dimitrova-Vulchanova et al. (this volume), dedicated to another domain within ‘biological motion’. On the whole, we got the relevant information on more than forty languages (see Appendix). Although not fully representative, our sample presumably can give at least the first impression on how languages differ in the expression of aqua-motion.

The rest of the paper is structured as follows. Section 2 introduces the basic semantic domains of aqua-motion and illustrates how the proposed distinction works with the description of aqua-motion expressions in a language with a quite extensive inventory of the verbs dedicated to aqua-motion, namely in Standard Indonesian. Using the concepts provided by these domains, in Sections 3-5 we outline the diversity shown by the languages of our sample in respect of the expression of aqua-motion. Section 6 discusses certain complexities that may arise within our framework. The last section presents conclusions and perspectives on further research in the field.

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<sup>3</sup> Detailed studies of the expressions of aqua-motion in many of these languages have been published in Maisak and Rakhilina (eds) 2007.

## 2. Semantic domains of aqua-motion

The most basic distinction that we propose is that between the semantic domains of SWIMMING, SAILING and FLOATING. This distinction manifests itself in most languages of our sample more or less consistently, being reflected either in lexical oppositions or in constraints on interpretation arising in contexts related to aqua-motion. At the same time, it is perhaps the most abstract distinction of its kind, since it is definitely based on certain prototypes and allows deviations from them. Let us begin with the informal introduction of these prototypes.

The SWIMMING domain is associated with self-propelled motion of an animate Figure. Naturally, SWIMMING verbs presuppose much control and agentivity and are the default expressions of aqua-motion at least for humans, certain animals and fish (but see Section 6 for a special status of fish schools in this respect)..

SAILING verbs refer to motion of vessels or people aboard. The situation denoted by verbs of this kind also has a flavor of agentivity, yet this is not always the agentivity of the Figure, since examples like (1) represent this domain as well<sup>4</sup>:

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

An interesting feature of many (but not all) SAILING verbs is their capacity to be used both with animate, mainly human, and inanimate Figures, namely vessels. This could be thought of as an instance of the well-known metonymical shift CONTAINER > CONTENTS. However, the wide occurrence of such polyfunctionality makes us consider it an important and partly constituting feature of the SAILING domain.

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<sup>4</sup> In fact, SAILING verbs may differ in whether they allow such contexts, but the most neutral of them normally do so.

The FLOATING domain reflects the situations of ‘passive’, uncontrolled and non-agentive aqua-motion (not necessarily floating *per se*). Therefore it is FLOATING verbs that are commonly used with inanimate Figures. Notably some of the situations covered by this domain are even not necessarily associated with motion proper, but nevertheless are expressed with aqua-motion verbs in many languages and consequently can be also attributed to the aqua-motion semantic field; cf. the following example from Modern Hebrew (the English translation with the verb *float* can also serve as an example of this kind):

- (2) *Ha gezer caf ba marak.*  
The carrot floated in the soup.

We will now illustrate the proposed tripartition with data from a language whose aqua-motion lexicon is significantly distinct and more complex than, say, that of English, namely in (Standard) Indonesian.<sup>5</sup> This language has a great number of verbs relevant to our topic. Some of them have rather restricted distribution, others are more common. But despite their diversity, Indonesian aqua-motion verbs can be easily classified into three main 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 the Figure, the presence / absence of interpretations related to directedness, as well as certain aspectual characteristics; see Lander and Kramarova 2007 for details.

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<sup>5</sup> Standard Indonesian is a variety of Malay which is used as the official language of Republic of Indonesia. As we will note in Section 6, some other Malay varieties have considerably different systems of aqua-motion expressions.

Table 1. Standard Indonesian aqua-motion verbs.

SWIMMING	SAILING	FLOATING
<p><b>Neutral</b></p> <p><i>renang</i>-verbs (<i>berenang</i>, <i>merenangi</i>) ‘swim (in)’</p> <p><b>Specified</b></p> <p><i>menyelam</i> ‘plunge, swim under the water’</p>	<p><b>Neutral</b></p> <p><i>berlayar</i>, <i>melayari</i> ‘sail’</p> <p><b>Means-specified</b></p> <p><i>berkapal</i> ‘sail on a ship’</p> <p><i>berperahu</i> ‘sail on a boat’</p> <p><i>berakit</i> ‘sail on a raft’</p> <p><i>berkayuh</i>, <i>berdayung</i> ‘row’</p> <p><b>Place-specified</b></p> <p><i>mendanau</i> ‘go in a lake’</p> <p><i>melaut</i> ‘go seaward’</p> <p><i>menyelat</i> ‘go in a channel’</p>	<p><b>Strong dynamic</b></p> <p><i> hanyut</i> ‘float (with the current)’</p> <p><b>Semi-dynamic</b></p> <p><i>apung</i>-verbs (<i>terapung</i>, <i>mengapung</i>) ‘float’</p> <p><i>ambang</i>-verbs (<i>terambang</i>, <i>mengambang</i>) ‘float’</p> <p><i>terombang-ambing</i> ‘drift about (on water), swing to and fro’</p>

For example, the verbs derived from the root *renang* normally can only refer to controlled situations with animate Figures and presuppose the absence of “assistant means” for holding the Figure on the surface:<sup>6</sup>

(3) *Paus abu-abu jarang ter-lihat berenang hingga ke darat.*

whale grey rarely APASS-see swim up.to to land

‘Grey whales are rarely observed to swim up to the land.’

<sup>6</sup> Abbreviations used in the morphological glossing line are ACT – active voice, APASS – accidental passive, ART – article, CONT – continuous, DAT – dative, DEF – definite, ERG – ergative, EXCL – exclusive, EZ – ezafé marker, F – feminine, GEN – genitive, IPF – imperfective, LAT – lative, NOM – nominative, PL – plural, POST – posterior localization, PRS – present, RFL – reflexive, SG – singular, ST – stative participle.

Similarly, *menyelam* ‘swim under the water; dive’ presupposes control and is used almost exclusively with animates (the only exception being its use with submarines). Essentially, these restrictions set the *renang*-verbs and *menyelam* apart from other AQUA-motion verbs, so we may conclude that these lexemes constitute the SWIMMING domain in Indonesian.

The SAILING domain in Indonesian is quite rich, although all verbs belonging to it are derived from nominal roots which describe either means or place. All SAILING verbs can denote the motion of a person aboard a vessel, and almost all of them – with the exception of verbs specifying the means – can refer to the motion of vessels. Some means-specified verbs (e.g., *berakit* ‘sail on a raft’ in (4)) show a further peculiarity: they require their Figure to control the vessel (and not simply to be a passenger, like in (1) above). This subclass of verbs may be less prototypical for the SAILING domain.

- (4) *Abang saya berakit ke sini.*  
big.brother I sail.on.a.raft to here  
‘My big brother sails here driving a raft.’

Still, on the whole, the verbs that are thought here to form the SAILING class share a number of semantic features that distinguish them from SWIMMING verbs and from verbs of the FLOATING domain to be discussed below.

Indonesian possesses a number of aqua-motion words that allow for Figures of almost any kind. A common feature of these verbs, which constitute the FLOATING domain in our scheme, is that they usually describe situations that do not presuppose any control and sometimes even imply its absence.<sup>7</sup> Actually, there are good reasons to distinguish between the verbs that usually denote uncontrolled situations and the verbs that

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<sup>7</sup> Curiously, some of these verbs contain the prefix *ter-*, which explicitly marks the absence of control.

necessarily do so. The first subclass involving the verbs derived from the roots *apung* and *ambang* may be used even when the situation allows for a controlled reading, yet the control component is somehow obscured or graded, as in (5). In this example, though the floating of the ship is apparently controlled, what is profiled (in the sense of Langacker 1987) is only the fact that it remains on the surface and does not sink. Note that in (6) (taken from a story of persons having suffered a shipwreck) the use of the same verb is definitely motivated by the wish to emphasize the absence of control.

(5) *para awak bekerja keras untuk men-jaga agar kapal [...] tetap terapung.*  
 crew work hard for ACT-watch.over so.as.to ship permanently float  
 ‘...the crew worked hard watching over so as to the ship floated.’

(6) *Selama satu malam kami terapung di tengah laut [...]*  
 during one night we:EXCL float in middle sea  
 ‘We were floating during one night in the middle of the sea...’

The second subclass that consists at least of the verb  *hanyut*  ‘float (with the current)’ (and possibly also *terombang-ambing* ‘drift about (on water)’) always indicates the absence of control. This is vividly demonstrated by the expression *merenangkan yang hanyut* ‘to save a drowning person’, where the causative verb *merenangkan* (lit. ‘to make one swim’, derived from the SWIMMING root *renang*) is clearly contrasted with  *hanyut* . It is also worth noting that it is  *hanyut*  that typically is used when the aqua-motion of a Figure is strongly dynamic and driven by the directed current:

(7) *Puluhan batu gunung dan potongan kayu hanyut ter-bawa arus*  
 dozen stone mountain and piece wood float.with.the.current APASS-carry 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.’

Finally, in some aqua-motion contexts Indonesian can employ general verbs of motion (for motion of ships and other large Figures) and verbs of existence/location. We will return to this below.

Summing up this section, there are good reasons to distinguish between the domains of SWIMMING, SAILING and FLOATING within the semantic field of aqua-motion. Importantly, this distinction is not based exclusively on English data and manifests itself as well in languages with more complex systems of aqua-motion expressions such as Indonesian. Given this, it makes sense to assume this tripartition as a possible basis for the typology of aqua-motion expressions. Such a typology may look as a typology of **aqua-motion systems**, which at this stage can be defined as types of correlations of semantic domains with their lexical representations. In the following sections we will contrast between three kinds of aqua-motion systems, which we call ‘middle’ systems, rich systems and poor systems.

### **3. ‘Middle’ systems**

We characterize an aqua-motion system ‘middle’ if it distinguishes between SWIMMING, SAILING and FLOATING, but does not display any additional oppositions. Essentially, such systems do not constitute the majority. In our sample, there are only three languages of this kind, among which two (Persian and Tamil) belong to the same area but one (Maninka) is spoken in a rather different region, namely in Western Africa.

All of these languages have distinct lexical items for SWIMMING and FLOATING. This is illustrated in (8) and (9) by Maninka examples:

(8) *Dòkù-dènnín-nù yé àlú námún-ná àlú `ná kó.*  
 duck-child-PL IPF RFL swim-IPF RFL mother after  
 ‘The ducklings are swimming after their mother.’

(9) *Yírí kúdún` fún-nín jí` kàn.*  
 wood piece-ART float-ST water-ART on  
 ‘A piece of wood is floating in the water.’

But for the SAILING domain all of the languages with ‘middle’ systems for which we have enough data use general verbs of motion; cf. (10), again from Maninka:

(10) *Kúlún` yé nǎ kàn bá kánkún` mà.*  
 boat-ART IMF come CONT river bank-ART to  
 ‘A boat is sailing towards (lit. comes to) the bank of the river.’

This is not likely to be just a coincidence. Thus, recall that in Indonesian too the general verbs of motion such as ‘go’ and ‘move’ can be used in the expressions of aqua-motion, and in fact, the preferable domain for them is exactly the domain of SAILING. It can be suggested therefore that 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, although general verbs of motion covering the SAILING domain do contrast this domain to the other two.<sup>8</sup> Noteworthy, in many languages, dedicated SAILING verbs are derived from nouns (like ‘sail’ or

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<sup>8</sup> 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 specified verbs (resp. *loyal* and *navel*). Armenian is also interesting in that in this language the FLOATING domain is partly covered by the SWIMMING verb.

‘ship’), which possibly points to the fact that they are not natives in aqua-motion systems. Nevertheless, the data of ‘middle’ systems shows that the absence of such verbs does not preclude the contrast between SAILING and other domains.

#### 4. Rich systems

Rich aqua-motion systems also distinguish between the three basic domains, but they show additional lexical oppositions within at least some of them. To be sure, languages may differ in which of the domains they elaborate and how many of them they elaborate (for example, Indonesian elaborates all the three). In what follows, we will focus on those of the contrasts observed in the SWIMMING, SAILING and FLOATING domains 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 here an opposition based on humanness. This expectation comes only partly true, however. Indeed there are languages with SWIMMING verbs seemingly restricted to human Figures. Thus, the Komi root *vartč-* is used almost only for humans (and marginally for dogs).<sup>9</sup> A more specific case is represented by the Korean complex verb *suyeng hata* (lit. ‘swimming do’), the use of which is also restricted to humans, but mainly to those going into sports. Notably, both languages also have neutral SWIMMING verbs that can be applied both for humans and other animates. It turns out therefore that the human/non-human opposition is much more peripheral within the aqua-motion field than it often appears to be in other aspects of the language.

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

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<sup>9</sup> This may be a consequence of the fact that this verb is derived of a verb with the meaning ‘kick’, which can not be applied to many of the swimming animals.

already illustrated in Section 2 with the Indonesian data. Other examples of verbs involving such specification include the Nganasan verb *ɲəntə(u)*- ‘sail on a wooden boat’, the Korean complex predicate *hanghay hata* ‘sail the sea’ (lit. ‘navigation do’) and the obsolete Portuguese verb *marear* ‘sail the sea’. Remarkably, a number of languages have or seem to have had special verbs for sailing proper, i.e. 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 restrictions (thus, Portuguese *velejar* and Dutch *zeilen* can express motion under sail only). Anyway, we conclude that this kind of motion tends to be conceptualized differently from other kinds of SAILING, the more so as it is less associated with control and agentivity.

As concerns the FLOATING domain, the most apparent distinction found here is the one between the directed motion driven by current and the motion to and fro, without an established direction and possibly without real motion at all. Again, Indonesian has already provided an example of this distinction, but in reality it is by no means restricted to Indonesian. Japanese, for instance, has at least four verbs of FLOATING: while *nagareru* denotes passive motion driven by current, *tadayou* describes passive motion in different directions (to and fro), and the quasi-synonymous pair *uku / ukabu* is associated with floating up and being on the surface.

Within the same domain, an even clearer cut-off line is found between “simple floating” and ‘being in confined space’. The latter sometimes requires different expressions, which are almost always existential or locative verbs. Thus, consider the following Arabic example:

- (11) **t-u:ğad-u**      *qit* ‘at-u      *khubz*-in      *fi:*   *al-ħasa*’-i.  
 3F-be.located-SG   piece-NOM   bread-GEN   in   soup-GEN  
 ‘There is a piece of bread in the soup.’

Crucially, Arabic does possess two specialized FLOATING verbs ‘*a:ma* (denoting directed passive motion) and

*Tafa*: (referring to floating up and being on the surface), so the appearance of a locative verb in (11), which is by the way a perfect parallel to (2), may at first look surprising. Note, however, that such expressions as (11) are normallythetic. In fact, it is even not obvious whether the ‘subject’ serves as a Figure here, since quite often such utterances characterize the container in respect of its contents. Clearly, it is this that relates the subdomain of ‘being in confined space’ to existential expressions, which are alsothetic (Sasse 1987) and frequently characterize the location. Further, the semantic properties of this subdomain apparently 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.

## 5. Poor systems

In a poor aqua-motion system, the distinction between SWIMMING, SAILING and FLOATING is obscured or made peripheral. That is why such poor systems may at first seem challenging for our conception.

A good example of a poor system is the one of many Slavic languages, where a single root supplies all of the three domains. To cite one example, Russian has only a pair of specific aqua-motion verbs *plyt’* and *plavat’*, which are morphologically related and differ roughly in the iterativity and/or directedness of the process irrespectively of the domain; cf.:

- (12) a. *Sportsmen / lodka / brevno plyvët k beregu.*  
 sportsman-NOM boat-NOM log-NOM swims/sails/floats towards bank-DAT  
 ‘A sportsman / boat / log is moving towards the bank.’
- b. *Sportsmen / lodka / brevno plavaet nedaleko ot berega.*  
 sportsman-NOM boat-NOM log-NOM swims/sails/floats not.far from bank-GEN  
 ‘A sportsman / boat / log is moving (to and fro) not far from the bank.’

Interestingly, however, even in such languages one can frequently find more peripheral verbs associated with one of the three domains only. This is the case, for instance, in Lithuanian, where the whole range of aqua-motion contexts can be covered by the pair *plaukti* (directed) / *plaukioti* (non-directed), but within the FLOATING domain we observe several verbs that are used on a par with *plaukioti* (related *plaukyti*, *plūduriuoti*, and *būti* ‘be’). Similarly, the German verb *schwimmen* can operate in all three domains (13), yet there are also verbs like *segeln* ‘sail’, *treiben* ‘be carried by water’, *driften* ‘drift, float’ which are more peripheral but nevertheless restricted to some of the domains.

- (13) a. *Im Aquarium **schwimmen** Goldfische.*  
‘Goldfish are swimming in the aquarium.’
- b. *In der Ferne **schwimmt** ein Schiff.*  
‘A ship is sailing in the distance.’
- c. *Nur tote Fische **schwimmen** mit dem Strom.*  
‘Only dead fish are floating with the stream.’

Another type of poor system does not neutralize the distinctions between all of the domains of aqua-motion, but only contrasts one of them with the other two. Many examples of this type are found in some North Caucasian languages of Daghestan, which do not possess ordinary aqua-motion verbs at all and most often employ general verbs of motion and location for the description of this semantic field. However, in the SWIMMING domain we do observe certain specified expressions of aqua-motion which are essentially complex predicates; cf. (14) from Aghul:

- (14) *gadaji lepe q'-a-a nac 'u-n q:ireği-q-t:i.*  
 boy:ERG wave do-IPF-PRS river-GEN edge-POST-LAT  
 'A boy is swimming (lit. making a wave) towards the river's bank.'

In other languages of the area, the same sense can be conveyed by similar complexes such as 'do/beat water', 'take out river/water', 'do swimming', where the word for 'swimming' is often borrowed.

All in all, the data from languages with poor aqua-motion systems demonstrates that even these languages do tend to distinguish between the domains of SWIMMING, SAILING and FLOATING. Despite the fact that such languages have single verbs used for all kinds of aqua-motion, not infrequently they recruit other means, either lexical or at least partly compositional, for separating some domains from the others.

## 6. Shifts and extensions

So far we presented the domains of aqua-motion as easily determinable. In this section, however, we would like to discuss a few difficulties that can be met while describing this semantic field in terms of the domains of SWIMMING, SAILING and FLOATING.

The main problem with our approach relates to the fact that these semantic domains are themselves not homogeneous. Each of them has a semantic prototype, but languages easily allow deviations from them. Such deviating aqua-motion verbs lack certain properties of a prototype but nevertheless are conceptualized as belonging to a given domain. Moreover, the existence of such deviations leads to the fuzziness of borderlines between different domains whence a given context may be conceptualized as belonging to one domain in some languages, yet to a different domain in some others. As a result, occasionally we can observe the extension of a domain at the expense of another one. In addition, the use of verbs in "deviating" contexts can conduce to their re-conceptualization, that is to the meaning shift.

Thus, despite the fact that the controlled motion of animate Figures is associated with SWIMMING,

certain animates turn out to be ‘less swimming’ than others. While individual species of fish are usually thought to swim, the motion of groups and schools of fish is often expressed by general verbs of motion. This is observed, in particular, in Russian and Persian. The following example from the latter also illustrates the fact that the Persian SWIMMING verb (*šenā kardan*, lit. ‘swimming do’) is infelicitous in such context:

- (15) *daste-ye māhi be toxmrizi mi-rav-ad // \*šenā mi-kon-ad.*  
 school-EZ fish to spawning PRS-go-3SG swimming PRS-do-3SG  
 ‘A school of fish goes to breed.’

Similarly, the motion of birds in water seems to be considered less agentive than that of the Figure in the prototypical SWIMMING contexts and sometimes is covered by FLOATING verbs. For example, in Arabic, the aqua-motion of water birds can be expressed by the verb ‘*a:ma*, which applies usually to objects carried by water (albeit the SWIMMING verb *sabaħa* used for humans, fish, animals etc. is also possible in this context):

- (16) a. *ta-‘u:m-u / ta-sbaħ-u baTT-a:t-un sayi:r-at-un khalfa ‘umm-i-γim.*  
 3F-float-SG 3F-swim-SG duck-PL-NOM small-F-NOM after mother-GEN-3PL  
 ‘The ducklings are swimming after their mother.’
- b. *qita ‘-u as-salġ-i ta-‘u:m-u fawqa SaTh-i al-ma: ‘-i.*  
 piece.PL-NOM DEF-ice-GEN 3F-float-SG above surface-GEN DEF-water-GEN  
 ‘There are pieces of ice floating on the surface of the water.’

A similar, yet more complicated situation is found in related Hebrew, where birds also normally come together with certain floating objects such as icebergs, being covered by the root *šat*. However, while this root originally belonged to the FLOATING domain, now it is used for the SAILING domain as well, so its relation to the lack

of agentivity is lost or at least weakened. Instead, this root turns to be associated with a more abstract idea of aqua-motion without visible effort, a sort of ‘gliding’ on a surface.

This last case illustrates also the possibility of the semantic shift due to the fuzziness of the features governing the assignment of a verb to a concrete domain. An even more dramatic shift evidently has occurred with the Russian verb pair *plyt’* and *plavat’* mentioned in the previous section (see Makeeva and Rakhilina 2004 for details). In Old Russian, these verbs were seemingly used almost exclusively for FLOATING, yet currently they cover the whole range of aqua-motion contexts. A similar change occurred in some eastern Indonesian dialects, where the verb *hanyut* attributed as belonging to the FLOATING domain in Section 2, is used in contexts which apparently presuppose control (Mark Donohue, pers.com.).

Here we should mention another interesting fact that at first glance poses problems for our approach: SWIMMING verbs not infrequently can be met in the FLOATING domain. Thus, for instance, French *nager*, Swedish *simma*, Hindi *tairmaa* and Finnish *uiskennella*, all of which basically refer to swimming of animates, are also capable to describe, say, pieces of carrot being in the soup. And in fact, Indonesian *berenang* ‘swim’ is also said to be possible in this context, albeit such use of it is accompanied with a special nuance:

(17) *Sayur kol berenang.*

vegetable cabbage swim

‘There is cabbage in the soup.’

[But it is a little and there does not seem to be anything else in the soup.]

In our opinion, all this does not undermine the idea of the tripartition presented above. Intuitively, such meaning combinations become possible exactly because SWIMMING and FLOATING turn out to be polar opposites in many respects. The use of the same verb does not hamper the correct identification of the situation, especially when the conditions other than manner (e.g., individuation of the Figure as is provided by the

Indonesian example) are met. Nevertheless, the heterogeneity of the domains can certainly throw sand in the wheels during the description of aqua-motion systems.

## **7. Conclusion**

This paper proposed a typology of aqua-motion systems that is based on the distinction between the SWIMMING, SAILING, and FLOATING domains. It should be emphasized once more that this tripartition is by no means descriptive only, since it is based on similarities between unrelated languages. The widespread occurrence of its reflections points to the fact that it is not arbitrary and perhaps mirrors universal tendencies in conceptualization of aqua-motion.

Still, the exact nature of the distinction between the three domains is not clear enough. For instance, we are still left with a question of whether they can be ordered. A few facts concerning agency and restrictions on the Figure (among some other parameters) suggest that these domains indeed may reflect a deep hierarchy (SWIMMING > SAILING > FLOATING), where SWIMMING presupposes most agency and most restrictions, crucially contrasting with FLOATING in this respect, while SAILING occupies an intermediate place. However, some data (e.g., the occurrence of bird Figures with verbs serving for SWIMMING and FLOATING but not for SAILING) prejudices the possibility of linear ordering of these domains.

The parameters that distinguish between the three domains are actually numerous and worth of further investigation themselves. But we hypothesize that 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, but we are aware that this is just one of possible perspectives.

All in all, we believe that the tripartition proposed here does have an objective nature. Rakhilina (2007) suggests that this distinction aptly manifests itself not only in the organization of aqua-system proper, but also in metaphorical extensions found for different kinds of verbs (different domains have different ranges of

metaphorical extensions). Given this, the typology of aqua-motion systems offered in this paper may bring to light not only cross-linguistic similarities but also non-trivial regularities in the areas which earlier were thought to be largely unpredictable.

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

### **Appendix. Language sample**

The sample that this paper is based on is a convenience sample, for we did not attempt to encompass all the linguistic families and areas (note, however, that the database is still updating). The 43 languages included into the sample are classified genetically:

AFRO-ASIATIC: Standard Arabic, Modern Hebrew

AUSTRONESIAN: Standard Indonesian

DRAVIDIAN: Tamil

INDO-EUROPEAN: Ancient Greek, Armenian, Bengali, Bulgarian, Dutch, English, Persian, French, German, Hindi, Italian, Latin, Lithuanian, Polish, Portuguese, Russian, Serbo-Croatian, Spanish, Swedish

NIGER-CONGO: Maninka

NORTHEAST CAUCASIAN (NAKH-DAGHESTABIAN): Aghul, Avar, Ingush, Lak, Lezgian

NORTHWEST CAUCASIAN: Adyghe, Kabardian

SINO-TIBETAN: Mandarin Chinese

SOUTH CAUCASIAN (KARTVELIAN): Georgian

TURKIC: Karachay-Balkar, Khakas, Turkish

URALIC: Finnish, Komi, Nganasan, Selkup, Udmurt

ISOLATES: Japanese, Korean

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