Journal of Universal Language 16-2
September 2015, 27-62

Terms for Bodies of Water in *A Posteriori* and Mixed Artificial Languages

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Abstract

In this paper we look at words for bodies of water (e.g., words for 'lake' and 'river') in a large number of *a posteriori* and mixed artificial languages. After presenting the data and briefly discussing some of them, we analyze some aspects of them, including which meanings seem to be more basic than others. For example, words meaning 'river' appear to be unmarked with respect to words meaning similar, but smaller, bodies of water (e.g., 'brook'), since some artificial languages derive the latter from the former, but no languages in our sample derive the latter from the former. This sort of analysis can be applied to other semantic fields in artificial languages.

Keywords: *a posteriori* languages, mixed languages, lexicon

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Received August 11, 2015; Revised September 22, 2015; Accepted Septermber 25, 2015

1. Introduction[1]

Looking at specific areas of the vocabulary of artificial languages (henceforth ALs) can give one an idea of the nature of such languages, at least with respect to the lexicon and perhaps also concerning derivational morphology. In this paper we present data from a semantic field which will be represented in all fully developed artificial languages, as well as in most or all natural languages, terms for bodies of water. This semantic domain may be of particular interest because, at least in natural languages, there are terms for objects which are basically the same, except for their size, e.g., *ocean* vs. *sea* and *river* vs. *creek* and *brook*. We will see that different languages have used different strategies for building and expanding vocabulary from this domain. In the second section of the paper we will present data and in the third section we will analyze some aspects of these data. Much more analysis could be done on these data, and the analyses in Section 3 will only serve as an example of the kind of work which could be done on the vocabulary of ALs in this, and other, semantic fields.

There are many ALs which we will not discuss here; some did not get past the stage of being outlines of languages, with only a small number of words. In other cases there is no dictionary or vocabulary

[1] The following abbreviations are used: Ar. = Arabic, C. = Chinese, D-N = Dano-Norwegian, Du. = Dutch, Eng. = English, Esp. = Esperanto, Fr. = French, Ger. = German, Gk. = (Ancient) Greek, Gmc. = Germanic, Hi. = Hindi, HV = Homophonic Vocabulary (Charles B. Waite), Id. Neut. = Idiom Neutral, Int. B. = Interlingua (Ugo Basso), Int. IALA = Interlingua (IALA), Int. P. = Interlingua (Peano) (i.e., Latino sine flexione), intern. = international, It. = Italian, J. = Japanese, K. = Korean, L. = Latin, LdP = Lingwa de Planeta, LFN = Lingua Franca Nova, LIN-L langue internationale néo-latine, P. = Portuguese, P.-D.-G. = Pantos-Dimou-Glossa, Ro. = Romanian, Rom. = Romance, Ru. = Russian, Sp. = Spanish, Swe. = Swedish.

list(s), so that it is difficult to find particular words. This is, for example, the case with Donisthorpe (1913) on Uropa (an AL derived in part from Latin); there is a word for 'river' in Uropa, *riva*, but one can only find it by searching through the practice readings in this book. (It would obviously be wise for AL designers to provide vocabulary lists, but this may not have occurred to some of them.)

We are limiting our survey to *a posteriori* and mixed ALs. There are interesting relevant data from *a priori* languages, which we hope to discuss in a subsequent paper. We also do not discuss ALs based on a single natural language (e.g., Peano's Latino sine flexione); they are less interesting from the point of view of one of the issues we will discuss, the choice of words, as all words will come from the one language. Further, as in our previous work, we are only interested in ALs designed for the particular purpose of making international communication easier, or languages whose designers seem to have had the idea of an auxiliary language in mind when creating their language.[2] Even within this limited set of ALs, we have not presented data from all of them. Nevertheless we hope that we have given data from a reasonably representative sample of such ALs, and we have included most of the best known international auxiliary languages, and quite a few lesser known ones.[3]

We also have not included all terms for bodies of water; for one thing, we have left out some words which we believe are less common, e.g., those meaning 'cove'. We also do not treat terms for temporary bodies of water, such as those equivalents to English *puddle*.

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[2] That is, we are not interested in ALs created in connection with a work of fiction (fictional languages) or those created for personal gratification (with the exception of those which at least mention the idea of being an auxiliary language) or as a sort of work of art. We thus only treat languages which are meant to be easy to learn.

[3] We also have presented data from only one stage of a language. Some ALs, particularly those for which most information is made public on the internet, have undergone several or many changes.

2. Data and Preliminary Discussion

We now present the data which we have collected. We have divided the languages which we treat into three groups: *a posteriori* languages which take vocabulary from several languages, languages which have taken over much of Esperanto's vocabulary, and mixed languages. The three-way classification of ALs into *a priori*, mixed, and *a posteriori* languages involves a spectrum rather than discrete categories, and one could dispute our classification of some of the ALs. However, for our purposes this classification does not have much theoretical importance, and is largely a way of breaking the data into more managable chunks.

2.1. Terms for Bodies of Water in *A Posteriori* Languages Drawing on Several Languages

Table 1 presents terms for stationary bodies of water in many *a posteriori* languages, in alphabetical order of languages. In some cases a language designer or describer explicitly gives the source for the word (and this is also given in the table), but unfortunately usually this is not the case. One can often guess what the source is, although one cannot be entirely sure of this. An empty cell in the table can mean various things, e.g., that the works at our disposal do not have a term for the concept in question, or that they do have a term, but it is problematic for some reason. The reason is generally that we cannot be very confident that such a term has the meaning in which we are interested. Thus a dictionary of an AL may have a term for 'stream', but without any indication that the term means 'small river' rather than, or in addition to, some other meaning of *stream*.

We first look at ALs which take vocabulary from several natural

languages and/or use "international" words, i.e., ALs which cannot be said to be based on a single language. Of course the best known of such languages is Esperanto.

Table 1. Terms for Stationary Bodies of Water in *A Posteriori* ALs Drawing on Several Languages

	'pond'	'lake'	'sea'	'ocean'	'bay'	'gulf'
American[4]		lác	mar	ocean	baiiu	
Ardano		etale (Kwanyama)	mar (Sp.), mal[5]	Hav (Swedish)	udas (Aleut)	
Atlango[6]		lago	maro	oceano	bukto	
Ayola[7]	stavo (Polish)	lyako (Rom.)	maro (intern.)	oceano (intern.)	bukto (Gmc.)	gulfo (Gmc.)
Ceqli[8]		drano (Fijian)	zey (Dutch)			
Choton[9]					bucht	
Esperanto	lageto	lago	maro	oceano	golfeto[10]	golfo
Euransi[11]	buhayri	ozeri	dârya	okyâni	gelfi	
Eurolang[12]		lago	mar	ocean	bay	
Eurolengo[13]			mar	oseán	bai	

[4] Our source for American is O'Connor (1917).

[5] *Mar* is the only word for 'sea' given in Elhassi (2008a), but several other sources, e.g., Elhassi (2008b), give both *mar* and *mal* as words with this meaning (with no statement about any difference between them).

[6] Our source for Atlango vocabulary is Antonius (2014).

[7] Our source for Ayola vocabulary is anon. (2015c).

[8] Our source for Ceqli vocabulary is May (2013).

[9] Our references for Choton vocabulary are Kramm (2005a) and Kramm (2005b). Choton uses English, German, and Japanese as sources.

[10] O'Connor & Hays (1907: 16) give *golfeto* as the equivalent of *bay*, while Wells (1969: 185) has *golf*(*et*)*o* as its equivalent, and (p. 82) gives *gulf* and *bay* as the English equivalent of *golfo*.

[11] Our source for Euransi is Blanc (2009).

[12] Our sources for Eurolang words are Hunt (1998a) and Hunt (1998b). Hunt (1998c) says of his language, "Its vocabulary is based on German, English, French, Italian, Spanish, and Latin".

[13] Our source for Eurolengo is Jones (1972). The main sources for the vocabulary of this language are English and Spanish.

	‘pond’	‘lake’	‘sea’	‘ocean’	‘bay’	‘gulf’
Evroptal[14]	stang (Breton)	lok	mar			
Glosa[15]	stagna[16]	laku,[17] limno (Gk.)[18]	mari, pelago (Gk.), talasi (Gk.)	oceani (Gk.)	baia,[19] sinu[20]	golfo[21]
Guosa[22]			tabki (Hausa)			
Id. Neut.[23]	stagn[24]	lag	mar	osean	golf	
Int. IALA[25]	stagno[26]	laco	mar	oceano	baia, golfo	golfo
Konya[27]	leki[28]					
Kweda[29]		lago	mare			

[14] Our source for Evroptal is anon. (n.d. d), in which it is stated, “L’Evroptal s’annonce dès le début comme une collaboration lexicale et grammaticale entre toutes les langues qui sont ou ont été parlées sur le continent européen depuis les âges historiques” (‘From the beginning Evroptal has appeared as a lexical and grammatical collaboration among all the languages which are or have been spoken on the European continent since historical times’).

[15] Our source for Glosa vocabulary is Ashby et al. (2013).

[16] This word is glossed as ‘pond, pool’ in Ashby et al. (2013: 63).

[17] This word is glossed as ‘lake, loch, pool’ in Ashby et al. (2013: 43).

[18] This word is glossed as ‘lake, marsh, pool’ in Ashby et al. (2013: 44).

[19] This word is glossed as ‘bay, creek’ in Ashby et al. (2013: 23); probably “creek” here is meant in the sense that is close to the meaning of *bay*, not in the sense that is close to the meaning of *brook*.

[20] This word is glossed as ‘curve; bay; breast’ in Ashby et al. (2013: 61).

[21] This word is glossed as ‘gulf, estuary’ in Ashby et al. (2013: 34); there is also the word *gulfa*, which has the same gloss (ibid.), but it is one of the Glosa words which “should be avoided” (ibid.: 4).

[22] Our source for Guosa is Igbinẹ́wẹ́ká (1987), in which it is stated (p. 5) “Vocabularies for any visible object were principally derived from Hausa, or its neighbouring Nigerian languages within the northern part of the country”.

[23] Our source for Idiom Neutral vocabulary is Holmes (1903).

[24] This word also means ‘pool’.

[25] Our main source for Interlingua IALA vocabulary is the searchable dictionary at Union Mundial pro Interlingua (2015).

[26] This word means “pond, pool, standing water”.

[27] Our source for Konya vocabulary is Sulky (n.d.).

[28] This word is glossed by Sulky (n.d.) as ‘body of fresh water; lake; pond’.

	‘pond’	‘lake’	‘sea’	‘ocean’	‘bay’	‘gulf”
LIN-L[30]	lagulo[31]	lago	lagoro	lagormo		
Ling[32]	pond	lak	mar		gulf	
LFN[33]	lageta, stange[34]	lago	mar		baia	golfo
LdP[35]	chitan (Mandarin)	lak	mar	osean	baya	halich (Ar.)
Neo Patwa[36]		moana (Hawaiian/Maori)				
Novial[37]		lago	mare		baye	gulfe
Olingo[38]		lago	maro			

[29] Our source for Kweda vocabulary is Wirth (2012).

[30] We have taken data on the langue internationale néo-latine from Chapter 6 of Section 3 of Couturat & Leau (1903).

[31] There is also a word for a smaller stationary body of water, *lagulmo*, which is given the French gloss ‘mare’ (i.e., ‘pond/pool’) by Couturat & Leau (1903: 276).

[32] Our source of Ling vocabulary is Olson (1950).

[33] Our source for LFN vocabulary is anon. (2015a). This language draws on French, Portuguese, Italian, Spanish, and Catalan for its vocabulary.

[34] *Lageta*, which contains the diminutive suffix *-eta*, is glossed in anon. (2015a) as ‘pond, tarn, small lake (*connected to other waters*)’, while *stange* is glossed (ibid.) as ‘pond (*trapped in a hollow; natural or artificial*)’.

[35] Our source for LdP vocabulary is anon. (2015b). One should consider the following remarks (ibid.) with respect to the etymological information given about LdP words:

> Word etymologies are given sparingly; usually only one source language is indicated. However, one should bear in mind that many words have roots in several different languages; these have been given preference. E.g., the word “kitaba” is originally from Arabic, but the root is also present in Turkish, Hindi, and a lot of other languages. Moreover, the etymology indicated is often not the earliest one. Thus, you’ll see “Turkish” under the words “banka” and “dolar” not because they are originally Turkish words but because in Turkish they have the same form as in Lidepla [= Lingwa de Planeta]”.

[36] Our source for Neo Patwa vocabulary is Wilkinson (2010). There is an older dictionary, Wilkinson (n.d.), which has more words, but it is unclear whether the words appearing only in the earlier dictionary are still supposed to be part of the language. It has words for ‘pond’ (*mini-lago*), ‘bay’ (*golfo*, from Italian), and the word *nula* ‘channel, ditch, canal’ (from Macaista).

[37] Our source for Novial vocabulary is Jespersen (1930).

	‘pond’	‘lake’	‘sea’	‘ocean’	‘bay’	‘gulf’
Omnial[39]		lake	mare, talase	oceane	baye	golfe
Pandunia[40]		daria (Persian, Hi., Urdu)				
P.-D.-G.[41]			maro			
Romanova[42]		lago	mar		golfo	
Sasxsek[43]	marinim		marin[44]	marinis	gaq[45]	
Sermo[46]	stagno[47]	laco	mar[48]	oceano	baia, golfo	golfo
UNI[49]		BE- AM	BA-VAM		BUH	
Unish[50]	pond (Eng., J.)	lago (Eng., Sp., It., Esp., P., Fr., L.)	mer (Esp., Fr., Sp., P., It., Ru., L.)	osean (Eng., Esp., Ger., Sp., P., It., Fr., Ru., Gk.,[51] L.)	baia (Eng., Esp., Sp., It., P., Fr.)	gulf (Esp.,[52] Sp., P., It., Fr., Ger., Gk), wan (K., J., C.)
Unitario[53]		lago	otseano	marina, otseano		
Uropi[54]		lag	mar	oseàn	baj	

[38] Our source for Olingo is Jaque (1944).
[39] Our sources for Omnial vocabulary are anon. (n.d. g) and anon. (n.d. h).
[40] Our source for Pandunia is anon. (n.d. c).
[41] Our source for Pantos-Dimou-Glossa is Chapter 3 of Section 3 of Couturat & Leau (1903).
[42] Our main sources for Romanova vocabulary are anon. (n.d. e) and anon. (n.d. f)
[43] Our source of Sasxsek vocabulary is Nutter (n.d.).
[44] This word also means ‘body of water’.
[45] This word also means ‘port, harbor’.
[46] Our source for Sermo vocabulary is anon. (n.d. i).
[47] This word also means ‘pool, standing water’.
[48] Sermo also has the word *mediteraneo* ‘inland sea’ (which is apparently distinct from the homonymous proper noun *Mediteraneo* ‘[the] Mediterranean’.
[49] Our source for UNI is Wainscott (1975).
[50] Our source for Unish is anon. (2012).
[51] It is not clear to us whether Anicent Greek or Modern Greek is one of the source languages for Unish.
[52] Esperanto is listed twice as a source for this word; we suspect that one of the occurrences of the abbreviation (“Es.”) for it in anon. (2012) was meant to be “E” for English.
[53] Our reference for Unitario is Pleyer (1990), according to which (unnumbered page) the “top ten source languages for Unitario” are Spanish, Interlingua, Italian, Basic English, English, Latino sine Flexione, Latin, Esperanto, German, and Eugen Wüster’s Terminologieschlüssel.

	‘pond’	‘lake’	‘sea’	‘ocean’	‘bay’	‘gulf’
Voldu[55]		lago	mer			

Table 2. Terms for Moving Bodies of Water in *A Posteriori* ALs Drawing on Several Languages

	‘brook’	‘creek’	‘stream’	‘river’	‘waterfall’	‘canal’
Afrihili[56]			uruzindi	uruzi		
American	fluitu, rıitu[57]	rıulu		rıu		
Ardano				valat (Gascon)	juga (Estonian)	sala
Atlango			fluo, strimo	rivero, flumo[58]		
Ayola				rivro (Eng.)	kaskado (Rom.)	kanalo (int.)[59]
Ceqli				fyume (It.)		
Esperanto	rivereto[60]		River(et)o	rivero	akvofalo	kanalo
Euransi	stremi		stremi	ermegi	vasrefoli	kenali
Eurolang				river		canal[61]

[54] Our sources for Uropi vocabulary are anon. (n.d. j) and anon. (n.d. l). Anon. (n.d. k) states, “Uropi words stem from the common Indo-European roots which gave birth to most of the words used today in nearly all European languages (apart from Hungarian, Finnish and Estonian).”

[55] Our souce for Voldu is Stadelmann (1945).

[56] Our source for Afrihili vocabulary is Attobrah (1973).

[57] On p. 67 O’Connor (1917) gives the former of these words as the American equivalent of *brook*, while on p. 69 he gives the latter one as its American equivalent. Both these words contain the diminutive suffix *-it-*. The word for ‘creek’ also appears to contain a diminutive suffix *-ul-*, although to our knowledge O’Connor does not mention this suffix explicitly. A similar apparent suffix is found in the word for ‘saucer’, *platilu* (from *platu* ‘plate’).

[58] Atlango also has the word *fluvyo* ‘large river’.

[59] Cf. the word *canalo* ‘channel’ in the sense ‘physical confine or deeper course through any body of water or between land masses’ (anon. 2015c).

[60] Wells (1969: 222) gives both *golfeto* and *rivereto* as Esperanto equivalents of *creek*, but we assume that the first of these means ‘creek’ in the meaning related to ‘bay’ and ‘gulf’.

[61] The entry for the Eurolang word *canal* in Hunt (1998a) states: “groove, furrow,

	‘brook’	‘creek’	‘stream’	‘river’	‘waterfall’	‘canal’
Evroptal				flum (Romansch)[62]		
Glosa	pusi-fluvi, steno-fluvi, rivula[63]		amni, rivula, pusi-fluvi, steno-fluvi, flumini, nasma (Gk.)[64]	fluvi,[65] potami (Gk.)	aqa-kade[66]	[67]
Id. Neut.	fluviet[68]			fluvi	kaskad[69]	kanal[70]
Int. IALA	rivo[71]		riviera	riviera, fluvio[72]	cascada[73]	canal[74]

rut, channel, canal, ditch, dyke; **1.** long narrow depression cut into a surface **2.** artificially created river or watercourse.”

62 This word is given the French gloss ‘fleuve’ in anon. (n.d. d), so it may not have the same denotation as English *river*.

63 The word *pusi-fluvi* (which contains *pusi* ‘small’) is glossed as ‘brook, creek (small river), rivulet, stream’ in Ashby et al. (2013: 57). The same gloss is given to *steno-fluvi* (ibid.: 63) (which contains steno ‘narrow’). *Rivula* is glossed as ‘rivulet, brook, creek (small river), stream’ (ibid.: 59). Glosa also has the words *riva* ‘brook, stream’ and *rivu* ‘brook, creek (small river), rivulet, stream’, but they are among the words which “should be avoided” (ibid.: 4).

64 This word is glossed as ‘spring (source), stream’ in Ashby et al. (2013: 48).

65 Glosa also has the words *fluvia* and *potamo*, both meaning ‘river’, but they are among the words which “should be avoided” (ibid.: 4).

66 *Aqa-kade* is the only Glosa equivalent given for the English word *waterfall* in Ashby et al. (2013: 122). It is glossed as ‘cataract, waterfall’ (ibid.: 22).

67 Ashby et al. (2013: 77) give two Glosa equivalents of the English word *canal*, *kanali* and *surko*. The former seems to have a wider range of meanings than *canal*, since it is glossed (ibid.: 38) as ‘canal, channel, ditch, drain, groove, gutter, furrow’; the latter is glossed (ibid.: 64) as ‘channel, canal’.

68 This word contains the diminutive suffix *-et*.

69 This word has the gloss ‘cascade; waterfall’ in Holmes (1903: 73).

70 This word is glossed as ‘canal; channel’ in Holmes (1903: 71). *Kanalet* means ‘ditch; trench’.

71 This word is glossed as ‘brook, small stream’ in Union Mundial pro Interlingua (2015).

72 The difference between *riviera* and *flvuio* may be more or less like that between French *rivière* and *fleuve*; Gopsill & Sexton (1987/2006) indicate that *flvuio* means a river which is “large, flowing to the sea” while *riviera* means a “small”

	‘brook’	‘creek’	‘stream’	‘river’	‘waterfall’	‘canal’
Kweda				fluvie		
Ling	riveret			river		canal
LFN	rieta[75]		rieta	rio	cascade[76]	canal[77]
LdP	ruchey (Ru.)			riva	akwalwo[78]	kanal[79]
Neo Patwa				nadi (Hi., Benegali)		
Novial	riverete[80]		rivere	rivere, fluvie[81]	[82]	kanale[83]
Olingo				rio		
Omnial				fluvie		
Pandunia				daria		
Romanova			fluvio	ri’o		canal[84]

river.

73 This word also means ‘cascade’. Interlingua IALA also has the word *cataracta*, which means ‘cataract’ in both the meaning of ‘waterfall’ and the medical meaning, and the word *salto*, which is glossed by Union Mundial pro Interlingua 2015 as ‘jump, leap, bound’ and ‘waterfall, rapids’.

74 This word has the following gloss in Union Mundial pro Interlingua (2015): “I. canal (1. artificial watercourse; 2. [Anat.]); II. channel (1. [Geog.]; 2. deeper part of a waterway; 3. tube or tubular passage; 4. means, medium); III. [Arch.] fluting”.

75 *Rieta* is glossed as ‘stream, rivulet, brook, rill’ in anon. (2015a). It was built from the word for ‘river’ and the diminutive suffix *-eta*.

76 Cascade is glossed as ‘cascade, waterfall, cataract’ in anon. (2015a).

77 This is the only word for ‘canal’ in anon. (2015a), but it has a broader meaning than just ‘canal’; it is glossed in anon. (2015a) as ‘canal, channel, ditch, duct’.

78 *Lwo* means ‘fall, drop, come down’.

79 This word also means ‘channel’.

80 Jespersen (1930: 201) glosses *riverete* as ‘ruisseau’ in French, ‘streamlet, brook, rivulet’ in English, and ‘Bach’ in German.

81 Jespersen (1930: 201) indicates that *rivere* has the translations ‘rivière’ in French, ‘river, stream’ in English, and ‘Fluss’ in German, while on p. 83 he glosses *fluvie* as ‘fleuve, rivière’ in French, ‘river’ in English, and ‘Fluss’ in German. It thus appears that the difference between Novial *rivere* and *fluvie* is at least approximately the same as that between French *rivière* and *fleuve*.

82 Jespersen (1930: 116) indicates that the Novial word *katarakte* is equivalent to the English word *cataract* (and its French and German cognates) both in the meaning of ‘waterfall’ and in its medical meaning.

83 Jespersen (1930: 113) indicates that this word means both ‘canal’ and ‘channel’.

	‘brook’	‘creek’	‘stream’	‘river’	‘waterfall’	‘canal’
Sasxsek	rivimo	riv(im)o	rivo[85]	riviso		
Sermo	rivo[86]		riviera	fluvio, riviera	cascada[87]	canal[88]
UNI				FLU		
Unish	bruk (Eng.)	sine (K.)		rio (Sp., P.)	pogpo (K., C.)	kanal (Eng., Esp., Ger., P., It., Fr., Ru., Ar.)
Unitario				riwero		
Uropi	rij			fluv, riv[89]	vodifàl	kanal
Voldu	bruk			rivo		kanál

Most of the Ardano words here will be unfamiliar to many people, since its designer said that his language “contains words from every natural language in the world” (Elhassi 2008a: 2). Even so, one of the words for ‘sea’, *mar*, is recognizable to speakers of some major European languages, and similar to words meaning ‘sea’ in many other ALs. Euransi also has many sources for its vocabulary, including English, Spanish, Tajik, Japanese, and Chechen, but several of its words in the above table are not very unlike their equivalents in English or other Western European languages. However, some Euransi words, e.g., *buhayri* ‘lake’, are quite different from their counterparts in English, and so on. Another AL

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[84] This word is glossed in anon. (n.d. f) as ‘channel, canal’.

[85] This word also means ‘current’.

[86] This word is glossed in anon. (n.d. i) as ‘brook, small stream’.

[87] This words is glossed in glossed in anon. (n.d. i) as ‘cascade, waterfall’. Sermo also has the word *cataracta*, which means cataract in both the meaning of a waterfall and in the medical meaning.

[88] This word is given the following gloss in anon. (n.d. i): “I. canal (1. artificial watercourse; 2. [Anat.]); II. channel (1. [Geog.]; 2. deeper part of a waterway; 3. tube or tubular passage; 4. means, medium)”.

[89] *Fluv* is glossed in English as ‘river (large)’ and as ‘fleuve’ in French in anon. (n.d. j); *riv* has the English gloss ‘river’ and the French gloss ‘rivière’.

with a wide range of lexical sources is Ceqli, as one might guess from the three words in the above tables.

Neo Patwa also has vocabulary from many languages. Its word *moana* covers the meanings of three English terms, perhaps because this language was meant to have a limited (and thus easy to learn) vocabulary.[90]

Jaque (1944: 24) says, "Olingo is basically Neo-Latin and Anglo-Saxon with roots and words selected from all of the major languages of both the Western and Eastern Hemispheres", but the words in the semantic field of bodies of water all seem to have a Romance origin.

Romanova draws its vocabulary from French, Italian, Portuguese, and Spanish. Given this, the Romanova words in the tables above are not surprising.

Unish uses 15 languages as sources for its vocabulary and this variety is reflected in the words in the above tables.

Even though English, according to Stadelmann (1945: 1), "provided the base for Voldu", some of the Voldu words in the tables above do not seem to have come from English, e.g., *mer* looks like a Romance root. Ling also uses English as its main vocabulary source, but once again the word meaning 'sea', *mar*, seems to be Romance in origin.

Several of the languages in the table, particularly Esperanto, make use of a diminutive suffix to form some of the terms (rather than having completely different words). Most of the Sasxsek words were formed with the diminutive or augmentative suffixes, *-im* and *-is* respectively. What is interesting about its terms for moving bodies of waters is that the base term is the word meaning 'stream', *rivo*, rather

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[90] However, Wilkinson (n.d.: 15) only gives 'sea' and 'ocean' as glosses of *moana*; on p. 12 a different word, *lago* (from Spanish and Italian), is glossed as 'lake', and the word *salt*a, which means 'waterfall, rapids', as well as 'jump, leap, bound'.

than the word meaning ‘river’, as in some other ALs. From our sources it is not entirely clear that *rivo* meant ‘stream’ in the relevant sense (‘a small river’), but the fact that words meaning ‘brook’, ‘creek’, and ‘river’ are built from it, and the fact that it can mean ‘creek’ without a suffix, indicate that it does mean ‘stream’ in this sense.

UNI makes use of its diminutive and augmentative prefixes, BE- and BA- respectively (they can also be independent words), in combination with VAM ‘water’, to form two of the words in the tables above. Diminutive and augmentative affixes are extensively used in E. Courtonne’s langue internationale néo-latine; as seen in Table 1, terms with meanings from ‘pond’ to ‘ocean’ are derived from the root meaning ‘lake’.

Another way of reducing the number of roots in a lexicon is to have one word as an equivalent to two or more words of e.g., English; thus Euransi *gelfi* covers both *bay* and *gulf*. Pandunia goes even further in this direction; the word *daria*, in addition to meaning ‘lake, sea, ocean’, also means ‘river’.

2.2. Terms for Bodies of Water in Esperanto and Artificial Languages with Lexica Derived from It

Let us now look at Esperanto again, and at some ALs whose lexicon (apparently) has been derived from it, or largely so. (Some of the languages already discussed have also taken some material from Esperanto.)

Table 3. Terms for Stationary Bodies of Water in Esperanto and ALs with Lexica Derived from It

	‘pond’	‘lake’	‘sea’	‘ocean’	‘bay’	‘gulf’
Esperanto	lageto	lago	maro	oceano	golfeto	golfo
Arlipo[91]	fishlago	lago	maro			gulfo
Ido[92]	lageto	lago	maro	oceano	golfeto	golfo[93]
Mondlango[94]	lageto	lago	maro	oceno	gulfo	
Sen:esepera[95]		laga	emara		golefa	

Table 4. Terms for Moving Bodies of Water in Esperanto and ALs with Lexica Derived from It

	‘brook’	‘creek’	‘stream’	‘river’	‘waterfall’	‘canal’
Esperanto	rivereto		river(et)o	rivero	akvofalo	kanalo
Arlipo				rivero		kanalo
Ido	rivereto			rivero, fluvyo[96]	katarakto, aquo-falo	kanalo[97]
Mondlango		riveto		rivo		kanalo
Sen:esepera				rifera		canala

It can be seen that Mondlango’s terms are often the same as those of Esperanto. The Arlipo and Mondlango words for ‘gulf’ are slightly

[91] Our source for Arlipo is the vocabulary lists available at anon. (n.d. a). There are only Arlipo-English lists, not English-Arlipo lists, so it is possible that we have missed some relevant vocabulary items.

[92] Our main source for Ido vocabulary is de Beaufront & Leau (1908).

[93] De Beaufront & Leau (1908: 113) give *gulfo* as the Ido equivalent of *gulf*, but this seems to be an error (possibly due to influence from the English word), as the Ido word for ‘bay’ is *golfeto*, not **gulfeto*, and de Beaufront (1919: 149) gives *golfo* as the Ido word for *gulf*.

[94] Our source for Mondlango is the vocabulary lists available at anon. (n.d. b).

[95] Our source for Sen:esepera is Henning (1995).

[96] De Beaufront & Leau (1908: 204) give *fluvyo* as the Ido word for a river “running into the sea”; thus Ido appears to have the same distinction as French does between *rivière* and *fleuve*.

[97] This word also means ‘channel’.

different from that of Esperanto; perhaps they were changed to avoid the homonymy of Esperanto *golfo*, which can also mean 'golf' (the sport). Like Esperanto, Arlipo has the diminutive suffix *-et-;* perhaps the reason why Arlipo terms for 'bay', 'brook', 'creek', and 'stream' are not given in the vocabulary lists is that in general these lists do not contain words containing this suffix. We only know of one Arulo word in this semantic field, *maro* 'sea' (Talmey 1925: 18), i.e., it has the same word for 'sea' as Esperanto (and Arlipo and Mondlango).

The Arlipo word for 'pond' contains the roots *fish-* 'fish' and *lag-* 'lake', so one might think that it is limited to meaning 'fish pond', although to our knowledge there is no indication of this in materials about the language.

2.3. Terms for Bodies of Water in Some Mixed Languages

Let us now turn to some mixed ALs. The best known mixed AL, Volapük, used English as a vocabulary source more than any other language (although the words taken from English could be considerably changed in form), and some other mixed ALs were based on Volapük, so the lists below might have many items derived from English (although perhaps difficult to see as such). Algilez also draws its vocabulary in large part from English (although again substantial changes have been made to the words).[98]

[98] One might wonder why Algilez and Volapük are classified as mixed languages when their vocabulary is *a posteriori*; it is because in other areas they follow *a priori* type systems.

Table 5. Terms for Stationary Bodies of Water in Some Mixed Languages

	‘pond’	‘lake’	‘sea’	‘ocean’	‘bay’	‘gulf’
Algilez[99]	lʌkɛt[100]	lʌk	mɛr		bʌr	bʌrɛm[101]
pan-kel[102]	lakl[103]	lak	mar		krik, golf[104]	golf
Perio[105]		lako	chalo			kibo
Qôsmianî[106]	laqulî[107]	laqî (Id. Neut., Int. B., Int. P., Ido, Esp., Eng., P., Fr., Sp., It., Ru., Ger., Ro., L.)	marinî (Id. Neut., Int. B., Int. P., Ido, Esp., Eng., Fr., Sp., P., It., Ru., Ger., Ro., L.)	oceanî (Id. Neut., Int. B., Int. P., HV, Ido, Esp., Eng., Fr., Sp., P., It., Ru., Ger., Du., Swe., D-N, L., Gk.[108])	bayî (Int. B., Eng., Fr., Sp., P., It., Ger.)[109]	gulfî (Id. Neut., Ido, Esp., Eng., Fr., Ger., Ro., Gk.)[110]

[99] Our source for Algilez is Giles (2015).

[100] This word also means ‘pool’.

[101] This word also means ‘inlet’. It contains the augmentative suffix *-ɛm*.

[102] Our reference for pan-kel vocabulary is Wald (1909). Pan-kel has various sources for its vocabulary (e.g., Malay and Chinese), but its major source is English, followed by German and French.

[103] It appears that this word contains a diminutive suffix *-l*, as does the pan-kel word for ‘brook’, but to our knowledge Wald does not explicitly mention this suffix.

[104] Wald (1909: 50) gives *golf* as the pan-kel equivalent of German *Bucht* (‘bay’) and *krik* as the equivalent of “Bucht, eine kleine” (‘bay, a small’). It appears that pan-kel *golf* can also mean ‘gulf’, as it appears (p. 12) in the list of “Wörter, die in Deutsch und pan-kel gleich sind” (‘words which are the same in German and pank-kel’, p. 11).

[105] We have only a secondary source for Perio, Couturat & Leau (1907: 3-11).

[106] Our source for Qôsmianî is Beatty (1922). Given the large number of languages which are listed after Qôsmianî words in Beatty (ibid.), one might think that these languages are not all souces for the words, but languages which have approximately the same word as Qôsmianî for the meaning in question.

[107] In the entry for *laqî* ‘lake’ in the dictionary part of Beatty (1922) is the following: “-etî, -ulî, pool, pond” (p. 187). This might make one think that both *laqetî* and *laqulî* can mean ‘pond’. However, in the entry for *pond* (p. 232) only *laqulî* is given as a Qôsmianî equivalent (along with *piscinî*). *Laqetî* and *laqulî* are both given as equivalents to the English word ‘pool’, along with two other words (p. 233).

[108] We do not know whether Beatty is referring to Ancient or Modern Greek in his list of source languages (or languages with a similar word).

	‘pond’	‘lake’	‘sea’	‘ocean’	‘bay’	‘gulf’
Tal		lago	maro			
Vela[111]	ponego[112]	lago[113]	marino	cono	gugo	
Veltparl		lag (It., Sp., Pt.)[114]	mer (Ger., Fr.)	zean (Gk., Lat.)		golf (It.)[115]
Volapük	lulak[116]	lak	mel[117]	mel, sean	bug, gof, melabug	gof, melabug[118]

[109] The list of languages from which this word is derived (or which are similar to this word ends with the sequence “Gael” (Beatty 1922: 99) (although we are not certain that the third letter is <e>); this abbreviation (if it is a single abbreviation) is not explained by Beatty; perhaps it stands for *Gaelic* (or perhaps the “G” stands for Greek, and the “ael” is another abbreviation or more than one abbreviation).

[110] From this word is derived *gulfulî*, which Beatty (1922: 164) glosses as ‘creek’ (presumably in the sense related to that of *gulf* and not in the sense related to that of *river*).

[111] Our source for Vela vocabulary is Prist (1998).

[112] One might think that this word contains an augmentative suffix, *-eg-* as in Esperanto, but to our knowledge Vela does not have such a suffix.

[113] This word also means ‘lagoon’.

[114] *Lag* is given the German gloss ‘Landsee’ by von Arnim (1898: 64)

[115] *Golf* is given the German gloss ‘Golf, Meerbusen’ by von Arnim (1898: 56)

[116] This word consists of the “depreciating diminutive” (Wood 1889: 393) prefix *lu-* and *lak*. Wood (ibid.: 193) glosses it as ‘swamp, morass, marsh, pond’. Although it has a rather wide range of meanings, it is the only equivalent given by Wood (ibid.: 262) for the English word *pond*.

[117] Volapük also has the word *talamel* (containing *tal* ‘earth, world’), which is glossed by Wood (1889: 336) as ‘the ocean (all oceans united); sea’.

[118] Wood (1889: 19) gives *bug, gof,* and *melabug* as equivalents of the English word bay. On p. 35 he glosses bug as ‘bay (body of water)’, on p. 122 he glosses *gof* as ‘gulf, bay’ and on p. 205 he glosses *melabug* as ‘gulf, bay’. On p. 126 he gives *gof* and *melabug* as equivalents of English *gulf*. Note that melabug is a compound containing *mel* ‘sea, ocean’.

Table 6. Terms for Moving Bodies of Water in Some Mixed Languages

	‘brook’	‘creek’	‘stream’	‘river’	‘waterfall’	‘canal’
Algilez	ꞁꙇvɛt [119]		ꞁꙇv, ꞁꙇvɛt	ꞁꙇv	ꞁꙇvfꞁl	⋎ꞁtꞓꞁn
pan-kel	rivl[120]			riv, gav[121]	roj	
Qôsmianî	rivulî[122]			riverî (Int. B., Int. P., Ido, Esp., Eng., Fr., Sp., P., It., Ro.),[123] fluviî (Id. Neut, Int. B., In t. P., Ido, Eng., Fr., Sp., P., It., Ger., L.)		qanalî (Id. Neut., Int. B., Int. P., HV, Ido, Esp., Eng., Fr., Sp., P., It., Ru., Ro., Ger., Du., Swe., D-N, L.)
Vela	dacado			rivero	kacajo	kanalo
Veltparl	bruk (Eng.)[124]			flum (Lat.)	vaśfal[125]	
Volapük	bluk[126]		flum, leflum[127]	flum	vatafal	kanad[128]

[119] This word also means ‘trickle’.

[120] *Rivl* is the pan-kel equivalent of German *Bach*, so it may have a broader meaning than English *brook*.

[121] *Riv* is equivalent to German *Fluß*, while *gav* is equivalent to German *Strom*, so the latter term means a larger river than the former does.

[122] Beatty (1922: 267) marks this word as an *a priori* word which he has created, but this does not appear to be the case, since its first three sounds are the same as those of the English word *river* and the French word *rivière*, although the combination of that sequence with the diminutive suffix *-ul-* may have been his creation.

[123] *Riverulî* means ‘rivulet’.

[124] *Bruk* is glossed by von Arnim (1898: 46) as ‘Bach’ in German and as ‘brook, creek’ in English.

[125] The letter <ś> stands for [s] (while <s> stands for [z]).

[126] Volapük also has the word *blukil* ‘brooklet, rivulet, small brook, rill’, which contains the diminutive suffix *-il*.

[127] Wood (1889: 393) states that *le-* is a “general strengthening prefix”; its meanings include ‘larger’. *Leflum* is glossed as ‘current, stream’ in Wood (ibid.: 170).

[128] Volapük also has the word *vatagolöp* ‘aqueduct, canal, drain, water-course’

The Perio word for *lake* certainly appears to be *a posteriori*, but it forms part of an *a priori*-type set with *liko* 'island'. The word for 'sea' is also part of such a set, the other members of it being *chulo* 'land' and *chilo* 'sky'.[129] The word for 'gulf' belongs to an *a priori* set, the other member of which is *kabo* 'cape'.

The Spelin word for 'ocean', *sian*, is similar to its equivalent in Volapük, which is not surprising, as Spelin was more or less of an attempt to improve Volapük, although on the surface it appears quite different.

The Tal word *rivo* is glossed as 'rivière' in Couturat & Leau (1907: 15), so it may not correspond exactly to English 'river'.

The Vela vocabulary shown appears to be a mixture of *a posteriori* (e.g., *lago*) and *a priori* roots. One might note that the word for 'waterfall' does not contain the root meaning 'water', which is *vuvo*.

3. Analysis

As we have seen, some ALs simplify their lexicon by having only one term for what would be separate words in English or other natural languages; others use derivational affixes to create some words in this semantic field. There are very few, if any, ALs which have underived equivalents of each of the English words at the top of the tables. However, what might be interesting is which terms serve as the base for other terms, and which terms have meanings that correspond to those of more than one English word.

(from *vat* 'water' and *golöp* 'passage way').

[129] This leads us to think that perhaps *chalo* means 'sea' in the sense of opposition to 'land' in addition to, or rather than, meaning 'sea' in the sense of a body of salt water of a certain size. We have glossed *chulo* as 'land', based on Couturat & Leau's (1907: 8) gloss 'terre'.

To take a relatively simple example, consider the case of words meaning ‘bay’ or ‘gulf’; for many speakers of English the difference between *bay* and *gulf* may be a question of size. There are several possibilities for ALs which have words for both these meanings: 1) the same word can be used for both meanings, and it is the only word (that we know of) for each meaning; 2) there is a set of words which can be used for both meanings, and there is no word which means ‘bay’ that does not also mean ‘gulf’, and there is no word which means ‘gulf’ that does not also mean ‘bay’; 3) there is one underived word for each meaning, and they are they only words (that we know of) for each meaning; 4) there is one underived word for ‘bay’, but several underived words for ‘gulf’, none of which can also mean ‘bay’ 5) there is one underived word for ‘gulf’, but several underived words for ‘bay’, none of which can also mean ‘gulf’; 6) there are several underived words for each meaning, none of which can have the other meaning; 7) there is a single underived word for ‘bay’, and it can also mean ‘gulf’, along with a word which can only mean ‘gulf’; 8) there is a single underived word for ‘gulf’, and it can also mean ‘bay’, along with a word which can only mean ‘bay’; 9) there is a single underived word for ‘bay’, and the only word for ‘gulf’ is derived from it; 10) there is a single underived word for ‘gulf’, and the only word for ‘bay’ is derived from it. (We do not mention some of the more complex possibilities; as we have seen, Volapük forms one of its words for ‘gulf’ by compounding.) The difference between 9) and 10) seems to be linked to which of the two terms (or their meanings) is seen as marked in some sense.

These possibilities are shown in Table 7 (where $x \neq y \neq z$, etc., and where x, y, etc. are all underived words). The situation is more complicated if different authorities disagree on this question, as is the case with Esperanto (see note 10).

Table 7. Relations between Words Meaning ‘Bay’ and Those Meaning ‘Gulf’

	‘bay’	‘gulf’
1)	x	
2)	x, y, ...	
3)	x	y
4)	x	y, z, ...
5)	x, y, ...	z
6)	x, y, ...	z, a, ...
7)	x	x, y
8)	x, y	y
9)	x	x-aff
10)	x-aff	x

However, we can combine some of these possibilities and still retain what we believe to be the most important information, namely whether one or the other of these terms is more basic or unmarked, whether a language makes a lexical distinction between the two meanings, and whether there is any overlap (i.e., whether one term can be used with both meanings). We would conflate 1) and 2) on the one hand, and 3)-6) on the other hand, which would yield Table 8, in which we have placed the languages shown in previous tables. (The difference between e.g., 1) and 2) is not without interest, as it may indicate the extent to which an AL allows synonymy, but we will not deal with that issue here.) Table 8 shows the languages appearing in earlier charts classified along these lines.[130]

With 1)-2) there is a complete merging of the meanings, while

[130] Languages which have empty cells for ‘bay’ and/or ‘gulf’ are not included in Table 8. Note that we are at the mercy of our sources; some sources may have omitted some words for one reason or another (e.g., that they were not aiming at a complete listing of every word of the language), and we would not be able to tell whether a word exists but was not given in the source, or whether a word for a certain meaning simply does not exist.

with 3)-6) there is a complete separating of the meanings; the other lines in the table represent some degree of overlap. (Of course there might never be complete separation of meanings, since they are so close and there is a continuum (of size, assuming that the only difference between a bay and a gulf is size), and particular speakers (if there were any) might use a word for 'gulf' to describe a body of water for which another speaker might use 'bay'.)

Some ALs may have a complete separation between 'bay' and 'gulf' because their source language(s) has/have such a separation; for example, to our knowledge there is no English word such as **gulfet* meaning 'bay', nor is there an English word for 'gulf' consisting of *bay* and an augmentative suffix. (This also assumes that the only, or at least the main, difference between a bay and a gulf is their size, which may not be the case for all speakers.)

Table 8. Simplified Table of Relations between Words Meaning 'Bay' and Those Meaning 'Gulf' and Languages Instantiating Them.

	'bay'	'gulf'	ALs (number of ALs)
1)-2)	x (y, z, …)		Euransi, Id. Neut., Ling, Mondlango, Romanova (5)
3)-6)	x (y, …)	a (b, …)	Ayola, Glosa, LFN, LdP, Novial, Omnial, Qôsmianî, Unish (8)
7)	x	x, y	
8)	x, y	y	Int. IALA, Sermo (2)
9)	x	x-aff	Algilez (1)
10)	x-aff	x	Ido[131] (1)

We see from Table 8 that all but one of the possibilities occur in at

[131] Ido follows Esperanto in having a word for 'bay' which is derived from a word for 'gulf'. (We have not included Esperanto in this table due to the already mentioned disagreement between sources with respect to words for 'bay' and gulf'; we also have not included Volapük, which does not fit in because one of its terms for 'gulf' is a compound, as we have seen.)

least one AL, the missing one being the situation where a word for 'bay' can also be used to mean 'gulf', but where there is also a word which only means 'gulf'. We cannot claim any statistical validity with our surveys, since, for one thing, some ALs have influenced other ALs, so they are not all totally independent of one another. (Also AL designers may well have been influenced by the natural languages from which they took words.) However, the fact that one AL may have borrowed a property from another AL may mean that the property in question did not seem problematic to the designer(s) of the borrowing AL. For example, the idea of using a diminutive suffix with the root meaning 'gulf' to form the word for 'bay' was borrowed from Esperanto into Ido; given that the designers of Ido did not accept all the properties of Esperanto (if they had, then there would not have been a language Ido), this particular property of Esperanto may well have seemed reasonable to them (unless they did not notice or pay attention to such a small detail).

In any case, Table 8 shows that, at least among ALs it is not uncommon for 'bay' and 'gulf' to (apparently) completely merge (possibilities 1)-2)), nor is it rare for them to keep completely separate. The former fact means that it is acceptable in the eyes of some AL designers to have no lexical means of distinguishing between the meanings 'bay' and 'gulf'; one would need to use phrases such as "a large bay/gulf".[132] The fact that there are no languages exemplifying 7), but two languages exemplifying 8) may be an indication that 'gulf' is more dominant than 'bay', or less

[132] This may be an overstatement. What our tables and data cannot show is whether there is a tendency for a word to be used more for one or the other meaning. If we have a language instantiating possibility 2), it could well be that word x is more commonly used to mean 'bay' and word y is more commonly used to mean 'gulf' (say in translations from a natural language); in such situations one could say that it is part of the connotation of word x that it is associated with smaller bay-gulfs, i.e., with bays, even though it could refer to gulfs.

marked than it. The fact that there are equal numbers for 9) and 10), on the other hand, may be thought to argue against such a conclusion, but recall that Esperanto also (basically) follows this pattern (as might some Esperantid languages which have not treated), and given such small numbers of languages, we would not venture to base any arguments or counter-arguments on this fact.[133] Overall, based on all the data in Table 8 we would not make any claims about the dominance or markedness of either member of the 'bay' and 'gulf' pair, nor about any tendency among ALs to merge or separate these meanings.

There are some interesting questions about language design which come up here. Does an AL (really) need (lexically distinct) words for both 'bay' and 'gulf'? What are the benefits (if any) of having distinct words for both, and what are the drawbacks (if any)? Such questions become more important or obvious when we look at words for 'river' and for smaller river-like bodies of water, as they make up a larger set of words, at least in some languages. We will now turn to such words.

The possibilities for relations will be more complicated, as there are four meanings involved. Table 9 shows some of these possibilities, using the same sort of simplification involved in deriving Table 8 from Table 7 (and with darker lines separating possibilities with different numbers of (sets of) words).

[133] Also, if the word for 'bay' were derived in a regular way in a from the word for 'gulf' or vice versa, an AL designer might think it unnecessary to include both words in his dictionary, as readers could easily work out how to form the derived word. The same applies to words meaning 'brook' and 'river', and so on.

Table 9. Relations among Words Meaning ‘Brook’, ‘Creek’, ‘Stream’, and ‘River’ and Languages Instantiating Them

<table>
<tr><th></th><th>‘brook’</th><th>‘creek’</th><th>‘stream’</th><th>‘river’</th><th>ALs (number of ALs)</th></tr>
<tr><td>1)</td><td colspan="4">x (y, …)</td><td></td></tr>
<tr><td>2)</td><td colspan="3">x (y, …)</td><td>z (a, …)</td><td>LdP, Vela (2)</td></tr>
<tr><td>3)</td><td colspan="2">x (y, …)</td><td colspan="2">z (a, …)</td><td></td></tr>
<tr><td>4)</td><td>x (y, …)</td><td colspan="3">z (a, …)</td><td></td></tr>
<tr><td>5)</td><td colspan="2">x (y, …)</td><td>z (a, …)</td><td>b (c, …)</td><td></td></tr>
<tr><td>6)</td><td>x (y, …)</td><td colspan="2">z (a, …)</td><td>b (c, …)</td><td>Unish (1)</td></tr>
<tr><td>7)</td><td colspan="2">x (y, …)</td><td>z (a, …)</td><td>b (c, …)</td><td></td></tr>
<tr><td>8)</td><td>x (y, …)</td><td>z (a, …)</td><td>b (c, …)</td><td>d (e, …)</td><td></td></tr>
</table>

The group of languages involved is smaller, as there are few ALs in which we have found equivalents of all four English words listed,[134] and most of the possibilities are not instantiated. Pattern 2) is the most common, which is not surprising — it instantiates the opposition ‘river’: ‘river-like body but smaller than a river’, which may seem like the most intuitively natural distinction among the two-way distinctions.

Table 9 does not include the possibility of derivation through affixation, and again the range of possibilities would be large. If the most common split is between ‘river’ and smaller, but similar bodies of water, it might be useful to look at this binary distinction with regard to affixation; and we could also see a wider range of languages. Table 10 unifies ‘brook’, ‘creek’, and ‘stream’ and includes ALs which have words for at least one of these (i.e., we are

[134] This does not mean that they do not exist in a particular AL, but only that a dictionary compiler did not include all these English words in his dictionary, possibly because he did not think it important or necessary. Also, the size of dictionaries of ALs differs greatly, depending largely on the extent to which an AL has been developed: a well-developed (and relatively widely used) AL such as Esperanto or Volapük is more likely to have large dictionaries available than an AL which has not gone far beyond the stage of being an outline or a sketch.

not excluding languages which lack one or more of these, as we did in Table 9).

Table 10. Affixal Relations among Words Meaning ‘Brook’, ‘Creek’, ‘Stream’, and ‘River’ and Languages Instantiating Them

	‘brook’/‘creek’/‘stream’	‘river’	ALs (number of ALs)
1)	x	x-aff	
2)	x-aff	x	Afrihili, Id. Neut., Ido,[135] Ling, LFN, Mondlango, pan-kel (7)

Again Esperanto is more complicated because x-aff (*rivereto*) means ‘brook’ or ‘creek’, while either x (*rivero*) or x-aff can be used for ‘stream’. A somewhat similar situation holds in Sasxsek, in that one can express the meaning ‘creek’ with either *rivo* or *rivo*-aff, namely *rivimo*. We see the same general type of situation in Algilez. American is also more complicated, as all of its words for ‘brook’ or ‘creek’ appear to be derived, but the word from which one of them, *fluitu*, would have been derived, does not appear in O’Connor (1917) to our knowledge.

Another language that does not fit into this table is Glosa; for one thing, two of its words for ‘brook’/‘stream’/‘creek’ seem to be compounds. Novial shows a different pattern, with underived words meaning ‘river’ and ‘stream’, and a word derived from one of them meaning ‘brook’, i.e., the opposition is not ‘brook’/‘creek’/‘stream’ vs. ‘river’, but ‘brook’ vs. ‘stream’/‘river’.

In any case, ALs which follow the simple patterns of Table 10 or a more complex pattern all make use of affixation to derive words meaning ‘brook’/‘creek’/‘stream’ from words meaning ‘river’; we have seen no AL in which a word for ‘river’ is derived from a word

[135] Ido has two words for ‘river’ (see note 96), and the word for one of them takes a suffix to form the word meaning ‘brook’. The same is true of pan-kel.

for ‘brook’/‘creek’/‘stream’. Note that this is true even of Afrihili, which, unlike most auxiliary ALs, is not based on European languages. This indicates that ‘river’ is an unmarked meaning with respect to ‘brook’/‘creek’/‘stream’.

For our last sample analysis, we return to standing bodies of water, and look at terms for different sizes of them, although the bodies referred to can differ in more than just size (e.g., oceans consist of salt water, lakes usually do not). Table 11 shows relations in languages that have words for all four meanings ‘Pond’, ‘Lake’, ‘Sea’, and ‘Ocean’. (Here darker lines separate possibilities with different numbers of (sets of) underived words and possibilities involved affixation from those not involving it.)

Table 11. Relations (including Affixation) among Words Meaning ‘Pond’, ‘Lake’, ‘Sea’, and ‘Ocean’ and Languages Instantiating Them[136]

<table>
<tr><th></th><th>‘pond’</th><th>‘lake’</th><th>‘sea’</th><th>‘ocean’</th><th>ALs (number of ALs)</th></tr>
<tr><td>1)</td><td colspan="4">x (y, …)</td><td></td></tr>
<tr><td>2)</td><td colspan="3">x (y, …)</td><td>z (a, …)</td><td></td></tr>
<tr><td>3)</td><td colspan="2">x (y, …)</td><td colspan="2">z (a, …)</td><td></td></tr>
<tr><td>4)</td><td>x (y, …)</td><td colspan="3">z (a, …)</td><td></td></tr>
<tr><td>5)</td><td colspan="2">x (y, …)</td><td>z (a, …)</td><td>b (c, …)</td><td></td></tr>
<tr><td>6)</td><td>x (y, …)</td><td colspan="2">z (a, …)</td><td>b (c, …)</td><td></td></tr>
<tr><td>7)</td><td>x (y, …)</td><td>z (a, …)</td><td>b (c, …)</td><td></td><td></td></tr>
<tr><td>8)</td><td>x (y, …)</td><td>z (a, …)</td><td>b (c, …)</td><td>d (e, …)</td><td>Ayola, Euransi, Glosa, Id. Neut.,Int. IALA, LdP, Sermo, Unish, Vela (9)</td></tr>
<tr><td>9)</td><td colspan="2">z-aff1[137]</td><td>z (a, …)</td><td>z-aff2</td><td>Sasxsek (1)</td></tr>
<tr><td>10)</td><td>z-aff</td><td>z (a, …)</td><td colspan="2">b (c, …)</td><td>Algilez, pan-kel (2)[138]</td></tr>
</table>

[136] In this table we do not list all of the possible patterns, as many are not instantiated in our data.

[137] We say “aff1”, “aff2”, and “aff3” to make it clear that different affixes are involved in deriving the words in question.

[138] Volapük instantiates a slightly different possibility: the word for ‘pond’ is derived from the word for ‘lake’; the latter is different from the word for ‘sea’,

	‘pond’	‘lake’	‘sea’	‘ocean’	ALs (number of ALs)
11)	z-aff, x[139]	z (a, …)	b (c, …)		LFN (1)
12)	z-aff	z (a, …)	b (c, …)	d (e, …)	Esperanto, Ido, Mondlango, Qôsmianî (4)
13)	z-aff1	z (a, …)	z-aff2	z-aff3	LIN-L (1)

Here, unlike the ‘brook’, etc. situation, it is not uncommon for there to be different underived terms for each of the meanings; indeed it is the most common pattern. In other words, the differences among ‘pond’, ‘lake’, ‘sea’, and ‘ocean’ are more important and salient than those among ‘brook’, ‘creek’, ‘stream’, and ‘river’. This may be partly due to the just mentioned fact that size is not the only factor differentiating them.

Although not all languages show up in Table 11 (as those which are missing words for one or more of the terms are not there[140]), it seems rare for languages to combine two or more of these meanings (as shown by the empty cells in the rightmost column in the table), and no AL that we know of has a single term for all for meanings. The Neo Patwa word *moana* and the Pandunia word *daria* combine three of them, ‘lake’, ‘sea’, and ‘ocean’ (but a term for ‘pond’ is missing in each language). No language in our sample combines ‘pond’, ‘lake’, and ‘sea’. In addition to the languages in Table 11 which combine ‘sea’ and ‘ocean’, Romanova, UNI, and Voldu have one word for these two meanings. It may be rare for an AL to

which can also be used to mean ‘ocean’, but there is another word which only means ‘ocean’.

139 That is, there are two words for pond, one of which is derived from a word for ‘lake’ and one of which is underived.

140 Again, a “missing” item does not necessarily mean that the language lacks such a term; it simply means that in our sources we did not find a word which fairly clearly had the meaning in question.

combine only ‘pond’ and ‘lake’, which would be somewhat surprising, since both generally contain fresh water (recall Sulky’s (n.d.) gloss of the Konya word *leki*, ‘body of fresh water; lake; pond’), and no AL in our sample combines only ‘lake’ and ‘sea’.

Many other observations could be made. For example, in terms of the forms of words and their sources, it is interesting that even in some ALs that take their lexicon partly from non-European languages there is a word for ‘sea’ which is of Western European origin: Ardano’s *mar* (cf. *etale* ‘lake’) and Unish’s *mer* (although Unish words with similar meanings in Unish also come from Western European languages). We would need far more data (from languages which are not so reliant on European languages for their vocabulary) to be able to say anything definitive, but one might wonder whether certain roots are so prominent (and “international”) that they are often chosen even for languages which strive for equality and a non-European bias in their vocabulary. This particular statement about words for ‘sea’ would probably turn out to be incorrect with respect to other such languages, but it would be interesting to attempt to determine the “strength” of some roots among artificial languages.

4. Conclusions

We have looked at one semantic domain (bodies of water) in considerable detail and have presented a partial analysis of the data obtained. We believe that such fine-grained analyses can reveal something about the nature of ALs (and perhaps also of natural languages, if comparisons are made), particularly if considered together with analyses of other semantic domains (e.g., how many

ALs have distinct words for ‘house’ and ‘mansion’, or for ‘flute’ and ‘piccolo’), and we hope to carry out such analyses in the future. From the present analysis alone, however, some tenative conclusions can be drawn.

For one thing, few ALs have the lexical complexity of at least some natural languages. For example, as we have seen, only a small number of the ALs examined lexically distinguish among ‘brook’, ‘creek’, ‘stream’, and ‘river’ (and this is not even considering other terms which occur in English such as *rivulet* and *rill* or the distinction that French makes between *fleuve* and *rivière*). In some cases this may be because having fewer (underived) words is seen as a virtue (as it supposedly makes for a simpler language, with less memorization required), in other cases the AL simply has not been developed to the point where the possible need for some such words has been considered, or acted upon, and in still others, it may be due to the fact that there is a set of derivational affixes which can regularly be employed to create words with less basic meanings, should the need arise.

Also, there may be some tendencies in derivation, e.g., that terms for ‘brook’ are often derived from terms for ‘river’, but never the reverse, and there may be some tendencies regarding what meanings are represented by the same word, e.g., that ‘bay’ and ‘gulf’ might more often have a single equivalent in an AL than do ‘pond’ and ‘lake’ (although data from more ALs would be required to determine this). Here, as elsewhere, it would be interesting to compare natural languages to ALs; we suspect that the same tendencies will be found, but confirmation of that awaits further research.

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