PanLex Empirical Concepticons

Draft in Progress
3 March 02014

Jonathan Pool
The Long Now Foundation

Table of Contents

Abstract

Concepticons are lists of purportedly universal or basic concepts, labeled with words and phrases in one or more languages. They have applications in science, information management, and philosophy. They have generally been human-defined, but they could be derived algorithmically from empirical data. A possible source of such data is PanLex, a database of millions of lexemes from thousands of language varieties, with over a billion translation links among them. "PanLex Empirical Concepticon A" is derived from PanLex with an algorithm that selects groups of translated expressions and then consolidates them with other groups into clusters determined to be likely to share a meaning. The algorithm gives preference to expressions that appear in many and high-quality lexicographic sources, and expressions that are unambiguous. This concepticon contains 2,932 concepts, which are labeled with an average of 248 expressions each. Each label of each concept is assigned an estimated validity. Two versions of the concepticon have been made available for inspection: a "Complete" version, which includes all the labels, and a "Best" version, which discards lower-validity labels. A cursory inspection reveals that the concepts and their labels are generally plausible, but some anomalies appear, including multiple concepts that apparently should be combined and the omission of some concepts that seem much more significant than related ones that are included. Evaluation of these concepticons will lead to iterative algorithm refinements and revised editions.

Introduction

What are the fundamental ideas universal to all of humankind? If civilization had to be restarted and languages reinvented, what most important concepts would new words begin to express? Creators of thesauri, wordnets, upper ontologies, subject headings, universal languages, Swadesh-type wordlists, and even encyclopedias are among those who have, arguably, proposed answers to this question, by listing, or organizing into taxonomies, hypothetically universal or basic concepts, either general or subject-specific. They do this for various purposes, including support for indexing, documentation, communication, translation, information retrieval, historical-linguistic research, and clear thinking. A term recently coined to describe such a concept list is *concepticon* (Poornima and Good, 02010). While some concepticons are hierarchical (containing relations such as *broader than*, *type of*, *related to*, and *part of*), here I ignore any internal organization and treat concepticons as if they were reduced to flat lists.

Where do concepticons come from? Until now, they have generally been human-crafted. A single author or a committee decides which concepts should be included

and what words and phrases, in what languages, should label or gloss each concept. The decisions are based on empirical facts, but there is no explicit procedure for the derivation of a concepticon from a set of underlying data. Thus, it is not possible to replicate or verify a concepticon, or to revise it automatically when its underlying data change. The underlying data, too, are not strictly defined and may consist partly or wholly of knowledge in the mind of the author.

There is another possibility, just suggested: deriving a concepticon algorithmically from a set of data. An *empirical concepticon*, as opposed to a human-crafted one, offers replicability and verifiability. It can also provide other benefits, depending on the data underlying it and the algorithm employed. For example, it can act as a window on the data, revealing gaps or faults to be corrected; it can support research on algorithms that discover concepts in data; if the data are massively multilingual, it can be less ethnocentric than most human-crafted concepticons.

One set of data from which empirical concepticons can be derived is PanLex. PanLex is a database of lexical translations. It documents *expressions*, which are the textual forms of words and word-like phrases of the kinds that can be looked up in dictionaries (lexemes), and semantic equivalences among them. Researchers at The Long Now Foundation in San Francisco, who are maintaining PanLex, with their helpers around the world, aim to include in it all known translations among all known expressions in all varieties of all human languages. PanLex currently contains about 20 million expressions, in any of about 9,000 language varieties, and more than a billion pairs of expressions documented as being translations (or synonyms) of each other. These data have been contributed to PanLex by editors consulting about 1,500 sources, such as dictionaries, glossaries, wordnets, vocabularies, terminologies, standards, and thesauri. Among them are, in fact, several human-crafted concepticons, including the PanLex Union Concepticon, a superset of 11 other concepticons.[1]

An appeal of PanLex as a basis for concepticons is that it documents expressions that lexicographers around the world have chosen to translate among languages. Arguably, the expressions and translation links among them that many sources agree on are the lexical manifestations of humankind's basic concepts.

I document below two related concepticons derived algorithmically from PanLex:

- PanLex Empirical Concepticon A: Complete
- PanLex Empirical Concepticon A: Best

[1] Statistics about PanLex in this report are based on the state of the database in February 02014.

The letter “A” in their titles reflects the expectation that other empirical concepticons based on PanLex will follow after lessons are learned from these. The two variants differ, as their titles suggest, with the “Best” concepticon being more selective. Both contain the same set of concepts, but the “Best” concepticon contains only the expressions to which the algorithm assigns the highest validities. Except for the difference in selectivity, the same algorithm generated both concepticons, so here it is simply referred to as “the algorithm”.

I begin by describing the strategy of concept discovery embodied in these concepticons. I then detail the operations executed by the algorithm: expression evaluation, meaning evaluation, meaning-pair evaluation, meaning consolidation, expression validity evaluation, and expression selection. Finally, I report some observations on the resulting concepticons, what they appear to do well and do poorly, and what further work the results suggest.

Concept discovery strategy

Concepticons can be generated from PanLex if one consolidates some of PanLex’s *meanings* into *concepts* and labels the concepts with expressions. A meaning in PanLex is that which is shared by two or more expressions that are translations or synonyms of one another according to some source. For example, PanLex reveals that the Swahili expression “maji” and the Bulgarian expression “вода” are translations of each other according to eight sources. One of these sources says they share two different senses (water as a substance, and geographic body of water), and the other seven sources don’t distinguish any senses of this translation. Since each source has its own set of meanings, in PanLex these two expressions share nine meanings. Assignments of meanings to expressions in PanLex are recorded in a table of *denotations*.

PanLex can be interpreted as a graph (or network) of expressions and meanings, where expressions are connected to one another through meanings and meanings are connected to one another through expressions. If we identify meanings that are equivalent and consolidate them, we produce what can be called concepts. These concepts, labeled with expressions that have meanings composing the concepts, can be listed as a concepticon.

A few strategies for identifying equivalent meanings in a graph like that of PanLex have been investigated. Sammer and Soderland (2007) identified the shared senses of translated expressions by rating the similarities of the expressions’ contexts in corpora. They could thus classify the sense of a translation between expressions *A* and *B* as identical to the sense of a translation between expressions *B* and *C* (rather

than being two distinct senses of *B*) if words in the vicinity of *A* sufficiently resembled words in the vicinity of *C* in text corpora. Etzioni et al. (2007) inferred that translated expression pairs shared a single meaning when three pairs occurred in a "clique", with expression *A* being a translation of expressions *B* and *C* and expression *B* being a translation of expression *C*. Mausam et al. (2010) identified meanings by using multilingual lexical translation resources that reliably distinguished the senses of ambiguous expressions. In this way, they obtained single-meaning sets of expressions in numerous languages. They then added expressions from bilingual dictionaries to these sets by requiring that a candidate expression be in a clique with two existing members of a set.

The PanLex-based concepticons reported here were generated with an algorithm designed to overrepresent under-represented language varieties, thus (partly) counteracting the bias arising from the fact that some languages are much better documented than others. This algorithm does not rely on cliques and therefore allows meanings to be consolidated into concepts even when the data contain only one translated expression for an expression with one of those meanings. For the least widely known and most poorly documented (or "low-density") languages, this is often typical, because there is often only one source documenting their lexicons, and it often translates between the low-density language and only one high-density language.

Expression evaluation

The algorithm began with the evaluation of the *utility* of every expression in PanLex. Three properties of an expression were deemed to affect its utility: (1) source quality, (2) redundancy, and (3) monosemy.

- Source quality: The editors who consult any source in PanLex assign an estimated quality score to the source, an integer from 0 through 9, with 9 being the best and 0 the worst. All else being equal, an expression appearing in higher-quality sources was deemed more useful than an expression appearing in lower-quality sources.

- Redundancy: All else being equal, an expression appearing in more sources was deemed more useful than an expression appearing in fewer sources.

- Monosemy: If an expression has multiple meanings from the same source, this is evidence that the expression is ambiguous or polysemous. If it is, then using it for concept generation is risky. For example, using English "lead" could increase the risk that the meaning of the atomic element Pb, the

meaning of the graphite in a pencil, the meaning of vertical space between lines of type, and the meaning of being in the vanguard are all combined into a single concept.

These bases for the evaluation of expression utilities are in some tension, because there is a tendency for more frequently used words also to be more ambiguous (Piantadosi 2012, p. 284). If this tendency were universal enough and the penalty for ambiguity were severe enough, basic concepts might be omitted from a concepticon.

The algorithm's formula for expression utility was

(1) $u(e_i) = \sum_{s|m(i)=1} q - \sum_{s|m(i)>1} qm(i)$, where

e_i = expression i

$u(e_i)$ = utility of e_i

s = source

$q(s)$ = source

$m(i)$ = count of meanings of expression i in the source

In words, the utility of an expression was the sum of the qualities of those sources in which it had exactly one meaning, minus an ambiguity/polysemy penalty. To compute the penalty, for each source in which the expression had more than one meaning, one multiplied the count of its meanings in that source by that source's quality, and then summed those products. Expression utilities under this formula could be either positive or negative, without limit. Table 1 shows the 20 most and 20 least useful expressions under this formula.

The formula greatly overrepresented English among both the most and the least useful expressions. That is not surprising, since English (including the ambiguities and polysemies of its frequently used expressions) is the best-documented language variety in PanLex. However, the representation of English was far less exaggerated in some utility ranges. For example, 24% of the 100,000 most useful

expressions were in English, and 90 language varieties had at least one of these 100,000 expressions.[2]

Table 1. Most and Least Useful Expressions

util	lang var	expression
554	eng-000	fourteen
547	eng-000	Tuesday
530	eng-000	ninety
521	eng-000	thirteen
519	eng-000	eleven
506	eng-000	eighty
501	eng-000	seventeen
492	eng-000	giraffe
487	eng-000	Wednesday
485	eng-000	Thursday
463	eng-000	seventy
449	eng-000	apple
438	eng-000	sixteen
434	eng-000	Monday
414	eng-000	nineteen
404	fra-000	éléphant
404	eng-000	baboon
399	eng-000	eighteen
392	fra-000	miel
381	eng-000	sixty

util	lang var	expression
-12577	eng-000	break
-11473	eng-000	cover
-11291	eng-000	cut
-10881	eng-000	light
-10284	eng-000	order
-10122	eng-000	set
-9933	eng-000	turn
-9635	eng-000	take
-9434	eng-000	run
-9075	eng-000	clear
-9033	eng-000	stop
-9011	eng-000	support
-8808	eng-000	move
-8766	eng-000	line
-8598	eng-000	work
-8439	eng-000	close
-8434	eng-000	return
-8404	eng-000	end
-8248	eng-000	place
-8139	eng-000	open

Meaning evaluation

The next task performed by the algorithm was to identify and evaluate all the meanings of the selected expressions. These meanings would be the ones consolidated into concepts. The motivation here was the hypothesis that any fundamentally important concept has many well-attested expressions, of which some are sufficiently monosemous to win membership in a set of most useful expressions. Ambiguous or polysemous expressions disqualified from that set still share meanings with members of the set and therefore will be among the labels of the concepts that those meanings are consolidated into.

The algorithm's meaning evaluation task included the following steps:

1. Select the largest utility *u* such that the count of expressions with utilities of at least *u* would be at least 5,000, and select those expressions for further

[2] For replication, the query producing this result was:

```
select exs, right ('  ' || (100 * exs / 100000) || '%', 4) as pct, lcvc
(lv.lv) from (select lv, count (ex.ex) as exs from (select ex from exuu order
by uu desc limit 100000) as tbl, ex where ex.ex = tbl.ex group by lv) as
tblout, lv where lv.lv = tblout.lv order by exs desc;
```

processing. This value of u was 118, and there were 5,027 expressions with utilities of at least 118. The distribution of their language varieties is shown in Table 2.

2. Normalize the selected expressions' utilities by adding to them the smallest value, rounded to the nearest 1,000, large enough to make all utilities of all expressions (not only the selected ones) positive. This value was 13,000.

Table 2. Language Varieties of the 5,027 Most Useful Expressions

exs	pct	lang var
1549	31%	eng-000
826	16%	epo-000
752	15%	rus-000
564	11%	deu-000
546	11%	fra-000
298	6%	ita-000
239	5%	spa-000
119	2%	nld-000
115	2%	ces-000
15	0%	tur-000
4	0%	swe-000

3. Identify all the meanings of any of the selected expressions. The 5,027 expressions had, in the aggregate, 281,995 meanings.

4. For each of these meanings, compute its *utility*, defined as the sum of the utilities of its expressions. The utilities of these 281,995 meanings ranged from 13,118 to 77,249,437. The meaning with the greatest utility had 5,941 expressions, in 5,105 language varieties, and its English expression was "dog".

Meaning-pair evaluation

After evaluating the individual meanings of the most useful expressions, the algorithm computed the similarities of all pairs of those meanings. The performance of this task involved the following steps:

1. Of all unordered pairs of the meanings of the most useful expressions, identify those pairs whose members (1) have distinct sources and (2) share any expressions (i.e. any expressions in PanLex, not only any of the most useful ones). The 281,995 meanings could form 39,760,449,015 unordered pairs. Of these, 13,652,454 such pairs, about 0.03% of the total, satisfied these two criteria.

2. For each of these pairs of meanings, compute its *utility*, defined as the sum of the utilities of the expressions that the meanings share. The utilities of the meaning pairs ranged from 1,709 to 7,271,952. The most useful pair was a pair of meanings each having the English expression “two” and expressions in thousands of other language varieties.

3. Finally, compute the *similarity* of each of the pairs of meanings, defined as:

   (2) $s_{ij} = 50((u_{ij} \div u_i) + (u_{ij} \div u_j))$, where

   s_{ij} = similarity of meaning i and meaning j to each other

   u_i = utility of meaning i

   u_{ij} = utility of the pair of meaning i and meaning j

   The resulting similarities ranged from 0 to 100. The meaning pairs with maximal similarity (100) constituted 1% of the total (140,217 out of 13,652,454).

Meaning consolidation

The algorithm next consolidated meanings into concepts. It did this with graph clustering. The list of similarities of meaning pairs described an undirected graph with meanings as nodes and similarities as strengths of edges between pairs of nodes. A clustering rule grouped nodes that had strong edges among them, creating a smaller set of clusters than the original set of nodes. The resulting clusters were treated as concepts. Any expression that had a meaning in a cluster was among the labels of that cluster’s concept.

The clustering rule that was applied to the graph of meanings is the Markov Cluster Algorithm (van Dongen, 02012), implemented with programs published at http://micans.org/mcl/index.html. It was executed with its default parameters, including $I = 2.0$.

The clustering rule consolidated the graph’s 281,995 nodes (linked with 13,652,454 edges) into 2,932 clusters. Therefore, the concepticons contained 2,932 concepts. The counts of meanings in a cluster ranged from 12 to 785. These 2,932 concepts were labeled with a total of 727,792 expressions. Thus the mean concept had 248 labels. The actual label counts per concept ranged from 7 to 12,933.

Expression validity evaluation

The algorithm next computed the *validity* of each expression labeling each concept, defined as the sum of the qualities of the sources of the expression's meanings in the concept. The validities ranged from 1 to 1,406.

One motivation for evaluating the validities of concept labels is that a concept can be labeled with multiple (apparently synonymous) expressions in the same language variety. Users are likely to want to know which expressions are considered most likely to label a concept well, both for understanding the concept and for choosing an expression for it in a language that they don't know. There were 450,094 combinations of concepts and language varieties with at least one label. Of these, the label count was 1 in 308,520 (69%) of the combinations. The remaining 31% of the combinations had multiple labels, where validities would have obvious uses. There were up to 411 different expressions in the same language variety labeling the same concept.

Expression selection

The last action in the creation of the concepticons was to select expressions of each concept for inclusion. For PanLex Empirical Concepticon A: Complete, all expressions of all the concepts were included. This resulted in a concepticon with 727,792 records, each identifying a concept, an expression of the concept, and a validity. For PanLex Empirical Concepticon A: Best, an expression of a concept was included only if it satisfied at least one of these criteria: (1) there is no other expression of the concept with a greater validity than it has; (2) its validity is at least 15. The resulting concepticon had 547,588 records.

Ingestion

The two concepticons generated as described above were ingested into the PanLex database. Each concepticon was treated as a source. Each concept in each concepticon was treated as a meaning. A new (artificial) language variety was defined, with the name "PanLex Empirical Concepticon". The concepts were given unique identifiers, consisting of 4-digit (0-padded) integers (from "0001" to "2932"), and these were treated as labels in that variety. All labels were assigned to their concept meanings in denotations. PanLex permits denotations to be annotated with *metadata*, which consist of arbitrary text-type variables and values. The validities were treated as metadata, with "q" being the variable and a string representing the validity being the value.

This treatment of the concepticons as sources of data in PanLex mirrors the treatment of human-crafted concepticons. For example, when a Swadesh list of 100 words in language variety *X* with English glosses is consulted, the editor classifies the standard numbers attached to each entry as expressions in the artificial language variety "Swadesh 100" and thus treats the source like a trilingual word list.

When subsequent empirical concepticons are generated from the PanLex data, it may be be problematic to permit the data from previous concepticons to influence the composition of the new ones. If so, the algorithms employed can be modified to exclude data based on particular sources.

Observations

Initial inspection of PanLex Empirical Concepticon A: Complete made it clear that the concepts were generally coherent, they were mostly important and widely shared concepts, and the validities assigned by the algorithm to concept labels were largely consistent with intuitive judgments. Whatever features of the concepticon might be considered non-optimal, its data seemed closer to appropriate than to garbage.

The empirical concept selection appeared to differ from that of several existing basic concept lists by including some usually omitted concepts related to issues affecting the world population, such as "greenhouse effect", "telecommunication", "food poisoning", "unemployment", and "thermonuclear".

Some inclusions and omissions were surprising. For example, "Iceland" was included, but not "United States of America"; "acne" was, but "AIDS" wasn't.

Cases of apparently equivalent concepts being duplicated were observed. For example, "day before yesterday" and "the day before yesterday" both existed, and there were three concepts labeled "tomorrow" and three labeled "snow". This suggests that the clustering parameter *I* may have been set too high, causing the clustering to be too granular. It will be appropriate to identify such dubiously distinguished concepts and investigate whether they are combined (and what side effects occur) when granularity is decreased.

The validity ranges were extreme, and expressions with very low validities, when accompanied by other expressions in the same language varieties with high validities, were often implausible labels for their concepts. Therefore, the validities appeared to provide valuable information. As one example, concept 284 was labeled with 591 expressions, generally pointing to the animal genus Papio or any

member of it, but the 13 English expressions of this meaning ranged far from that concept. They included not only the appropriate “baboon”, but also “lecher”, “dirty old man”, and “skirt-chaser”. The validity of “baboon” was 557, that of “ape” was 21, and those of all the other English expressions were 3 or less.

Procedures in PanLex that take account of qualities refer to the qualities of sources. Thus, the qualities of individual denotations, encoded as metadata, generally have no effect on the results of such procedures. As editor of PanLex Empirical Concepticon A: Complete, I chose to assign it a quality of 1 (on a 0-to-9 scale), reflecting the fact that many of the translations based on it (if they are obtained with a procedure that ignores the validity metadata of this source) will be unreliable.

The concepts are listed in the Appendix. Next to each numeric identifier is the English expression that had (or those that were tied for) the maximum validity.

It is possible to inspect the contents of the concepticons in more detail through the PanLem (http://panlex.org/u) and PanLinx (http://panlex.org/panlinx/) interfaces. Of these, only PanLem displays the validity metadata.

References

Oren Etzioni, Kobi Reiter, Stephen Soderland, and Marcus Sammer, “Lexical Translation with Application to Image Search on the Web”, *Proceedings of Machine Translation Summit XI*, 02007.

Mausam, Stephen Soderland, Oren Etzioni, Daniel S. Weld, Kobi Reiter, Michael Skinner, and Jeff Bilmes, “Panlingual Lexical Translation via Probabilistic Inference”, *Artificial Intelligence*, 174 (02010), 619–637.

Shakthi Poornima and Jeff Good, “Modeling and Encoding Traditional Wordlists for Machine Applications”, *Proceedings of the 2010 Workshop on NLP and Linguistics: Finding the Common Ground, ACL 2010*, 1–9, 2010.

Steven T. Piantadosi, Harry Tily, and Edward Gibson, “The communicative function of ambiguity in language”, *Cognition*, 122, 02012, 280–291.

Marcus Sammer and Stephen Soderland, “Building a Sense-Distinguished Multilingual Lexicon from Monolingual Corpora and Bilingual Lexicons”, *Proceedings of Machine Translation Summit XI*, 02007.

Stijn van Dongen and Cei Abreu-Goodger, “Using MCL to extract clusters from networks”, in *Bacterial Molecular Networks: Methods and Protocols, Methods in Molecular Biology*, 804, 02012, 281–295. PMID 22144159.

Appendix

The list below shows the concepts in PanLex Empirical Concepticon A: Complete. The display is limited to each concept’s numeric identifier and the English expression(s) having the maximum validity for the concept.

0001 bee
0002 seven
0003 twenty
0004 nine
0005 Friday
0006 Thursday
0007 twelve
0008 Tuesday
0009 Saturday
0010 apple
0011 July
0012 thirty
0013 Wednesday
0014 February
0015 fifteen
0016 milk
0017 six
0018 sixty
0019 thirteen
0020 fourteen
0021 thousand
0022 eleven
0023 four
0024 lung
0025 sixteen
0026 eight
0027 forty
0028 coffee
0029 eighteen
0030 ninety
0031 nineteen
0032 seventeen
0033 fifty
0034 week
0035 eighty
0036 seventy
0037 potato
0038 hare
0039 swan
0040 three
0041 vinegar
0042 cheese
0043 five
0044 sugar
0045 museum
0046 litre
0047 winter
0048 million
0049 onion
0050 eel
0051 summer
0052 ten
0053 May
0054 camel
0055 hotel
0056 barley
0057 Sunday
0058 rye
0059 pear
0060 island
0061 hundred
0062 April
0063 giraffe
0064 bottle
0065 honey
0066 squirrel
0067 year
0068 volcano
0069 stork
0070 sea
0071 ostrich
0072 soap
0073 dentist
0074 garlic
0075 peninsula
0076 sand
0077 September
0078 January
0079 August
0080 scissors
0081 nightingale
0082 gram
0083 mathematics
0084 month
0085 October
0086 pheasant
0087 pea
0088 chemistry
0089 June
0090 March
0091 December
0092 elephant
0093 blood
0094 butter
0095 flea
0096 oxygen
0097 widower
0098 Greece
0099 nose
0100 November
0101 lizard
0102 kilometer
0103 sickle
0104 cigar
0105 Monday
0106 Spain
0107 eyebrow
0108 snow
0109 bird
0110 geography
0111 guitar
0112 engineer
0113 ink
0114 ale
0115 liver
0116 pork
0117 yesterday
0118 ham
0119 influenza
0120 whale
0121 verb
0122 mosque
0123 parsley
0124 zebra
0125 tulip
0126 America
0127 eyelid
0128 asparagus
0129 tea
0130 nostril
0131 ant
0132 kidney
0133 south
0134 rabbit
0135 plum
0136 louse
0137 mosquito
0138 cloud
0139 violin
0140 tomorrow
0141 hay
0142 June
0143 wheat
0144 hand
0145 steel
0146 physics
0147 Austria
0148 spinach
0149 pyjamas
0150 oats
0151 cauliflower
0152 Sweden
0153 typewriter
0154 January
0155 Monday
0156 sun
0157 tomato
0158 biology
0159 cow
0160 Africa
0161 Denmark
0162 Belgium

0163 consulate
0164 music
0165 ear
0166 lion
0167 knee
0168 November
0169 eagle
0170 spectacles
0171 Italy
0172 Poland
0173 Norway
0174 two
0175 France
0176 lip
0177 aquarium
0178 copper
0179 Australia
0180 Switzerland
0181 pencil
0182 Asia
0183 December
0184 aluminium
0185 bear
0186 photographer
0187 vitamin
0188 April
0189 Hungary
0190 hydrogen
0191 partridge
0192 salad
0193 Finland
0194 cholera
0195 salt
0196 swallow
0197 wolf
0198 crocodile
0199 hyaena
0200 spring
0201 England
0202 Germany
0203 oasis
0204 rooster
0205 aspirin
0206 pelican
0207 October
0208 strawberry
0209 carrot
0210 night
0211 mouse
0212 pepper
0213 Canada
0214 iodine
0215 gold
0216 pronoun
0217 September
0218 water
0219 porcupine
0220 gasoline
0221 mile
0222 daughter
0223 shoulder
0224 ashtray
0225 iron
0226 tennis
0227 cactus
0228 archbishop
0229 zinc
0230 rhinoceros
0231 Egypt
0232 gorilla
0233 rainbow
0234 dolphin
0235 hippopotamus
0236 August
0237 India
0238 Ireland
0239 son
0240 hedgehog
0241 cough
0242 bronchitis
0243 supper
0244 shark
0245 veal
0246 notary
0247 republic
0248 metal
0249 margarine
0250 colonel
0251 dew
0252 geology
0253 rat
0254 tiger
0255 molecule
0256 centimeter
0257 unemployment
0258 zoology
0259 breakfast
0260 epilepsy
0261 chlorine
0262 plough
0263 terrorism
0264 adverb
0265 artichoke
0266 celery
0267 calcium
0268 soup
0269 nitrogen
0270 chocolate
0271 March
0272 Turkey
0273 python
0274 ozone
0275 preposition
0276 tin
0277 millimetre
0278 acorn
0279 Portugal
0280 stepfather
0281 microscope
0282 mutton
0283 Europe
0284 baboon
0285 hammock
0286 Brazil
0287 starling
0288 goose
0289 beech
0290 platinum
0291 angel
0292 bookshop
0293 ivy
0294 electron
0295 fly
0296 opera
0297 earthquake
0298 chimpanzee
0299 lynx
0300 granddaughter
0301 ear
0302 astronomy
0303 hunger
0304 cherry
0305 sodium
0306 telegram
0307 oak
0308 mattress
0309 Turk
0310 oyster
0311 wine
0312 syllable
0313 peat
0314 rain
0315 microphone
0316 full moon
0317 frog
0318 tobacco
0319 kerosene
0320 yolk
0321 today
0322 communism
0323 dowry
0324 mirror
0325 bumblebee
0326 thirst
0327 harp
0328 moon
0329 psalm
0330 horse
0331 horoscope
0332 Bulgaria
0333 rain
0334 tortoise
0335 archaeology
0336 blackberry
0337 apricot
0338 capitalism
0339 cheque
0340 grandson
0341 whisky
0342 helicopter
0343 Scotland
0344 atom
0345 Argentina
0346 Spaniard
0347 pike
0348 algebra
0349 scientist
0350 birch
0351 dynamite
0352 sociology
0353 Iceland
0354 Albania
0355 zoo
0356 dandruff
0357 spider
0358 African
0359 raisin
0360 consul
0361 toothbrush
0362 goat
0363 tadpole
0364 blood
0365 peach
0366 phosphorus
0367 stomach
0368 potassium
0369 crab
0370 Dane
0371 son-in-law
0372 uranium
0373 Easter
0374 Russia
0375 neck
0376 dragonfly
0377 fist
0378 insect

0379 pancreas
0380 turbine
0381 table
0382 finger
0383 chin
0384 pelvis
0385 lava
0386 Chile
0387 blackboard
0388 namesake
0389 frying pan
0390 chromium
0391 penguin
0392 gazelle
0393 physicist
0394 banana
0395 cocaine
0396 bookcase
0397 dollar
0398 bull
0399 Swede
0400 gas
0401 Europe
0402 jackal
0403 orange
0404 hazelnut
0405 mountain
0406 sheep
0407 police
0408 bookseller
0409 playground
0410 liqueur
0411 eyelash
0412 watchmaker
0413 airport
0414 bacterium
0415 radium
0416 two hundred
0417 grape
0418 codfish
0419 xylophone
0420 heron
0421 poplar
0422 diabetes
0423 windpipe
0424 woodpecker
0425 ballet
0426 raspberry
0427 kangaroo
0428 rouble
0429 fascism
0430 barometer
0431 plate
0432 rectangle
0433 Bible
0434 rabies
0435 afternoon
0436 silver
0437 roof
0438 anchor
0439 Afghanistan
0440 lake
0441 the day before yesterday
0442 necktie
0443 Morocco
0444 deaf
0445 vegetable
0446 motel
0447 papaya
0448 manganese
0449 hen
0450 icicle
0451 God
0452 petrol
0453 beard
0454 concrete
0455 billiards
0456 patriotic
0457 good morning
0458 gall bladder
0459 pollen
0460 countess
0461 ecology
0462 professor
0463 stocking
0464 towel
0465 ultimatum
0466 river
0467 nickel
0468 greyhound
0469 toenail
0470 hectare
0471 pillow
0472 hernia
0473 temperature
0474 asbestos
0475 denominator
0476 toothache
0477 psychologist
0478 anthropology
0479 calorie
0480 yesterday
0481 north
0482 barium
0483 lemon
0484 badger
0485 Lebanon
0486 penicillin
0487 ash
0488 legible
0489 widowed
0490 saliva
0491 fish
0492 bread
0493 yellow
0494 cobalt
0495 mare
0496 optician
0497 melon
0498 mammal
0499 lion
0500 prism
0501 armistice
0502 psychiatrist
0503 taxi
0504 tablecloth
0505 toothpick
0506 nicotine
0507 trout
0508 kilo
0509 planet
0510 salt
0511 Estonia
0512 Lithuania
0513 Indonesia
0514 clover
0515 nerve
0516 robin
0517 senator
0518 chair
0519 knee
0520 tree
0521 glacier
0522 comma
0523 intestine
0524 peacock
0525 comb
0526 syphilis
0527 bomb
0528 cocoa
0529 lilac
0530 gooseberry
0531 gene
0532 waistcoat
0533 latrine
0534 lemonade
0535 urine
0536 footwear
0537 cucumber
0538 arson
0539 equator
0540 ten
0541 lioness
0542 hamster
0543 leek
0544 Cyprus
0545 stratosphere
0546 electrode
0547 fortunately
0548 disinfect
0549 Croatia
0550 day before yesterday
0551 holiness
0552 botany
0553 vineyard
0554 democrat
0555 hostage
0556 collarbone
0557 flour
0558 midnight
0559 magnesium
0560 horseshoe
0561 Pole
0562 Algeria
0563 lily
0564 acupuncture
0565 industry
0566 minute
0567 biologist
0568 egg
0569 tooth
0570 diplomat
0571 idealist
0572 morphine
0573 cartilage
0574 locksmith
0575 at home
0576 acacia
0577 Latvia
0578 typist
0579 rectum
0580 moustache
0581 oil
0582 crossword puzzle
0583 spider
0584 Bolivia
0585 lentil
0586 algorithm
0587 antibody
0588 thistle
0589 o’clock
0590 Japan
0591 insomnia
0592 bra
0593 baroness
0594 mathematician

0595 patriot
0596 sawdust
0597 bedbug
0598 jaguar
0599 pill
0600 electricity
0601 wine
0602 dictator
0603 caviar
0604 psychology
0605 Arab
0606 opal
0607 biochemistry
0608 hypnosis
0609 Swedish
0610 air
0611 gull
0612 a thousand
0613 chemist’s shop
0614 ruby
0615 napkin
0616 beef
0617 flamingo
0618 iceberg
0619 buttermilk
0620 thermostat
0621 mill
0622 cello
0623 chewing gum
0624 Iraq
0625 socialism
0626 rattlesnake
0627 biographer
0628 quinine
0629 astronomer
0630 Armenia
0631 deer
0632 wool
0633 proton
0634 moose
0635 nest
0636 Christianity
0637 fork
0638 duchess
0639 fern
0640 superstition
0641 antibiotic
0642 climatic
0643 buttock
0644 olive
0645 shilling
0646 fatherland
0647 parachute
0648 temple
0649 fig
0650 hangman
0651 rice
0652 bat
0653 helium
0654 antimony
0655 modem
0656 alarm clock
0657 arthritis
0658 ewe
0659 abbess
0660 parrot
0661 autumn
0662 bromine
0663 bakery
0664 watermelon
0665 flute
0666 penultimate
0667 nowhere
0668 operetta
0669 hysterical
0670 manslaughter
0671 chandelier
0672 weekend
0673 Cuba
0674 Austrian
0675 trigonometry
0676 acetone
0677 psychiatry
0678 superstitious
0679 cellophane
0680 paradoxical
0681 not yet
0682 ocean
0683 egg
0684 gallon
0685 Moscow
0686 armpit
0687 electronic
0688 zoologist
0689 lye
0690 infrared
0691 Frenchman
0692 laugh
0693 retina
0694 bedroom
0695 cement
0696 salmon
0697 hair
0698 Christian
0699 thyme
0700 parchment
0701 omniscient
0702 flower
0703 garden
0704 Peru
0705 American
0706 cheetah
0707 mistletoe
0708 logarithm
0709 nephew
0710 marten
0711 blue
0712 lithium
0713 sandal
0714 Pakistan
0715 nettle
0716 wild boar
0717 geologist
0718 radioactivity
0719 goitre
0720 mythology
0721 magnet
0722 parabola
0723 Danube
0724 glove
0725 tonsil
0726 wind
0727 Ethiopia
0728 hygienic
0729 peace
0730 jute
0731 heroin
0732 testicle
0733 aerodynamics
0734 caffeine
0735 Czech
0736 snow
0737 heiress
0738 participle
0739 forefinger
0740 archangel
0741 employer
0742 virus
0743 phonetics
0744 mayonnaise
0745 seasickness
0746 rice
0747 argon
0748 reindeer
0749 Holland
0750 marijuana
0751 Austrian
0752 wren
0753 kilowatt
0754 semicircle
0755 tibia
0756 parents
0757 forearm
0758 antelope
0759 sweat
0760 sonata
0761 Syria
0762 umbrella
0763 dandelion
0764 widow
0765 chromosome
0766 neutron
0767 Italian
0768 frenchman
0769 jungle
0770 fortnight
0771 eggplant
0772 good evening
0773 fifth
0774 hepatitis
0775 watt
0776 stepson
0777 bilingual
0778 town
0779 sport
0780 Norwegian
0781 Italian
0782 seventh
0783 owl
0784 European
0785 conifer
0786 racoon
0787 cymbal
0788 cosine
0789 heather
0790 postage stamp
0791 bricklayer
0792 elm
0793 willow
0794 homesickness
0795 good night
0796 titanium
0797 molybdenum
0798 five
0799 robot
0800 turkey
0801 Colombia
0802 blueberry
0803 Wales
0804 flax
0805 horseradish
0806 hat
0807 fig
0808 howitzer
0809 adrenaline
0810 onions

0811 dozen
0812 Jamaica
0813 grape
0814 librarian
0815 diphtheria
0816 dictionary
0817 cadmium
0818 Swiss
0819 cup
0820 sailboat
0821 iguana
0822 beefsteak
0823 skier
0824 walrus
0825 radioactive
0826 saleswoman
0827 bismuth
0828 eighth
0829 encyclopedia
0830 perch
0831 China
0832 tricycle
0833 great-grandfather
0834 appendicitis
0835 hydrocarbon
0836 tunnel
0837 cypress
0838 eight hundred
0839 steamboat
0840 ode
0841 British
0842 cornea
0843 brimstone
0844 three hundred
0845 Mexico
0846 tenth
0847 wavelength
0848 lipstick
0849 roebuck
0850 vertebra
0851 spinal cord
0852 emerald
0853 socks
0854 bikini
0855 genetics
0856 carburettor
0857 Buddhism
0858 7; septenary; vii
0859 shears
0860 geographical
0861 sixth
0862 juniper
0863 diamond
0864 bishop
0865 holly
0866 titmouse
0867 disarmament
0868 popcorn
0869 elbow
0870 wind
0871 ninth
0872 Andorra
0873 computer
0874 Venezuela
0875 coral
0876 rheumatism
0877 penknife
0878 zither
0879 mummy
0880 carnival
0881 scarlet fever
0882 leap year
0883 Mongolia
0884 aorta
0885 carrots
0886 coconut palm
0887 daughter-in-law
0888 earl
0889 Belgian
0890 typhus
0891 basalt
0892 mineralogy
0893 taxpayer
0894 second
0895 strontium
0896 god
0897 blackbird
0898 viper
0899 Haiti
0900 calendar
0901 accordion
0902 fountain pen
0903 grandparents
0904 vodka
0905 cable
0906 anthropologist
0907 insecticide
0908 lynch
0909 pizza
0910 South Africa
0911 cranberry
0912 streetcar
0913 rugby
0914 electromagnetic
0915 cedar
0916 passer-by
0917 compote
0918 geophysics
0919 unbutton
0920 river
0921 sunbeam
0922 honeysuckle
0923 brown
0924 fruit
0925 yacht
0926 keyhole
0927 cougar
0928 optics
0929 sunstroke
0930 minaret
0931 microbiology
0932 this year
0933 twenty-one
0934 Englishman
0935 siblings
0936 metal
0937 milliard
0938 ampere
0939 encyclopaedia
0940 spoon
0941 vulture
0942 compass
0943 waiting room
0944 cough
0945 apiary
0946 referendum
0947 barbed wire
0948 kirk
0949 amphitheatre
0950 toothpaste
0951 smog
0952 ice
0953 roe
0954 Adam
0955 diocese
0956 bartender
0957 heirloom
0958 Persian
0959 Chinese
0960 tungsten
0961 Romania
0962 ivory
0963 Athens
0964 crow
0965 wax
0966 harrow
0967 bagpipe
0968 yoghurt
0969 shake hands
0970 question mark
0971 athlete
0972 shoelace
0973 glucose
0974 omnipresent
0975 thermodynamics
0976 pawnshop
0977 eyewitness
0978 pessimist
0979 revue
0980 convoke
0981 geographer
0982 scorpion
0983 Esperanto
0984 bacteriology
0985 match
0986 plutonium
0987 Ecuador
0988 pepper
0989 Uruguay
0990 middle finger
0991 cousin
0992 champagne
0993 demagogy
0994 jeep
0995 brain
0996 sport
0997 oculist
0998 cupboard
0999 Angola
1000 anthracite
1001 hockey
1002 kinetics
1003 tugboat
1004 hormone
1005 goldfish
1006 iridium
1007 Antarctica
1008 vetch
1009 raindrop
1010 Paraguay
1011 semantics
1012 sandwich
1013 catholic
1014 semicolon
1015 tobacco
1016 housework
1017 judo
1018 myopia
1019 narcissus
1020 old person
1021 insulin
1022 sandstone
1023 wheel
1024 beryllium
1025 sulfur; sulphur
1026 steed

1027 Burma
1028 ash
1029 file
1030 South America
1031 Copenhagen
1032 rosemary
1033 azalea
1034 vaccine
1035 windshield
1036 importer
1037 Balkans
1038 bible
1039 nag
1040 Greenland
1041 hashish
1042 Vietnam
1043 thunder
1044 niece
1045 typhoon
1046 cartography
1047 catalysis
1048 Greek
1049 beaver
1050 carafe
1051 unicorn
1052 right angle
1053 Brazilian
1054 pope
1055 lid
1056 gravestone
1057 Sudan
1058 Yemen
1059 wagtail
1060 alfalfa
1061 bathing suit
1062 periscope
1063 holster
1064 rower
1065 thermos
1066 armful
1067 chronological
1068 power station
1069 eyeglasses
1070 tellurium
1071 xenon
1072 carat
1073 snow
1074 gland
1075 Alps
1076 acetylene
1077 canary
1078 saw
1079 demography
1080 pulmonary
1081 mammoth
1082 monogamy
1083 bridesmaid
1084 hawthorn
1085 hibiscus
1086 galvanometer
1087 paranoia
1088 fourth
1089 Korea
1090 lime
1091 Nicaragua
1092 five hundred
1093 marble
1094 communist
1095 massage
1096 electronics
1097 toilet paper
1098 apartheid
1099 trombone
1100 psychosis
1101 lifeboat
1102 ballerina
1103 galosh
1104 ketchup
1105 meningitis
1106 German
1107 Portuguese
1108 finch
1109 krypton
1110 one thousand
1111 Kenya
1112 chin
1113 jobless
1114 bone marrow
1115 sadism
1116 yogurt
1117 prostate
1118 city hall
1119 neuralgia
1120 Irishman
1121 bear
1122 dog
1123 incisor
1124 stepdaughter
1125 Liberia
1126 kaleidoscope
1127 Ukraine
1128 viral
1129 harpsichord
1130 sultan
1131 sloop
1132 heretical
1133 hussar
1134 rum
1135 dahlia
1136 miller
1137 anatomist
1138 micron
1139 violinist
1140 boron
1141 cerium
1142 stallion
1143 gastric
1144 bedtime
1145 vacuum cleaner
1146 laryngitis
1147 cognac
1148 nutshell
1149 post office
1150 peasantry
1151 Russian
1152 nineteenth
1153 50; l
1154 oesophagus
1155 hart
1156 American
1157 jackdaw
1158 marmot
1159 saxophone
1160 trilogy
1161 passport
1162 ballistics
1163 amoeba
1164 watercress
1165 homeopathy
1166 obstetrics
1167 officer
1168 electrolyte
1169 physiotherapy
1170 avenger
1171 buffalo
1172 Serbia
1173 nosebleed
1174 earlobe
1175 wolf
1176 Libya
1177 concert
1178 hairbrush
1179 ohm
1180 herbicide
1181 gibbon
1182 snowdrop
1183 breastbone
1184 homesick
1185 psychoanalysis
1186 disinherit
1187 granite
1188 bauxite
1189 gardenia
1190 get wet
1191 surname
1192 coal
1193 fluorine
1194 heel
1195 clarinet
1196 climate
1197 Philippines
1198 methane
1199 navel
1200 suicide
1201 aster
1202 bracken
1203 parallelogram
1204 oceanography
1205 kinematics
1206 conjunctivitis
1207 holography
1208 astrophysics
1209 rainwater
1210 pharmacology
1211 Tanzania
1212 short story
1213 halberd
1214 Christ
1215 doctorate
1216 photosynthesis
1217 aerodynamic
1218 beekeeping
1219 battalion
1220 stethoscope
1221 fire extinguisher
1222 Australian
1223 rubidium
1224 milk
1225 Monaco
1226 Nepal
1227 balalaika
1228 hoof
1229 fig tree
1230 plough
1231 marble
1232 wheelchair
1233 rhubarb
1234 pollination
1235 schizophrenia
1236 oleander
1237 flowerpot
1238 vaseline
1239 drink
1240 domestic animal
1241 tin can
1242 radon

1243 eleventh
1244 Zambia
1245 bride
1246 fire
1247 ultrasound
1248 Costa Rica
1249 cancer
1250 Egyptian
1251 great-grandson
1252 agate
1253 calorimeter
1254 sail
1255 seismology
1256 drawbridge
1257 Marxism
1258 gristle
1259 primary school
1260 resin
1261 alliteration
1262 cardiogram
1263 frankincense
1264 alligator
1265 goggles
1266 palladium
1267 osmium
1268 tunny
1269 black
1270 Brazilian
1271 omelette
1272 eyelashes
1273 spade
1274 mollusc
1275 symbiosis
1276 magnifying glass
1277 fuselage
1278 cake
1279 reader
1280 herbivorous
1281 depopulate
1282 Norwegian
1283 Christmas
1284 electromagnet
1285 vanadium
1286 sundial
1287 novel
1288 morpheme
1289 duckling
1290 sugar cane
1291 extradition
1292 parallelepiped
1293 credit card
1294 speed limit
1295 butcher
1296 quotation marks
1297 when
1298 Czech
1299 Slovakia
1300 good day
1301 lactose
1302 toad
1303 thallium
1304 thirteenth
1305 cerebellum
1306 Guinea
1307 Montenegro
1308 fiancé
1309 muse
1310 fisherman
1311 book
1312 linden
1313 Malta
1314 vermouth
1315 tractor
1316 knife
1317 socialist
1318 dinosaur
1319 sadistic
1320 spleen
1321 baobab
1322 undergarment
1323 carbon dioxide
1324 gastritis
1325 underclothes
1326 sociologist
1327 farmyard
1328 suspenders
1329 padlock
1330 earthworm
1331 amber
1332 match
1333 ytterbium
1334 aphid
1335 autism
1336 crow
1337 ten thousand
1338 pistil
1339 inch
1340 street
1341 corolla
1342 duck
1343 Stockholm
1344 chopsticks
1345 islander
1346 mule
1347 philosophy
1348 neurology
1349 chilblain
1350 seasick
1351 hospitable
1352 badminton
1353 fiancée
1354 beetroot
1355 medal
1356 cuckoo
1357 saw
1358 stone
1359 vector
1360 cablegram
1361 Middle East
1362 earwig
1363 anion
1364 sadist
1365 revolution
1366 marguerite
1367 piece of furniture
1368 sleeping bag
1369 psychopath
1370 spectroscope
1371 cathode
1372 intravenous
1373 blind alley
1374 this evening
1375 New Year
1376 tree
1377 tear
1378 selenium
1379 zirconium
1380 europium
1381 caribou
1382 North America
1383 United Nations
1384 mandolin
1385 scythe
1386 bicarbonate
1387 weaver
1388 oligarchy
1389 paratrooper
1390 alchemist
1391 sewing machine
1392 fewer
1393 weigh
1394 lieutenant
1395 neuron
1396 pollinate
1397 stadium
1398 pillowcase
1399 voltmeter
1400 chronicler
1401 acrobatic
1402 bacteriologist
1403 canoe
1404 clinic
1405 saccharin
1406 dozen
1407 sneeze
1408 rocking chair
1409 Georgian
1410 lamb
1411 gallium
1412 germanium
1413 gadolinium
1414 Guatemala
1415 Nigeria
1416 shoe
1417 halogen
1418 Turkmenistan
1419 botanist
1420 Helsinki
1421 chessboard
1422 smallpox
1423 sturgeon
1424 herring
1425 capital letter
1426 secondly
1427 general
1428 stand
1429 Paris
1430 razor blade
1431 insole
1432 rhododendron
1433 phosphorescent
1434 banker
1435 paper
1436 stalactite
1437 pepsin
1438 sciatica
1439 publishing house
1440 genealogical
1441 hypnotist
1442 barmaid
1443 self-portrait
1444 by heart
1445 ladybird
1446 German
1447 sucrose
1448 ibex
1449 ornithology
1450 anatomy
1451 late
1452 sixteenth
1453 turtle dove
1454 hyperbola
1455 milligram
1456 shower
1457 karate
1458 xenophobia

1459 nationalism
1460 Zionism
1461 entomology
1462 poodle
1463 Slav
1464 gentian
1465 ammonia
1466 adjectival
1467 guinea fowl
1468 brother
1469 stepbrother
1470 radian
1471 shoe
1472 fjord
1473 ampoule
1474 Zimbabwe
1475 hemp
1476 spoon
1477 lira
1478 Uganda
1479 pyre
1480 condor
1481 ski
1482 albino
1483 equation
1484 ideology
1485 anagram
1486 chlorophyll
1487 biosphere
1488 urea
1489 bicameral
1490 hand
1491 North Sea
1492 termite
1493 brethren
1494 brass
1495 ecosystem
1496 homosexuality
1497 crankshaft
1498 aardvark
1499 climatology
1500 meat
1501 biblical
1502 gasolene
1504 artificial intelligence
1505 Siberia
1506 thrombosis
1507 censorship
1508 teetotaller
1509 chromatography
1510 fishmonger
1511 headmistress
1512 courtroom
1513 dictatorship
1514 cuspidor
1515 outnumber
1516 calf
1517 Bhutan
1518 capital city
1519 park
1520 Algiers
1521 fiance
1522 green
1523 breakfast
1524 sparrow
1525 fox
1526 toes
1527 civics
1528 boulevard
1529 alternating current
1530 kimono
1531 decibel
1532 alder
1533 academician
1534 litmus
1535 zebu
1536 boycott
1537 erysipelas
1538 phlebitis
1539 interplanetary
1540 English
1541 holmium
1542 thorium
1543 goddess
1544 cerebrum
1545 roll
1546 butterfly
1547 bureaucrat
1548 democracy
1549 emperor
1550 polo
1551 atheism
1552 architect
1553 hypotenuse
1554 demographic
1555 physiology
1556 direct current
1557 sculptor
1558 stalagmite
1559 extradite
1560 can opener
1561 nacre
1562 pasteurization
1563 hospital
1564 candidacy
1565 castor oil
1566 indium
1567 tantalum
1568 artery
1569 Mozambique
1570 rapist
1571 kitchenette
1572 Honduras
1573 date
1574 Gabon
1575 Singapore
1576 price
1577 slug
1578 blond
1579 cicada
1580 Gibraltar
1581 psoriasis
1582 barbiturate
1583 agave
1584 organist
1585 day after tomorrow
1586 dining room
1587 baking powder
1588 multiplicand
1589 privet
1590 travel agency
1591 houseboat
1592 dividend
1593 cork
1594 alkaloid
1595 shoulder blade
1596 tableware
1597 senate
1598 cost
1599 backache
1600 earache
1601 matchbox
1602 quotation mark
1603 Australian
1604 Baltic Sea
1605 fish
1606 dioxide
1607 polonium
1608 erbium
1609 Kuwait
1610 egg
1611 polar bear
1612 he
1613 raven
1614 Oman
1615 hourglass
1616 plankton
1617 tetrahedron
1618 piano
1619 swimmer
1620 rake
1621 funnel
1622 renal
1623 motorcycle
1624 materialism
1625 Good Friday
1626 blind
1627 broomstick
1628 aircraft carrier
1629 imperialism
1630 tourism
1631 minuend
1632 Czechoslovakia
1633 console
1634 perjurer
1635 torpedo
1636 tear
1637 terbium
1638 discotheque
1639 wristwatch
1640 Mauritania
1641 bald-headed
1642 merlin
1643 chestnut
1644 idleness; joblessness
1645 berry
1646 quail
1647 fluoride
1648 Bavaria
1649 Pacific Ocean
1650 Black Sea
1651 aspen
1652 hemoglobin
1653 laser
1654 raft
1655 cytoplasm
1656 aldehyde
1657 viscount
1658 bourgeoisie
1659 science
1660 astrology
1661 chew
1662 electrician
1663 biopsy
1664 hydroelectric
1665 ladybug
1666 French
1667 English
1668 sister
1669 niobium
1670 actinium
1671 cent
1672 amphora
1673 eggs
1674 tail
1675 cirrhosis

1676 carpenter
1677 chin
1678 butane
1679 begonia
1680 millionaire
1681 eyes
1682 we
1683 cough
1684 federalism
1685 megabyte
1686 screwdriver
1687 pianist
1688 eland
1689 toga
1690 cage
1691 glottis
1692 salami
1693 gypsy
1694 antigen
1695 corkscrew
1696 graze
1697 acetic acid
1698 microscopy
1699 Atlantic Ocean
1700 pneumonia
1701 subtrahend
1702 ovulation
1703 apiarist
1704 histology
1705 artesian
1706 philology
1707 felloe
1708 telephone booth
1709 snowdrift
1710 ionosphere
1711 wind
1712 sea level
1713 ophthalmology
1714 rhodium
1715 hafnium
1716 twentieth
1717 tomorrow morning
1718 Tajikistan
1719 Barbados
1720 natural gas
1721 kitchen
1722 falcon
1723 Taiwan
1724 zoos
1725 sealing wax
1726 chronology
1727 Brussels
1728 Christ
1729 square root
1730 sock
1731 shah
1732 photon
1733 chauvinism
1734 viviparous
1735 biophysics
1736 rubella
1737 earring
1738 catfish
1739 cinematography
1740 gill
1741 garbage can
1742 polyclinic
1743 goulash
1744 major
1745 macaroni
1746 mausoleum
1747 fakir
1748 atomic energy
1749 moonlit
1750 fur coat
1751 hydrolysis
1752 European Union
1753 Tunisia
1754 tributary
1755 travel
1756 Bangladesh
1757 telephone
1758 inflation
1759 animal
1760 atmospheric
1761 olive oil
1762 poetess
1763 chemotherapy
1764 larch
1765 cruiser
1766 syntactic
1767 marzipan
1768 peritoneum
1769 psychosomatic
1770 poplin
1771 bookbinder
1772 freemason
1773 plowshare
1774 racialism
1775 Roman
1776 she-goat
1777 petrel
1778 wing
1779 Surinam
1780 democratic
1781 shoulder
1782 air pollution
1783 eider
1784 ibis
1785 cytology
1786 Bethlehem
1787 pray
1788 stagecoach
1789 satire
1790 ion
1791 anarchist
1792 civet cat
1793 proletariat
1794 gamekeeper
1795 lamb
1796 lagoon
1797 yttrium
1798 neodymium
1799 orange-coloured
1800 check
1801 lunar eclipse
1802 fir
1803 twelfth
1804 be thirsty
1805 civil war
1806 cherry
1807 painkiller
1808 concerto
1809 pumpkin
1810 Botswana
1811 plant
1812 cousin
1813 tsar
1814 home
1815 have got
1816 socialist
1817 pelvic
1818 rutabaga
1819 tapir
1820 addictive
1821 hypertext
1822 Nile
1823 hemorrhoid
1824 allergy
1825 intercontinental
1826 semitone
1827 cystitis
1828 Kremlin
1829 lesson
1830 kinswoman
1831 bedclothes
1832 peritonitis
1833 capitalist
1834 barricade
1835 diplomatic
1836 muleteer
1837 mortgagee
1838 troposphere
1839 adjective
1840 ears
1841 every other day
1842 Mauritius
1843 wedding ring
1844 female cat
1845 ruthenium
1846 wisdom tooth
1847 grape; wine grapes
1848 hawk
1849 magpie
1850 Dutchman
1851 air
1852 cousin
1853 shinbone
1854 algebraic
1855 Crete
1856 Icelander
1857 forehead
1858 godson
1859 feldspar
1860 molecular
1861 kilobyte
1862 tench
1863 isosceles
1864 methodology
1865 trio
1866 archbishopric
1867 neolithic
1868 birth rate
1869 reproduction
1870 self-determination
1871 intervention
1872 Indian corn
1873 Russian
1874 abbot
1875 rhenium
1876 about ten; ten
1877 stomach
1878 Japanese
1879 mango
1880 Scotsman
1881 gallstone
1882 Oceania
1883 zircon
1884 almond
1885 Sicily
1886 radish
1887 backgammon
1888 Bucharest
1889 eaglet
1890 baker
1891 cotangent

1892 Esperantist
1893 prenatal
1894 driving licence
1895 emergency exit
1896 northerner
1897 dialectics
1898 ideological
1899 metronome
1900 whipped cream
1901 scorpion
1902 Mali
1903 English language
1904 Armenian
1905 monosyllable
1906 blow one's nose
1907 semiconductor
1908 eleventh
1910 Argentine
1911 boot
1912 midnight
1913 willpower
1914 rodent
1915 well
1916 lobster
1917 farad
1918 headphones
1919 health
1920 Mecca
1921 gynaecology
1922 larkspur
1923 cybernetics
1924 Peking
1925 tape recorder
1926 washerwoman
1927 musculature
1928 nougat
1929 galaxy
1930 consular
1931 neurosis
1932 heliport
1933 biomass
1934 utensils
1935 herbarium
1936 sateen
1937 devotedly
1938 antitank
1939 milkmaid
1940 ethnic group
1941 Greek
1942 tomorrow
1943 European
1944 yellow fever
1945 numerator
1946 4th; fourth
1947 filing cabinet
1948 euro
1949 concert
1950 sapphire
1951 handsaw
1952 Melanesia
1953 elder
1954 Cologne
1955 birth certificate
1956 blindness
1957 greenhouse effect
1958 porcupines
1959 integral
1960 magnetic field
1961 determinism
1962 deathbed
1963 volleyball
1964 mandarin orange
1965 monoxide
1966 pathologist
1967 gardener
1968 orchestral
1969 pencil sharpener
1970 polymer
1971 toluene
1972 edelweiss
1973 outside of
1974 neuritis
1975 sphincter
1976 circus
1977 clinical
1978 oilcan
1979 minefield
1980 neurasthenia
1981 German
1982 twins
1983 sulphide
1984 lanthanum
1985 americium
1986 wring out
1987 sandstorm
1988 Netherlands
1989 chemical
1990 tooth-brush
1991 Malawi
1992 fifteenth
1993 waterfall
1994 mustard
1995 poet
1996 embryology
1997 plane
1998 trowel
1999 needle
2000 tuber
2001 tonne
2002 sportswoman
2003 barber
2004 goal
2005 perihelion
2006 synagogue
2007 fingertip
2008 isotope
2009 Welshman
2010 ptarmigan
2011 colitis
2012 letterbox
2013 abbey
2014 row
2015 abortionist
2016 screw
2017 friendship
2018 fantasia
2019 tailor
2020 visa
2021 dietetics
2022 hanky
2023 hologram
2024 streptomycin
2025 Ukrainian
2026 Albanian
2027 spring
2028 scandium
2029 protactinium
2030 pine cone
2032 petrology
2033 Namibia
2034 bulldog
2035 sole
2036 prune
2037 palm tree
2038 Burundi
2039 Bahamas
2040 fortieth
2041 moonbeam
2042 coyote
2043 corporal
2044 mackerel
2045 octahedron
2046 palindrome
2047 clothesline
2048 unleaded
2049 ballpoint pen
2050 cassette
2051 Red Sea
2052 regiment
2053 accompaniment
2054 brocade
2055 sour cream
2056 overture
2057 kilocycle
2058 polystyrene
2059 subtotal
2060 doorpost
2061 electrolysis
2062 Estonian
2063 Australian
2064 solar eclipse
2065 thulium
2066 neptunium
2067 wheat flour
2068 pediatrics
2069 atom bomb
2070 atonal
2071 deafness
2072 nut
2073 Lesotho
2074 southerner
2075 lavender
2076 Bombay
2077 pretzel
2078 bagel
2079 tundra
2080 steam engine
2081 semiotics
2082 elixir
2083 taxi
2084 sponge
2085 international
2086 Tatar
2087 sheep dog
2088 telephone directory
2089 immunology
2090 stateless
2091 unicellular
2092 service
2093 aerosol
2094 quorum
2095 vegetarian
2096 Whitsunday
2097 ratepayer
2098 bandmaster
2099 mincemeat
2100 sarcoma
2101 statistician
2102 punctuation
2103 Chinese
2104 solar system
2105 praseodymium
2106 fortieth
2107 youth hostel
2108 hops
2109 silk

2110 thumb
2111 Belize
2112 war
2113 Liechtenstein
2114 prisoner of war
2115 bathroom
2116 cesium
2117 razor
2118 Budapest
2119 larynx
2120 Cossack
2121 sepal
2122 haemorrhoids
2123 twin
2124 burgomaster
2125 Finn
2126 privatization
2127 papaw
2128 samovar
2129 metaphysics
2130 theory
2131 scoreboard
2132 periosteum
2133 childbed
2134 rasher
2135 uninhabitable
2136 shoulder strap
2137 tanker
2138 come here
2139 Lithuanian
2140 tortoise
2141 rent out
2142 babysitter
2143 Maldives
2144 bamboo
2145 Jehovah
2146 sleeve
2147 ideal
2148 patronymic
2149 phenotype
2150 propane
2151 antimatter
2152 golfer
2153 quantum
2154 taiga
2155 asphalt
2156 stratigraphy
2157 cynic
2158 headache
2159 racist
2160 charade
2161 thermonuclear
2162 Afghan
2163 Fiji
2164 stepmother
2165 Uzbek
2166 French
2167 Edinburgh
2168 catalytic
2169 sisters
2170 dysprosium
2171 einsteinium
2172 rain
2173 fourteenth
2174 thirst
2175 ukulele
2176 Northern Ireland
2177 millisecond
2178 Guyana
2179 Korean
2180 fiftieth
2181 tangent
2182 resell
2183 saw
2184 customs
2185 solstice
2186 goddaughter
2187 Caspian Sea
2188 existentialism
2189 thymus
2190 geocentric
2191 teletext
2192 haemophilia
2193 lucerne
2194 peseta
2195 Cain
2196 dividend
2197 chickenpox
2198 sea urchin
2199 battery
2200 dialectical
2201 glycerin
2202 microelectronics
2203 postwar
2204 scuba
2205 sugar bowl
2206 welder
2207 Greek
2208 Georgian
2209 promethium
2210 californium
2211 Rwanda
2212 japanese
2213 welcome
2214 lime
2215 vanilla
2216 door
2217 Israel
2218 ebony
2219 Latvian
2220 Azores
2221 weaver
2222 starch
2223 neutrino
2224 backpack
2225 Thames
2226 rubber tree
2227 gneiss
2228 tree stump
2229 station
2230 acid
2231 self-criticism
2232 admiralty
2233 celluloid
2234 cynicism
2235 nine hundred
2236 laser printer
2237 atropine
2238 be situated
2239 masonic
2240 finalist
2241 internist
2242 militarize
2243 tax return
2244 internationalism
2245 Bulgarian
2246 Bulgarian
2247 Russian
2248 technetium
2249 francium
2250 curium
2251 factorial
2252 cinnamon
2253 thirtieth
2254 Latin America
2255 cormorant
2256 ore
2257 legislation
2258 centigram
2259 virtual
2260 mignonette
2261 Pyrenees
2262 name day
2263 morganatic
2264 Adriatic Sea
2265 electroscope
2266 geneticist
2267 cardiovascular
2268 bulldozer
2269 gendarme
2270 Romanian
2271 plastic
2272 deacon
2273 entropy
2274 camphor
2275 optimist
2276 pate
2277 puritan
2278 snob
2279 sonnet
2280 payer
2281 vote
2282 thurible
2283 mineralogist
2284 four hundred
2285 deduction
2286 current
2287 banana tree
2288 Latin
2289 Uzbek
2290 Hungarian
2291 Turkish
2292 Armenian
2293 cat
2294 samarium
2295 acid rain
2297 otitis
2298 Borneo
2299 South Korea
2300 Mercury
2301 Yugoslavia
2302 Egyptian
2303 drinks
2304 ninetieth
2305 fever
2306 straw
2307 phoneme
2308 Bangkok
2309 Turkmen
2310 marmalade
2311 kleptomaniac
2312 symposium
2313 citric acid
2314 goldfinch
2315 serology
2316 chalcedony
2317 direct
2318 thermodynamic
2319 cabaret
2320 electrification
2321 brake
2322 collectivization
2323 ideologist
2324 strategist
2325 geochemistry
2326 shortbread

2327 auxiliary verb
2328 padlock
2329 thermometer
2330 Nauru
2331 Portuguese
2332 Estonian
2333 ear
2334 nobelium
2335 school desk
2336 Rome
2337 sweetbread
2338 El Salvador
2339 pig
2340 monogram
2341 Sri Lanka
2342 Danish
2343 sixtieth
2344 comb
2345 Polynesia
2346 political party
2347 sneeze
2348 dune
2349 dyne
2350 fist
2351 rum
2352 nylon
2353 Tatar
2354 salamander
2355 alphabetically
2356 Indian Ocean
2357 Sumatra
2358 flavorless
2359 polytechnic
2360 sheet
2361 string bean
2362 quince
2363 subscribe
2364 equilateral
2365 colonialism
2366 electrostatics
2367 pericarp
2368 henbane
2369 imperialist
2370 invest
2371 telepathic
2372 ohmmeter
2373 biosynthesis
2374 gastric juice
2375 extrapolation
2376 historiography
2377 Hungarian
2378 fish
2379 Indian
2380 eagle owl
2381 paediatrics
2382 seventeenth
2383 toe
2384 ash tree
2385 oncology
2386 Equatorial Guinea
2387 brunet
2388 West Indies
2389 wind tunnel
2390 cousin
2391 lavender
2392 charcoal
2393 church
2394 marksmanship
2395 Central America
2396 Azerbaijani; azerbaijani
2397 radish
2398 remote control
2399 mumps
2400 odorless
2401 African
2402 rear admiral
2403 Kurd
2404 mosaic
2406 piston
2407 bluff
2408 cotton
2409 slaveholder
2410 bureaucratic
2411 six hundred
2412 seven hundred
2413 tango
2414 gymnastics
2415 anonymity
2416 classicism
2417 mulatto
2418 ladder
2419 air-cooled
2420 audible
2421 coeducation
2422 oratorio
2423 poisoner
2424 photochemistry
2425 marrows; zucchini
2426 half-hour
2427 German
2428 Albanian
2429 Sassenach
2430 berkelium
2431 Polish
2432 Berne
2433 Bahrain
2434 dignitary
2435 Papua New Guinea
2436 Swaziland
2437 lime
2438 zebra crossing
2439 anti-Semitism
2440 pronunciation
2441 buck
2442 mole
2443 sequoia
2444 chamois
2445 Christian
2446 soy sauce
2447 pear-tree
2448 fast
2449 Belgian
2450 Swiss
2451 parsnip
2452 farewell; goodbye
2453 golf
2454 hoof
2455 gospel
2456 kinetic
2457 ester
2458 kinetic energy
2459 measles
2460 All Saints' Day
2461 acne
2462 food poisoning
2463 bacteriological
2464 kingdom
2465 laboratory
2466 raffia palm
2467 sulfate
2468 boomerang
2469 nitrate
2470 lactic acid
2471 excellency
2472 yoga
2473 patient
2474 telepathy
2475 betatron
2476 democratization
2477 cost of living
2478 hierarchical
2479 moratorium
2480 smoke
2481 Lorraine
2482 lutetium
2483 lens
2484 European
2485 first name
2486 guitarist
2487 Iran
2488 leopard
2489 seventieth
2490 definite article
2491 organ
2492 eye
2493 alb
2494 plane
2495 czarina
2496 thyroid gland
2497 billionaire
2498 ironing board
2499 gannet
2500 monomer
2501 widow
2502 maple
2503 trampoline
2504 dining-room
2505 halva
2506 sculptress
2507 fire station
2508 nihilism
2509 postcode
2510 in the evening
2511 syndrome
2512 ride a horse
2513 dynamo
2514 metaphysical
2515 tourist
2516 baptismal
2517 northernmost
2518 doorsill
2519 skipper
2520 Tajik
2521 carbon
2522 fermium
2524 Zanzibar
2525 tomorrow
2526 snowflake
2527 Benin
2528 embroider
2529 fourth
2530 fisherman
2531 plum
2532 hornet
2533 ginger
2534 Briton
2535 eighteenth
2536 beige
2537 Canadian
2538 archive
2539 millet
2540 Kazakh
2541 hurricane
2542 ski
2543 haemoglobin
2544 player

2545 caffein
2546 buckle
2547 Aegean Sea
2548 paleontologist
2549 auscultate
2550 Scot; Scotsman
2551 biochemist
2552 cloning
2553 rust
2554 goodness
2555 small letter
2556 gum
2557 pedestrian
2558 premarital
2559 monarchist
2560 statics
2561 doctoral
2562 myocardium
2563 hundredth
2564 adult education
2565 mechanize
2566 one and a half
2567 be valid
2568 nitroglycerine
2569 tomorrow evening
2570 Asian
2571 Jordan
2572 Hanoi
2573 mast
2574 carpenter
2575 thumb
2576 crab
2577 Jesus
2578 barbecue; kebab; shashlik
2579 oboe
2580 Guinea-Bissau
2581 nut
2582 skyscraper
2583 neon
2584 almond
2585 opium
2586 orgasm
2587 myth
2588 Caucasian
2589 Persian Gulf
2590 interpersonal
2591 cowpox
2592 impressionism
2593 Babylonia
2594 diffraction
2595 barracks
2596 radiology
2597 re-elect
2598 panicle
2599 occupational disease
2600 indigestion
2601 Marxist
2602 slalom
2603 methyl
2604 Slovak
2605 Frenchwoman
2606 distilled water
2607 carbon
2608 orchestra
2609 Vietnamese
2610 numeral
2611 wolfhound
2612 Asian
2613 Cambodia
2614 Slovenia
2615 Sierra Leone
2616 Czechia
2617 breathing
2618 file
2619 bittern
2620 glaive
2621 playpen
2622 Apulia
2623 Londoner
2624 metropolitan
2625 chloroplast
2626 siberian
2627 build
2628 Mexican
2629 fart
2630 hyacinth
2631 Catholic
2632 vintage
2633 sunflower
2634 headache
2635 symphony
2636 Hague
2637 basaltic
2638 cardiologist
2639 deep-fry
2640 heavy industry
2641 passenger train
2642 Scandinavia
2643 airmail
2644 prickly pear
2645 saga
2646 competent
2647 leap-year
2648 birch
2649 singular
2650 lawrencium
2651 albatross
2652 Mediterranean Sea
2653 Mediterranean
2654 European
2655 robot
2656 Internet
2657 United Arab Emirates
2658 Asian
2659 livery
2660 massage
2661 London
2662 Berlin
2663 Belgian
2664 festival
2665 ski
2666 ballistic
2667 Martian
2668 timpani
2669 pancake
2670 African
2671 brotherliness
2672 autobiography
2673 bayonet
2674 act as agent
2675 brigade
2676 optimization
2677 divorce
2678 baron
2679 handbrake
2680 excuse
2681 ethyl
2682 masochism
2683 technical
2684 central bank
2685 equilateral triangle
2686 penal code
2687 pony
2688 saint
2689 baptist
2690 still life
2691 bovine
2692 Croatian
2693 Chinese
2694 Lithuanian
2695 Flemmish
2696 atlantic
2697 welcome
2698 Burkina Faso
2699 mite
2700 amber
2701 lark
2702 czar
2703 Australian
2704 without
2705 Madrid
2706 nonagon
2708 alibi
2709 ton
2710 mastiff
2711 agnosticism
2712 prayer
2713 subcontinent
2714 superstition
2715 bottle opener
2716 cybernetic
2717 postal code
2718 Koran
2719 endive
2720 bibliopole
2721 stock
2722 publisher
2723 press
2724 lyceum
2725 scampi
2726 light a fire
2727 immigrant
2728 provident
2729 diarchy
2730 Serb
2732 wheel
2733 fish
2734 blues
2735 silicon
2736 Basel
2737 goose
2738 acclimatize
2739 Kirghizia
2740 Moldavia
2741 pronounce
2742 Hebrides
2743 telegraph
2744 sulfuric acid
2745 rabbi
2746 cowpat
2747 geothermal
2748 abreact
2749 aftershave
2750 Scottish; scotch
2751 digestive system
2752 granite
2753 Flanders
2754 ablative
2755 heating
2756 alum
2757 Eskimo
2758 pediment
2759 Hindu
2760 master's degree
2761 picnic
2762 strike

2763 tea-pot
2764 New Zealand
2765 dream
2766 samurai
2767 petty-bourgeois
2768 Slovak
2769 Irish
2770 Malay
2771 Arabia
2772 eighth
2773 cockchafer
2774 Catalonia
2775 Laos
2776 Trinidad and Tobago
2778 cool
2779 olive-tree
2780 groundhog
2781 Palestine
2782 Jesus
2783 syrup
2784 mechanic
2785 physiotherapist
2786 superpower
2787 Scottish
2788 Pretoria
2789 adagio
2790 flannel
2791 regiment
2792 Tibet
2793 Cinderella
2794 Chilean
2795 Chilean
2796 Protestant
2797 rudder
2798 Carpathians
2799 eightieth
2800 dissection
2801 amphibian
2802 Atlantic
2803 classless
2804 quotes
2805 Uzbekistan
2806 American
2808 fox
2809 pound
2810 Mexico City
2811 Kazakhstan
2812 tick
2813 cough
2814 archduke
2815 caesium
2816 Cairo
2817 Swiss
2818 keel
2819 buttercup
2820 rowan; sorb tree
2821 enzyme
2822 typeset
2823 shoe-lace
2824 impressionist
2825 jasmine
2826 return-ticket
2827 Macao
2828 final examination
2829 sweet smell
2830 Cuban
2831 Gaelic
2832 Algerian
2833 kitten
2834 june bug
2835 kangaroos
2836 archeologist
2837 scandinavian
2838 seventh
2839 Rhine
2840 scale
2841 lute
2842 telecommunication
2843 Vienna
2844 review
2845 invention
2846 roast
2847 Antilles
2848 baud
2849 adhesive tape
2850 centralize
2851 photography
2852 money order
2853 prospectus
2854 bandage
2855 decathlon
2856 Persian
2857 bird
2859 sun-glasses
2860 US citizen
2861 Algerian
2862 door
2863 bellows
2864 Bermuda
2865 lemon
2866 pear-tree
2867 earphones
2868 Belgrade
2869 rusk
2870 broom
2871 Siberian
2872 Lisbon
2873 third
2874 decade
2875 Aristotle
2876 telephone kiosk
2877 youth
2878 Saxon
2879 centipede
2880 Curaçao
2881 be detained
2882 factory
2883 fast train
2884 a hundred and fifty
2885 bed
2886 Lithuanian
2887 Celtic
2888 Dutch
2889 byte
2890 lance bombardier; lance-
corporal; private first
class
2892 amber
2893 charcoal
2894 archduke
2895 Allah
2896 aster
2897 measles
2898 windscreen
2899 turbot
2900 unlock
2901 get out
2902 box
2903 atmospheric
2904 Lapland
2905 skate
2907 Serb
2908 Macedonian
2910 Canadian
2911 christianity
2913 amianthus
2914 Mexican
2915 embassy
2916 Apennines
2917 conversion
2918 Sardinia
2919 South African
2920 Lithuanian
2921 Niger
2922 salt
2923 airport
2925 sewing-machine
2926 knee
2927 pear-tree
2928 Australian
2929 tenth
2931 Canadian