Structures vs. Strategies for Learning Vocabulary

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This article will present an innovative concept for teaching foreign languages, including English (EFL/ESL). The core of the concept is the "Onomat," a **TABLE OF MEANINGS** that implies a set of interactive strategies for learning and teaching vocabulary in any language to which the table applies, especially for foreign learners. The table of meanings itself (the "Onomat") can be thought of as a compact or outline dictionary, although this metaphor can also be misleading or confusing. The table is called "Onomat" because it is based indirectly on a system of onomatopoeia, albeit one that is "hiding in plain sight," more directly revealed in letters and their shapes than in sounds. The focus on letters is alien to the assumed oral focus of most modern language teaching, but is in line with deeper analysis of language, as well as the goal of reading, which is an (or the) important goal of language learning beyond initial stages.

In any learning or teaching, it is often far harder to decide what to focus away from, than what to focus on, and language is no exception. The complex structures that linguistics studies, analyzes, and constructs theories of are prime candidates for interesting distractions. Efficient, "psycholinguistic" treading process, highlights the need to sample effectively, and the difficulty of doing so. Reading, even in a foreign language, must not and cannot be just a fast version of the old parsing method of translation, where each word is laboriously analyzed for all its grammatical features, along with selection of the appropriate one out of a long list lexical entries and sub-entries. But where these many complications are inherent in the text, what strategies are needed or even possible to cut through the mess to arrive at the content?

Teaching English as a second or foreign language

In "teacher training" courses for ESL/EFL teachers, it is important to emphasize empathy, especially through study by the teacher (a little or a lot) of foreign languages. While Spanish is a wonderful language in this role for various practical reasons, any more exotic language gives English teachers a better idea of the larger gap faced by our many students who are speakers of the more different languages, like Arabic and Chinese. The saying "I have learned from all my students" applies most to students with the most difficult challenges, so studying more exotic languages is more useful for EFL/ESL theory.

English teachers, like linguists generally, tend to equate language structure with grammatical structure: morphology, syntax, phonology, even spelling. Teachers of English will usually teach about affixes at some point. But knowing that *friendship* has a suffix *–ship* will be little help if a given learner doesn't know the lexical item *friend*. *Friend* is not a difficult word, but all languages contain thousands of such easy words, and it is not easy to learn or teach these many lexical items.

The importance of vocabulary

At the same time, vocabulary (lexicon) is the elephant in the living room, passed over with little comment beyond "memorize for the quiz tomorrow." It is in fact the opposite of the weather, in that everyone does something about it (no matter how badly) but almost no one talks about it, especially the teacher (and teaching theorist).
But lexicon is the largest practical problem for foreign learners in particular. Spanish is misleading in this crucial respect, "under-preparing" the teacher for the massive problem of learning thousands of words without cognates. Spanish can be read by any adult reader of English even without any study of Spanish! ¡El angloparlante comprende un texto español muy facilmente/

But learning Arabic or Chinese or Japanese words is not so easy. Imagine yourself walking into an immersion classroom where the teacher greets you not with *¡Buenos Días!* But with *marhaba! Kayf al-Haal?* Simple greeting are hard enough, but even devout advocates (such as teachers) of Spanish or English Immersion, who believe that you just "absorb" the foreign language without writing anything down or even thinking about translating individual words, will be quickly brought[1] to scribbling and begging for lexical equivalents (if only under the desk) by a few short minutes of an "immersion" lesson in Hebrew or Arabic or Chinese or Japanese.

This challenge more realistically exemplifies what learning English is like, for speakers of these languages, except for the very few international words that they may have heard. (And of course many of them have studied English for many years, although it may not show.) The English teacher can learn much from just trying to learn even just 20 words in any of these languages overnight—assuming that you can find a vocabulary list in transliteration or phonetic spelling! Of course you must then extrapolate to the task of learning even just 2000 words, an estimate for what you need to read ordinary materials with comprehension.[2]

Teaching Latin and Greek roots to teach English vocabulary is a wonderful idea –but only after the learner knows hundreds of words, and can be intimidating and useless till then, and useless also for the many non-Latinate words that also exist in English. How are they to deal with words like *berm, petard,* or *scathing?* Native speakers also have trouble with such words, but rarely follow the typical academic prescription to look them up. Recommending that foreign learners be diligent to look them up is pretty-sounding advice, but often as useless as telling them to be calm and "just let it happen." As an old New-York Russian joke tells it: "Natasha, why don't you speak English?" Natasha's answer (in Russian): "Speak English? I've only lived here 30 years!"

Two thought experiments may be useful at this point of this article, to prepare for the ideas to be presented here. (1) Write down your best guess for the meanings of these three words (assuming that you haven't learned them formally), and (2) list as many words you can think of for body-parts and body-functions, especially those not found in dictionaries. (I do not recommend teaching them in EFL/ESL, of course, but they are useful theoretically.)

The "Onomat" to be presented here can come in handy for such words, as well as helping motivate learners while they struggle with the hundreds of supposedly "easy" non-Latinate words. For these words, and also for unknown Latin-Greek roots, the Onomat can help. Readers of this article will be able to assess the degree of empirical adequacy of the system informally, based on how well it covers both sets of lexical items.

General strategies for vocabulary learning

Several fairly obvious general strategies are available for learning vocabulary, and are probably used subconsciously by effective vocabulary learners.

Word-length

Observing word length can be a useful strategy. Short words tend to be more common, "easier." For this very reason, they often contain less information. Function words (often very short) are likely to give so little information that they are best ignored on an initial survey of a text, with the aim of arriving at a summary of its content ("gist"), which can be done by simply finding known words and writing a sentence using these words (in the target or native language). This sentence is automatically a "summary" of the text. In the beginning it won't be a very accurate summary, but this skill will automatically improve over time.

Especially in the beginning, accuracy is not the point at all, and even later it should not be over-emphasized, as typical multiple-choice "content questions usually do. Assigning (as a game) this kind of summary as a regular first step with any text will dramatically raise learners' abilities and emotional readiness to deal with new texts in a way that more "linear" exercises can never do. Long words can contain more information than short words. They may even be far easier than short words, namely when they are international words or other cognate, as my Spanish example above.

[1] I have done this exercise a number of times at workshops and conferences, with the result described.

[2] This estimate is probably valid for mainstream methods, but it is possible to assign word-search games with a miniscule vocabulary, and these can lead into "skip-reading" exercises and skills, which, with guidance, can turn into powerful skim-reading abilities, even for foreign learners (and dyslexics).

The same principle holds in the reverse direction, of course. As I have demonstrated with children, Spanish speakers can have an easier time with scientific vocabulary than native speakers of English, e.g. a phrase like *pulmonary medicine,* given Spanish *pulmón* "lungs."

Isolating the root

In view of their potential usefulness to overall content, long words can even be worth further analysis, under certain conditions. As noted, it is useful to be able to recognize affixes like *–ship*. But this is useful mainly for the goal of ignoring them initially, because the priority is to understand the root. For example, it is more important to recognize friend than ship in Friendship.

Latin-Greek roots

Latin-Greek roots can be helpful, especially because they are more likely to occur in international vocabulary and cognates. The teacher must exercise judgment, which is readily available in her own intuitions based on experience. It is easy to go overboard. But pointing out the more frequent and helpful Latin-Greek roots is easy, useful, and can even be fun if done right. *Psycho-* "soul, mind" is far more important than *soma* "body," and may be enough to allow the reader to guess the meaning of *psychosomatic* in context.)[3]

As with any strategy, it is important not to be distracted by irrelevancies. If a given strategy, even specific knowledge of roots, doesn't work on a given occasion, that should be no cause for concern. It is just a strategy, not a rule, and learning a language (like life in general) requires the ability to use or ignore strategies as they are useful…or not.

"tweaking."

Comprehending in any language requires abundant amounts of "tweaking."

Whatever learners know (or think they know) about any given word is in fact no more than an initial hypothesis about what this word might **really** mean in context. It is a strategy, not a decoder or automatic translator. This initial hypothesis is part of an **interactive learning syste**m, at least if the learner **knows how to learn**. Needless to say, teachers should present the reality of language, avoiding a parsing-oriented linear conception of language. Hebrew will be used here to supply some examples of phenomena relevant to the discussion here. Phenomena will be cited that have abundant examples in all languages, such as "tweaking" of ambiguous words, although they may be clearer in Hebrew, as well as what a foreign language is like.[4]

Tweaking examples from Hebrew

It is more or less axiomatic in modern linguistics that any structure occurring in any language can also occur in any other language. The relevance, especially for practical language learning, depends on the phenomenon and its application. I have to warn readers that they will not find anything of what I'm talking about in any standard textbooks of Hebrew. Readers who wish an excuse **not** to try out my system can take refuge in a review of my methods in foreign languages has been reviewed (in Celce-Murcia's *Teaching English as a Second or Foreign Language.* 1991, which called my method for teaching speaking "heretical."

What is more, this was a positive review, which noted that "future theories of language acquisition will have to account for [its] manifest success." But the system to be presented here is completely different and independent from my teaching of speaking in any case, albeit even **more** "heretical"—which is certainly an important warning if your goal is to hew to one another "orthodoxy" in language teaching. (There are many orthodoxies in language teaching.)

Towards more general initial hypotheses

Wouldn't it be nice if learners could have a set of initial hypotheses for **all vocabulary**, both native-English (i.e. "Germanic" roots) and Latinate, so that learners can approach new words, not with a blank notebook (and a blank stare) but with an initial guess (a.k.a. Hypothesis) about the range of meanings a word is most likely to have out of the near infinity of possible meanings.

[3] . It may be useful to teach tiny amounts of speaking in simplified Latin and Greek.

[4] The tri-consonantal ("tri-literal") root of Semitic languages, (as in Arabic *Islam, Muslim,* from *salaam* "peace" will be ignored because it has no relevance to English.

How reliable would such initial hypothesis have to be?

My Japanese listener

After a lecture on an early version of the system to a humanities conference, a Japanese gentleman in the audience came up and elated how, when he was learning English, he came to a conclusion (or rather, a hypothesis) that English words beginning with fricatives (especially *F, S, Th*) had some sort of "strange" meaning. I doubt that his "rule" is correct in any general way. It is certainly a wilder guess than anything in the Onomat. He did use it well: His English was very good (which of course is not a controlled experiment.) He must have found many counter-examples as he studied.

But the actual "accuracy" of his "rule" was less important than the fact that he used it as a strategy—an interactive strategy to help manage the overwhelming task of learning vocabulary in a "non-cognate" language like English. His hypothesis, whatever {"planet" it came from, probably served him most in forcing him into an interactive learning system, and its actual empirical adequacy was secondary. Any such system should be as empirically adequate as it can be made, but asking for quantitative proof of its "accuracy" in advance would be like asking students to make random guesses about unknown words, and then grading them on the "accuracy" of their guesses.

As a preliminary to the specifics, it may be useful to assess your results for *berm, petard, scathing* by checking a dictionary, and to ask whether you saw any patterns in the body-part and body-functions that you listed. You may (or may not) have noticed the frequency of *P* for a male body-part, *B* for another body-part found on both males and females, and other correlations, some of which will conform to the Onomat, as will expletives like *Boy oh Boy!* And *Booyah!*

The Onomat

It's not really like an automat, where you can pull up the glass door and take a perfect triangle of pie (and even pieces of pie can never be perfect). So the Keys are not a automatic decoder, but just a set of loosey-goosey "inspirations" for human thought; not an automatic translator, but a set of initial strategies for humans to use, to get meanings, even deeper meanings out of words than computers cannot even understand. So it will tell you that Greek *Podi* and Italian *Primo* and Russian *pervïy* (both meaning "first") are and Greek *Prosopo* and Latin *Persona* "face" are so-called because they all indicate PUSHING FORWARDS. Why do "face" and "foot" in Greek both begin with *P?* Isn't that illogical? Why doesn't Greek have easier, less confusable words? That's what natural languages are like. The Onomat doesn't do everything, it just gives a start, leaving a lot of the fun for the learner.

General vocabulary strategies: guessing/retention

Vocabulary retention is perhaps the main challenge of vocabulary learning. What is the point of learning words if you forget them?

Retention can be enhanced by practice, but it is also influenced by mode of learning. If you learn a word by tediously searching for it in a dictionary and the definition makes no particular sense ((it is "arbitrary," the way meanings are axiomatically assumed to be in all languages), chances of retention are minimal. If, on the other hand, is somehow relates to other knowledge, then it is easier to retain (as we will see with roots, below). Memory is by its nature associative, so even arbitrary associations can be helpful. For example, the association "If you see a house, buy it!" Is a good way to learn that the Hebrew word for "house," *bayit*, which sounds like English buy it. Books are available for association's e.g.

To learn Spanish, but the principle can also be taught with an example or two, so that learners can make them up fie EFL by themselves. For example, *Mal^{l}chik l^{y}ubit boy* is an association for Russian speakers, meaning "The boy likes a battle," to teach that English *boy* means "boy," (=*Mal^{l}chik*) in Russian.
But these are not readily available for English as a foreign language, and teachers may feel more comfortable with strategies based in real language facts. The student, if asked, may also often prefer linear learning strategies like memorization. But students are often overestimating the value of such strategies. Ultimately, the theoretical soundness or the linguistic basis for a strategy is far less important than how well it works (including how much fun it is). If a strategy can be introduced as a game, without prejudging or overselling its value, it can become a useful tool.

"Tweaking"

Teachers know that, no matter how well you know the dictionary definition of a word, it is often necessity to "tweak" its meaning for different contexts, using pragmatic knowledge. The only rule here is to make the resulting meaning as reasonable as possible.

The hoof-beats" rule of tweaking

One minor but useful rule of tweaking is the "hoof-beats" rule: when you hear hoof beats, assume horses rather than zebras. This is the strategy to choose the "minimalist" guess, contributing less unique information where possible.

But this rule is far different from the linear thinker's typical reaction: "How do I know it's horses? It might be anything, even a runaway movie sound-track," in other words, the pseudo-rule not to assume anything. Learners must tweak, although they are often given little practice in it.

Tweaking in Hebrew

Let's start with an example from Hebrew as a foreign language. The Hebrew word *Kaf* means "spoon" or "shovel" or "palm of the hand." The foreign learner can only use context to choose between them as the appropriate translation. Examples:

1. Rachel picked up the *Kaf* and tasted the soup.
2. Shlomo's *Kaf* was dirty from the day's labors.
3. Yaaqov picked up the *Kaf* and began clearing away the soil.

Note that your guess is not guaranteed to be right, no matter how clever you are. Shlomo might have used a pitcher to clear away the dirt. A native speaker would no doubt do better, using subtleties of usage that the foreign learners may not know. But certainly the strategy of tweaking is better than simply assuming one meaning arbitrarily. You can't win this game by not playing. Using the very useful empathy for foreign-language learning we might be tempted to say that there is no real ambiguity, that for the Hebrew speaker there is only one meaning, confusing as it might appear to the foreign learner.

But this empathetic insight is irrelevant practically, at least if we are to have empathy for foreign learners, who must understand English in terms of **their** native vocabulary. Even if the linguist might dismiss the spoon/shovel contrast as an ambiguity of reference, not of meaning, the reader must understand the reference as part of content, so this is at most an irrelevant abstraction.

"Super-tweaking"

As any Hebrew teacher will tell you (and most students, hopefully), the word *Kaf* begins with the letter *Kaf*, whose name is the ambiguous word just mentioned. What Hebrew teachers and textbooks miss is that this same letter begins words with all of the following meanings: "pitcher, a glass, pocket, vessel/instrument, hat, skull-cap, chair, assembly (several words), church. All of these words refer to CONTAINERS of one sort or another (including containers of backsides, and of and groups of people. This fact leads to the possibility of "super-tweaking," as in sentences like:

1. Rachel lowered the *Kad* and fed the camels.
2. Sarah held out her *Kaf* with some money for her friend.
3. The musician picked up his *Kli* and began to play.
4. The priest entered the *Knesiya*
5. Avram put a *Kipah* on his head, and entered the room.

"Super-tweaking" guesses the meanings of unknown words on the basis of language facts that go beyond traditional morphology and lexicon, here because of the fact that *K*-words in Hebrew form a semantically coherent set, what is here called a "brood" of words. While the existence of such broods may be characteristics of Hebrew, it is also true that languages are all cut from the same general ("universal") pattern, so that whatever exists in one language **may also** exist in any other language, even if in unrecognizably different form. In fact, it is easy to see that English has similar broods with the letter or K: Cup, Cap, Cape, Cover, Conquer, include (excluding the prefix)

An informal experiment with bilinguals suggested that they used the initial letter to guess meaning of unknown words in Hebrew more than in English, showing at least subconscious awareness of this feature of Hebrew. It may well be more prominent in Hebrew than in English. I leave this to readers to assess, especially by trying out the Onomat. But it should be kept in mind, as emphasized here from the beginning, that strategies are not rules, and do not need to be.

The meanings of letters

There is a traditional insight in Hebrew studies that Hebrew letters have their own meanings. Books are available on this idea in any Jewish bookstore, often giving each Hebrew letter with its name, the meaning of the name, and sometimes additional examples of words beginning with the letter, and *K* is the first consonant of many nouns referring to containers (in a very broad sense, as exemplified above), and also verbs/adjectives of inclusion, correction, and power (e.g. Include, correct, conquer, able). As these sample meanings show in their English spelling, English mirrors the Hebrew broods.

L is the first consonant of many words indicating going up, being above, i.e. Lifting, loftiness, including abstract such as "God" (*el)* as well as *aLiyah* "going up," etc. (Arabic has similar words, including of course *aLlah* "God."). The Israeli airline *El-Al* means "to on-high").

Parallel examples are easy to find in English, such as *Lift, Lofty, elevate,* and abstracts *Love, Learn,* as abstract (metaphoric) extensions of lifting, as well as *Lip* and the Latinate root *Lingua* (two different body-parts that LIFT). The claim here is that learning two "main meanings" for less than a dozen "Key-letters" can give an adequate hint for the learner to "tweak" the exact meaning of many words in context. This claim may sound unbelievable, but I have been teaching it for some three decades. I'm sure that my students are especially smart, but I have also seen that some of their smarts c*ome from* this learning system.

Body-parts, etc.—3.

You may notice a certain consistency in innovative and non-standard lexical items for bodily parts and functions, as well as exclamations, e.g. *Boy oh Boy, Booyah, Boobs, Butt,* which conform to the theory outlined here. B*ooyah, Boobs, Duh, e*tc., as does*Mama,* which is no more the sound that mothers make than *Brr* is a sound made by cold weather.

Onomatopoeia

Part of the power of the system comes from onomatopoeia—the sound symbolism contained in language. *L* is clearest as an example, because it you LIFT the tongue (*Lingua*) to pronounce it. (This was first observed in Arabic, where the *L* of Allah was seen (by Malik 2000) as representing the striving towards God. Admittedly, even obviously onomatopoetic words are sometimes harder than you might expect. Try as you might, you cannot picture a dog saying *wang-wang,* any more than a Chinese speaker can picture a dog saying *bow-wow.* But that this Chinese word is easier than most others. In fact, you may be able to understand words in other languages with a little help: Can you guess what animal says *hav-hav?* This is the equivalent of *bow-wow* in Russian and Hebrew. *Bow-wow* and still more *bark* hide their onomatopoeia.

It is concealed under centuries of sound-change (phonetic drift). In the same way, the onomatopoeia of many words in many languages is hidden under centuries of sound change and also meaning change (phonetic and semantic drift). Certainly he onomatopoeia is not obvious throughout the Key-letters listed in the Onomat, although perhaps *K* is more convincing when its two meanings, CUT as well as COLLECT, are both taken into account.How can we use it if you can't hear it? The answer is that we can see it. The odd and interesting fact is that the shapes of letters often reveals their meanings more clearly than their sound.

Sounds vs. Letters: the shape of meaning

L is the tallest letter in Hebrew and English (and Arabic), a fitting picture of lifting or loftiness. The letter *C* represents Cutting and Collecting: In Hebrew this letter looks like a backwards *C.* The history of these letters is well known, and it shows clearly that letter evolve to better represent their meaning. The letter *C* is actually derived from Greek gamma (*Γ*), but obviously evolved into its present circular shape, inspired no doubt by Latin words like the one noted here for English *C.* The same evolution obviously changed Hebrew *K,* which looked more like *K* (of which it is the ancestor). Hebrew *S* is the clearest example, in that it had the earlier shape of Greek *Xi* (Ξ) but evolved into a circle. *S,* from Greek *Sigma* (*Σ*) now has a double SPIN.

The "Onomat"

The "Onomat": is an analysis of vocabulary which implies a **strategy** for learning vocabulary in foreign languages. The name blends *automat* and *onomatopoeia*, because the Onomat claims to reveal onomatopoeia "hiding in plain view" in the lexicon. Note the difference between **rules** and **strategies**. Rules (e.g. Algorithms) are based in linear logic, that students and teachers often feel comfortable with. They usually have exceptions, of course, as in the saying: "There is no rule without an exception …except the rule that here is no rule without an exception."

How well a rule works is another question. There is really only one real "rule" for finding out the meaning of an unknown word: look it up in a dictionary. This rule is often inconvenient, boring, etc., and not guaranteed to provide a useful answer, for various reasons. It certainly doesn't guarantee that the learner will retain the word or use the definition effectively. Strategies, such as "heuristics," are different. They are designed to be efficient, not always accurate. Degree of accuracy is simply the wrong question to ask. In this way, a good heuristic allows us to learn from our mistakes, in an interactive learning process.

Proving the claim

The frequent method of proof in linguistics, as in science generally, is controlled experiments. Research notes sometimes help to show the genesis of ideas. But controlled experiments using teaching methods necessarily involve so many variables, chief among them the attitudes of learners and, still more decisively, of teachers. New methods are especially difficult to demonstrate, because the big problem with new method is teacher resistance. You can force a teacher to teach a lesson, but if he or she is skeptical about it, it may not work at all. In fact, the best method you can imagine will fail with a teacher who doesn't understand it or, still worse, who opposes it. In fact, don't we know that teacher attitude is the most important variable in teaching? But if so, then a controlled experiment is more like to assess only teacher attitudes.

Take a parallel example. If you heard the word *cheat-Ta,* even in context, you might not understand it. But if you see its spelling, *città,* you might more easily connect it with the visually similar English word *city*. There's so much emphasis of language as speech in modern linguistics and language teaching that we may miss this point. The fact is that written language is sometimes more revealing than spoken language…and that's not a bad thing, especially in view of the fact that reading is an important goal of language study in itself. In my example of how easy Spanish can be, the example was given in print. In speech it would hardly be as easy!

Here too, it is suggested that the hidden onomatopoeia of language can be found in spelling, in the easiest of all places.

Let's see of you can find it. Where is it in the following words?

C*apture, catch, church, council, city, cap,* c*ape, cover*

What meaning do all these words have in common? They all have some meaning related to CONTAINMENT. While it is not usual to think of a city or church as literally being containers, that is what they are.
So how does the spelling reveal this meaning? The answer is hiding in plain view. What is the first letter in these words? What does it look like? How much imagination does it take to see that this letter looks like a container? It is in fact a very good picture of the act of catching or capturing or enclosing. Each Key can have two main meanings, mm1 and mm2. Mm2 is tweaked (shifted) from mm1, and the many sub-meanings associated with the many words and roots using the given Key.

The "Onomat"

Group	*Letters/sounds*	*Mm2*	*Super-group*
1. PUSHERS	B P F	OPEN	OPENERS
2. SPREADERS	Z/Dh Sh	SHINE	
3. POKERS	J/Tz R Y	SHINE	
4. CHOPPERS	CK Q H	CLOSE	CLOSERS
5. REACHERS	M M L N	HOOK	
6. ROLLERS	G S	CLOSE	
7. DROPPERS	D T Th	JUDGE	

Dh represents the "voiced" the in *This* (Arabic *Dha* "this.)
Of these 7 groups, four are somewhat limited and complex, leaving the three groups in large print, for most practical initial focus.

The two most relevant questions are:

1. What percentage of words in any of these sounds/letters conforms to the definitions given? How many of the world's 6000 languages have I proved this scheme against?
2. What percentage of words must conform in order for the definitions to be useful?

To answer (or sketch how we might answer) the two questions posed:

1. The problem with assessing the coverage is the elusive nature of meaning.

2. Given this answer, it is difficult to answer 2.

But the difficulty of answering these questions is not crucial to a proposed learning strategy. We demand controlled experiments for medicines that we take (and allow to be sold), but strategies, like nutritional information, are worth knowing about, and trying out. Ehen they fail to work, they should be "tweaked" if possible (as in learning from mistakes) or ignored for the given instance.
Let's take an example that is parallel in some respects. Is it worthwhile to think of *television, autobus,* …and even *mama* as "international words"?……

Data vs. Prediction in linguistics

It is worth noting the relationship between data and theory in science, especially linguistics. While astronomy was initially built on centuries of data gathering, it became a science only when it could *predict* the positions of planets. In linguistics, too, we graduated from the data-intensive "discovery procedures" of structural linguistics, and focused on grammatical theories as "predictive" theories. It's now accepted that discovering a structure in just one language is sufficient to make a universal claim. Other languages may not use a given kind of structure, but it could have, if it exists in any language, since our language-structures originate in the human brain, which all humans share.

So I confess that the onomat was initially formulated for just one language, and I am not even sure, at this point, which other languages it actually applies to, in a literal, piece-by-piece way. It may turn out that languages that I haven't studied will turn out to have different sounds/letters, with different meanings.

Spotlighted Onomat

Let's get a little more specific, displaying the most important Keys in more detail.

Group	***Letters/sounds***	***Mm1***	***Mm2***
PUSHERS	B	BULGE	BREAK
	P	PUSH	OPEN
CHOPPERS	CK Q	CUT	COLLECT
	H	CUT	TIE
REACHERS	M	PULL	CONJOIN
	L	LIFT	LOCK
	N	FOCUS	NEGATE
	W	REACH	HOOK

Table-A: Keys with examples

Table A1: OPENERS

Openers	Letter	Mm1	Sub1	Mm2	Sub2
PUSHERS	**B**	**BULGE**	Bulge, Bump, Build, *Bounty*, , Brick, b*less*, Book, *Bene-diction*, Brother, [gk]bible, Breast, Buttock, Bread, Bol[y]shoy "big", [far]bozorg "big", By	**BREAK**	Break, Bust, Between
	P	**PUSH** fwd	Push, Pull, *Prime, Proto-, Pre-, Pro-*	**OPEN**	Open, *aperture*, [aram]*pita* [Span] *Pan,* [It] *Pizza,* [far]*panir* "cheese"
	F	**FORCE**	(Force, For, Fore- From	**FREE**	Far, Flakey
SPREADERS	**Z**	**SPRAY**	Zany, Zoo		For, Free, *Face, Fruit*
	Dh		This, Then	**SHINE**	
	Sh	**SPILL**	Shower, Shovel, Shit	**ARRANGE**	Shut, Shave
POKERS	**J**	**JUT OUT**	Jut, Jump, Jaw, Jowl,	**JUST**	
	R	**STRETCH**	Run, Reach, Race, Rail	**ENLIGHTEN**	Read, Real, Rate
	Y	**FOCUS**	Young, Yellow, Yell, Yes, You, [ru]ya "I"		

Table B2: CLOSERS

CHOPPERS	**CKQ**	**CUT**	Cut, Conquer, Kill, King, Queen	**COLLECT**	Scoop, Cup, cap, Call, *Capture, Collect, Con-, Chair, City,* [gk]*ecclesia, Church*
	H	**CUT**	Hate, Hit,	**HUG**	Hold, Have, Healthy, [lat]*habit,*
ROLLERS	**G**	**ROLL, WHELM**	Glide, Grow, Great, God	**PROTECT**	Guard, Garden
	S	**SPIN**	Spin, Silly, Sail, Sad, Sorry, Sew	**SEAL**	Sit, Settle, Stay, So
DROPPERS	**D**	**PRESS DOWN**	Down, Die, Doom, Dark, Dog, [ru]*don* (river), [ru]*dno* "lower depths", *Danube*	**KNOW**	*Idea*, [ru]da
	T	**DRIP**	Trail, Travel	**OTHER**	Other, Two, [lat]*tu*
REACHERS	**L**	**LIFT**	Lift, Ladle, Love, Life, [he]**aLleluyah,** l	**LOCK**	Lock, .Lullaby, Lie-down, select
	M	**PULL**	Master, *Measure*, Mermaid, Mother	**CONJOIN**	Marry, Mix, [he]**amen**
	N	**FOCUS**	In,[lat]*Noster* "our"	**NEGATE**	No, un-
	W	**WIGGLE**	Wiley, Wine, Water, Wind, Wish, Want	**HOOK**	, With, Wife, Woman
	O	**AGAINST**	*Object*	**AROUND**	[Lat]*o-Bese, Oberro* "wander around", [lruss]*Obo* "about," [russ]*Ostrov "island"*

To give just one example of a word which isn't exactly English, but happens to demonstrate the two main meaning if *L* in its origins. Its original meaning in Danish is "play well" (lekk godt), where PLAY, like *like, love, live* are "uplifting" activities, but it is a pun, also meaning "I arrange" in Greek (cf. Select, lexicon, logic).

Sub-groups

Each Key is the (logical, semantic) "origin" of many different "sub-meanings," the meanings of however many different words use the Key. These sub-meanings also can be seen as belonging to their own groups (sub-groups, for short) such as WET M (water, sea, anoint) or FATAL M (erase, die, murder), and WISE D (judge, know, speak), as well as TASTY PUSHERS (P,F), the latter group highlighting the connection between Spanish *Pan* and Aramaic *Pita,* as well as Italian *Pizza*, and even Farsi *Panir* "cheese."

Language coverage

It is impossible to know, without specific empirical study, which of the world's 6000 languages conform to the Onomat, and how much, and exactly in what ways. Of the languages studied so far, it is clear that given Keys may combine or simply be absent in any given language. That is, any language represents a specific selection and arrangement of the Keys as listed. Meanings can even rearrange, a given meaning belonging to *M* in one language, and *H* in another. Of course even within a single language such complexities occur, especially within groups. *M* and *H* are semantically similar, for example, so it is not surprising to find them overlapping even in a single language. It should be needless to say (but is probably worth reminding us) that languages do not catalogue meanings in rigid ways. Just as we can refer to an object on a table as a *container* or *bottle,* so too a given concept can be labeled in various ways, with (or without) subtle differences between them.

Which languages are covered? Are any human languages simply not included in the Onomat?

As far as I have studied, I can reliably claim that Indo-European and Semitic languages are covered by it. Since the Keys have an onomatopoetic origin (which had been concealed by sound-change), we might expect to find some sort of equivalent even in other languages, such as Chinese. Indeed we can add, to the newly discovered connection between *Pan* and *Pita* also the Chinese *fan*^{f} "rice." The "rime" *–an* is outside of the Keys. Following Bolinger I call them "rimes." They do represent secondary lexical connections).

'The data for the theory: semantic "broods"

The main data for the various Keys and their meanings consists of semantic "broods": sets of words with the given Key as first consonant which exhibit the given meanings. Examples:

B **X**	BULGE Build, Bounty, Bounty, Big, Bold, Beauty, obese, Book, Bible	BREAK Breach, Bust, Bend, Buckle, ^{sp}aBierto
P 	PUSH Prime, Pedal, Podium	OPEN Aperture, Parade, oPerate
CK Q **X**	CUT Cave, Kick, Kill, King. Queen	COLLECT Capture, include, Church, City, Chair, Co-
H	CUT Hack, Half, Hate	TIE Hold, Have, Hug
M	PULL	CONJOIN
X	Master, Measure. Murder, Messiah	Mom, ^{sp}mar, Mermaid, Messiah (anointed)
L **X**	LIFT Elevate, Love, Live, Light, Learn	LOCK Lullaby, Lie-down
W **X**	WIGGLE Want, Wait, Wild	HOOK With, Wife

Semantic drift

In language as in life, **Shift happens**. Words are constantly "tweaking," generating new meanings like rabbits. Semantic shift (drift) is responsible for the fact that words have multiple meanings, apart from changing over time. Changes are not totally chaotic. You can't predict what changes will take place. Words can become more general or more specific, for example. But they also don't hop around randomly.

Dear once meant any animal, and hound meant any dog. Kleenex evolved from a specific brand to a general category. Affixes even become words (rarely)m e.g. *Omnibus* meaning "for everyone" to *bus*. More usually, words gradually lose (neutralize) meaning, as well as shifting. So *like* started out meaning "to fit, suit," then flipped syntactically to mean *have affection for,* even while shifting to a description *alike, like that*). Finally it became a meaningless discourse word, giving the speaker time to think. With all this tweaking going on? What is the ordinary speaker to do? Hw can they understand anything? You just have to tweak along with the words, adjusting meanings to fit any context that the words occur in. We all tweak in our native language, every second of every day that we are reading or listening to language.

Sometimes the shift is considerable, or at least it may often seem so in a foreign language that you are trying to learn. Words sometimes change into their opposite, in "contranyms" (auto-antonyms) like *oversight.* You just have to learn to be pragmatic, making the whole context as ;logical and reasonable as possible. For some people (especially linguists, who pay a lot of attention to what they say, and hyperlogical or fussy people. But there's no rule except learning the needed flexibility. If someone knocks on your door at 3:00 AM and asks if you know what time it is, you should know not to answer, "Yes"…or even "3:00 AM."

A given language can differ from the general scheme in radical ways. For example, *F* in not a separate phoneme in Hebrew, but rather a variant of *P,* so it is not surprising if the word for "face" begins with *P: Panim* *sometimes pronounced *F*).

Of course language differ in which metaphor they happen to use for a given entity or concept. Fr example, *Dog* in English is the "down and dirty" animal (even though English speakers generally like dogs), while in Hebrew they are "scoopers" (*Kelev*), not because of what people do after them, but because of what they do. The sign for "dog" in ASL is made by scratching your leg.

Letter-shape in Hebrew

In Hebrew, letter-shapes happen to correlate in interesting ways with meaning.

Teaching languages: Spanish *Pan*

In present approaches, how can one learn a new word in a new language. Say Spanish *Pan* "bread"? Mainstream immersion theory tells us that it would be best acquired by providing communicative situations in which the word is used. But then again, such methods may break many budgets and many belts. Besides, any teacher is going go tell students to go home and "just learn the vocabulary on page 23 for the quiz tomorrow." But vocabulary leering is hard…almost as hard as retaining it and accessing it as needed.

Traditionalists will say, "If you don't know a word, just look it up in a duct unary." Dictionaries can be easy to use (as long as you can spell.). One technique is to put a dot next to vary word…to make you feel guilty if you look up the same word again and again. Students, being at least linear-minded as others, may prefer to "just look it up" (or maybe rather only to say that they could ;look it up…if they had the time. But the truth is: no strain, no gain. The 'idea;" reputational program, may be one that tells learners that they already know everything!

More on *Pan* and other foreign words

A linguistically oriented Spanish teacher might point out that the Latin root *pan* appears in *companion,* someone that we "break bread with." But this help is probably a bit complex and obscure for many students. Many students nowadays don't even know what breaking bread is. But many students know what *Pizza* and *Pita* are. Wouldn't it be a fun and sown-to-earth help to not that these words and *Pan* all share *P,* in because you open your mouth to eat them? This will even help the student of Farsi to learn *Panir,* which, fitting the Onomat, means "cheese."

Similarly, *L* for LIFT will help learn the name of the Polish airline *Lot,* meaning "flight," as well as Spanish *Levantarse* "stand up," Latin *Levare* "lift," and its derivatives in other languages, including English *elevator,* and even words in unrelated languages, such as Arabic *aLlah* and Hebrew *eL* "god." The metaphoric extension of UP to spiritual and religious concepts is as old as the human race, and natural to all, at least when pointed out. (English *a lot of* shows a distant derivative of Lift, height and quantity being naturally connected, in human cognition.

Sounds vs. Letters: the shape of meaning—2

Are these Keys sounds or letters? Since reading is an important goal of language study, it may be fortunate that, when letters and sound are different, it's really the letters that fit the Onomat more exactly. This may be surprising, but it's easy to explain…without contradicting the basis idea that language is speech, and letters secondary representations of sounds. This is most clearly seen in the quiet general fact that the shape of the letters often symbolizes the meaning graphically. So *L* is the tallest letter, symbolizing the meaning LIFT. *C* is the clearest, symbolizing both meanings, Cut and Collect.

The history of the letter *C* will solve this strange problem. The letter is derived from Greek *Gamma: Γ*. Apparently the letter changed its shape to better symbolize the meaning of the Key *CK*. Given that a tall left is the initial letter of Hebrew means LIFT, LOFTY; A circle begins words meaning SPIN; A BACKWARDS *C* Begins words meaning CONTAINER, CONTAIN, INCLUDE, It should not be too much of a surprise that students report that "the meanings jump off the page."

Key-letters were born along with the alphabet. Hebrew did not invent the concept of representing sounds with pictures. Egyptian hieroglyphics had two types of characters, semantic characters representing concepts pictorially, and phonetic characters representing sounds with pictures via their initial consonant, so the Egyptian character for "gate," pronounced *shar*, was used to represent the sound *sh*. I have argued elsewhere (bar-Lev 1999 in *Glyph*) that Hebrew was the language that innovated alphabetic writing because of the happy fact that the initial consonants had coherent onomatopoetic meanings (which largely conformed to the meanings for Keys given in the "Onomat:), For example, the verb root *Gll* meant "roll," while *M* meant "pull." Examples in Hebrew are *meGilah* "scroll" and *Mosheh* "Moses, pulled (or pulling) from water."

The Key is the usually first consonant in a word or root. But this excludes prefixes, such as *m* in *meGilah*. Similarly, *M "pull, …" is the Key of smash* and *C* "cut" the Key of *scathing*. (Prefixes can have their own Key-meanings, e.g. *Propel* has the Key-meaning of *P*, namely PUSH FORWARD, in both the root and prefix. This little formal complication is not the biggest hindrance to successful use of the Onomat. A far bigger problem is the linear cognitive preference of students and, perhaps even more, their teachers. Students often [prefer memorization of pre-packaged factoids over thinking. Many students will resist any mode of learning that involves any sort of calculation (even non-numeric).

Bur the truth is that linear thinking, such as memorization, is not always as effectives as students think. Students may prefer multiple-choice and TF exams, but they often do worse in them. In learning language, linear methods lead students away from the kind of heuristic thinking and associative memory that alone will allow them to perform as needed. Expecting them to use language after studying with linear methods is like a computer program to teach English to Japanese learners, which boasted that a;; the learner has to do is push a button. How long do you have to push a button before you can use a foreign language?

To use any language effectively, you have to be able to "tweak" learned meanings in context. Often this is given lip-service at intermediate levels of language study, but rarely with any real practice.
Looking up words in a dictionary is not the best way to learn new words, much less retain them, even if you put a dot next to each word. Neither is immersion actually the only or best way to learn vocabulary. Each word must be heard or seen many times, and there is always the danger of misinterpretation. Learning words in context itself is fraught with dangers, apart from its inevitable inefficiency. Study of affixes, as noted, will help only on higher levels. Are there no hints to help along the way?

The Keys offer an interactive learning system that learners can use from the beginning of their study…if only they are taught the meanings of Key-letters with their two main meanings and how to use them.

Attitude & effectiveness, "resistance"

We don't have to do large-scale controlled study to know that attitudes are a (or the most) important variable determining success or lack thereof with any method. This is so even with medicines, which have known physical effects. But nurses know that attitude is most important in creating "miracle cures" or making even known treatments ineffective. Even the best medicine won't work if you leave it in the bottle. Teaching methods generally are notoriously difficult to test with controlled studies, because of the large number of variables necessarily involved, especially variables of attitude.

Has anyone really ever proved any teaching method?

No novel method can really be evaluated empirically for effectiveness with any reliability. So let's look at the logic. Vocabulary is known to be a crucial dimension of language study. Any insight that can find structure in lexicon, even if it dares to go beyond the traditionally approved concepts of affixes, etc., **must** contribute to our understanding of, as well as success with, language learning and teaching, even if it dares to contradict "basic axioms" of linguistics. Non-Euclidean geometry allows us to construct flight-plans on a round planet, even if it "breaks the rules" previously thought to define the very logic of logic. It is no surprise that any reader can think of many words in *C* that don't refer in some way to inclusion, or *B*-words that don't refer to bumping or bounty of one sort or another. But is surprising is that so many words do conform to these generalizations.

What is more, it is a surprising fact that can make language learning **much** easier—but only if the generalizations are used. Many students and even more teachers will probably respond to the *Onomat* by saying "I don't understand." This phrase echoes Socrates' famous statement, "I don't think I know when I don't know" (*Ouk eidos, ouk oiomai aidenai*, using "wise D." But it is the exact opposite, for it indicates resistance to learning something new, and is followed by rejection of new ideas, whereas Socrates' dictum is followed by an actual attempt to learn new ideas: *Ou mé pausomai philosphôn* "I will not stop loving wisdom." Theoretical linguists may bob and weave, trying to dismiss the proposed Keys as not being a part of linguistic structure or linguistic competence "properly speaking."

If so, however, they are really only displaying the logical mistake of thinking that the supposed arbitrariness of lexicon is an axiom by virtue of being "logically" or "inevitably" true, like the "rule of our profession" once believed that phonemes can never overlap, or the "axiom" that parallel lines never meet even in alternate universes, where in fact they meet right on Earth, and are needed to do so in order to plot flight-plans on any spherical planet. In any case, language teachers cannot so easily ignore or dismiss lexicon, their only choice being to let students "pick it up off the street" (or from tedious memorization) or to try out innovative ways to learn and teach, even if these ways involve loosey-goosey strategies and (horror of horrors) generalizations with many exceptions, rather than fixed rules that can be declaimed in lectures and printed in books, whose exceptions annoy students alike, but give teachers a ready topic and format for exams.

However much theoretical simplicity is valued in science, it is often devalued by the students, even if they need it desperately. Memorization is a familiar friend, even if it often betrays us in time of need. Scientists once preferred their good-old-fashioned epicycles over the simplicity of a heliocentric solar system.
But however simple the "onomat" is (even as compared with any dictionary, even of a single language), any student who wants to use it (or teacher who wants to teach with it) must fully learn it, and learn to use it. Learners of ordinary abilities are quite able to do this, as I have seen—unless psychological resistance prevents them from doing so, even if it comes from a dogmatic (or just dogged) addiction to linear learning.

Concluding note

The ability of linguists (including language teachers, of course) to see linguistic facts independently of any particular theory or "paradigm" might be called the "Everest Principle," i.e. "because it's there." This principle is equivalent to Galileo's legendary *Eppur si muove*, the original paradigm-changing command (obeyed by future scientists, although not by flat-Earthers or geo-centrists) and can be translated loosely as: "Look at the darned data!"

The flat-Earthers might have fairly responded, "I don't understand your theory." But this statement should be sharply distinguished from the almost identical classic statement of Socrates: *Ouk eidos ouk oiomai eidenai* "When I don't know something, I don't think that I know it." The difference is proved by subsequent speech and actions. The flat-Earther uses his non-comprehension as a reason not to study further, whereas Socrates used his ignorance as a reason for studying further: *Ou mé pausomai philosophôn* "I won't stop loving wisdom." At some point, it is appropriate to suspect, in the skeptics' resistance, a simple unwillingness to **imagine**, although imagining is basic to human learning and human language.

Final note

"How can a simple scheme of 20 Keys explain the whole lexicon? Take an ordinary word like late. How does it even fit into LIFT, the supposed meaning of *L*?

Learners attempting to use the Key meanings must use context, as in any learning. If the meanings given don't suffice in a given case, they may have to learn it by looking it up. Can the key-meanings help even then?

More generally, *late* has several different meanings, from "after a given time" to "at an advanced time" to "deceased" and even "possibly pregnant" (not given in most dictionaries). Even if you know what the word means "literally," you still have to apply it pragmatically, identifying who or what is late for what in the given context.
As a teacher, I would see if I can explain it, even after the fact, in reference to the two man meanings. As anyone using the system must learn, there are two different meanings, often quite different from each other (even opposite!).

In fact, L1 does not work. The uplift is not there, as it is even in *Learn*, *alive*. But *lift* can be connected with L2, given some imagination. If you are late for an event, you are "LOCKing yourself out" of the event. "Late in the day" also relates to night-time, "Lullaby" time, when you *Lie down* (i.e. "lock yourself up" for the night).
Hearing this a given student may think that it is too far-fetched to be helpful. That student can, of course, decide that he must "just memorize" the word. Of course he has already been helped by thinking about the word's meaning. This is part of the interactive learning system.

Irregularities are learned better as irregularities with respect to a coherent system, so irregularities don't negate the usefulness of coherent systems over rote memorization, but Of course, linear "rote memorization" can be brutally powerful, But it can also be brutish, inflexible, "dumb," No one can memorize thousands of words effectively, although some try. At its best, linear memory is inflexible. You know your telephone number and social security number very well, but you can't very easily say them backwards, or say whether any pair of numbers in them is a multiple of any other pair .

To use information flexibly, it is necessary to chew on it, not memorize it, to examine it uncritically, apply it and see where it applies better, and where it applies less well or not at all. This is what's meant by an "interactive learning system."The table of Keys is not a magic decoder, nor a miniaturized dictionary. It does not contain all the information of a complete dictionary. But neither does the average native speaker of a language, and especially not a non-native speaker. For understanding the lexicon, an overview is necessary, to highlight underlying principles. The table of Keys is such an overview.

Native speakers are able to guess word-meaning from context intuitively and subconsciously. But both the foreign-language learner and the theoretician need explicit principles. Both must distinguish between rules and strategies, for their own very different reasons (the former to learn more effectively, and the latter to understand cognition). While the 20 Keys must be learned, in order to use them. Some short moments of rote memorization may be needed. But the more important aspect of learning them is seeing many examples, and examining them critically. The interactive learning system of the Table of Keys combines the "left-brain" listing of Keys with the "right-brain" application of them to specific words.

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