

# The Loglan Language

Leslie Beaumont (SL); Randall Holmes (RL)

June 9, 2017

# Artificial languages in general

The project of designing a new spoken language has been attempted from time to time with greater or less success.

We mention some other examples. The now defunct language Volapük and the still quite widely known Esperanto were conceived in the 19th century as media for international communication.

The Klingon language, originally commissioned by the producers of the Star Trek movies for a little dollop of imaginary authenticity in the portrayal of Klingons in the Star Trek movies, has taken on something of a life of its own, though no one proposes that the world learn to speak it.

# The original aims of the Loglan project

Loglan was conceived in 1955 by an American sociologist, James Cooke Brown, as an experimental vehicle to test the Sapri-Whorf hypothesis, that the language one speaks or thinks in in some way restricts or guides the kinds of thoughts that you can think.

The idea was to create a language that volunteers in a scientific experiment could learn; the experimenters could then test to discover any psychological effects of learning this language on the subjects.

Brown listed some criteria that a language needed to satisfy to serve this purpose. It should be small in scale, obviously necessary for subjects to effectively learn it in the context of the proposed experiment.

It should be easy to learn.

It should be extreme in some respect likely to have actual effects along the lines proposed by Sapir and Whorf, in order to increase the likelihood of observable effects of the kind predicted, if indeed the hypothesis is true.

There are respects in which the language is clearly small in scale. The number of sounds in the language (phonemes) is at the low end of the range in human language. The “native” vocabulary of the language is built from a fairly small number of root words, which are designed to be recognizable, at least in part, to the speakers of the eight most commonly spoken languages on earth at that time. The formal grammar of the language (on which more later) has relatively few rules.

Experiments done early in the project suggest that to learn to speak the language on an elementary level is fairly easy. No large scale work along these lines has been done recently.

The way in which Dr Brown proposed to make the language *extreme* can be summed up in the word “logical”. In fact, he did two different things.

The language is logical in the sense that it is to a certain extent based on formal logic (the extent to which this is true can be overstated). It does support the ability to express all the operations of first-order predicate logic: later in the talk we will briefly explain what this means.

The language is also logical in the sense that it is *unambiguous*. A Loglan utterance can be parsed correctly in only one way. We’ll give some examples later in the talk illustrating how ambiguous utterances of English are disambiguated when expressed in Loglan.

A sense in which it is *not* more logical than English or other natural languages is the semantic sense: there is no expectation that the meanings of the words of Loglan are fixed with mathematical precision (except for the little words of grammar). Disagreements on where something stops being **blanu** (blue) and starts being **vegri** (green) are not settled by the Loglan Institute.

## The history of the project

The history of the project is a sad tale, I suppose, in certain ways.

From 1955 on, Dr. Brown was working on this project. Some public interest was excited by an article in *Scientific American* in June 1960. An introductory book *Loglan 1* was published in 1975 (I myself read this book within a year or two of its appearance and was captivated); dictionaries, *Loglan 4 and 5* appeared shortly thereafter.

In the early 1980's a decision was made to completely overhaul the phonetic structure of the language; struggles in the group designing the language led at the same time to a schism between the original Loglan and a sister language Lojban. This actually led to lawsuits. Lojban still exists, is considerably larger than its parent language, has generally similar grammar and phonology but root vocabulary incomprehensible to Loglan speakers.

It can be noted that I am on good terms with the Lojbanists; no lawsuits have happened recently. I have occasionally borrowed modifications to the basic language model that they have made in Lojban.

A new edition of Loglan 1 was produced in 1989, and new dictionaries in HTML format were circulated. The original group (those who had not left to join Lojban) continued to work on the vocabulary and grammar until about 2000, when Dr. Brown died.

I became the executive of the Loglan Institute in 2008. I had for some time in the late 1990's been a logical consultant for the language; I met Dr. Brown once. From 2008 until 2013, I spent most of my time learning Loglan (I was already familiar with the grammar and especially the logical constructions, but that didn't mean I could speak it!), mainly by engaging in conversation in and about Loglan in Second Life every Saturday morning for an hour with a group of Loglanists and fans of other constructed language of varying size. I'm still doing this.

In 2013 (continuing until the present) I decided to reimplement the computer grammar of Loglan and generally overhaul the language to achieve something like its original goals (to be a logical language with unambiguous phonetics and grammar; I have no professional interest in the Sapir-Whorf hypothesis, though the original purpose should be remembered and may at some time become relevant)

## And now we get to the point

All this history doesn't answer what ought to be the main question: what is the language like? I'll try to give some hint of this in the limited space of this talk, and I'll provide pointers to further resources one can look into if one actually becomes interested.

# Sounds

The vowels of Loglan are the regular vowels **a, e, i, o, u** with the values typically found in continental European languages (not the weird values found in English!) and the vowel written **y**. the unstressed “schwa” sound found in English for example at the end of “sofa”, which has special functions in the language. **i** and **u** are sometimes pronounced like the consonants **y, w** respectively in English.

The consonants of Loglan are the continuants **m, n, l, r** which sometimes have syllabic (“vocalic”) uses (as in English “father”) the consonants **b, p, d, t, g, k, v, f, z, s, j, c** (where **j** is the sound found in the middle of “azure” or “leisure” and **c** is the “sh” sound in English, and the isolate **h** (distinctive in lacking a voiced partner).

There is nothing distinctive about the sounds, except that there are manageably few of them, all written with a single letter, and spelling is perfectly regular.

What is done with the sounds is quite different from what happens in natural languages. It is possible to identify the grammar class of a word entirely from the pattern of consonants, vowels, and stresses in the word.

## Three classes of words

There are three classes of words in Loglan, names, predicates, and structure words.

Loglan proper names have the unique phonetic characteristic of ending in a consonant, which will be separated from any following word by a distinct pause. All other Loglan words end in vowels. The start of a Loglan name is indicated by distinctive particles, such as **la** in

**la Djan, na kamla** (John is coming)

or **hoi**

**Hoi Djan, kamla vi**

**la** is the article introducing a proper name used a noun, and **hoi** forms vocatives.

Predicates, which serve the functions of English nouns, verbs, adjectives and adverbs, are characterized by beginning with a segment **((C)V<sup>n</sup>)CC...** (which serves to identify where they start) , ending with a vowel, and being penultimately stressed (stressed on the second-from-the-last syllable) which serves to tell where they end. There are other rules, but these are the main ones.

The forms of the predicates of the Loglan root vocabulary are CCVCV and CVCCV. There are longer compound predicates.

Structure words, the little words of the grammar of Loglan, are made up of V, VV, CV, and CVV units (notice that such a word cannot contain two successive consonants, so it cannot be a predicate, and it will end in a vowel, so it cannot be a proper name). A V initial word, whether structure word or predicate, must be preceded by a distinct pause.

The total effect of the phonetic rules is that someone who is familiar with Loglan phonetics can resolve an utterance into words and determine their most general grammatical class without any knowledge of what the words actually mean!

All proper name words belong to the same grammatical class. All predicates belong to the same grammatical class. The structure words belong to many small grammatical classes: if one knows all the structural words and their grammar, one can divine the grammatical structure of a Loglan utterance – without knowing what any of the content words (predicates) actually mean!

## Nouns, verbs, adjectives and adverbs are all one class? The semantics of predicates

As I said above, the Loglan word class “predicate” plays the roles of noun, verb, adjective and adverb in Loglan. How is this achieved?

The primary meaning of a predicate is more or less that of an English verb. Each predicate’s basic role is to assert that a property holds of a given object or that a relation holds between a given ordered list of objects. The simplest form of Loglan sentence is of the form

X1 **preda** (X2) (X3) ...

For example

**da blanu** X is blue

**da mrenu** X is a man

**da dzoru** X walks

**da blanu de** X is bluer than Y

**da donsu de di** X gave Y to Z

**da donsu de** X gave Y away (to someone)

**da, de di** are Loglan pronouns (referring to the most recently/second most recently/third most recently referred to object not already tagged with a pronoun at the time of their first use in a sequence of Loglan utterances, and thereafter to that object until the end of the context; this is not the most commonly used Loglan pronoun scheme, but it is handy for examples). Unlike English pronouns, there is no information about gender or even animateness in a Loglan pronoun: any pronoun is indifferently he, she, it, or even they. The main concern in Loglan is that we have an unlimited supply of pronouns, so that when there are several objects (or persons, or abstractions) being referred to by pronouns, each gets their own.

There are several points to notice here.

**mrenu** has the same grammar as **blanu** or **dzoru**: all are acting as verbs here, though the corresponding English words are respectively a noun, an adjective, and a verb.

On a side note, **blanu** is not a property of a single object, but a relationship between two objects (the first is bluer than the second), as the second example with this word illustrates.

Each predicate relates a certain number of things: if fewer things are given, we are asserting that the statement is true for some unknown occupants of the missing positions. So **da blanu** actually means “X is bluer (than something)”. The two examples with **donsu** also illustrate this point.

At this point, I have illustrated the use of predicates as verbs. The simplest use as a noun is illustrated here:

**le mrenu nia dzoru** The man is walking (or equally well, “The men are walking”).

**nia** expresses the present progressive tense here.

The object of official interest here is **le mrenu**, “the man”. The particle **le** does the work of converting the “verb” **mrenu** (meaning “... is a man”) to the noun phrase **le mrenu** (which means, “the being(s) understood by the parties of the conversation to be referred to, understood to be a man”). Notice that the sentence asserts that the being referred to is walking; it doesn’t assert that the being is a man, just notes that this is understood to be true.

**le mrenu ga fumna!** is a perfectly sensible if surprising sentence: “The man is a woman!”

This might be expressed in English as “The ‘man’ turned out to be a woman”. (Again, it could be “The men turned out to be women” !)

A Loglan speaker might say **Ue, le mrenu ga fumna!** The word **ue** is an attitudinal, expressing surprise.

**ga** here is a dummy “tense”, just filling the grammatical place of a tense in a sentence which seems to express an eternal fact. It is needed because, as we will see in the upcoming discussion of adjectival and adverbial uses of predicates, **le mrenu, fumna** would not be a sentence but a “noun phrase” (the Loglan term, taken from mathematical logic, is “argument”) meaning “the manly woman”.

Notice that the tense in these sentences is a separate particle: predicates are not inflected (there is no analogue of tense inflections of verbs or number inflections of nouns in Loglan).

## Adjective and adverb uses?

The device of modification of one predicate by another introduces adjectival and adverbial uses of predicates.

**Le sadji mrenu na vi hijra** The wise man is here now

Here **sadji mrenu** is a composite predicate meaning “wise man”. We see **sadji** as an adjective here.

The same construction can serve adverbial functions, and there is no restriction on what predicates can be used as modifiers.

**Da slano titci de** X slowly ate Y (**slano**=slow, **titci**= eat)

**Da mrenu turka** (**turka**=work; X worked manfully).

The device of predicate modification (which we know all about from English, though we don't call it that) is inherently semantically vague. In fact, it is rather poetic. The hearer is supposed to figure out what the combination means.

But in spite of the semantic vagueness which is not avoided, there are opportunities here to be (syntactically) unambiguous.

What is a fast bicycle pump? Is it a pump for fast bicycles or a bicycle pump which works fast?

**kukra** = fast; **torkrilu** = bicycle; **dampa** = pump

**Le kukra torkrilu dampa** is unambiguously a pump for fast bicycles; modification in Loglan groups to the left.

**Le kukra ge torkrilu dampa** is unambiguously a bicycle pump which is fast. This probably means a bicycle pump which inflates bicycle tires quickly, not one which rapidly flies through the air: this is the kind of semantic detail the user needs to fill in with predicate modifications.

## Connectives

Here we are talking about words like “and” or “or”, which are called “conjunctions” in English grammar. We bring up this topic because of the connection with symbolic logic.

A kind of connective with no analogue in English is the *utterance connective* **i**. In a chain of Loglan utterances, a speaker will use the connective **i** between successive utterances.

**Mi dzoru lemi hasfa. I mi skitu vi lemi nu no gudbi cersi.** I walked to my house. I sat in my favorite chair.

One might think of this connective as “and”. But it isn’t necessarily.

**Ti cmalo nable, i no, i ti no ga cmalo nable**  
That’s a small problem... No. That’s not a small problem.

## Logical connectives

There are four root logical connectives in Loglan. **a** means and/or; **e** means “and”; **o** means “if and only if”; **u** means “whether or not”. They come in various forms depending on what they connect.

**La Djan, a la Meris, pa vi hijra** John or Mary or both were here. (linking arguments)

**Mi nia dzoru lemi hasfa, e penso la Vienas**  
I am walking to my house and thinking of Vienna. (linking predicates [with attached arguments])

**Ti clivi cu brute nimla** This is a living (whether breathing or not) animal. (linking predicates in a predicate modification; note the different form **cu** (based on the root **u**)).

**Mi hapci, ice mi cluva la Meris** I am happy, and I love Mary (notice the form **ice** for connectives acting on whole sentences, based on e).

Variants of these connectives can be formed by prefixing with **no-** or suffixing with **noi**. This negates the part to the left or right.

**Tu fa gudbi, anoi sadji** You will be good if (you are) wise. Literally, “Either you will be good or you are not wise” .

**Lemi cadre fa nigro, noa hatro** If my dress is black, it will be hot. Literally, “My dress will be either not black or hot” .

Both of these are examples of a logical analysis of the meaning of “if” which one might have learned in a philosophy class.

**La Djeimz, gudbi noenoi sadji** James is neither good nor wise.

## **Being unambiguous with connectives**

If I say “John or Brad and Kim did this”, what do I mean?

In Loglan, I cannot be ambiguous.

**La Djan, a la Brad, e la Kim, durzo tio** means (John or Brad) and Kim did this.

To say “John or (Brad and Kim) did this” I use a grouping device.

**La Djan, a ke la Brad, ki la Kim, durzo tio**

**ke ... ki ...** resembles the English “Both ... and ...”. Notice that the **e** signalling the “and-ness” occurs at the beginning.

Similarly “Either ... or ... (or both)” is translated as “**ka ... ki ...**”. Forms modified with negatives are formed by suffixing **ka/ke/ko/ku** with **-noi** to negate the left part and suffixing **ki** to negate the right part.

**Ka tu fa gudbi, kinoi tu sadji** You will be good if you are wise (lit. “You will be good or you are not wise” )