# 邏輯語的文法

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2015 年 12 月 5 日
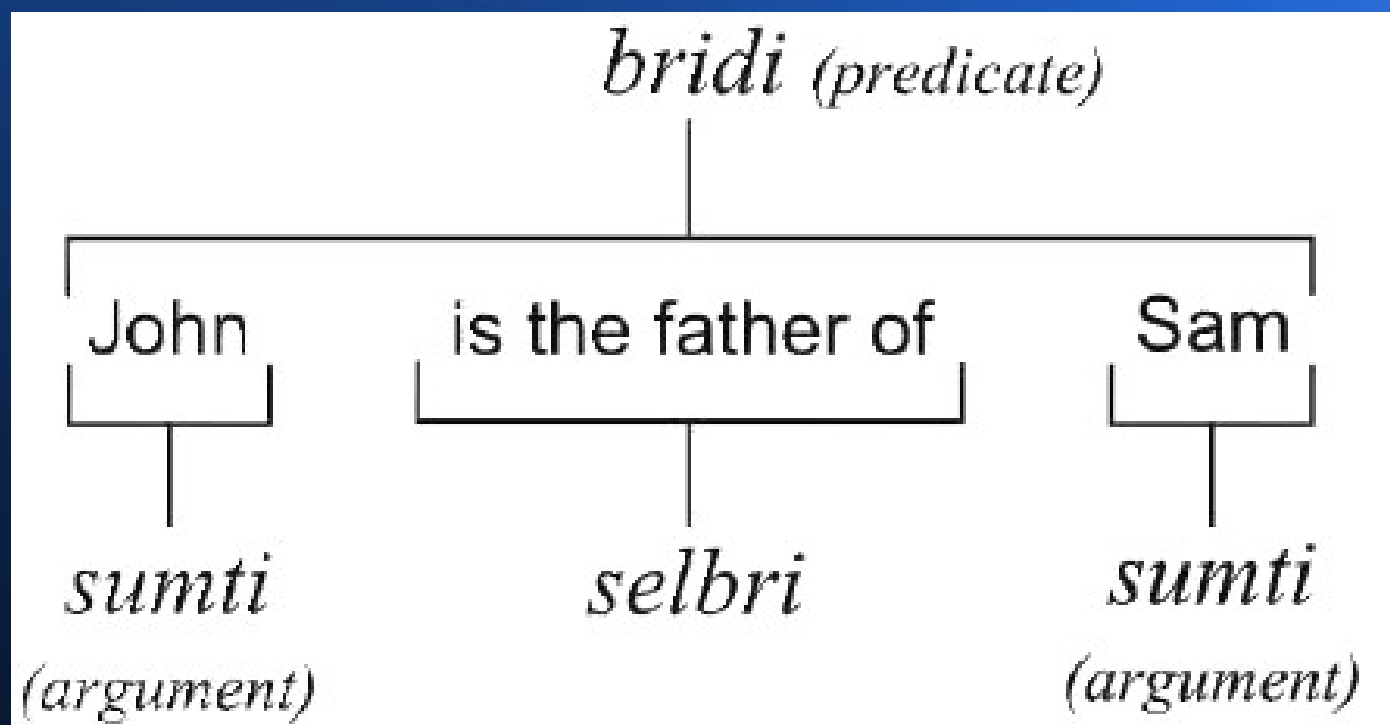
# 本文來自

- The Lojban Reference Grammar

  第二章： A Quick Tour of Lojban Grammar, With Diagrams


  網址： https://lojban.github.io/cll/2/1/

# 邏輯語的語句結構

# 填充語　sumti

| | |
|---|---|
| *mi* | I/me, we/us |
| *do* | you |
| *ti* | this, these |
| *ta* | that, those |
| *tu* | that far away, those far away |
| *zo'e* | unspecified value (used when |

# 動詞　selbri

```
vecnu     x1 (seller) sells x2 (goods) to x3 (buyer) for x4 (price)
tavla     x1 (talker) talks to x2 (audience) about x3 (topic) in language x4
sutra     x1 (agent) is fast at doing x2 (action)
blari'o   x1 (object/light source) is blue-green
melbi     x1 (object/idea) is beautiful to x2 (observer) by standard x3
cutci     x1 is a shoe/boot for x2 (foot) made of x3 (material)
bajra     x1 runs on x2 (surface) using x3 (limbs) in manner x4 (gait)
klama     x1 goes/comes to x2 (destination) from x3 (origin point)
          via x4 (route) using x5 (means of transportation)
pluka     x1 pleases/is pleasing to x2 (experiencer) under conditions x3
gerku     x1 is a dog of breed x2
kurji     x1 takes care of x2
kanro     x1 is healthy by standard x2
stali     x1 stays/remains with x2
zarci     x1 is a market/store/shop selling x2 (products)
          operated by x3 (storekeeper)
```

# bridi 的範例

Let's look at a simple Lojban bridi. The place structure of the gismu <span style="color:red">tavla</span> is

**Example 2.5.1**

x1 talks to x2 about x3 in language x4

**Example 2.5.5**

mi **tavla** do zo'e zo'e
I talk to you about something in some language.

**Example 2.5.6**

do **tavla** mi ta zo'e
You talk to me about that thing in a language.

**Example 2.5.7**

mi **tavla** zo'e tu ti
I talk to someone about that thing yonder in this language.

# 後面的格可以省略

**Example 2.5.8**

mi **tavla** do

I talk to you (about something in some language).

**Example 2.5.9**

do **tavla** mi ta

You talk to me about that thing (in some language).

# cu 後面一定接動詞

**Example 2.6.1**

| mi | cu | **vecnu** | ti | ta | zo'e |
|---|---|---|---|---|---|
| seller-x1 | | **sells** | goods-sold-x2 | buyer-x3 | price-x4 |
| I | | **sell** | this | to that | for some price. |

I sell this-thing/these-things to that-buyer/those-buyers.
*(the price is obvious or unimportant)*

# 用 cu 將動詞延後

## Example 2.6.2

| mi | ti | | cu | **vecnu** | ta |
|---|---|---|---|---|---|
| seller-x1 | goods-sold-x2 | | | **sells** | buyer-x3 |
| I | this | | | **sell** | to that. |

*(translates as stilted or poetic English)*
I this thing do sell to that buyer.

## Example 2.6.3

| mi | ti | ta | cu | **vecnu** |
|---|---|---|---|---|
| seller-x1 | goods-sold-x2 | buyer-x3 | | **sells** |
| I | this | to that | | **sell** |

*(translates as stilted or poetic English)*
I this thing to that buyer do sell.

# 動詞前的主詞可省略

## Example 2.6.4

| ta | cu | **melbi** | |
|---|---|---|---|
| object/idea-x1 | | **is-beautiful** | *to someone by some standard* |
| That/Those | | **is/are beautiful.** | |

That is beautiful.

Those are beautiful.

## Example 2.6.5

| | **melbi** | |
|---|---|---|
| unspecified-x1 | **is-beautiful** | *to someone by some standard* |

Beautiful!

It's beautiful!

單純動詞有強調、緊急、警告意味！

# 交换：se te ve xe

**Example 2.7.1**

| mi | **tavla** | do | ti |
|---|---|---|---|

I talk to you about this.

se：填充格 12 交换
te：填充格 13 交换
ve：填充格 14 交换
xe：填充格 15 交换

**Example 2.7.2**

| do | **se tavla** | mi | ti |
|---|---|---|---|

You are talked to by me about this.

**Example 2.7.4**

| ti | **te tavla** | do | mi |
|---|---|---|---|

This is talked about to you by me.

# 分隔

- ni'o 分隔段落（paragraph），i 分隔語句

**The North Wind and the Sun**

The North Wind and the Sun were disputing which was the stronger, when a traveler came along wrapped in a warm cloak.
They agreed that the one who first succeeded in making the traveler take his cloak off should be considered stronger than the other.
Then the North Wind blew as hard as he could, but the more he blew the more closely did the traveler fold his cloak around him;
and at last the North Wind gave up the attempt. Then the Sun shined out warmly, and immediately the traveler took off his cloak.
And so the North Wind was obliged to confess that the Sun was the stronger of the two.

**la berti brife jo'u la solri**

*A translation of 'The North Wind and the Sun' to Lojban.*
*The translation below is in public domain.*
ni'o la berti brife jo'u la solri pu troci lo ka cuxna lo poi me vo'a vau traji be lo ka vlipa i ca'o bo lo pa litru noi dasni lo glare kosta cu klama
i le re mei pu simxu lo ka tugni fi lo nu lo traji be lo ka clira fa lo nu ce'u snada lo ka gasnu lo nu le litru co'u dasni le kosta cu traji lo ka vlipa
i ba bo la berti brife co'a traji cupra lo brife i ku'i lo nu by by zenba lo ka cupra lo xo kau brife cu rinka lo nu le litru zu'e ri zenba lo ka se
tagji le kosta i ba bo la berti brife co'u troci i ba bo la solri co'a glare dirce i ba zi bo le litru co'u dasni le kosta
i se ki'u bo la berti brife cu bilga lo ka tugni fi lo nu la solri cu traji lo ka vlipa

# 複合動詞 tanru

- 當兩個 gismu 相連時，前者修飾後者，最後一個的結構會起作用

```
tavla    x1 (talker) talks to x2 (audience) about x3 (topic) in language x4
sutra    x1 (agent) is fast at doing x2 (action)
```

When two gismu are adjacent, the first one modifies the second, and the selbri takes its place structure from the rightmost word. Such combinations of gismu are called "tanru".

**Example 2.9.1**

sutra    tavla

**Example 2.9.2**

x1 is a fast type-of talker to x2 about x3 in language x4
x1 talks fast to x2 about x3 in language x4

# 三連複合動詞

tavla   x1 (talker) talks to x2 (audience) about x3 (topic) in language x4
sutra   x1 (agent) is fast at doing x2 (action)
cutci   x1 is a shoe/boot for x2 (foot) made of x3 (material)

## Example 2.9.3

sutra   tavla   cutci

has the place structure

## Example 2.9.4

s1 is a fast-talker type of shoe worn by s2 of material s3

That is, it is a shoe that is worn by a fast talker
rather than a shoe that is fast and is also worn by a talker.

# 更多複合動詞

**Example 2.9.5**

bajra　cutci
runner shoe

**Example 2.9.6**

sutra　tavla
fast-talker

**Example 2.9.7**

jikca　toldi
social butterfly

# 複合動詞的填充欄

- 以最後一個為準

| Example 2.9.8 | | | | |
|---|---|---|---|---|
| mi | cu | **sutra klama** | la meris. | |
| I | | **quickly-go** | to Mary. | |

- 有 se, te, ve, xe 的話也要比照套用

| Example 2.9.9 | | | | |
|---|---|---|---|---|
| mi | cu | **sutra** | **se klama** | la meris. |
| I | | **quickly** | **am-gone-to** | by Mary. |

# 多義的情況

Example 2.9.10

| la tam. | cu | melbi tavla | la meris. |
|---------|-----|--------------------|-----------|
| Tom | | beautifully-talks | to Mary. |
| Tom | | is a beautiful-talker | to Mary. |

Example 2.9.11

| la meris. | cu | melbi se tavla | la tam. |
|-----------|-----|-----------------------------|----------|
| Mary | | is beautifully-talked-to | by Tom. |
| Mary | | is a beautiful-audience | for Tom. |

# 用 se, te, ve, xe 轉變填充欄

**Example 2.9.12**

| la tam. | cu | **tavla melbi** | la meris. |
|---|---|---|---|
| Tom | | **is talkerly-beautiful** | to Mary. |

**Example 2.9.13**

| la tam. | cu | **se tavla melbi** | la meris. |
|---|---|---|---|
| Tom | | **is audiencely-beautiful** | to Mary. |

# ku: 可省略的結束語

**1 definition found**

**From Lojban to English :**

```
        Word: ku [jbovlaste]
        Type: cmavo
  Gloss Word: end sumti
     selma'o: KU
  Definition: elidable terminator: end description, modal, or negator sumti;
      often elidable.
```

# 省略 ku 的語句

**Example 2.10.1**

| mi | **tavla** | do | le tavla | ku |
|----|-----------|----|----------|----|

means the same as

**Example 2.10.2**

I talk to you about the talker

**Example 2.10.3**

| mi | **tavla** | do | le tavla |
|----|-----------|----|----------|
| I | **talk-to** | you | about-the talker |

# 用 cu 斷開複合動詞

**Example 2.10.4**

le sutra tavla
The fast talker

**Example 2.10.5**

le sutra      cu    **tavla**
The fast one      **is talking.**

**Example 2.10.6**

le sutra se tavla
The fast talked-to one

**Example 2.10.7**

le sutra      cu    **se tavla**
The fast one      **is talked to.**

# 通常 ku, cu 都可省略

| Example 2.10.8 | | | | | | |
|---|---|---|---|---|---|---|
| mi | cu | **tavla** | le vecnu | ku | le blari'o | ku |
| I | | **talk-to** | the seller | | about the blue-green-thing. | |

It is safe to omit both occurrences of "ku" in Example 2.10.8, and it is also safe to omit the "cu".

# Brivla : 動詞

- A word which may by itself express a selbri relation is called a "brivla"

# Brivla 的例子

- The three types of brivla are gismu（root words）, lujvo（compounds）, and fu'ivla（borrowings from other languages）

gismu:

**Example 2.11.1**

| mi | cu | **klama** | ti | | zo'e | zo'e | ta |
|---|---|---|---|---|---|---|---|
| Go-er | | **goes** | destination | | origin | route | means. |

I go here (to this) using that means (from somewhere via some route).

lujvo:

**Example 2.11.2**

| ta | cu | **blari'o** |
|---|---|---|
| That | | **is-blue-green.** |

fu'ivla:

**Example 2.11.3**

| ti | cu | **djarspageti** |
|---|---|---|
| This | | **is-spaghetti.** |

# go'i : 也是

- cmavo 有時也可當 selbri

- go'i : 也是（代表前一句的 selbri）

**Example 2.11.4**

| ta | cu | **go'i** |
|----|----|---------|
| That | | **too/same-as-last selbri.** |

That (is spaghetti), too.

# di'u 和 la'e di'u

- 上一句：

**Example 2.12.1**

le gerku    ku    cu    **melbi**
The dog is beautiful.

**Example 2.12.2**

ti    cu    **pluka**    mi
This (the dog) pleases

- di'u：上一句的語句

**Example 2.12.3**

di'u    cu    **pluka**    mi
This (the last sentence) pleases me (perhaps because it is grammatical or sounds nice).

- la'e di'u：上一句的意義

**Example 2.12.4**

la'e di'u    cu    **pluka**    mi
This (the meaning of the last sentence; i.e. that the dog is beautiful) pleases me.

# 擁有：所有格

- 範例： le mi gerku

| Example 2.13.1 | | |
|---|---|---|
| le mi gerku | cu | **sutra** |
| The of-me dog | | **is fast.** |
| My dog is fast. | | |

# 招呼注意

- doi ： 嗨，hi

- coi ： hello

- co'o ： good-bye

**Example 2.14.1**

doi   djan.

**Example 2.14.2**

coi.   djan.
Hello, John.

**Example 2.14.3**

co'o.   djan.
Good-bye, John.

# 命令指示

- 陳述：

Example 2.14.4

| do | tavla |
|----|-------|
| You | are-talking. |

你說話

- 指示：

Example 2.14.5

| ko | tavla |
|----|-------|

說吧

- 陳述：

Example 2.14.6

| ko | sutra |
|----|-------|
| Be | fast! |

快點

# Ko 可以放在任何填充格

- ko：你（指示）

Example 2.14.7

mi **tavla** ko
Be talked to by me.
Let me talk to you.

# ko 可以填不只一格

- You take care of you

**Example 2.14.8**

| ko | **kurji** | ko |
|---|---|---|

and

**Example 2.14.9**

| ko | ko | **kurji** |
|---|---|---|

- Take care of yourself

# 問句

- ma: 問填充者（名詞）

- mo: 問動詞

# ma: 問填充者

**Example 2.15.1**

| ma | tavla | do | mi |
|---|---|---|---|
| Who? | talks | to-you | about-me. |

Who is talking to you about me?

**Example 2.15.2**

| la djan. |
|---|
| John (is talking to you about me). |

**Example 2.15.3**

| do | cu | tavla | ma |
|---|---|---|---|
| You | | talk | to what/whom? |

**Example 2.15.4**

| ma | cu | tavla | ma |
|---|---|---|---|
| What/Who | | talks | to what/whom? |

# mo: 問動詞

**Example 2.15.6**

| mi | cu | **melbi** |
|----|----|----|
| I am beautiful. | | |

**Example 2.15.5**

| do | cu | **mo** |
|----|----|----|
| You | | **are-what/do-what?** |

**Example 2.15.7**

| mi | cu | **tavla** |
|----|----|----|
| I talk. | | |

# xu: Yes/No 問句

**Example 2.15.10**

| xu | do | **tavla** | mi |
|---|---|---|---|
| *Is-it-true-that* | *you* | **are-talking** | *to-me?* |

# xu 問句的各種回答方法

**Example 2.15.11**

*xu* do **kanro**
Are you healthy?

**Example 2.15.12**

mi **kanro**
I am healthy.

**Example 2.15.13**

**go'i**
I am healthy.

**Example 2.15.14**

le tavla cu **kanro**
The talker is healthy.

**Example 2.15.15**

le tavla cu **go'i**
The talker is healthy.

# 指示詞

- 態度指示詞 :attitudinal indicator

- 連接指示詞： and, but, however,…

- 見證指示詞： evidential indicator

# 態度指示詞

## Example 2.16.1

| .ie | | mi | cu | klama |
|---|---|---|---|---|
| *Agreement!* | | I̲ | | **go.** |

Yep! I'll go.

## Example 2.16.2

| .ei | | mi | cu | klama |
|---|---|---|---|---|
| *Obligation!* | | I̲ | | **go.** |

I should go.

## Example 2.16.3

| mi | cu | klama | le melbi | .ui | | ku |
|---|---|---|---|---|---|---|
| I̲ | | **go** | to-the | *and I am happy because it is the beautiful thing* | | |
| | | | beautiful-thing | *I'm going to* | | |

# 連接指示詞

**Example 2.16.4**

| mi | cu | klama | .i | do | cu | stali |
|---|---|---|---|---|---|---|
| I | | go. | | You | | stay. |

**Example 2.16.5**

| mi | cu | klama | .i | ji'a | | do | cu | stali | |
|---|---|---|---|---|---|---|---|---|---|
| I | | go. | | In addition, | | you | | stay. | *added weight* |

**Example 2.16.6**

| mi | cu | klama | .i | ku'i | | do | cu | stali | |
|---|---|---|---|---|---|---|---|---|---|
| I | | go. | | However, | | you | | stay. | *contrast* |

# 見證指示詞

**Example 2.16.7**

| pe'i | do | cu | melbi |
|------|-----|----|-------|
| *I opine!* | <u>You</u> | | **are beautiful.** |

**Example 2.16.8**

| za'a | do | cu | melbi |
|------|-----|----|-------|
| *I directly observe!* | <u>You</u> | | **are beautiful.** |

# 過去、現在、未來

**Example 2.17.3**

| la djan. | cu | **klama** | le zarci |
|---|---|---|---|
| John | | **goes/went/will-go** | to-the store |

**Example 2.17.4**

| la djan. | *pu* | **klama** | le zarci |
|---|---|---|---|
| John | *[past]* | **goes** | to-the store |

**Example 2.17.5**

| la djan. | *ca* | **klama** | le zarci |
|---|---|---|---|
| John | *[present]* | **goes** | to-the store |

# 空間指示詞

- vu ：很遠的那個

- vi ：很近的那個

**Example 2.17.6**

| do | vu vecnu | zo'e |
|---|---|---|
| You | yonder sell | something-unspecified. |

# 時空指示詞填入

**Example 2.17.7**

| le pu bajra | ku | cu | **tavla** |
|---|---|---|---|
| The earlier/former/past runner | | | **talked/talks.** |

**Example 2.17.8**

| le vi bajra | ku | cu | **tavla** |
|---|---|---|---|
| The nearby runner | | | **talks.** |

This runner talks.

**Example 2.17.9**

| le vi tavla | ku | cu | **ba klama** |
|---|---|---|---|
| The here talker | | | **[future] goes.** |

The talker who is here will go.

This talker will go.

# cmavo 結構詞

- A little word showing structure rather than carrying content meaning.

## cmavo

**cmavo**

A little word showing structure rather than carrying content meaning.

In fact most of cmavo do carry meaning (although elidable terminators don't; they are true structure words). Many carry meaning as their sole purpose; for example, numbers, *lerfu* (literally "letters"), and everything in *selma'o* (class of words) UI. But it is true that the *cmavo* as a class determine the syntax of sentences.

The current cmavo list is available, but it isn't very easy to read!

# tanru ： 複合動詞

- A compound verb, or in other words, a phrase formed of two or more brivla

**tanru**

**tanru**
A compound verb, or in other words, a phrase formed of two or more **brivla**

# lujov ： 複合詞

## lujvo

**lujvo**

Compound word

**lujvo** are based on tanru; they encode one conventionalized meaning of the semantically ambiguous tanru. tanru, in turn, are a sequence of brivla. This gives the (much simplified!) grammar:

- selbri :- brivla | tanru
- tanru :- brivla brivla+
- brivla :- lujvo | gismu | fu'ivla | cmavo

And (semantically)

- lujvo :- tanru

The use of cmavo as brivla, it should be noted, is marginal, and involves primarily anaphora, rather than distinct semantic content words.

# brivla ：動詞

## brivla

**brivla**

a *verb*, any word that can state a relationship among several objects or concepts, and thus be the core word in a Lojban **bridi**. Can be converted to *noun* be prefixing with **lo** or similar articles.

a predicate word

**brivla** are in the main gismu, lujvo and fu'ivla. A few cmavo can behave as **brivla**. cmevla also belong to brivla but almost never used for selbri.

# Bridi ： 動詞短語

**bridi**

**bridi**
verb phrase
~= a predication

# sumti : 名詞

## sumti

(Redirected from noun)

**sumti**

> noun/pronoun/personal name. An object or idea which may be related to others, that relationship being expressed in a Lojban **bridi**.
>
> the expression filling an argument place in a bridi.

# gismu ： 根詞

## gismu

### gismu

Basic 5-letter lojban root word

the basic gismu list is available here

Gismu can be thought of as root words. They are always exactly five letters long, taking the form of either CVCCV or CCVCV (C = consonant, V = vowel).

**Example 1.1 : gismu forms**

| word | form | gloss |
|------|------|-------|
| **bajra** | CVCCV | to run |
| **stuzi** | CCVCV | location |

# fu'ivla ： 借用語

fu'ivla

**fu'ivla**

Borrowed word

**fu'ivla** is a morphologically defined brivla (verb word) in Lojban, a "borrowed word" (with the literal meaning *copy word*).

**bridi:** predication; the basic unit of Lojban expression; the main kind of Lojban sentence; a claim that some objects stand in some relationship, or that some single object has some property.

**sumti:** argument; words identifying something which stands in a specified relationship to something else, or which has a specified property. See Chapter 6.

**selbri:** logical predicate; the core of a bridi; the word or words specifying the relationship between the objects referred to by the sumti. See Chapter 5.

**cmavo:** one of the Lojban parts of speech; a short word; a structural word; a word used for its grammatical function.

**brivla:** one of the Lojban parts of speech; a content word; a predicate word; can function as a selbri; is a gismu, a lujvo, or a fu'ivla. See Chapter 4.

**gismu:** a root word; a kind of brivla; has associated rafsi. See Chapter 4.

**lujvo:** a compound word; a kind of brivla; may or may not appear in a dictionary; does not have associated rafsi. See Chapter 4 and Chapter 12.

**fu'ivla:** a borrowed word; a kind of brivla; may or may not appear in a dictionary; copied in a modified form from some non-Lojban language; usually refers to some aspect of culture or the natural world; does not have associated rafsi. See Chapter 4.

**rafsi:** a word fragment; one or more is associated with each gismu; can be assembled according to rules in order to make lujvo; not a valid word by itself. See Chapter 4.

**tanru:** a group of two or more brivla, possibly with associated cmavo, that form a selbri; always divisible into two parts, with the first part modifying the meaning of the second part (which is taken to be basic). See Chapter 5.

**selma'o:** a group of cmavo that have the same grammatical use (can appear interchangeably in sentences, as far as the grammar is concerned) but differ in meaning or other usage. See Chapter 20.

再見了！

# Good bye

# Co'o ro do