

[1] Pseudo-Pictographs (20pt)

(A)



(B)



(C)



(D)



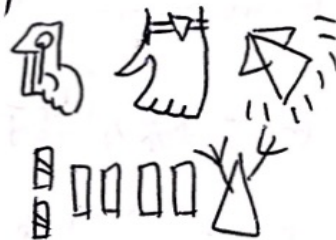
(E)



(F)



(G)



(H)



(I)



1. 他追（著）鹿。 He chases the deer.
2. 一隻美麗的公鹿在草原上吃了很多草。 A beautiful (male) deer eats a lot of grass on the prairie.
3. 他在湖邊喝了水。 He drank water on the lake.
4. 三棵小樹。 Three small trees.
5. 他捕到兩條大魚。 He caught two big fishes.
6. 他去草原上打獵。 He goes hunting on the prairie.
7. 一群美麗的女人。 A group of beautiful women.
8. 他獵到了一頭母羊。 He hunted an ewe.
9. 他在樹林中採果子。 He takes fruit in the wood.

(a) 請找出與圖片 A 到 I 相應的文字配對。(每張圖都只有一組相應的文字)

Find the correspond sentence for pictograph A to I. (Note: it's one-to-one mapping)

| 圖片 | A | B | C | D | E | F | G | H | I |
|----|---|---|---|---|---|---|---|---|---|
| 文字 | | | | | | | | | |

(b) 將以下句子翻譯成象形文字。

Translate the following sentences into pictographs.

1. 她在草原上獵到一頭美麗的母鹿。 She hunted a beautiful doe on the prairie.
2. 兩隻小公羊在湖邊喝水。 Two little rams drink water on the lake.

[2] Gödel number (20pt)

在形式邏輯中，「戈德爾編號」是對某些形式語言的每個符號和公式指派一個唯一的自然數（叫做戈德爾數 (Gödel number)）的函數。這個概念是哥德爾為證明他的戈德爾不完備定理而引入的。

In mathematical logic, a Gödel numbering is a function that assigns to each symbol and well-formed formula of some formal language a unique natural number, called its Gödel number. The concept was used by Kurt Gödel for the proof of his incompleteness theorems.

1. 在以下的表格中，有 10 個句子和順序弄亂的相應的 10 個戈德爾數。請將它們正確的配對。

In the following table, there are 10 sentences and the 10 corresponding Gödel numbers, not in order. Please make the correct matching among these pairs.

| | | |
|---------------------------------------|--|-----------|
| 甲 John meets Jason. | | 32 |
| 乙 John does not meet Mary. | | 486 |
| 丙 Mary is poor. | | 90000 |
| 丁 John does not know Jane. | | 162 |
| 戊 Jason knows Mary. | | 16 |
| 己 Mary is not happy. | | 720000 |
| 庚 Jane meets Mary and she meets John. | | 13122 |
| 辛 Jason is happy, and he meets Jane. | | 540000000 |
| 壬 Jason hits John. | | 64 |
| 癸 John is either rich or happy. | | 4374 |

2. 請從上題歸納出來的規則，將以下的句子翻譯成戈德爾數。

Translate the following sentences into Gödel number, with the rule used in the previous problem.

‘John meets Mary and he knows Jane.’

‘John does not hit Mary.’

3. 判斷以下戈德爾數對應的英文句子是不是有效的句子。

Determine whether the corresponding sentences of these numbers are valid sentences or not.

324

270000

1458

[3] Lojban lujvo¹ (20pt)

邏輯語是一種建構出來的人工語言。以下是 14 個邏輯語的複合詞以及其意思（順序打亂）。

Lojban is a constructed, syntactically unambiguous human language.

Below are 14 lojban compound words and their meaning, not in any order:

| | | |
|-------------|--|-----------------------------------|
| 1. baukle | | a. become expert |
| 2. bauske | | b. boulder/big rock |
| 3. bradu'i | | c. cultural subset |
| 4. brafi'a | | d. language category |
| 5. braro'i | | e. linguistics |
| 6. crebi'o | | f. lojban community |
| 7. jbobau | | g. lojban language |
| 8. jboce'u | | h. lojbanic culture |
| 9. jboklu | | i. novel |
| 10. kluce'u | | j. of the same size |
| 11. klulei | | k. petrology (science about rock) |
| 12. kluske | | l. science fiction |
| 13. rokske | | m. social anthropology |
| 14. skefi'a | | n. society |

注意：

Note: the rafsi "kle"/"lei" have the same meaning, so as "dun"/"du'i", "rok"/"ro'i".

1. 把表格中的正確對應找出來。

Find the correct correspondence.

2. 以下用邏輯語表達出來

Write it in Lojban:

a. "grow in size"

b. "lojban expert"

c. "taxonomy"

d. "equivalence class"

¹ The words can be found in vlasisku, an online lojban dictionary: <http://vlasisku.lojban.org/>

[4] Mokilese (20pt)

Mokilese 是密克羅尼西亞聯邦莫基爾環礁上的一個語言，目前僅有 500 多位母語者。以下的例子包含了數字、名詞（狗、鉛筆等）和分類詞（共有三種）。分類詞是根據該語言使用者認為的某種標準來分類人事物。（有點像英語用 *who* 和 *what* 來把人和事物分來）

Mokilese (a.k.a. Mwoakilloan) is spoken by about 500 people on Mokil Atoll, in the Federated States of Micronesia. Each example below contains a number, a noun ('dog', 'pencil', and so on) and one of three different types of 'classifier'. Classifiers are used to classify objects (things, people and so on) according to criteria that the language's speakers consider important (in much the same way that English uses *who* and *what* to distinguish humans from everything else).

| | | |
|---------------------------------------|--------------------------------------|--------------------------------------|
| doahk jilmen 'three dogs' | doahk pahmen 'four dogs' | doahk limmen 'five dogs' |
| pinjel jilpas 'three pencils' | pinjel pahpas 'four pencils' | pinjel limpas 'five pencils' |
| peipa jilkij 'three pieces of paper' | peipa pahkij 'four pieces of paper' | peipa limkij 'five pieces of paper' |
| suhkoa jilpas 'three trees' | suhkoa pahpas 'four trees' | suhkoa limpas 'five trees' |
| woi jilmen 'three turtles' | woi pahmen 'four turtles' | woi limmen 'five turtles' |
| woal jilmen 'three men' | woal pahmen 'four men' | woal limmen 'five men' |
| alek jilpas 'three reeds' | alek pahpas 'four reeds' | alek limpas 'five reeds' |
| pilawa jilkij 'three slices of bread' | pilawa pahkij 'four slices of bread' | pilawa limkij 'five slices of bread' |
| aji jilpas 'three chopsticks' | aji pahpas 'four chopsticks' | aji limpas 'five chopsticks' |
| wija jilkij 'three blocks of land' | wija pahkij 'four blocks of land' | wija limkij 'five blocks of land' |

| | | |
|------------------------------|--------------------------------|--------------------------------|
| jeri jilmen 'three children' | jeri pahmen 'four children' | jeri limmen 'five children' |
|------------------------------|--------------------------------|--------------------------------|

(1). 請說明 Mokilese 如何表示以下的數字

First identify the words or word-parts that mean

- a. 'three'
- b. 'four'
- c. 'five'

(2). 列出三種分類詞，以及它們的意義（亦即，它們用何標準分類事物）

List (in any order) the three classifiers, and their meanings (i.e. the way in which they classify objects).

(3). 標出每個例子中的數字、名詞、分類詞：NUMB 表示數字，N 表示名詞，CL 表示分類器。如果在例子中屬於同一個字分不出來，就在後面加上 +

List the order in which the number, the noun, and the classifier appear in each example. Use the abbreviations 'NUMB' for *number*, 'N' for *noun*, and 'CL' for *classifier*. If any of these is always part of the same word as the next one, write '+' after it.

[5] ICD-10 for traffic trauma (V01-V99) (20pt)

國際疾病傷害及死因分類標準第十版（英語：The International Statistical Classification of Diseases and Related Health Problems 10th Revision，ICD-10）是世界衛生組織依據疾病的某些特徵，按照規則將疾病分門別類，並用編碼的方法來表示的系統。現有版本包括 15.5 萬種代碼，並記錄多種新型診斷及預測。請觀察以下的編碼，並回答問題。

ICD-10 is the 10th revision of the International Statistical Classification of Diseases and Related Health Problems (ICD), a medical classification list by the World Health Organization (WHO). It contains over than 150 thousand codes for diseases, signs and symptoms, abnormal findings, complaints, social circumstances, and external causes of injury or diseases. Observe the following ICD-10 codes, answer the questions.

| | |
|-----|---|
| V11 | 腳踏車駕駛人員在腳踏車與其他腳踏車碰撞中的損傷 Pedal cyclist injured in collision with other pedal cycle |
| V24 | 摩托車駕駛人員在摩托車與重型運輸車或公共汽車碰撞中的損傷 Motorcycle rider injured in collision with heavy transport vehicle or bus |
| V32 | 三輪機動車乘員在三輪機動車與兩輪或三輪機動車碰撞中的損傷 Occupant of three-wheeled motor vehicle injured in collision with two- or three-wheeled motor vehicle |
| V82 | (市內有軌)電車乘員在運輸事故中的損傷 Occupant of streetcar injured in transport accident |
| V48 | 小汽車乘員在非碰撞性運輸事故中損傷 Car occupant injured in noncollision transport accident |
| V30 | 三輪機動車乘員在三輪機動車與行人或牲畜碰撞中的損傷 Occupant of three-wheeled motor vehicle injured in collision with pedestrian or animal |
| V55 | 輕型貨車或篷車乘員在輕型貨車或篷車與火車或鐵路車輛碰撞中的損傷 Occupant of pick-up truck or van injured in collision with railway train or railway vehicle |
| V69 | 重型運輸車乘員在其他和未特指的運輸事故中的損傷 Occupant of heavy transport vehicle injured in other and unspecified transport accidents |
| V95 | 動力飛行器事故引起乘員損傷 Accident to powered aircraft causing injury to occupant |
| V45 | 小汽車乘員在小汽車與火車或鐵路車輛碰撞中的損傷 Car occupant injured in collision with railway train or railway vehicle |
| V23 | 摩托車駕駛人員在摩托車與小汽車、輕型貨車或篷車碰撞中的損傷 Motorcycle rider injured in collision with car, pick-up truck or van |
| V13 | 腳踏車駕駛人員在腳踏車與小汽車、輕型貨車或篷車碰撞中的損傷 Pedal cyclist injured in collision with car, pick-up truck or van |

| | |
|-----|--|
| V86 | 專用的全地帶車輛或其他主要設計用於越野的機動車輛上的乘員在運輸事故中的損傷 Occupant of special all-terrain or other motor vehicle designed primarily for off-road use, injured in transport accident |
| V20 | 摩托車駕駛人員在摩托車與行人或牲畜碰撞中的損傷 Motorcycle rider injured in collision with pedestrian or animal |
| V36 | 三輪機動車乘員在三輪機動車與其他非機動車輛碰撞中的損傷 Occupant of three-wheeled motor vehicle injured in collision with other nonmotor vehicle |
| V74 | 公共汽車乘員在公共汽車與重型運輸車或公共汽車碰撞中的損傷 Bus occupant injured in collision with heavy transport vehicle or bus |
| V77 | 公共汽車乘員在公共汽車與固定或靜止物體碰撞中的損傷 Bus occupant injured in collision with fixed or stationary object |
| V06 | 行人在與其他非機動車輛碰撞中的損傷 Pedestrian injured in collision with other nonmotor vehicle |

1. 請填入以下編碼表示的內容。(不確定者填入 X)

Determine the content for the following codes (write X for uncertain codes)

| | |
|-----|--|
| V25 | |
| V44 | |
| V47 | |
| V82 | |
| V10 | |
| V93 | |
| V36 | |

2. 填入以下內容對應的編碼。(不確定者填入 X)

Determine the codes for the following contents (write X for uncertain content)

| | |
|--|---|
| | 腳踏車駕駛人員在腳踏車與兩輪或三輪機動車碰撞中的損傷 Pedal cyclist injured in collision with two- or three-wheeled motor vehicle |
| | 摩托車駕駛人員在摩托車與腳踏車碰撞中的損傷 Motorcycle rider injured in collision with pedal cycle |
| | 三輪機動車乘員在非碰撞性運輸事故中的損傷 Occupant of three-wheeled motor vehicle injured in noncollision transport accident |
| | 摩托車駕駛人員在摩托車與固定或靜止物體碰撞中的損傷 Motorcycle rider injured in collision with fixed or stationary object |
| | 輕型貨車或篷車乘員在輕型貨車或篷車與小汽車、輕型貨車或篷車碰撞中的損傷 Occupant of pick-up truck or van injured in collision with car, pick-up truck or van |

