

Changes in time in space and space in time

— *the case of Cantonese language
and Chinese script*

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(Wurm et al.1987)

Cantonese



Cantonese

Experiments in Hong Kong & Macau (July 2008)



Hong Kong & Macau

- Mostly urban dwellers:



Hong Kong & Macau

- Some rural dwellers and farmers:



Hong Kong & Macau

- Some Tanka 蜑家 (“Sea Gypsies”)

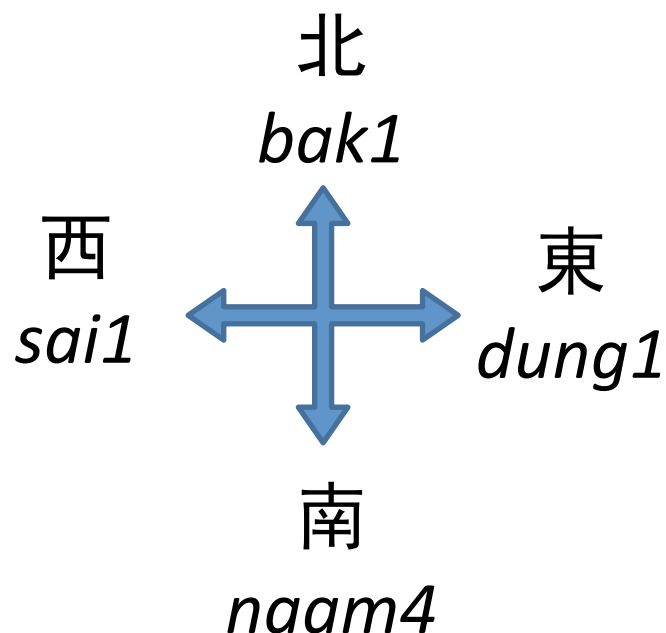


Cardinal directions

東南西北

dung1 naam4 sai1 bak1

‘east south west north’



東：

木 + 日

east

wood + sun

北→

北 *bak1*

bui3

*pēk(-s)

背

(*ṅpēk*)

(*ḅpēks(h.)*)

Primacy of S

指南針 'compass'

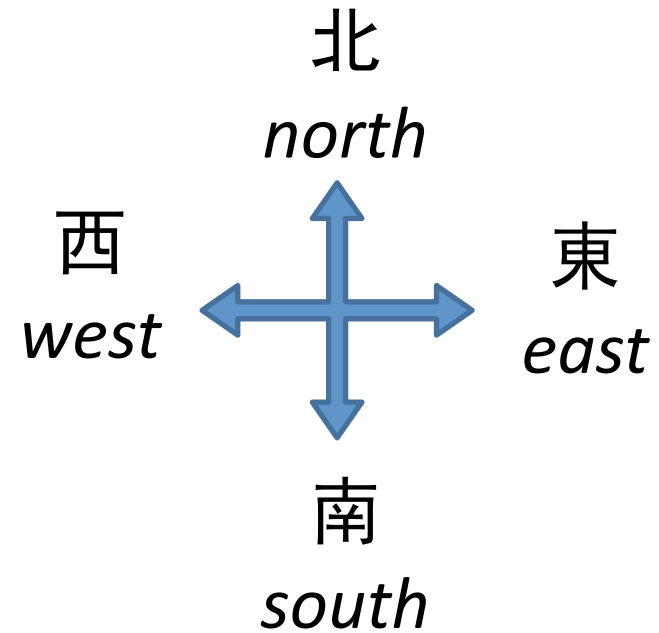
point south needle

指南 'guidebook'

point south



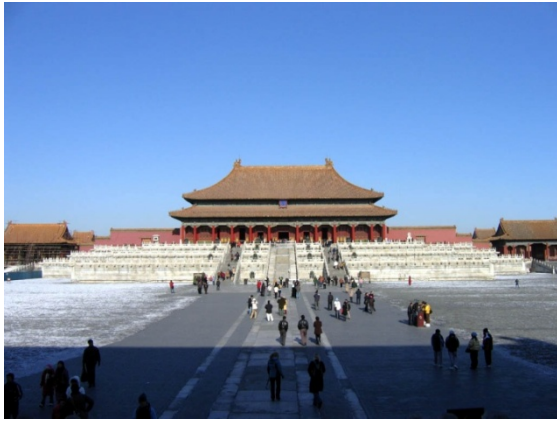
south pointing ladle





south pointing
chariot





Forbidden City
紫禁城



Ulaanbaatar: Winter
Palace



Gyöngbokgung 景福宮



Potala Palace
པོ་ཌ་ཤ་པ་

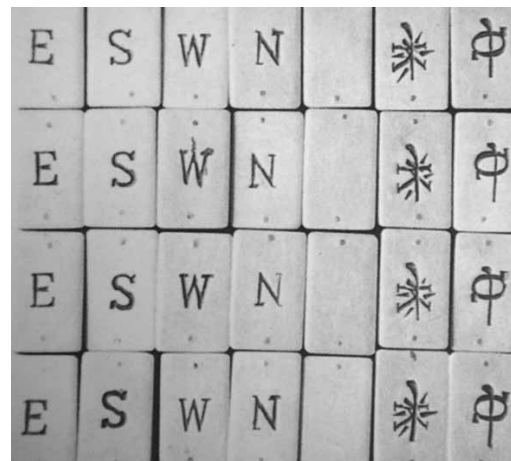
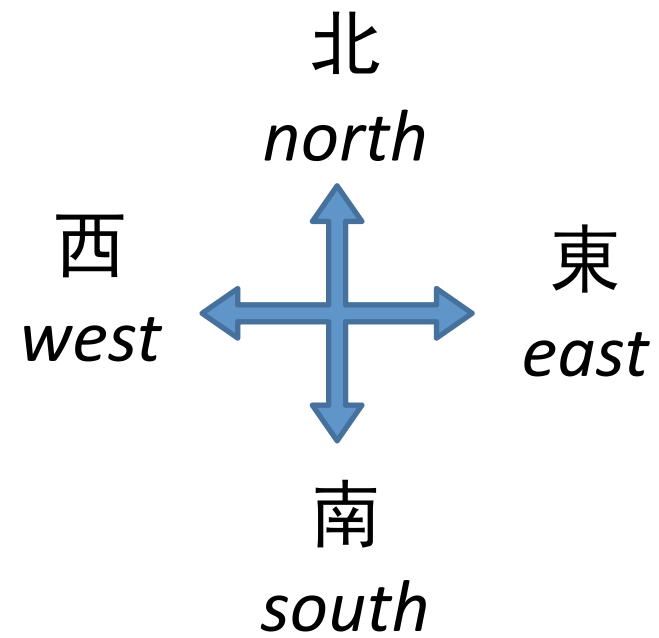


Kyōto Imperial Palace
京都御苑



Huế Imperial City
京城化

Mahjong

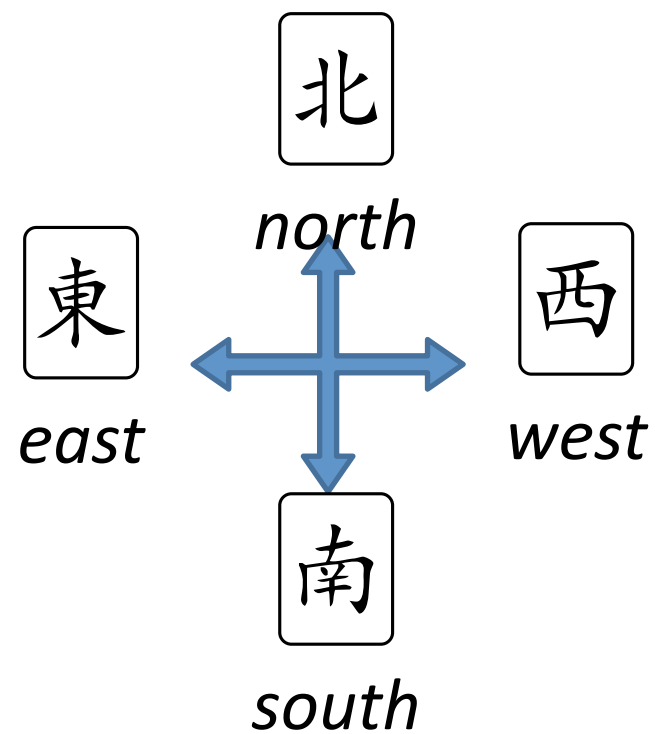
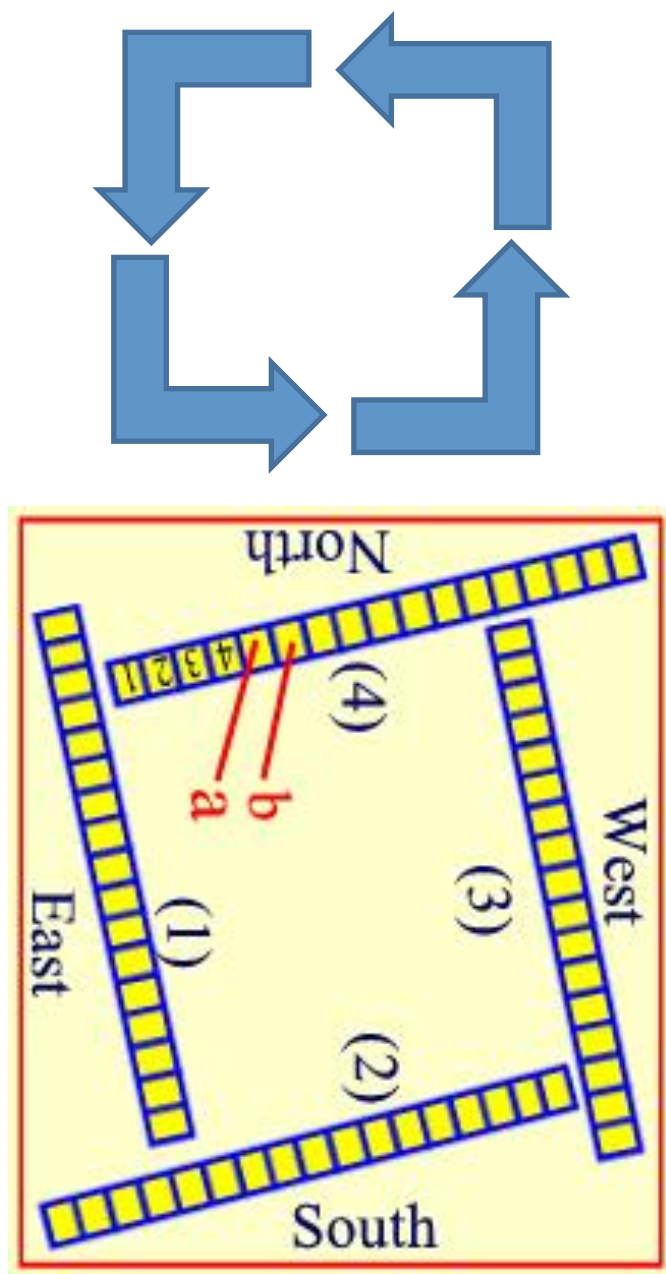


1F000

Mahjong Tiles

1F02F

	1F00	1F01	1F02
0			
	1F000	1F010	1F020
1			
	1F001	1F011	1F021
2			
	1F002	1F012	1F022
3			
	1F003	1F013	1F023
4			
	1F004	1F014	1F024
⋮			
5			
	1F005	1F015	1F025
C			
	1F00C	1F01C	
D			
	1F00D	1F01D	
E			
	1F00E	1F01E	
F			
	1F00F	1F01F	



Relative directions

後
hau6
'back'

(上 *soeng5* 'ascend')

上
soeng6
'above'

左
zo2
'left'

右
jau6
'right'

下
haa6
'below'

(落 *lok6* 'descend')

前
cin4
'front'

Intrinsic & Relative frame of reference



70 % Intrinsic FoR

30% Relative FoR

Intrinsic & Relative frame of reference



Relative FoR

Cantonese

Experiments in Hong Kong & Macau (July 2008);



- Summary of results:
 - left to right most prominent,
 - right to left also prominent,
 - some vertical orientation,
 - (no absolute frame of reference);

Influence from the directionality of Chinese script?

*(Note: horizontal Chinese script typed by me: $L \rightarrow R$
e.g. 由左至右 *jau4 zo2 zi3 jau6* ‘from left to right’)*

Chinese characters



- one syllable (in Chinese languages);
e.g. Mandarin **zì** [tsz̥⁵¹], Shanghainese **z** [z̥z̥¹³],
Taiwanese **lī/chū** [li²²/tsu²²], Cantonese **zi6** [tsi²²]
- around one morpheme;
字 'character' / 'writing'
- fits in a right angle quadrilateral;
- no physical linkage between characters (except in cursive handwriting).

Vertical orientation

由上至下

from top to bottom

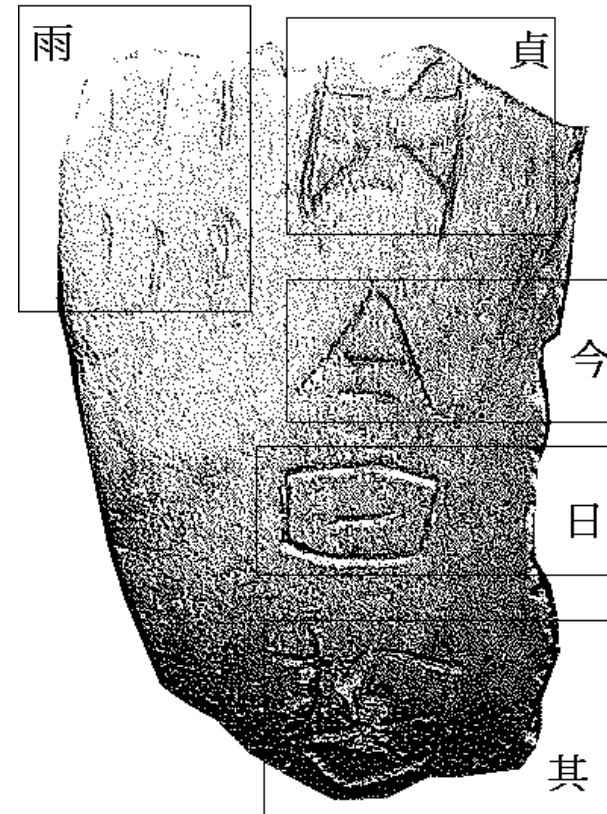
由上至下

由右至左

from top to bottom

from right to left

(e.g. Oracle Script, pre 11th century BCE)



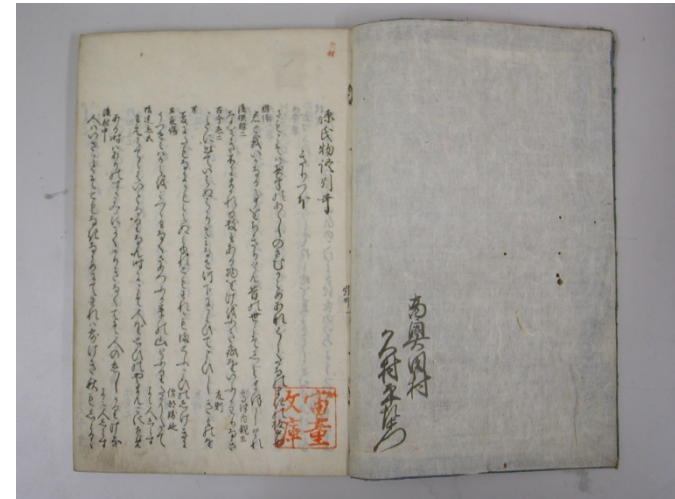
貞：今日，其雨？

Test: Today, will it rain?

Some early writing cultures within Sinosphere



← Korean
朝鮮
Japanese→
日本



←
Vietnamese
越南
Ryukyuan→
琉球





Manchurian
滿洲

(top to bottom,
left to right)

حصص و حصص
حصص و حصص

[illegible]

第二更

年 月 日

However...

金史卷一百一十五

Manchurian
滿洲

③ **پلکس** **پلکس** **پلکس** — **پلکس** **پلکس** **پلکس** (۳) **پلکس** **پلکس** **پلکس**

[illegible]

Mongol
蒙古
Монгол
ᠮᠣᠩᠭᠣᠯ

(Old)
Uyghur
回鶻
ئۇيغۇر
Уйғур



(裏)

Handwritten text in German script, likely a letter or document fragment.

የግል ስም

粟特 CyꞐδ Σογδ س



MS 577
Syriac Sertâ book script. Mt. Sinai, Egypt, ca. 11th c.

Syriac
亞述
ܣܘܪܝܝܬ



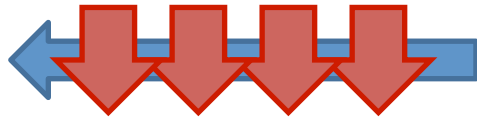
Horizontal orientation

Mostly decorative, pre 20th century:

正大光明

zhèngdà gwāngmíng

‘Justice and Honour’



or occasionally in headings :

[illegible]

Horizontal orientation

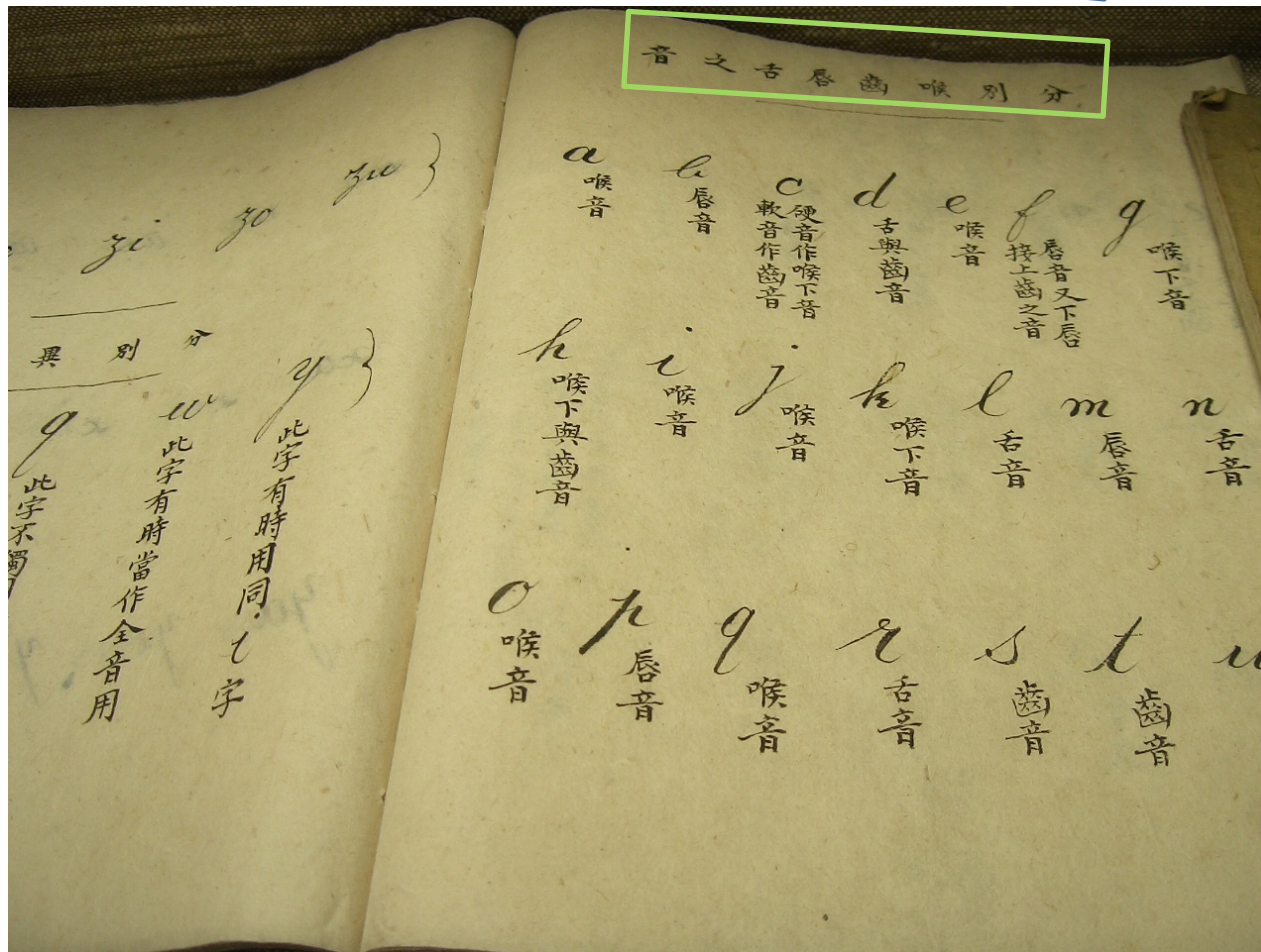
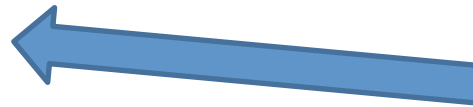
分別喉齒唇舌之音

fēnbiě hóu chǐ chún shé

zhī yīn

'distinguishing the
throat, tooth, lip
& tongue sounds'

(used by Aisingioro Puyi,
1910s? 1920s?)



Horizontal orientation



1920s/30s



1930s



1930s



1940s

(Giant) pandas in 1940s



Ailuropoda melanoleucus

熊貓



right to left (1950s HK ads)

潘高壽

貝川露杷枇

治男
嗽咳久新

丹仙若效功。露甘如美味

痛喉。多痰

廿五年

双 **经**

燕 **牌**

切一放高。醇。香

街新隆福門澳。街東咸文港香

庄酒和生永

含0
八卦丹
吐氣如蘭

一片

八卦丹

一之筋良大五堂受永標電



？味好咁煙香咀瀝**牌金**解點
過經用選係為因

國美嘅 **藏蘊年三**

“**亞尼珍維**”
成製葉煙

！味够。喉順

WORLD
FILTER
CIGARETTES

80¢

牌金 國美

煙香咀瀝 **牌金** 國美枝一吸
糖攪都也。聊順氣條

left to right (1950s HK ads)



製造新鮮冷氣

西德
AEG-TELEFUNKEN
德律風根 冷氣機

香港政府最近宣佈將推行一項清潔空氣的龐大計劃，西德名廠 AEG 為響應該項計劃，特將其冷氣系統及清新空氣功能特佳之冷氣機優先運港。德律風根冷氣機構造精確，外型美觀，且有多款型號可供選擇，馬力由一匹至三匹，適用於任何環境。

各大電器公司電器行均有代售
總代理：建泰貿易有限公司 電話：二二八八二五、二二八〇六九

AEG 德律風根

雜牌刀片 質劣易鈍
請買最佳的 **藍吉列刀片**



藍吉列刀片是世界上最鋒利之刀片
它裝在吉列刀架內應用最便捷，
吉列刀架價值僅需一元二毫

藍吉列刀片
Blue Gillette Blades
總代理：諾士利洋行有限公司

刁陀蠔式太子型表
固若銀庫



TUDOR

售價雖稍昂貴 · 實物有所值

刁陀蠔式太子型表之表身乃由整塊金屬製成，
而表殼與表口光潔如鏡，並供應極佳服務，高度
準確耐用。

刁陀表係瑞士勞力士表廠製造及經銷全世界
勞力士服務部 香港大馬路 電話：H247031

Macau Pataca banknotes



Banco Nacional Ultramarino

大西洋國海外滙理銀行



Cem Patacas 壹百圓 (1952)



Banco Nacional Ultramarino

葡國海外銀行



Cem Patacas 壹百圓 (1973)



Banco Nacional Ultramarino

大西洋銀行



Cem Patacas 壹百圓 (1981)

Hong Kong Dollar banknotes

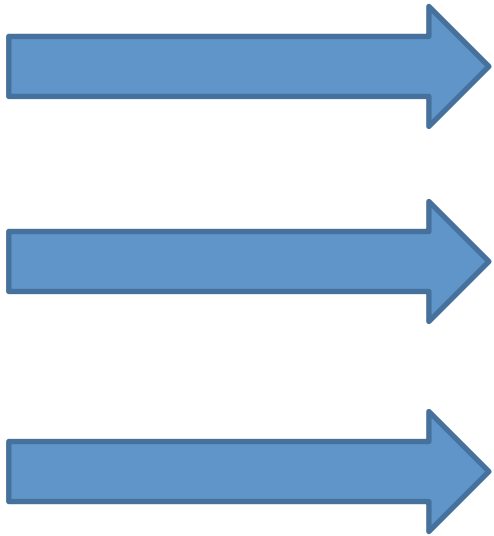
March 1983



January 1985



Nowadays...



.....



中原地產
zung1jyun4
dei6caan2
'Centraline
Real Estate'



免費專車
min5fai3
zyun1ce1
'Free
Shuttle Bus'



扬州外事旅游汽车公司

YANG ZHOU FOREZGN AFF AZRS & TRAVEL BUS COMPANY

司公车汽游旅事外州扬

YNAPMOC SUB LEVART & SRZA FFA NGZEROF UOHZ GNAY

diabetes main cause pancreas health

糖尿病主因胰臟健康 胰臟衰退 糖尿不侵

pancreas deteorate diabetes not invade

粉麵飯甜品汽水是醃類食品 容易引致血糖飆升
國際護胰專家建議：
保護胰臟健康是遠離糖尿最佳方法。

專業鐵證 國際認同

美國製造 一級品牌 國際專家 一致推崇
西歐草本專業配方 臨床驗證功效肯定

美國FDA(美國藥物及食物管理局)證實：「有機鉻Organic GTF Chromium」與胰島素有絕對性的關係，而且對於胰臟健康更有莫大幫助。
根據美國糖尿協會的資料顯示，糖尿病患者身體所含「有機鉻Organic GTF Chromium」份量比正常健康人士少40%以上，更會因年齡增長而不斷缺少引致糖尿病嚴重惡化。

強效護胰

- ✓ 快速平衡血
- ✓ 改善高血糖
- ✓ 癢潰爛情況
- ✓ 維持正常血
- ✓ 有效加強能
- 不害藥物

Hypothesis

- Chinese people's spatial representation of time is influenced by the direction of script:

In Hong Kong/ Macau:

- People born in or before 1940s would predominantly demonstrated $R \rightarrow L$ -ness;
- People born in or after 1980s would predominantly demonstrate $L \rightarrow R$ -ness.

(However: sample skewed

age $\approx$ 70 70 | 55 35 | 30 30 30 30 25 20

3D-pointing tasks couldn't be done with everyone)

Environment in which the experiments were conducted

- 9 at the participants' home; 1 at the work place (all indoor in high-rise buildings);
- *the participants were sat/stood diagonal to the walls and patterns on the floor or table;*
- round tables were preferred (1 on the round edge of rec. table, 1 on edge of rec. table);
- *(due to time/cultural constraints), second sitting of the experiments conducted after a 30 min interval;*
- participants turned 180° for the second sitting; except two which were turned 90° (no signs of absolute frame of reference).

Card arranging task



- right to left: ④ ③ ② ①

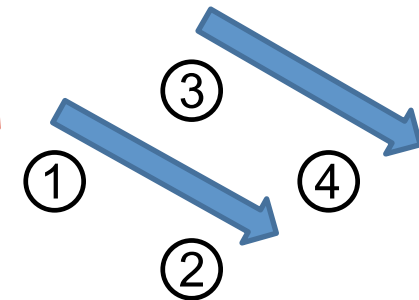
age $\approx$ 70 70 | 35 | 30

($\rightarrow$ for duck; $\leftrightarrow$ for pregnancy)



- left to right: ① ② ③ ④

age $\approx$ 55 | 30 30 30 25 20



age $\approx$

$\leftarrow$	$\leftarrow$	$\rightarrow$	$\leftarrow$	$\rightarrow$	$\leftarrow$	$\rightarrow$	$\rightarrow$	$\rightarrow$	$\rightarrow$
70	70	55	35	30	30	30	30	25	20

Summary of Card arranging task

(based on the skewed data:)

- **older speakers**

predominantly show a **right to left** orientation for spatial representation of time;



- **younger speakers**

predominantly show a **left to right** orientation for spatial representation of time.



Spatial morphemes in temporal expressions

earlier portion/ preceding/ past:

soeng6 上 'above' *cin4* 前 'front'

heoi3 去 'go'

later portion/ following/ future:

haa6 下 'below' *hau6* 後 'back'

loi4 來 'come'

Spatial terms in temporal expressions

daytime before-/afternoon:

soeng6 *zau3* 上晝 *haa6* *zau3* 下晝

2 days before/after:

cin4 *jat6* 前日 *haa6* *jat6* 後日

last last/ last / next/ next next years (from now):

cin4 *nin2* *soeng6* *nin2* *haa6* *nin2* *haa6* *nin2*
前年 上年 下年 後年

(These are the only two instances where *front/back* signify '2'.)

Spatial terms in temporal expressions

cin4 nin2 前年

‘2 years ago’

zi1 cin4 go1 nin4 之前嗰年 ‘the preceding year’
(‘s **front** that year)

‘Last/ next life’

loi4 sai3

來世

cin4 sai3= *soeng6 sai3* *haa6 sai3*=*hau6 sai3*

前世

上世

下世

後世

Spatial terms in temporal expressions

last X/ next X:

soeng6 上 ‘above’/ *haa6* 下 ‘below’

soeng6 go3 jyut6 上個月

(up CL month)

‘last month’

haa6 go3 jyut6 下個月

(down CL month)

‘next month’

Spatial terms in temporal expressions

past/ future:

-cin4 前 (-front)/ *-hau6* 後 (-back)

zi1 cin4 go1 go3 jyut6 之前個個月

(‘s front that CL month) ‘the preceding month’

zi1 hau6 go1 go3 jyut6 之後個個月

(‘s back that CL month) ‘the following month’

Spatial terms in temporal expressions

past/ future:

-cin4 前 (-front)/ *-hau6* 後 (-back)

佢 之後 話：「 我 以前 好 天真」。

keoi5 *zi1hau6* *waa6*: ‘*ngo5* *ji5cin4* *hou2* *tin1zan1*’

3sg *after*.that said 1sg *before* very naïve

‘S/he said afterwards; “I used to be very naïve”.’

Summary of 3D pointing task

- The two 3D pointing sessions were conducted immediately after the two card arranging sessions;
- In many cases the triad '2 days ago, today, 2 days ahead' were added ;
- Unfortunately the 3D pointing task could not be conducted with everyone...

Summary of 3D pointing task

- All participants who demonstrated a L to R orientation → in the Card arranging task also demonstrated a L to R orientation → in the 3D pointing task;
- As for the others: one demonstrated a ↓ orientation

3D:			→		→	↓	→	→	→	→
Card:	←	←	→	←	→	←	→	→	→	→
age ≈	70	70	55	35	30	30	30	30	25	20

Summary of 3D pointing task

Consultant #2:

predominantly right to left ←, e.g.:

hau6jat6 後日

day after tomorrow

下個星期

haa6 go3 sing1kei4

sing1kei4 next week

cin4jat6 前日

day before yesterday

上個星期

soeng6 go3

last week

3D: ← → → ↓ → → → →

Card: ← ← → ← → ← → → → →

age ≈ 70 70 55 35 30 30 30 30 25 20

Summary of 3D pointing task

Consultant #2:

back to front:

gwo3 heoi3 過去 past

zoeng1 loi4 將來 future

bottom to top:

haa6 zau3 下晝 afternoon

soeng6 zau3 上晝 morning

3D: ← → → ↓ → → → →

Card: ← ← → ← → ← → → → →

age ≈ 70 70 55 35 30 30 30 30 25 20