



Monomorphemic Causatives in Chinese: A Corpus-based Multivariate Analysis

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Outline

- 1 Introduction
- 2 Theoretical Background
- 3 Research Questions
- 4 Methodology
- 5 Goals & Anticipated Results
- 6 Pilot Study
- 7 Further Research

Introduction

- Causation
- Causatives: lexical & periphrastic/productive causatives
Shibatani (1976)

Introduction

Lexical causatives:

气 候 催 熟 了 苹 果。
Qì hòu cuī shú le píng guǒ
The climate urge ripe (past tense marker) the apple
The climate ripens the apple.

Periphrastic causatives:

气 候 使 苹 果 熟 了。
Qì hòu shǐ píng guǒ shú le
The climate CAUSE the apple ripe (past tense marker)
The climate caused the apple to ripen.
The climate made the apple ripe.



Research Target

CAUSE in analytical construction of Chinese causal expressions

7 forms of monomorphemic realization:

- 使shǐ
 - 令lìng
 - 让ràng
 - 叫jiào1
 - 教jiào2
 - 给gěi
 - 要yào
- Auxiliary verbs

Non-auxiliary Meaning of Auxiliary Verbs

- **The Oxford Chinese dictionary : English-Chinese - Chinese-English.**
Oxford university press, 2010.
- 使shǐ
 - A <动> 1 (派遣) send: ~人去打听消息
send sb. to make enquiries
~唤,鬼~神差,支~
 - 2 (让) cause: ~人落泪
make sb. cry
这只会~事情更糟。
This will only make things worse.
 - 3 (用) use: 这支笔很好~。
This pen writes well. ~劲
 - 4 (出使) be sent abroad on official mission: 出~
- B <连> <书> supposing 假~
- C <名> envoy: ~使,大~, 特~

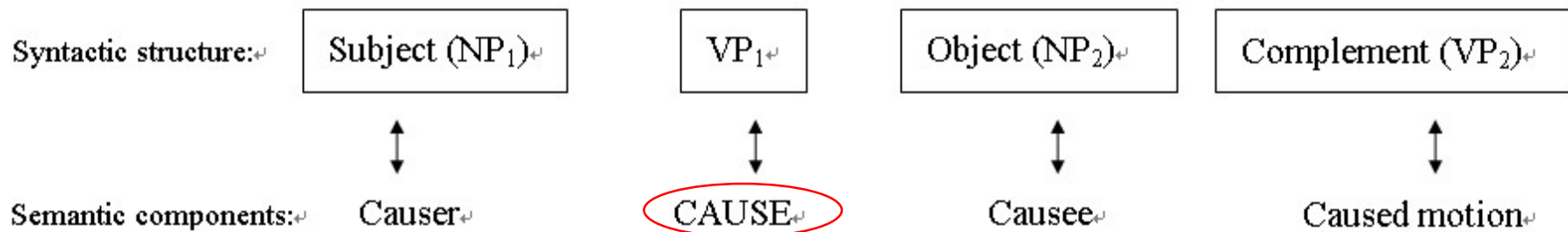
Chinese Analytic Causative Construction

我 让 客 人 围 着 桌 子 坐 下。
Wǒ ràng kè rén wéi zhe zhuō zi zuò xià
I CAUSE the guests surround (present tense marker) the table sit down

I asked the guests to sit around the table.

NP1 + VP1 + NP2 + VP2

Causer + CAUSE + Causee + Caused motion



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Theoretical Background & Relation to the QLVL Profile

Theoretical Framework:

Cognitive Linguistics (Geeraerts & Cuyckens [eds.] 2007); Cognitive semantics in context, usage-based model of language (Geeraerts 2009)

QLVL's Publications:

Dutch *doen* and *laten* (Speelman&Geeraerts 2008; Levshina In press)

Method:

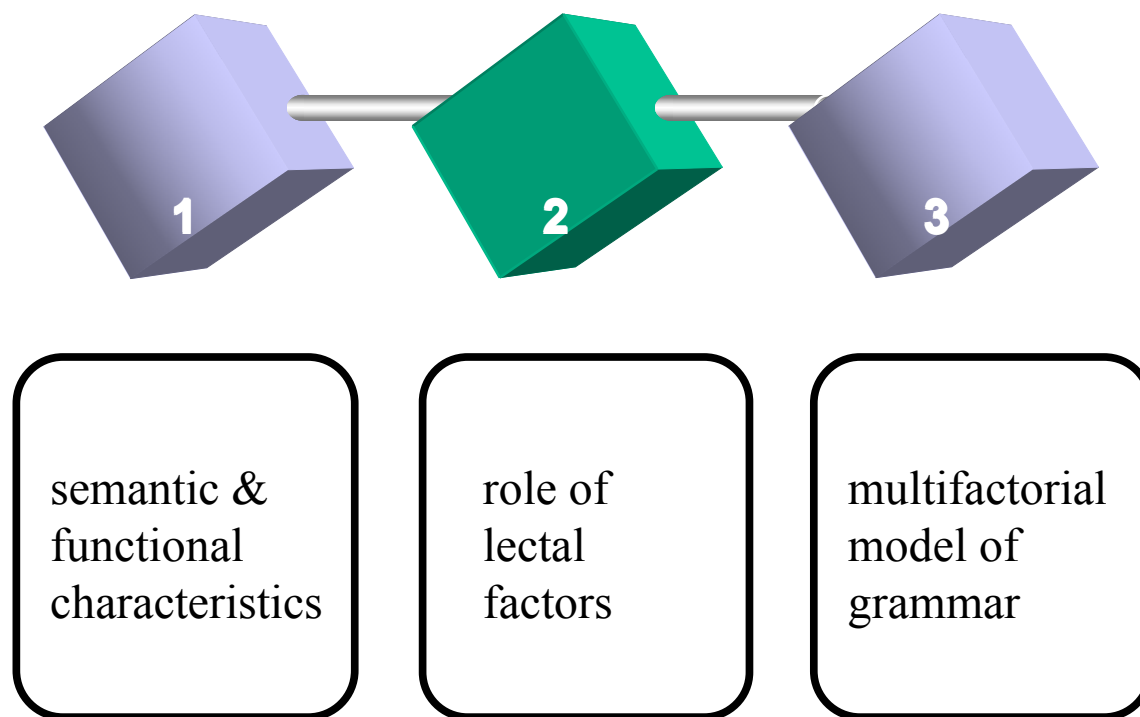
Statistics for Corpus Linguistics, corpus-based linguistic studies (Speelman 1997)



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Research Questions

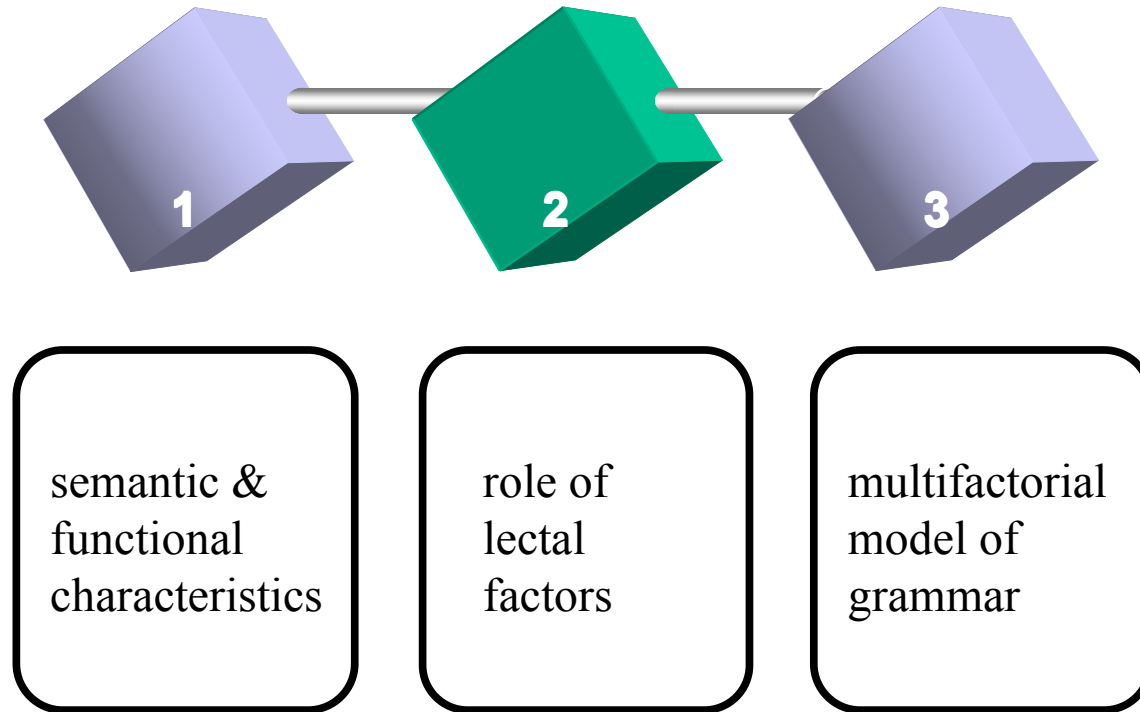


☆ To what extent are these near-synonymous expressions semantically equivalent to each other?

☆ What are their respective semantic and functional distributions?

☆ Which is the prototype of Chinese monomorphemic causatives?

Research Questions

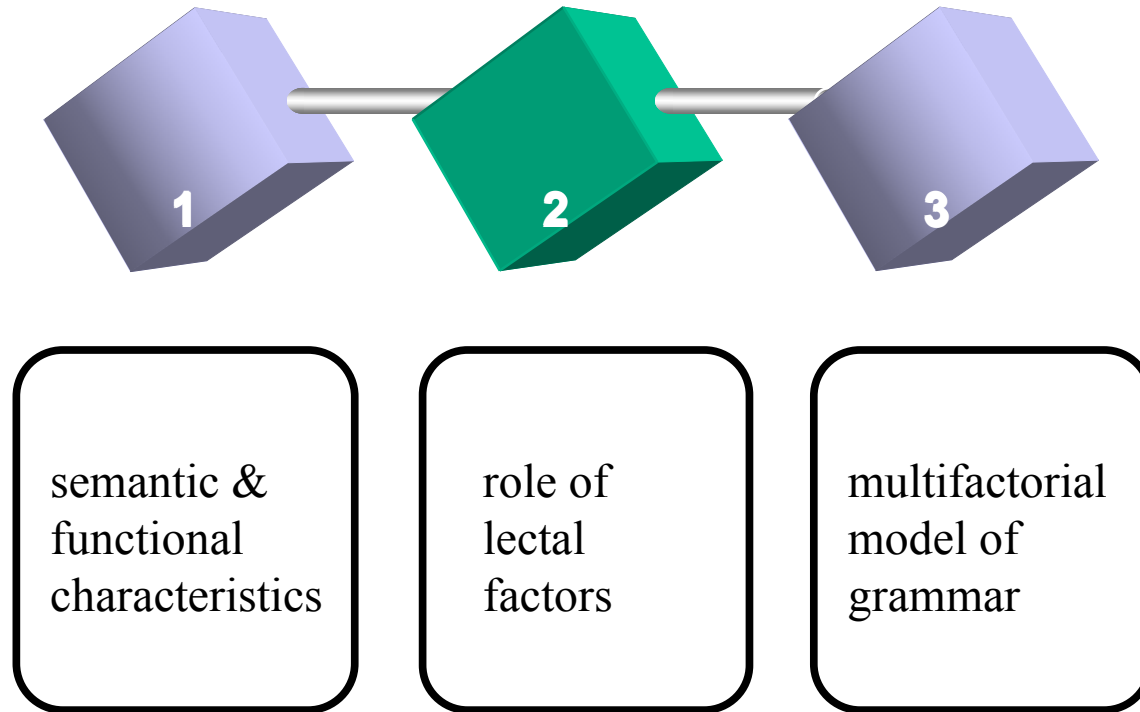


☆ Do language-external factors play a role in distinguishing these near-synonyms?

☆ Are the type of factors that are relevant for Chinese similar to those that play a role for Dutch and related languages?

QML ☆ If they are not the same, do the factors for Chinese point to a fundamentally different model of causality?

Research Questions



- ☆ Since the Dutch results reveal an architecture of the linguistic system in which structural, discursive and variational factors simultaneously determine the presence or absence of linguistic variables, do the Chinese results confirm this multivariate conception of the grammar?

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Methodology

- Corpus: 16 Chinese corpora
- Factors: approximately 34 possible independent predictors
- Procedure: statistical techniques

Multinomial logistic regression analysis

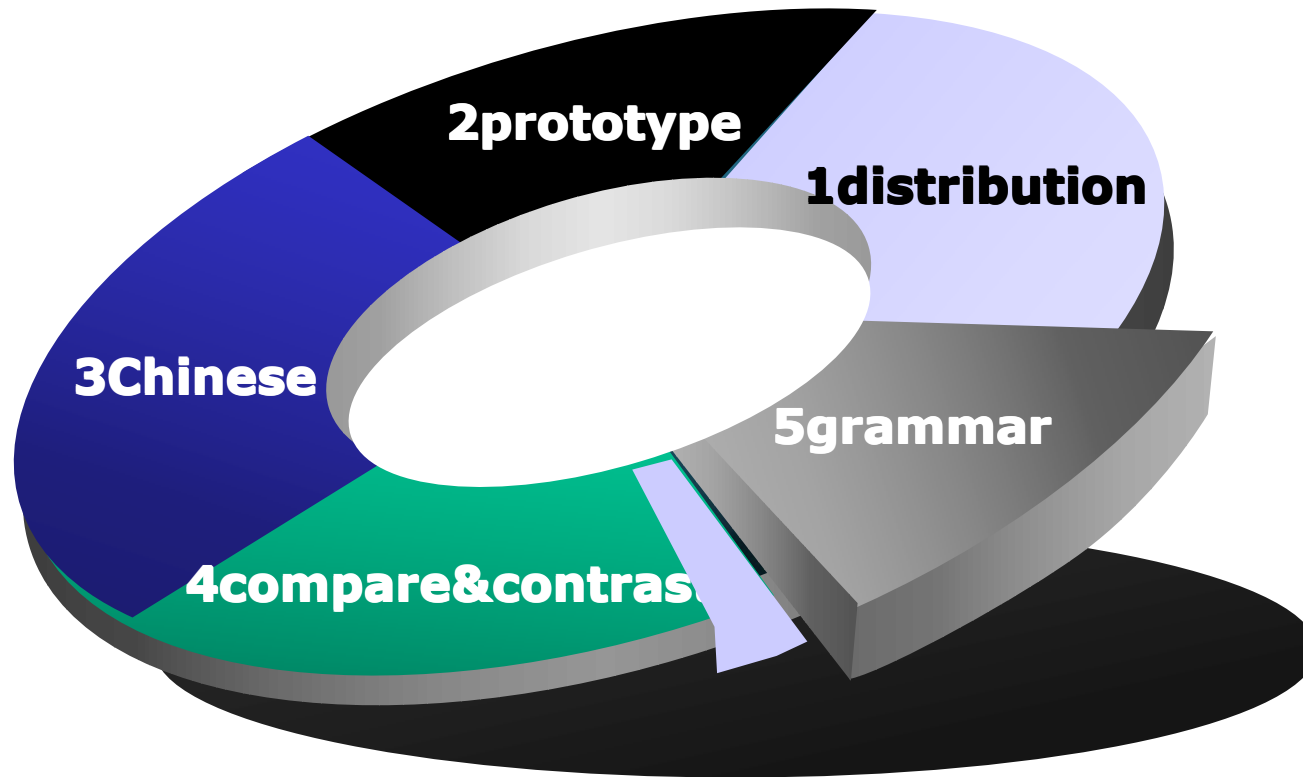
Collocation analysis

MDS

Outline

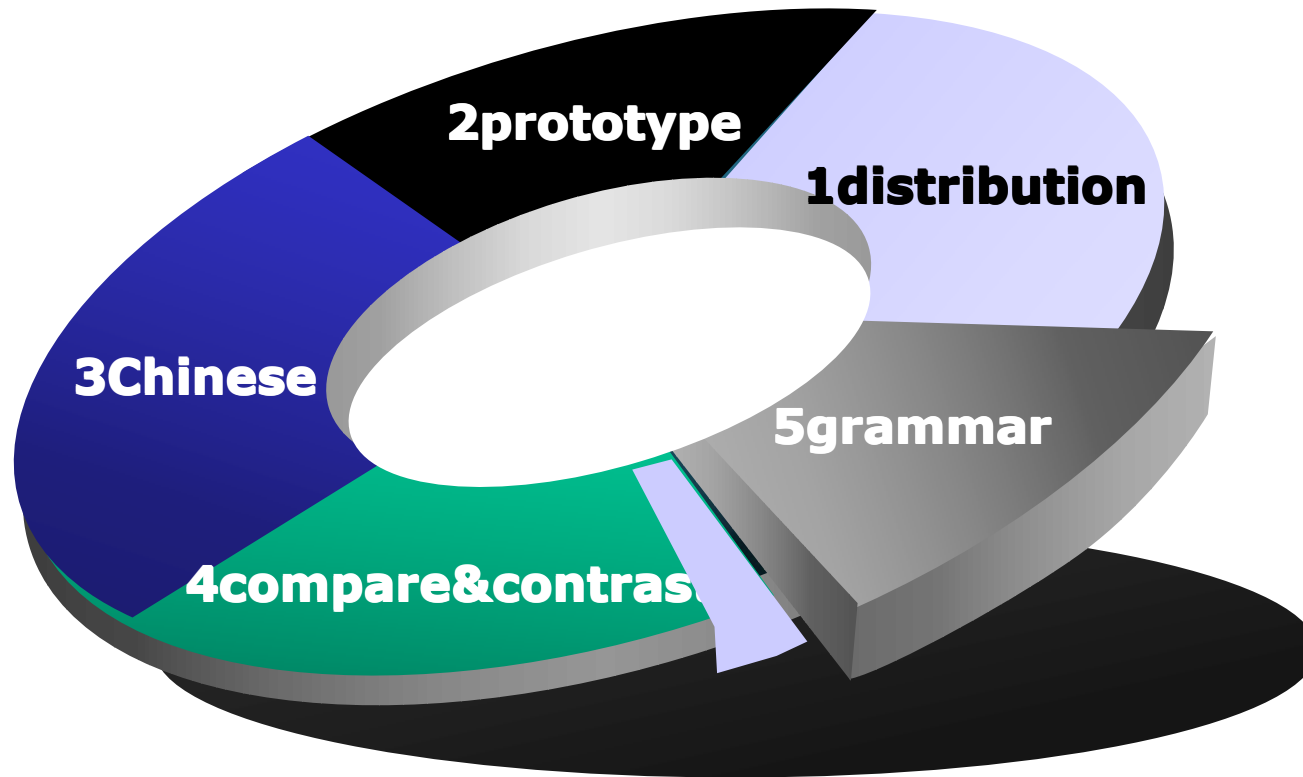
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Goals & Anticipated results



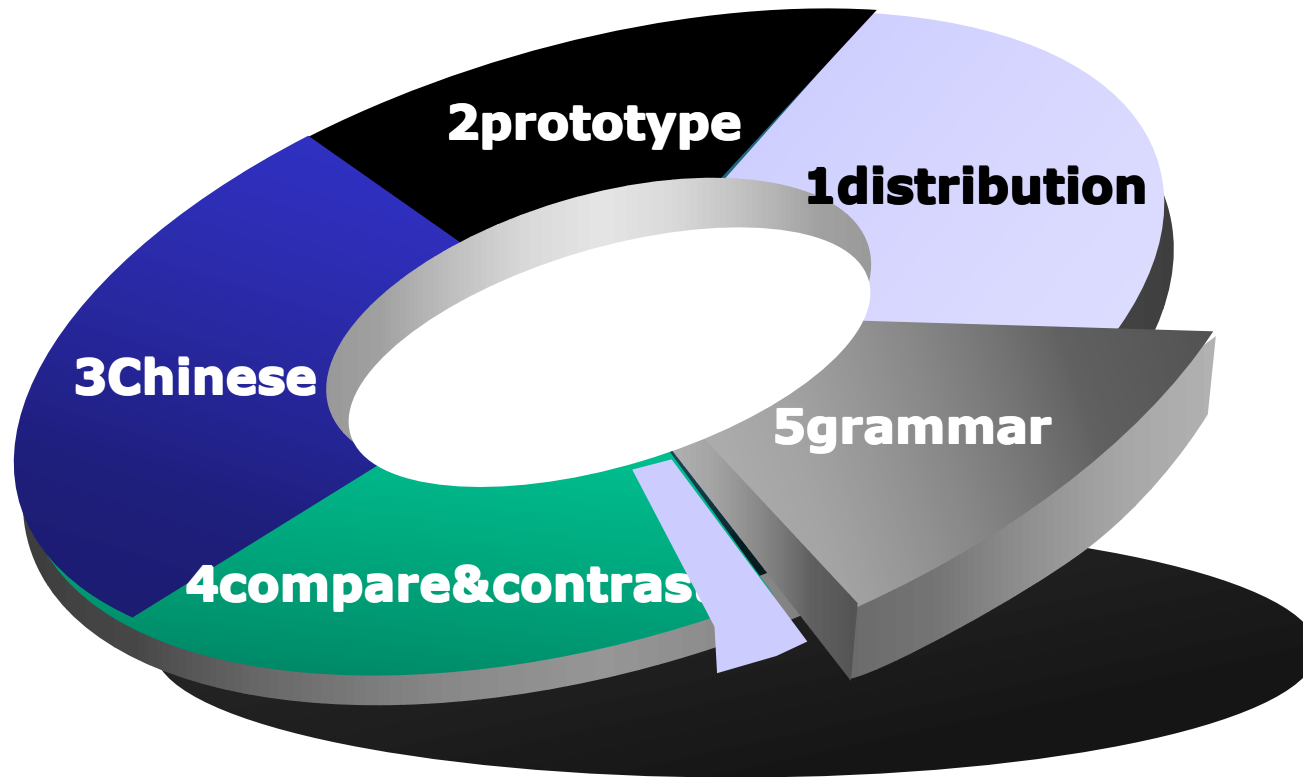
- ☆ work out the semantic and functional divisions of labor that are assigned to the 7 Chinese monomorphemic causatives, and thus describe the system of these causatives

Goals & Anticipated results



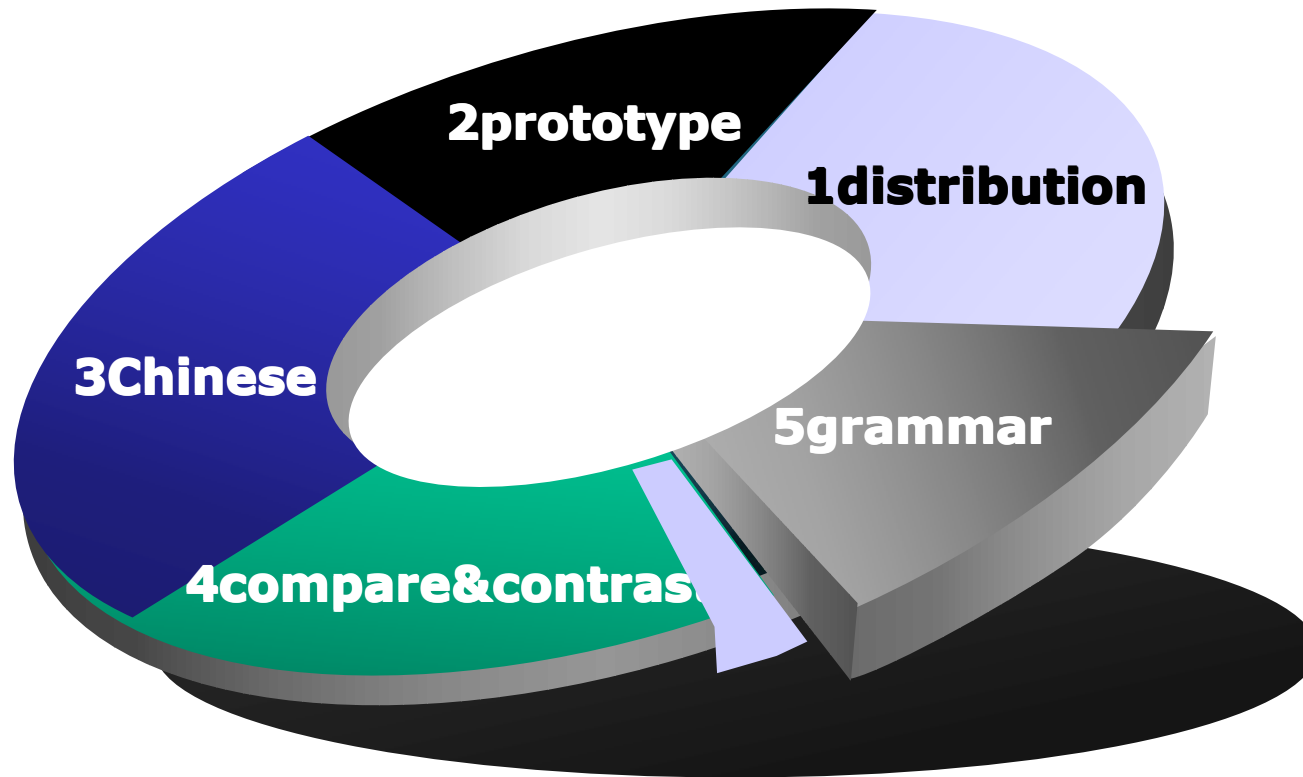
☆ chase down the prototype of them, if there is

Goals & Anticipated results



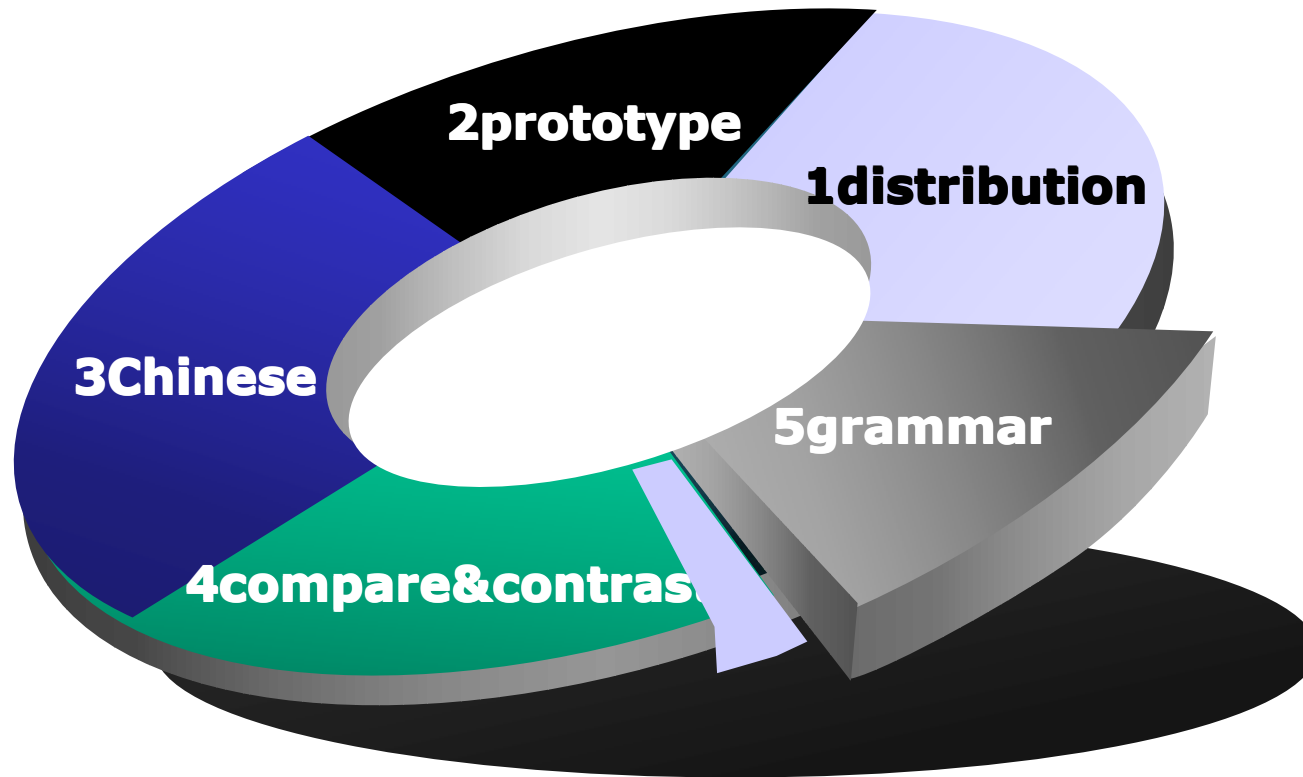
☆ confirm that Chinese develops from a synthetic language to an analytic one, or at least on the way

Goals & Anticipated results



- ☆ compare and contrast the newly acquired Chinese results with the Dutch ones, and thus complement the existing researches with a Chinese perspective

Goals & Anticipated results



☆ test if a multivariate conception of the grammar can be confirmed by the Chinese results

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Pilot Study

Tao, Hongyin and Richard Xiao (2007) *The UCLA Chinese Corpus*.
UCREL, Lancaster.

- one million tokens
- written
- 2000-2005
- 15 genres
- <http://www.lancs.ac.uk/fass/projects/corpus/UCLA/>

For this study:

- Types: 7
- Tokens: 1706
- Independent variables: 6 factors
- regression analysis: binomial, multinomial



Factor 1&2: Animateness of Causer & Causee

Semantic

Speelman&Geeraerts 2008

inanim – inanimateness of NP1

no vs. yes

inanim vs. anim

Besides humans, animals as well as human collectives

“PCH”弹 试 验 成 功 又 使 全 世 界 沸 腾 起 来。

PCH dàn shì yàn chéng gōng yòu shǐ quán shì jiè fèi téng qǐ lái

PCH Bomb test success again CAUSE the whole world seethe stand up

The success of Bomb PCH test made the whole world seethe with excitement again.



Factor 3: Coreferentiality of Causer & Causee

Semantic

Speelman&Geeraerts 2008

Coref – coreferentiality

no vs. yes

non-coref vs. coref

complete absence of coreferentiality versus presence of some type of coreferentiality

Self; genitive

我 们 衷 心 希 望 泰 柬 两 国 政 府 能 够 冷 静
Wǒ mén zhōng xīn xī wàng tài jiǎn liǎng guó zhèng fǔ néng gòu lěng jìng
We wholeheartedly hope Thailand Cambodia two countries' governments can calmly
处 理 此 事, 使 两 国 关 系 尽 早 恢 复 正 常。
chǔ lǐ cǐ shì, shǐ liǎng guó guān xi jìn zǎo huī fù zhèng cháng
deal with this matter, CAUSE two countries' relationship as soon as possible return to normal

We truly hope that Thailand and Cambodia are able to cope with this matter in peace to get their relationship back on track as soon as possible.



Factor 4: Intentionality of Causer

Semantic

Givon 2001

unintent vs. intent

我的经济能力 不能使 我负担起高额的房租。

Wǒ de jīng jì néng lì bù néng shǐ wǒ fù dān qǐ gāo é de fáng zū

My economic capability not can CAUSE me afford expensive house rent

I cannot afford such expensive rent with my economic ability.

我努力使 自己慢慢坐起身来。

Wǒ nǚ lì shǐ zì jǐ màn màn zuò qǐ shēn lái

I tried CAUSE myself slowly sit my body up

I tried to sit up slowly.



Factor 5: Transitivity of sub-clause predicate

Grammatical

Speelman&Geeraerts 2008

Cstr – construction type

intransitive vs. transitive

intrans vs. trans

做 课 代表, 使 我 碰 到 疑 难 问 题,

Zuò kè dài biǎo, shǐ wǒ pèng dào yí nán wèn tí,

Being student course assistant, CAUSE me running into difficult questions,

很 快 就 能 找 到 李 老 师 得 到 解 释。

hěn kuài jiù néng zhǎo dào lǐ lǎo shī dé dào jiě shì

right away can find Mr. Li get the answers

Being a student course assistant enables me to find Mr. Li and get the answers from him right away when I ran into difficult questions.



Factor 6: Hierarchy of Causer & Causee

Semantic

Degand 2001

(social) status/power

Higher, equal, lower

佛 藏 其 爱 子 拟 度 化 她, 使 她 归 依 三 宝。

Fó cáng qí ài zǐ nǐ dù huà tā, shǐ tā guī yī sān bǎo

Buddha hide her beloved son intend save her, CAUSE her converted to Triratna

The Buddha hid his beloved son, intended to save her from sin and got her converted to Triratna.

在 情 感 上 的 相 似 创 伤, 使 我 们 的 心 更 紧 密 地

Zài qíng gǎn shàng de xiāng sì chuāng shāng, shǐ wǒ men de xīn gèng jǐn mì de

On emotion up (genitive) similar scar, CAUSE our hearts more closely

连 在 了 一 起。

lián zài le yì qǐ

connected (past tense marker) together

Similar emotional scars connected our hearts together more tightly and closely.

众 臣 都 叫 黄 帝 快 讲。

Zhòng chén dōu jiào huáng dì kuài jiǎng

Many liegemen all CAUSE Huangdi quickly speak

All the liegemen asked the Emperor Huangdi to say it out quickly.



Method: Regression analysis

- 7 binomial regression analyses
- Multinomial regression analysis: ref="shi"

Binomial Results

	CauserAn im	CauseeAn im	Trans	Coref	Intent	Hierarchy	
						Higher	Lower
Model 1: <i>shi</i>	***	***					*
Model 2: <i>ling</i>		***	***	.	***	***	
Model 3: <i>rang</i>	.	***	***		*	***	**
Model 4: <i>jiao_1</i>	**	*					
Model 5: <i>jiao_2</i>	.						
Model 6: <i>gei</i>			.	*			**
Model 7: <i>yao</i>	.	*			.		

QML

Interpretation

```
> subset1.glm=glm(Causatives1~CauserAnim+CauseeAnim+Trans+Coref+Intent+Hierarchy,data=PilotStudy,family=binomial)
> summary(subset1.glm)
```

```
Call:
glm(formula = Causatives1 ~ CauserAnim + CauseeAnim + Trans +
     Coref + Intent + Hierarchy, family = binomial, data = PilotStudy)
```

Deviance Residuals:

Min	1Q	Median	3Q	Max
-1.7129	-0.6517	-0.3903	-0.3136	2.4645

Coefficients:

	Estimate	Std. Error	z value	Pr(> z)	
(Intercept)	-2.1615	0.4907	-4.405	1.06e-05	***
CauserAnim[T.inanim]	1.3819	0.3311	4.174	2.99e-05	***
CauseeAnim[T.inanim]	1.9220	0.1548	12.419	< 2e-16	***
Trans[T.trans]	-0.1019	0.1427	-0.714	0.4751	
Coref[T.non-coref]	-0.7243	0.5098	-1.421	0.1554	
Intent[T.unintent]	0.0625	0.3258	0.192	0.8479	
Hierarchy[T.higher]	0.3496	0.3057	1.144	0.2528	
Hierarchy[T.lower]	1.0614	0.5113	2.076	0.0379	*

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 1627.2 on 1693 degrees of freedom
Residual deviance: 1359.4 on 1686 degrees of freedom
(12 observations deleted due to missingness)
AIC: 1375.4

Number of Fisher Scoring iterations: 5

Interpretation

	CauserAn im	CauseeAn im	Trans	Coref	Intent	Hierarchy	
						Higher	Lower
Model 1: <i>shi</i>	inanim	inanim					*
Model 2: <i>ling</i>		anim	intrans	coref	unintent	***	
Model 3: <i>rang</i>	anim	anim	trans		intent	×	×
Model 4: <i>jiao_1</i>	anim	anim					
Model 5: <i>jiao_2</i>	anim						
Model 6: <i>gei</i>			trans	coref			**
Model 7: <i>yao</i>	anim	anim			intent		

QML

Multinomial Results

Call:

```
multinom(formula = NewCausatives ~ CauserAnim + CauseeAnim +  
  Trans + Coref + Intent + Hierarchy, data = PS)
```

Coefficients:

	(Intercept)	CauserAnim[T.inanim]	CauseeAnim[T.inanim]	Trans[T.trans]	Coref[T.non-coref]	Intent[T.unintent]	Hierarchy[T.higher]	Hierarchy[T.lower]
gei	0.001444879	-1.744354	-1.366678	0.47698914	-0.3566974	-0.1663065	0.01167803	0.3354842
jiao	-1.380898786	-2.808575	-3.080418	-0.22129610	1.4811755	0.4482759	-0.65481210	-0.6338035
ling	-1.635729913	-0.841213	-4.083617	-0.92513462	-1.0137377	3.7163909	4.31013746	-0.2847621
rang	1.821964549	-1.296196	-1.717933	0.23533956	0.7344022	-0.1873923	-0.72156267	-1.2435039
yao	-1.400350125	-3.114204	-3.994956	0.09510195	1.8754531	-1.5797115	-0.37939814	-1.9575421

Std. Errors:

	(Intercept)	CauserAnim[T.inanim]	CauseeAnim[T.inanim]	Trans[T.trans]	Coref[T.non-coref]	Intent[T.unintent]	Hierarchy[T.higher]	Hierarchy[T.lower]
gei	0.6477922	0.6110911	0.3705841	0.2764095	0.6865355	0.5898448	0.4453193	0.6633371
jiao	1.1050218	0.5972205	0.7433737	0.3249335	1.1310402	0.5580294	0.5119692	0.7782487
ling	1.0484662	0.5083279	0.7244611	0.2285845	1.0453576	0.8601157	0.8477665	0.9937394
rang	0.4946199	0.3342189	0.1583976	0.1451248	0.5145533	0.3299864	0.3132353	0.5292554
yao	1.1062418	1.1074556	1.0275181	0.3076669	1.1265113	0.9356410	0.4180956	1.1241285

Residual Deviance: 3496.264

AIC: 3576.264



Multinomial Results

```
> confint(m)
```

```
Loading required package: abind
, , gei
```

	2.5 %	97.5 %
(Intercept)	-1.26820448	1.2710942
CauserAnim[T.inanim]	-2.94207077	-0.5466377
CauseeAnim[T.inanim]	-2.09300948	-0.6403466
Trans[T.trans]	-0.06476348	1.0187418
Coref[T.non-coref]	-1.70228227	0.9888874
Intent[T.unintent]	-1.32238099	0.9897679
Hierarchy[T.higher]	-0.86113179	0.8844878
Hierarchy[T.lower]	-0.96463263	1.6356010

```
, , jiao
```

	2.5 %	97.5 %
(Intercept)	-3.5467018	0.7849042
CauserAnim[T.inanim]	-3.9791060	-1.6380447
CauseeAnim[T.inanim]	-4.5374041	-1.6234326
Trans[T.trans]	-0.8581540	0.4155618
Coref[T.non-coref]	-0.7356225	3.6979735
Intent[T.unintent]	-0.6454418	1.5419935
Hierarchy[T.higher]	-1.6582533	0.3486291
Hierarchy[T.lower]	-2.1591430	0.8915359

```
, , ling
```

	2.5 %	97.5 %
(Intercept)	-3.690686	0.4192260
CauserAnim[T.inanim]	-1.837517	0.1550914
CauseeAnim[T.inanim]	-5.503534	-2.6636991
Trans[T.trans]	-1.373152	-0.4771172
Coref[T.non-coref]	-3.062601	1.0351255
Intent[T.unintent]	2.030595	5.4021866
Hierarchy[T.higher]	2.648546	5.9717293
Hierarchy[T.lower]	-2.232455	1.6629312

```
, , rang
```

	2.5 %	97.5 %
(Intercept)	0.85252737	2.7914017
CauserAnim[T.inanim]	-1.95125315	-0.6411390
CauseeAnim[T.inanim]	-2.02838683	-1.4074796
Trans[T.trans]	-0.04909978	0.5197789
Coref[T.non-coref]	-0.27410370	1.7429082
Intent[T.unintent]	-0.83415389	0.4593692
Hierarchy[T.higher]	-1.33549263	-0.1076327
Hierarchy[T.lower]	-2.28082534	-0.2061825

```
, , yao
```

	2.5 %	97.5 %
(Intercept)	-3.5685442	0.7678439
CauserAnim[T.inanim]	-5.2847769	-0.9436309
CauseeAnim[T.inanim]	-6.0088542	-1.9810573
Trans[T.trans]	-0.5079140	0.6981180
Coref[T.non-coref]	-0.3324685	4.0833747
Intent[T.unintent]	-3.4135341	0.2541111
Hierarchy[T.higher]	-1.1988504	0.4400542
Hierarchy[T.lower]	-4.1607934	0.2457092

which confirm the results
of 7 binomial analyses

Restrictions

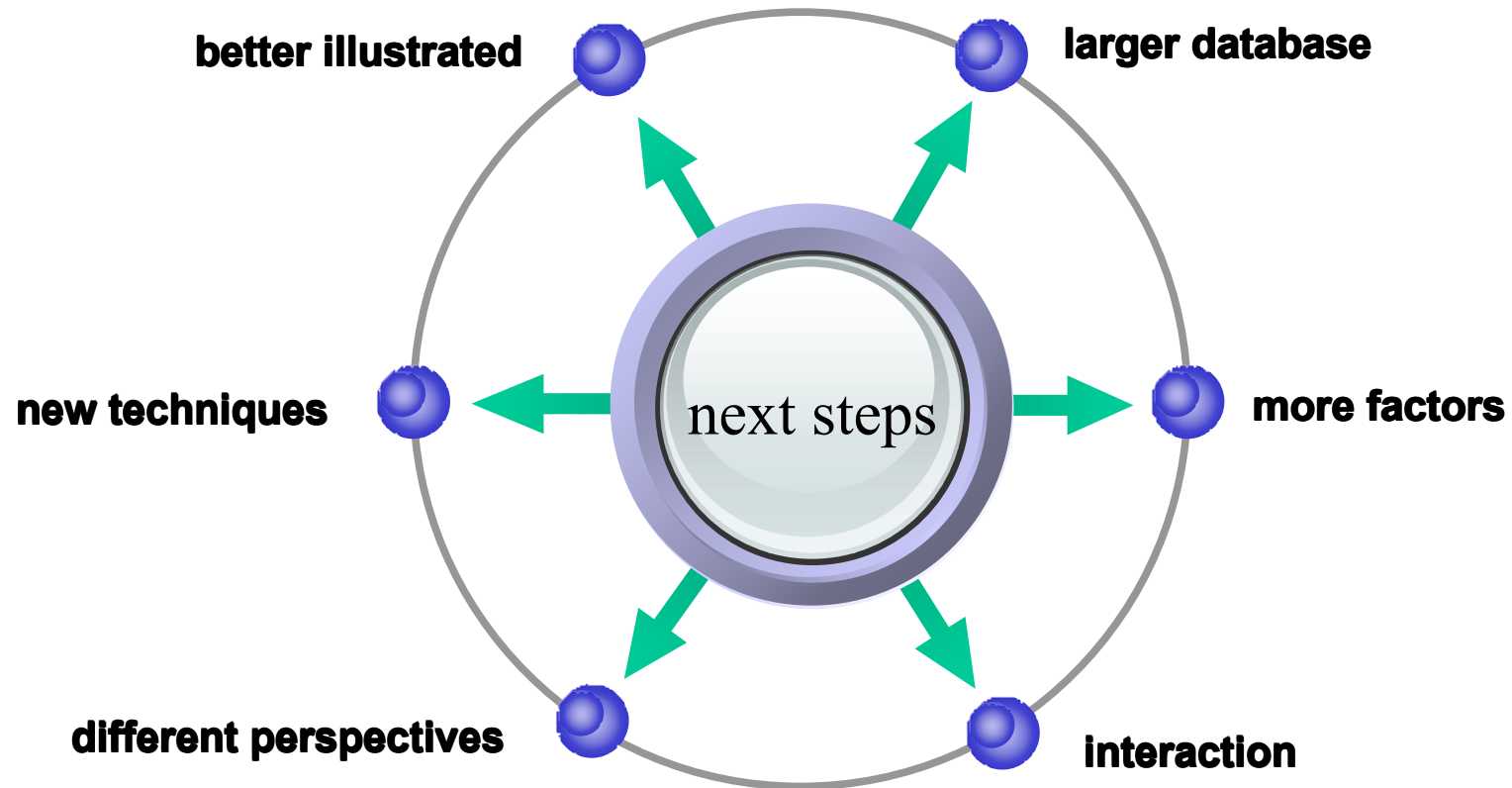
- a limited number of predictors
- lectal factors
- interaction
- effect size

	CauserAn im	CauseeAn im
Model 1: <i>shi</i>	inanim	inanim
Model 2: <i>ling</i>		anim
Model 3: <i>rang</i>	anim	anim
Model 4: <i>jiao_1</i>	anim	anim
Model 5: <i>jiao_2</i>	anim	
Model 6: <i>gei</i>		
Model 7: <i>yao</i>	anim	anim

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Further Research



QML

Thank You !

A handwritten signature in black ink, consisting of the letters 'Q' and 'M' in a stylized, cursive font.

Candidate: Yanan Hu

Supervisors: Dirk Geeraerts, Dirk Speelman

Any questions and suggestions are welcome.