Adpositional Supersenses for Mandarin Chinese

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Introduction

- Adpositions contribute significantly to meaning
- *Semantic Network of Adposition and Case Supersenses (SNACS)* (Schneider et al., 2018b)

Circumstance
- Temporal
  - Time
    - StartTime
    - EndTime
  - Frequency
  - Duration
  - Interval
- Locus
  - Source
  - Goal
- Path
  - Direction
  - Extent
- Means
- Manner
- Explanation
  - Purpose

Participant
- Causer
  - Agent
    - Co-Agent
- Theme
  - Co-Theme
  - Topic
- Stimulus
- Experiencer
- Originator
- Recipient
- Cost
- Beneficiary
- Instrument

Configuration
- Identity
- Species
- Gestalt
  - Possessor
  - Whole
- Characteristic
  - Possession
  - PartPortion
    - Stuff
- Accompanier
- InsteadOf
- ComparisonRef
- RateUnit
- Quantity
  - Approximator
- SocialRel
  - OrgRole

- *Construal analysis* (Hwang et al., 2017)
  - FUNCTION: lexical semantics of an adposition token
  - SCENE ROLE: the underlying relation in the surrounding context

(1) I care **about:**STIMULUS↝TOPIC you.

(2) I put the book **on:**GOAL↝LOCUS the table.

- Research questions
  - Adaptability to Chinese adposition semantics?
  - Similarities and differences between Chinese and English adpositions?

Adposition Criteria

(3) tā **zài:**LOCUS xuéshù **shàng:**TOPIC↝LOCUS yǒusuǒzuòwéi
3SG P:at academia LC:on-top-of successful
'He succeeded in academia.'

- **Coverbs**
  - Precede the main predicate and introduce an NP argument (Li & Thompson, 1974)
  - Annotate all pre-verbal coverbs (modification of an event), except *zai* in (4)

(4) nǐ yào de yáng jiù **zài** lǐmiàn
2SG want DE sheep RES at inside
'The sheep you want is in the box.'

- **Localizers**
  - Follow a noun phrase to refine its semantic relation
- Annotate coverbs and localizers separately

Supersense Applicability

- **EXPERIENCER as FUNCTION**
  - English: EXPERIENCER does not seem to have any prototypical adpositions (Schneider et al., 2018a)
  - Chinese: EXPERIENCER has a prototypical adposition

(5) **To:**EXPERIENCER↝GOAL those who understand life, that would have given a much greater air of truth to my story.

(6) [**duì:**EXPERIENCER [dǒngdé shēnghuó de rén]
P:to know-about life DE people
láishuō:EXPERIENCER], zhèyàng shuō jiù xiǎndé zhēnshí
LC:one's regard this-way tell RES seem real
'It looks real to those who know about life.'

- **Same SCENE, Different FUNCTION**
  - Though both English *to* and Chinese *dui* have RECIPIENT as the scene role, they have different functions

(7) You would have to say **to:**RECIPIENT↝GOAL them: "I saw a house that costs $20,000."

(8) nǐ bìxū **duì:**RECIPIENT↝DIRECTION tāmén shuō: "wǒ kànjiàn
2SG must P:to 3PL say 1SG see
le yí dòng shíwàn fǎláng de fángzi."
ASP one CL 100,000 franc DE house
'You must tell them: "I see a house that costs 100,000 francs."'

- **Unproductivity of Function**
  - Chinese adpositions: relatively limited functions

(9) **In:**TOPIC certain more important details I shall make mistakes.

(10) I should have liked to begin this story **in:**MANNER the fashion of the fairy-tales.

(11) wǒ hěn kěnéng [**zài:**LOCUS [mǒuxiē zhòngyào de xìjié]
1SG very probably P:at some important de detail
shàng:TOPIC↝LOCUS]huà cuò le
LC:on-top-of draw be-mistaken ASP
'I probably made mistakes on some important details.'

Corpus Annotation and Evaluation

- Annotated 13,000+ tokens (602 adpositions)
- 40 types of construals were identified, with 24 of the 50 supersenses appearing as scene roles and 23 as functions
- IAA on six chapters including 111 adpositions

Cohen's kappa		
SCENE	FUNCTION	SCENE + FUNCTION
.90	.93	.88

Cross-lingual Correspondence

- **Applicability of Contrual Analysis in Chinese**

Role *vs.* Function:	Same	Total
English	178 (70%)	256
Chinese	121 (86%)	141

Table 1: Comparing the scene role and function annotations for adpositions in Ch. 1, 4, and 5.

- **Analysis by Subhierarchy**

Func \ Scene	CIRC	PART	CONF	Total
CIRC	88 | 68	22 | 12	4 | 2	114 | 82
PART	0 | 0	50 | 48	0 | 0	50 | 48
CONF	3 | 0	9 | 0	71 | 10	83 | 10
Total	91 | 68	81 | 60	75 | 12	247 | 140
			Diagonal	209 | 126
			Off-diagonal	38 | 14

Table 2: Distribution of cross-subhierarchy construals. Counts are notated as English | Chinese.

Conclusion & Future work

- Develop new guidelines for phenomena not present in English
- Substantiate the applicability of construal analysis in Chinese
- Can further support automatic disambiguation of adpositions in Chinese

QR scan: e-poster available

Acknowledgements

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