

Meaning Extensions of *Shang*⁴ in Mandarin



Siaw-Fong Chung
Jiafei Hong
Chu-Ren Huang

Examples of *Shang4* Constructions

- 能用的語言全用上，加上比手畫腳
- 考上大學的時候
- 生意上門之後
- 新書上架

Polysemic Senses

- Cognitive linguists:
- Cuyckens and Zawada (1997:xiv)
- Senses of the words (i.e., the members of the category) are related to each other by means of general cognitive principles
- Metaphor, metonymy, generalization, specialization, and image-schema transformation

Prepositions



- Langacker (1998:10)
- Trajector' (TR) and 'landmark' (LM)
- Describing a relational expression such as a preposition

English Preposition

- Brugman (1981) investigated the different ‘senses’ of the English preposition *over* by using geometrical representations
- Lakoff (1987:420) later refined Brugman’s analysis by using the theory of image-schema

Image Schemata

- Image schemata are defined as “relatively simple structures that constantly recur in everyday bodily experience.” (Lakoff, 1987:267)

教育部重編國語辭典修訂本

- 升、由下而上。
- 去、到。如：「上街」、「上天津」
- 進呈。如：「上書」、「上奏」
- 添加。如：「這鋪子總不上新貨。」
- 教讀。如：「今日老師上了那課？」

教育部重編國語辭典修訂本

- 升、由下而上。 [upward movement]
- 去、到。如：「上街」、「上天津」 [approach]
- 進呈。如：「上書」、「上奏」 [presentation]
- 添加。如：「這鋪子總不上新貨。」 [additive]
- 教讀。如：「今日老師上了那課？」 [state]

教育部重編國語辭典修訂本

- 安裝。如：「上燈」、「上刺刀」
- 登載。如：「上報」、「上帳」
- 塗抹。如：「上漆」、「上顏色」

教育部重編國語辭典修訂本

- 安裝。如：「上燈」、「上刺刀」 [attaching]
- 登載。如：「上報」、「上帳」 [location]
- 塗抹。如：「上漆」、「上顏色」 [coverage]

Research Questions



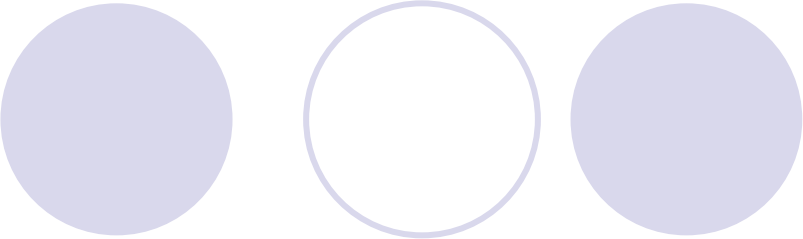
- What are the semantic relations between the different senses of *shang4* in the *shang4* constructions?
- How one meaning derives from another?

Cues

- 表示動作的發生或結果。如：「考上大學」、「關上大門」
- 表示動作的開始或繼續。如：「愛上」、「迷上武俠小說」



Hypothesis

- 
- The different senses of *shang4* denotes different point in a event



Methodology

- Different *shang4* constructions were extracted from the Sinica Corpus
- All repetitive types were filtered using the online application
- For all types of shang4 constructions, the possible senses were analyzed

Results

- Different senses of *shang4*
- More meanings were found than those in the dictionary

Results

Presentation	奉上、獻上、上訴、上告
Inchoative	加上[additive] 蓋上 [coverage]
Directional path	遇上[touching] 登上[embarkment]

Possible Solutions

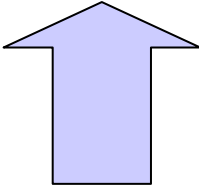
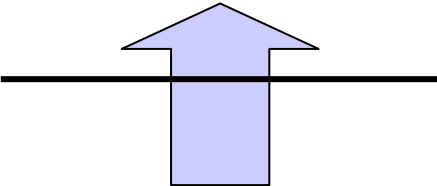
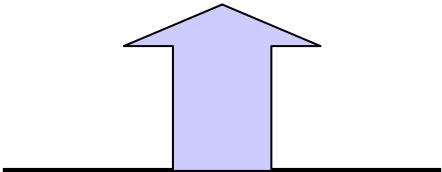
Approach	上前、上樓、上籃
Resultative	佩上[attaching] 挑上[completive]
Extent	吃上、花上、強上

Results

Upward motion	擠上[manner] 上升[location] 放上[path]
Reference point	抱上、搬上、抬上
Start point	上路、上市、上任

Possible Solutions

- Image Schemata

Upward motion	擠上[manner] 上升[location] 放上[path]	
Reference point	抱上、搬上、抬上	
Start point	上路、上市、上任	

Problems

The slide features a decorative header with the word 'Problems' in a large, black, sans-serif font. Above the text, there are five circles arranged horizontally. The first circle is solid light purple and partially overlaps the word 'Problems'. The second circle is an outline with a light purple border. The third circle is solid light purple. The fourth circle is an outline with a light purple border. The fifth circle is solid light purple.

- Too many representation
- The meaning extensions are not clear

Three Basic Meanings of *Shang4* Constructions



Location

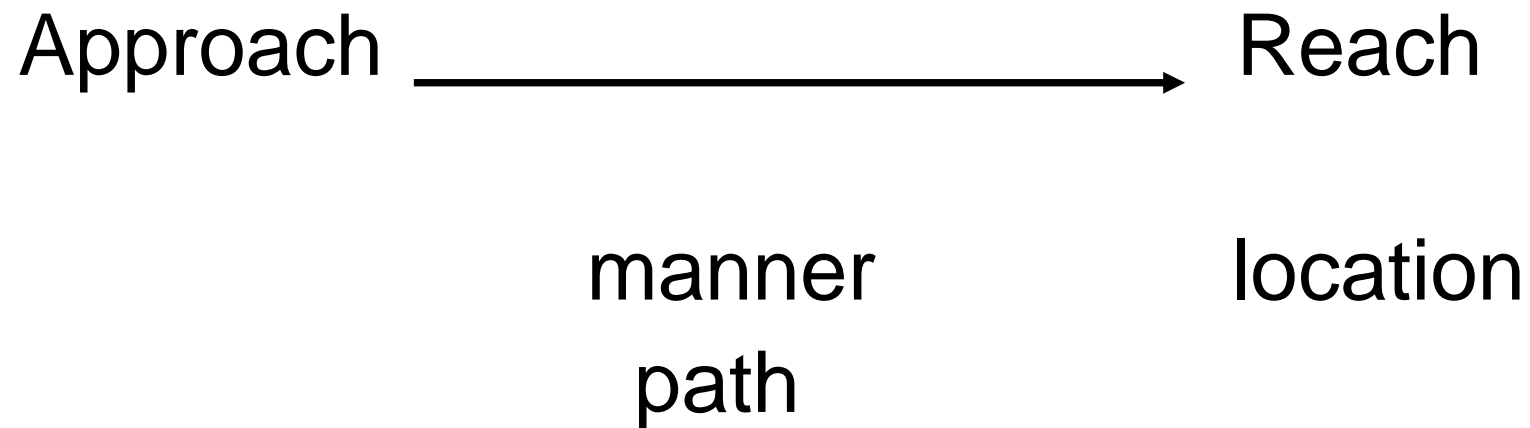
- Reference point 抱上、搬上、抬上
- Start point 上路、上市、上任
- Extent 吃上、花上、強上 [point in a scale]
- Inchoative
 - 加上 additive
 - 蓋上 coverage

Path

- Directional path [process]
 - 遇上 touching
 - 登上 embarkment
- Approach 上前、上樓、上籃

Eventive Information of Shang4

EVENT



Eventive Information of Shang4

EVENT

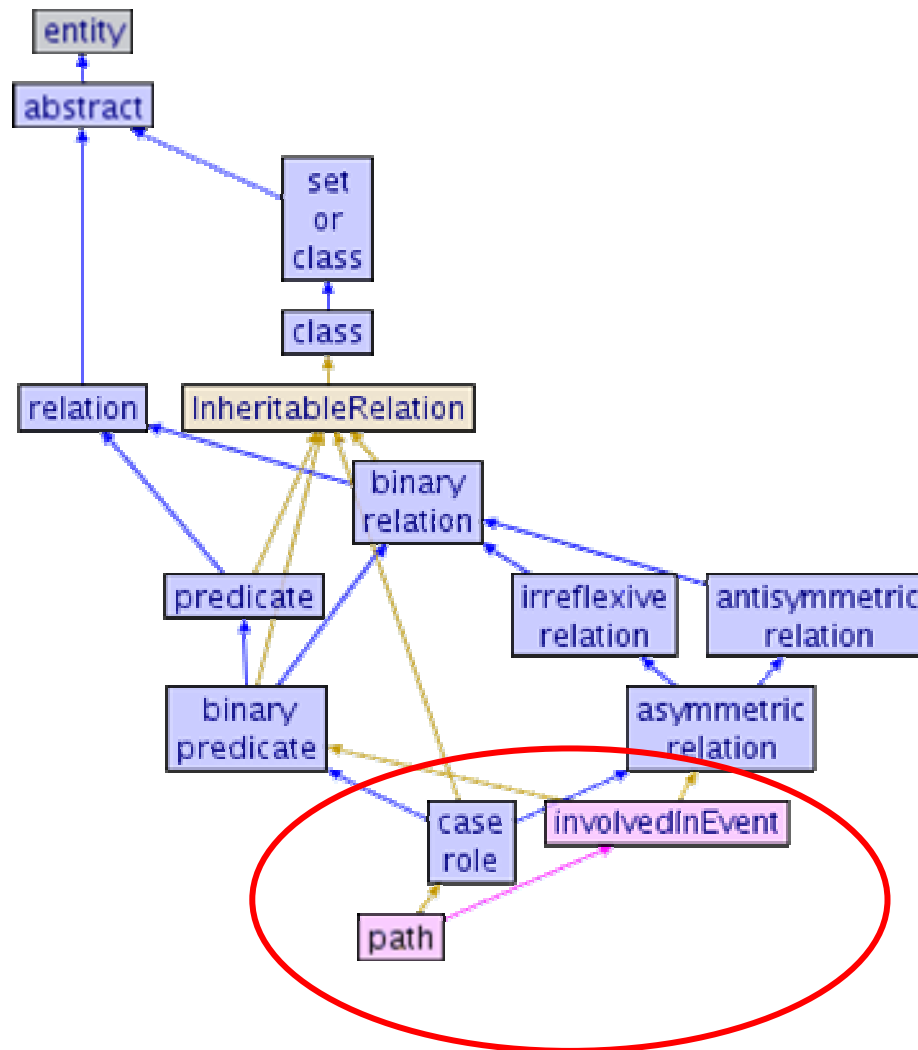
[State] 上班、上岸、上榜



Dictionary Senses

- 表示動作的發生或結果。如：「考上大學」、「關上大門」
- 表示動作的開始或繼續。如：「愛上」、「迷上武俠小說」

PATH in SUMO



Inference Rules in SUMO

- if *?PATH1* is **path** along with *?PROCESS* occurs and *?PROCESS* **origin**s at *?SOURCE* and *?PROCESS* **ends** at *?DEST* and the **length** of *?PATH1* is *?MEASURE1* and the **distance** between *?SOURCE* and *?DEST* is *?DISTANCE* and *?MEASURE1* is not **greater** than *?DISTANCE*
- then for all *?OBJ* holds if *?OBJ* is a **part** of *?PATH1*, then *?OBJ* is **between** *?SOURCE* and *?DEST*

```
(=>
  (and
    (path ?PROCESS ?PATH1)
    (origin ?PROCESS ?SOURCE)
    (destination ?PROCESS ?DEST)
    (length ?PATH1 ?MEASURE1)
    (distance ?SOURCE ?DEST ?DISTANCE)
    (not
      (greaterThan ?MEASURE1 ?DISTANCE)))
  (forall
    (?OBJ)
    (=>
      (part ?OBJ ?PATH1)
      (between ?SOURCE ?OBJ ?DEST))))
```

SUMO (Suggested Upper Merged Ontology)

SUMO Atoms

- **Concepts:** around 1000
- **Relations (ISA):** See SUMO Graph
- **Axioms:** around 4000

<http://ontology.teknowledge.com>



SUMO

- SUMO is a proposed representation of shared human knowledge, and thus a good candidate for mapping information about the source domain to the target domain

SUMO's Top Conceptual Hierarchy

- Entity
 - Physical
 - Object
 - SelfConnectedObject
 - Region
 - Collection
 - Agent
 - Process
 - Abstract
 - SetOrClass
 - Relation
 - Quantity
 - Number
 - PhysicalQuantity
 - Attribute
 - Proposition
 - Graph
 - GraphElement

Eventive Information and Linguistic Forms

● Huang and Ahrens (2003)

Classifier and nominal semantic type correlation for *dianhua* “telephone”

Semantic/Classifier type	Example	Reference
Individual	<i>yi ju dian-hua</i> one CLS_IN telephone “one telephone”	Telephone Machinery
	<i>yi xian dian-hua</i> one CLS_IN telephone “one telephone line”	Telephone line
Kind	<i>yi zhong dian-hua</i> one CLS_KD telephone “one kind of telephone”	A particular kind of phone, e.g. cordless
Event	<i>yi tong dian-hua</i> one CLS_EV telephone “one phone call”	The completed event of calling

V-*qi3lai2*



- Huang and Chang (1996)
- Inchoative *qi3lai2* 跳了起來
- Completive *qi3lai2* 哭了起來
- Meaning extensions



Conclusions

- Suggests a semantic connection between the different senses of the *shang4* constructions
- Similar linguistic forms can denotes events as well as different points of events

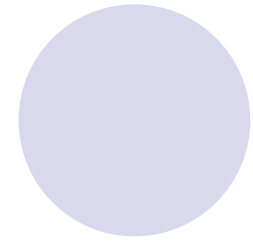
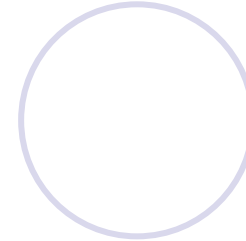
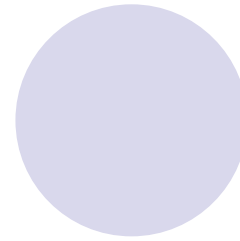
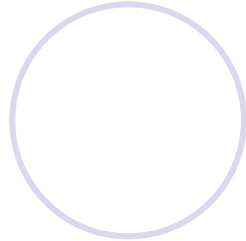
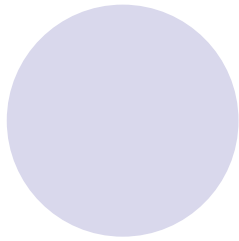
Future Research



- Frequency of different points in the events
- *Xia4* constructions
- Predictor of event categories

Predictor of Event Categories

Coverage	覆、佈、刷、披、套、濛、塗
Attaching	標、扣、佩、釘、夾、綴、紮
Additive	加、添、混、冠、填、補、摻



Questions?

WordNet Meanings (SinicaBOW)

Sense	WordNet Explanations	SUMO Nodes	Synsets
1:put_on	apply to a surface: "She applied paint to the back of the house"	Covering(覆蓋)	敷, 上, 塗
2:board	get on board of (trains, buses, ships, aircraft, etc.)	Motion(移動)	登上, 上
3:attend	be present at (meetings, church services, university), etc.	Meeting(會面)	參加, 上, 出席
4:attend	be present	%1 is %n &%located at %2:located(位於)	參加, 上, 出席