The Fourth VariAMU Workshop

Endurant vs Perdurant:
An Ontological View of How Variations are Linguistically Conventionalized

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A Few Linguistic Puzzles

- Why is a flight that (almost never) takes off at 10:10 called the 0:10 flight?
- What does linguists mean by ‘nouny’ and ‘verby’?
- Or what does [+N, +V, -V] mean when we say Noun are [+N, -V], and adjectives are [+N, +V]?
- Why can’t we say 醫院病人 (hospital patient) in Mandarin?
Why 1

A flight that is scheduled for 10:10 typically takes off earlier or later.

Say the flight was delayed and took off at 2:30...

But we simply cannot inquire about the arrival time of the 2:30 flight.

Why are we linguistically obliged to refer to that flight as the 10:10 flight while we know that the departure time is actually incorrect?
Why 2

What does it mean to say ‘nouny’ or ‘verby’ or +/- N, +/- V linguistically?

We do have deverbal nouns and denominal verbs etc.; hence ‘nouny’ does not mean being a noun; and ‘verby’ does not mean being a verb.

Is there any theoretical, empirical or cognitive ramification of this seemingly tautological stipulation?
NN compound are common and productive in Mandarin Chinese and speakers have no problem accepting school teacher, hotel chef, or primary school student; Mandarin speakers, however, strongly prefer hospital patient's and would prefer hospital's.
Outline of the Talk

- Three Linguistic Puzzles
- Endurant vs. Perdurant Ontological Dichotomy
- The Ontological Basis of Language
  - Linguistic representation of ontology in Mandarin Chinese:
    - Sortal Classifiers Denote Endurant Properties
    - Measure Words Denote Perdurant Properties
  - The Pedurant Marking Function of 的 de


- Speculations on Ontological Basis of Language Variations
  - Light verb selection in World Chineses
  - Emergence of Classifiers in Chinese
  - (Verbal) Incorporation: VO and SO compounds in Chinese
  - Lose of gender and case in Middle English
Endurant/Perdurant

Basic terms in ontology

Ontology is the application of information science and knowledge engineering: the shared system of knowledge representation (e.g., Gruber, Sowa, …), often represented in terms of conceptual atoms and relations.

Also called the continuant/occurrent

Whether the concept is independent (endurant) or dependent (perdurant) of time.
Endurant/Perdurant II

- Note that the time (in)dependency can be judged from pure physical/logical necessity (as in formal ontology) or based on (human) conceptualization (as in linguistic ontology)
- Entities are typically considered to be endurants; processes are typically perdurants
- Endurants are hence noun-like and perdurants are verb-like; however, languages have ways to turn perdurants to endurants and vice versa
- We are concerned if the endurant/perdurant dichotomy can be grammaticalized
A 10:10 flight taking off at 12:30...

The 12:30 taking off time is the **perdurant** property of the event; its value (and hence its truth value) is dependent on a specific time (i.e. January).

The 10:10 in a 10:10 flight is the **endurant** property shared by all events belonging to this type. A 10:10 flight at the same time today, tomorrow, and the day after; regardless of when the flight actually take off each day as long as it’s scheduled as such. Being a 10:10 flight is the shared **endurant** property of all such event episodes.
Endurant / perdurant qualities 恆久性／趨變性

- An **endurant** is “(the concept of) an entity which has spatial components but is not dependent from a specific time frame of occurrence.” e.g. Y. R. Chao in 1955 and in 1968
- A **perdurant** is “(the concept of) an entity which has a time element crucially associated with its meaning.” I.e. the occurring of the event… e.g. writing

--- (Gernon and Smith 2004)

- A Perdurant/Occurrent ontology is SPAN ontology, where objects are give four (or higher) dimensional representation
- An Endurant/Continuant ontology is SNAP ontology, where objects requires three dimensional representation
  - Because it is assumed that the goal of description does not vary by time
Two alternatives to incorporate the endurant/perdurant dichotomy in ontology (Figure I: DOLCE Upper Ontology: Entities)
Two alternatives to incorporate the endurant/perdurant dichotomy in ontology (Figure 2: Basic Formal Ontology (BFO) Upper Ontology)
The Chinese classifier system (Ahrens and Huang 2016) linguistically encodes Endurant/Perdurant contrast.

![Diagram of the Chinese classifier system](image)

**Figure 4** Chinese classifier system (Ahrens and Huang 2016).
Sortal Classifier Denotes Endurant Properties

- **Individual Classifiers**

  (1) 
  
  那張破破爛爛的紙  
  那張破破爛爛的紙  
  一張破破爛爛的紙  
  那張破破爛爛的紙  
  一張破破爛爛的紙  
  'one piece of tattered paper’ 
  'one piece of tattered paper’ 
  'one piece of tattered paper’ 
  'one piece of tattered paper’ 
  'one piece of tattered paper’

  那張缺腿的椅子  
  那張缺腿的椅子  
  一張缺腿的椅子  
  那張缺腿的椅子  
  一張缺腿的椅子  
  'that chair with a missing leg’ 
  'that chair with a missing leg’ 
  'that chair with a missing leg’ 
  'that chair with a missing leg’ 
  'that chair with a missing leg’
Sortal Classifier Denotes Endurant Properties

**Event Classifiers**

(a) 两通（未接）电话
(lia2 tong1 wei4 jie1 dian4 hua4)
\[ \text{two CL unanswered telephone} \]

(b) 好几阵雨
(hao3 ji3 zhen4 yu3)
\[ \text{good several CL rain} \]

(Comp. Chierchia’s theory that gerunds are names of activities)
Measure Words Denote Perdurant Properties

- **Standard Measure Words**

(8) 這一塊一公斤的肉，煮熟後只剩不到600公克

This piece meat of one kilogram only weighs less than 600 grams

(9) 這一公斤（的）肉，煮成了三道菜

This piece of one kilogram meat was made into three dishes.

Ontology of LangVari CR Huang
Linguistic expression of ontological notions

- When DE-insertion applies to sortal classifiers

(16) a. 大張 (的) 紙 yi1_da4_zhang1_de_zhi3 'a sheet of big paper'
b. 小張 (的) 紙 yi_xiao3_zhang1_de_zhi3 'a sheet of small paper'
c. 一張大紙 yi1_da4_zhang1_de_zhi3 'a sheet of big paper'
d. 一張小紙 yi_xiao3_zhang1_de_zhi3 'a sheet of small paper'

(17) a. 白花油 bai2hua1you2 (From 1968)
   white_flower_oil
   ‘Pak Fah Yeow’
b. 白花的油 bai2hua1_de_you2
   white_flower_DE_oil
   ‘A(n) (essential) oil made from a white flower’
Linguistic expression of ontological notions

- The correlation between DE-insertion and perdurant properties
  De-insertion is allowed only when the M selects perdurant properties and that in general, DE-insertion does not change the meaning of perdurant D-M compounds.

- Does DE-insertion mark time-variant property?
  1) The insertion of 的 de marks the preceding element as denoting perdurant properties.
     [consistent with the upper ontology design of DOLCE]
  2) The insertion of 的 de marks the shift to a SPAN (four-dimensional) ontological view, and hence underlines time-dependent properties.
     [consistent with the treatment of continuant/occurrence contrast of BFO]
Possible Answer to Why 3

Being a patient in a hospital is conventionalized/conceptualized to be a perdurant property (i.e., being a patient, being sick, is NOT a time-independent property of a person). Hence the presence of "de0" is required, hence 医院的病人.
Speculations on Ontological Basis of Language Variations

Variations in Light verb selection in World Chineses (Studies by LLT group, esp. Huang, Lin, and Jiang)

- 进行 ‘to proceed’ takes eventive nominals as objects, however,
  - In Mainland Mandarin, it takes only deverbal nouns, but NOT event nouns; i.e. 进行研究 research， 进行*議案／*議程 (meeting) discussion items/agenda
  - In Taiwan Mandarin, both are allowed

- Both deverbal nouns and event nouns refer to SPAN ontology (i.e. 4 dimensional meaning with time)
  - Two variations differ in whether to allow the bona fide noun (i.e. event noun) to have perdurant meaning
Emergence of Classifiers in Chinese

- Feature 1: Measure Noun Phrases occur after nouns in Old Chinese

- Example: Chen Wenzi owned 10 horses (= horses enough to drive 10 quadriga) [...][He abandoned them to emigrate from a state]

- Example: Our deceased king owned 10 quadriga (chariots)......; Now my lord owns 100 quadriga (chariots)

- Feature 2: Similar post-nominal measure words are conceptually perdurants, referring to a specific temporal-spatial point where an event is measured. It does NOT select an endurant/continuant.
Emergence of Classifiers in Chinese II

- Classifier system in Chinese emerged when Num + Measure Noun phrase moved to pre-nominal position.
- But what motivated the change? They have very similar syntactic and quantifying functions.
- Given Huang’s (2015) ontological analysis of Mandarin classifier system, the most salient change is the conceptual shift from perdurant M to endurant CL.
Incorporation: VR and VO compounds in Chinese

- Incorporated nouns, like nouns in other compounds, do no refer; they qualify, narrowing the scope of the host verb. - Mithun (1986)
  - Reduction of noun classes (Mithun 1986)
  - Coalescence of nouns and verbs (Mithun 1984)
  - Denominalization leads to incorporation (Jacques 2012)

- Incorporation causes nouns to conceptually shift from endurants to (dependents of) perdurants
Emergence of Incorporated Compounds in Chinese

- The emergence of VR Compounds in Chinese (Liu 2002)
  - Northern and Southern Dynasties (CE 420-589)
  - Phrasal verb + complement become incorporated
  - VR compounds gradually acquire ability to take direct object over time, but at different pace for different verbs.

- The emergence of VO Compounds in Chinese (PolyU LLT Team, esp. Jiang)
  - Now (both in Mainland China and Taiwan)
  - Phrasal verb + objects become incorporated
  - VO compounds gradually acquire ability to take direct object over time, but at different pace for different verbs and for different Chinese varieties.

- Conceptual shift of R/O losing endurant meaning
- To the extent of allowing the new perdurant entity to predicate a new class of endurant arguments
VO Compound and Incorporation II

- **Incorporation**
  - O losing endurant property, the V-O sequence losing one dimension of ontology (still a SPAN, but having one less dimension of participants)

- **Increasing transitivity**
  - As the O becomes fully incorporate ands strongly perdurant (a new predicate)
  - It acquires the ability to add another dimension to its SPAN ontology (i.e. a new type of participants)
Case and Infection Loss (in Middle English)

Conceptual simplification of the endurant/occurrent ontology

SPAN view of ontology in a multi-dimensional (4+) ontology

Reduction of case/inflection simplifies the ontological representation
Conclusion (Perhaps)

- +N/Nouny represents an endurant/continuant conceptual perspective
- +V/Verby represents a perdurant/occurrent conceptual perspective
- Language variations can be largely attributed to the endurant/perdurant conceptual shifts
- A conceptually motivated ontological account will go well with the snowball effect predicted by lexical diffusion theory.
References (selected)

Jacques, G. 2012. From Denominal Derivation to Incorporation. Lingua. 122.1207-1231.
Thank you for your attention