

Double nominative construction revisited

-- A corpus-based study on the semantic interpretation of double nominative structures in mandarin Chinese

1. Introduction

The general pattern of a DN sentence is [NP1] [NP2] [Pred] where [NP1][NP2] can be construed as a complex NP and [Pred] is a one-place predicate. Being a prima facie type of topic-comment structure, it has been closely tied to the debate of sentence types in Chinese.

Two subtypes of DN sentences:

- (1) [他]_{NP1} [肚子]_{NP2} 饿. ← Subtype 1
he stomach hungry.
'He is hungry.'

- (2) [他们]_{NP1} [谁]_{NP2} 都 不 来. ← Subtype 2
they who all NEG come
"They, none of them are coming."

Two possible treatment of DN sentences:

- (i) A possessive NP account
[NP1] [NP2] [Pred] → [NP1 的 NP2] [Pred]
(ii) A topic-comment account
[NP1] [NP2] [Pred] → [NP1]_{topic} [[NP2] [Pred]]_{comment}

Evidence for the topic-comment analysis for DN:

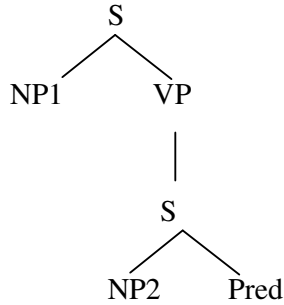
- (i) In subtype 2 sentences, 的 is not allowed between NP1 and NP2
(ii) Prosodic cues: intonation change and pause between NP1 and NP2.
(iii) Preverbal adverbials between NP1 and NP2.

Previous analyses on DN as topic-comment sentences:

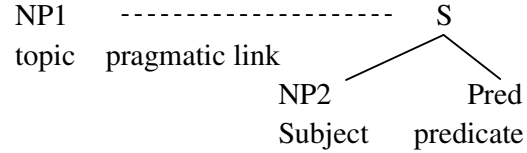
Teng 1974, Xu & Langendoen 1985, Tsao 1990, Shi 2000, among others

Generally speaking, Teng 1974 and Tsao 1990 represent two distinct trends in the topic-comment treatment of DN. The differences of the two approaches are clearly shown in the diagrams below.

(3) from Teng (1974)



(4) developed for Tsao 1990



Weaknesses in previous analyses:

Teng 1974: The line between sentence and predicate is blurred.

Tsao 1990: It is not clear how semantics interacts with pragmatics in DN sentences.

In this study, we will use type theory (as proposed by Sag & Klein 1985) to investigate the semantics of DN sentences found in the corpus files, and in the end we will propose a general construction for DN sentences.

2. Methodology

Two files in the Academia Sinica Treebank were examined. The sentences in both files were originally extracted from the Academia Sinica Balanced corpus of Chinese by Academic Sinica (<http://rocling.iis.sinica.edu.tw/CKIP/publication.htm>). We went through the two corpus files manually and picked out DN sentences by hand. Preliminary counts are shown in the following tables.

	# of small sentences	# of characters	mean length of small sentences	# of instances of DN construction
oral file	4,278	51,120	11.9 characters	30
news file	24,361	299,707	12.3 characters	92
total	28,639	350,827	12.2 characters	122

Table (5a) Preliminary counts

	subtype 1	subtype 2
oral file	23	7
news file	87	5

Table (5b) Distribution of subtype 1 and subtype 2 sentences

Criteria for selecting target clauses:

(i). surface structure is [NP1 NP2 Pred], where NP1 and NP2 can be construed as a complex NP and Pred is a one-place predicate

(ii). there is evidence that the first NP can be separated from the rest of the

sentence

(iii). NP1 is semantically definite.

The following table gives a brief summary of semantic features of NP1 and NP2 in found sentences

	# of tokens	definiteness	semantic domain
NP1	122	mostly morphologically marked as definite. if not, still construed as semantically definite.	human, organization, event...
NP2	122	only 3 are morphologically marked as definite	kinship terms, body parts, mind states, events...

Table(6) Semantic features of NP1 and NP2

3. Findings

3.1 Subtype I

Observation: Unsaturation observed in the comment clause

(1) [他]_{NP1} [肚子]_{NP2} 饿.
 he stomach hungry.
 ‘He is hungry.’

(1’) ??肚子 饿.
 belly hungry.
 “Belly is hungry.”

(1’) is only felicitous if there is a salient individual in the context that can be understood as the subject of the sentence. Examining all the subtype 1 DN sentences found in the data files, we find that this observation is true for all of them. In other words, without the first NP explicitly expressed or implicitly understood, the comment clause does not express a complete meaning that can be judged as true or false.

It has been proposed in the literature that [NP1] and [NP2] are in an inalienable whole-part relationship (e.g. between 他 “he” and 肚子 “belly”). This idea would suggest that the unsaturation of [NP2][Pred] comes from the fact that [NP2] denotes an entity that cannot exist on its own. Apart from the classical example, there are some other similar cases found in the corpus.

(7)a. [他]_{NP1} [右骨]_{NP2} 破裂.
 he right bone break.
 “(Talking about) him (his) right (leg) bone broke./ He broke his right leg bone.” (#825:825.[0])

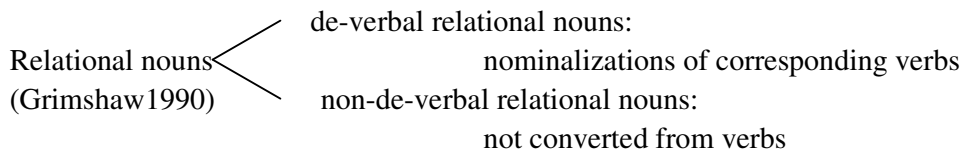
- b. [此公]_{NP1} [个性]_{NP2} 倔强 而又 好胜.
 this man personality stubborn and also aggressive
 “(Talking about) this man, (his) personality is stubborn and also aggressive./ This man’s personality is stubborn and aggressive.”
 (#2757:2757.[0])
- c. [我]_{NP1} 这 几 天 [心情]_{NP2} [好 坏].
 I this several day heart-emotion very bad
 (Talking about) I, these days, (my) mood is very bad./ I’m in a very bad mood these days.” (#1448:543.1.[0])

However, what about these cases?

- (8)a. [他]_{NP1} [女儿]_{NP2} 长 得 好 美 呀.
 he daughter grow DE very pretty SEP
 “(Talking about) him, (his) daughter grows very pretty. / His daughter is very pretty.” (#582:197.1.[0])
- b. [省 级 以 上 的 事业 单 位 人 员]_{NP1},
 province level DE up DE institution staff
 [任 用 及 迁 调]_{NP2} 根 本 无 需 地 方 机 关
 appointment and relocation utterly not need local office
 首 长 的 同 意.
 head, leader DE approval
 “The appointment and transfer of staff members of province-level institutions does need approval from the heads of local offices at all.”
 (#1650:1650.[0])

Proposal: Relational noun account

It’s clear from the examples above that a part-whole relation is not adequate to explain the relation between the two NPs in a DN construction. Here I propose a relational noun account.



Our corpus examples of the first category are 表现 “performance”, 任用 “appointing (someone to a position)”, 迁调 “relocating”, 演出 “(art) performance”, 打击 “attack”.

As stated Partee and Borschev (2003:68), “Many, perhaps all, genitives seem to have

some properties of arguments and some of modifiers, yet some seem more like arguments and some more like modifiers...the relation can come from any of three sources: (i) the context ...; (ii) an inherently relational noun like *brother*; (iii) an inherently relational adjective like *favorite*.”

Examples:

Category (i): cf. (7b), repeated below

- (7)b. [此公]_{NP1} [个性]_{NP2} 倔强 而又 好胜.
 this man personality stubborn and also aggressive
 (Talking about) this man, (his) personality is stubborn and also aggressive./ This man’s personality is stubborn and aggressive.”
 (#2757:2757.[0])

Compare with (9’)

- (9’) 个性 决定 命运.
 personality determine fate
 “Personality determines fate.”

Category (ii): cf. (10a), repeated below.

- (9)a. [他]_{NP1} [女儿]_{NP2} 长 得 好 美 呀.
 he daughter grow DE very pretty SEP
 “(Talking about) him, (his) daughter grows very pretty. / His daughter is very pretty.” (#582:197.1.[0])

Category (iii):

- (10) [丽晶 假山]_{NP1} [最 高 处]_{NP2} 达 八 米.
 Lijing fake mountain most high place reach 8 meter
 “The highest point of the Lijing fake mountain reaches 8 metres.”
 (#2083:2083.[0])

3.2 Subtype II

In our corpus, we find one example sentence that has a structure very close to, but more complicated than the classical example 他们谁都不来.

- (11) 或许 [他们]_{NP1} [谁]_{NP2} 也 不 服 谁.
 perhaps they who all not be convinced (by) who.
 “Perhaps , none of them_i is convinced by anyone of them_i.” *lit.* “Perhaps they, everybody is not convinced by everybody.”
 (#2899:2899.[0])

Shi (2000) suggests that 谁 “who” in (2) might actually be a quantificational adverbial phrase since its distribution is the same as such adverbial phrases as 全 “all” and 都 “all”. However, sentence (11) would create a problem for Shi’s quantifier analysis because the sentence has two instances of 谁, and neither of them

can be replaced by an adverbial quantifier, as shown in the lambda interpretation of the sentence in (12).

(12) $\lambda Z \forall x \forall y [x,y \in Z \ \& \ x,y \in [\mathbf{people}] \ \& \ x \neq y \rightarrow \neg \text{be-convinced-by}'(y)(x)]'$ (they)

In our data, we found 5 instances of subtype 2 sentences in the news file and 7 instances in the oral file. All these sentences contain a topic phrase in the initial position, followed by a quantificational phrase. The most frequent quantifiers are 有的 “some”, 没有 “not have / no”, 哪一个 “which one” and fractions (Cf. Adger 2003). One example is shown below.

(13) [台北市十七家养老院]_{NP1},
 Taipei city 17 MW¹ senior nursing home
 [没有一家]_{NP2} 符合现行标准.
 not-have one MW meet current standard
 “As for the seventeen senior nursing homes in Taipei city, not one (nursing home) meets the current standard.” (#2287:2287.[0])

In all 12 cases, NP1 clearly defines the domain restriction on the quantifying NP2. Moreover, all three parts can be systematically mapped to a tripartite interpretation of quantificational sentences. Table (14) shows the mapping between semantic types, tripartite structure in Discourse Representation Theory (DRT) and pragmatic functions.

	NP1	NP2	Pred
semantic type	<e,t>	<<e,t>, t>	<e,t>
DRT's tripartite structure	domain restriction	binder + restriction	nuclear scope
pragmatics	topic	comment	

Table (14)

The mapping from topic phrase to domain restriction in the tripartite structure is consistent with the general parallel relation between topic-focus articulation and tripartite structure, as pointed out in Hajičová et al (1998:Ch2).

3.3 Overlapping cases

Based on the analysis above, the major difference between subtype 1 and subtype 2 is that in subtype 1, the second NP is a relational noun, whereas in subtype 2 the second NP is a quantifier NP. Since quantification always entails a domain restriction, it is not surprising that sometimes the two subtypes overlap. In fact, the relational adjective example given in (10) is also an overlapping case.

¹ MW = measure word

- (10) [丽晶 假山]_{NP1} [最高 处]_{NP2} 达 八 米.
 Lijing fake mountain most high place reach 8 meter
 “The highest point of the Lijing fake mountain reaches 8 metres.”
 (#2083:2083.[0])

The relational force in NP2 comes from the superlative adjective highest, which in turn comes from the domain of comparison of this adjective.

3.4 Extended DN sentences

- (15)a. [生活 在这 城市 中 的人们]_{NP1},
 live at this city inside DE people,
 虽然 [梦想]_{NP2} 不尽相同,
 though dream² not-entirely-similar,
 但是 [梦魇]_{NP3} 往往 一样.
 but nightmare often same
 “People living in this city, although (their) dreams are not entirely the same, (their) nightmares are often the same.” (#1769:1769.[0])

- b. [住在 寒带 的人]_{NP1},
 live at cold-zone DE person
 虽然 [有些人]_{NP2} 喜欢 在 下雪天 滑雪 或 其他 游戏,
 though some person like at snow-day ski or other game
 不过 [这种 人]_{NP3} 还是 少数.
 but this-kind person still be little-number.
 “People living at the cold zone, though some people like skiing or other games on snowing days, but this kind of people are still the minority.”
 (#2805:1218.1.[0])

4. Generalized DN construction

Semantics vs. pragmatics

Question: how does compositional process reflect the bipartite topic-comment structure, with NP1 being the topic and the rest of the sentence being the comment?

As discussed in previous sections, NP1 in a subtype 1 sentence is the argument of NP2, and NP1 in a subtype 2 sentence is an adjunct of the noun head of NP2. In both cases, if a bipartite structure is to be proposed, it would be awkward to make the division between NP1 and NP2 instead of the natural split between NP2 and Pred. This is most obvious in the case of subtype 1 sentences, since a type-driven semantic composition would inevitably combine NP1 and NP2 first through function application because they are in an argument-head relation.

Generalized construction

² Both *dream* and *nightmare* here mean more than the dream that one has in sleep. They are better interpreted as “what one wants, desire” and “what one is afraid of, fear”

(16) subtype 1

NP1 NP2 Pred → [NP1]_{topic} [(NP1 DE) NP2 Pred]_{comment}

(17) subtype 2

NP1 NP2 Pred → [NP1]_{topic} [(D_{restriction} = [NP1]) NP2 Pred]_{comment}

Advantages:

(i) Interpretation of the comment clause: the implicit copy of NP1 carries over the semantic information that can be used in the composition of the comment clause without constraining the sequence of composition.

(ii) Sequence of interpretation: both topic and comment are self-contained and saturated, therefore they will be interpreted in a left-to-right sequence, namely topic first and comment second, which is more natural than the other way around, as will be required if the topic is combined in order to saturate the comment.

(iii) Accounting for extended cases: because the topic phrase is not syntactically combined with any elements in the comment clause, but rather, it supplies the information that can be used in interpreting the comments when needed, therefore NP1 and NP2 don't need to be in a local setting. This also helps explain sentences in the form of (12a), in which the comment clause has two quantifier NPs that both quantify over the set denoted by the topic phrase.

(iv) The pragmatic functions of topics: in the generalized schema, NP1 explicitly adds the information to the common ground, which is then used implicitly in the comment clause.

Evidence from the corpus:

(18)a. [日本 巨人 队]_{NP1} [其 实力]_{NP2} 远 在
Japan Giant team its power,ability far at
国 内 职 棒 水准 之 上。
country inside professional baseball standard DE up
“The Japanese team Giant, its power is far above the standard of professional baseball in (our) country.” (#1904:1904.[0])

b. [目前 声望 领先 的 黑斯汀斯]_{NP1} [其 作风]_{NP2}
current reputation exceed DE Hastings his style
最 能 领导 英国。
most able lead U.K.
“Hastings, whose current reputation exceeds (others), his style is most able to lead the U.K.” (#3876:3876.[0])

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