

Discourse-oriented Distributivity in Mandarin Chinese

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This paper discovers the phenomenon that in Mandarin Chinese when plurals are under focus of *zhiyou* ‘only’ or *lian* ‘even’, a distributive reading is derived by default. It is argued that this type of distributivity is not syntax marked, but is discourse-oriented, which shows linguistic effects of economic structuring sets of focus-introduced alternatives (Rooth, 1985, 1992). The proposal successfully predicts the following phenomena that are ignored in literature: i) the subject suffixed with the group marker *men* under focus can get a collective reading ii) the plural subject led by the contrastive focus marker *shi* can get a collective reading.

1. Introduction

Enormous amount of data in various typologically unrelated languages shows that the distributive mode of predication tends to be specifically marked in languages (Link, 1998). For example, ‘each’ in English and *je* in German are distributive markers; reduplication in Georgian (Gil, 1998) and Pashto specifies distributivity. In Mandarin Chinese, distributivity is marked by *dou* ‘all’ or *ge* ‘each’. See (1. a-b).

- (1) a. Zhangsan he Lisi mai-le liwu.
Zhangsan and Lisi buy-ASP gift
Zhangsan and Lisi bought gifts. --- collective (c) / *distributive (d)
- b. Zhangsan he Lisi dou/ge mai-le liwu.
Zhangsan and Lisi all/each buy-ASP gift
Zhangsan and Lisi both/each bought gifts. --- d/ *c

In (1a), when the distributive marker is absent, it gets a collective reading by default. This is different from its English counterpart (2), in which both collective and distributive readings are available.

- (2) Zhangsan and Lisi bought gifts.
a. Zhangsan and Lisi jointly bought gifts. --- c
b. Both Zhangsan and Lisi bought gifts. --- d

In (1b), when *ge* ‘each’ or *dou* ‘all’ is inserted, only the distributive reading is available. The pattern in (1. a-b) is consistent with Link’s generation that distributivity is marked in languages. However, in Mandarin another pattern seems not in accordance with Link’s generation—when plurals are under focus, the distributive reading is derived by default (3. a-b).

- (3) a. zhiyou Zhangsan he Lisi mai-le liwu.
only Zhangsan and Lisi buy-ASP gift
Only Zhangsan and Lisi bought gifts. --- d
b. lian Zhangsan he Lisi ye mai-le liwu.
even Zhangsan and Lisi also buy-ASP gift
Even Zhangsan and Lisi bought gifts. --- d

In (3. a-b), Zhangsan and Lisi are under focus of ‘only’ and ‘even’, and the reading is distributive without the marker *dou* or *ge*. Where does the distributivity in (3. a-b) come from? Is it the same with the distributivity marked by *dou* or *ge*?

2. This study

In this paper I propose this distributivity deriving system (3. a-b) is *discourse-oriented* and it shows linguistic effects of the cost of structuring sets of focus-introduced alternatives (Rooth, 1985, 1992).

Given a fixed set of individuals, in order to get a focus interpretation, we have to form alternative sets. To get a collective reading, at least one alternative set should include more than one individual. Therefore, we have to give structure to the set(s) made of more than one individual. But there are more than one possibilities of forming the collective individuals given the initial set of individual individuals. However, this process of structuring groups (in all possible ways) is exempt to get a distributive reading because for distributive reading, all the alternative sets contains only one individual. In other words, we do not have to judge which elements can constitute groups. Comparing the two process of forming collective and distributive readings, we see that the collective reading involves structuring sets of focus-introduced alternatives (in all possible ways). This cost

makes the distributive reading much more competitive. The distributive reading in (3. a-b) shows the linguistic effects.

2.1. Different distributivity than *dou/ge*

2.1.1. focused subjects are compatible with collective predicates

The distributivity derived in (3. a-b) is different from distributivity marked by *dou* and *ge* in two ways. First, they are compatible with collective predicates. See (4):

- (4) a. zhiyou zhe sanshi-ge nanhai shi yi-ge da qunti.
 only this thirty-CL boy be one-CL big group
 Only these thirty boys are a big group. --- c
- b. lian zhexie wuhezhizhong ye shi yi-ge da qunti.
 even these disorderly crowds also be one-CL big group
 Even these disorderly crowds are a big group. --- c

But as shown in (5), neither *dou* nor *ge* can occur with collective predicate.

- (5) a. zhe sanshi-ge nanhai shi yi-ge da qunti.
 this thirty-CL boy be one-CL big group
 These thirty boys are a big group. --- c
- b. *zhe sanshi-ge nanhai dou/ge shi yi-ge da qunti.
 this thirty-CL boy all/each be one-CL big group
 These thirty boys all/each are a big group.

2.1.2. collective reading is available under certain context for focused subjects

Second, for (3. a-b), a collective reading is available in some context.

- (6) a. zai wo renshi de fuqi zhong, zhiyou Zhangsan he Lisi mai-le liwu.
 at I know of couple among, only Zhangsan and Lisi buy-ASP gift
 Among the couples I know, only Zhangsan and Lisi bought gifts. --- c
- b. wo renshi de fuqi dou mai-le liwu. Lian Zhangsan he Lisi dou song-le huaping.
 I know of couple all buy-ASP gift. Even Zhangsan and Lisi all give-ASP vase
 The couples I know all bought gifts. Even Zhangsan and Lisi sent a vast. --- c

In (6. a-b), Zhangsan and Lisi get a collective reading for the predicate ‘bought gifts’, which is impossible if they co-occur with *dou* and *ge*.

- (7) *zai wo renshi de fuqi zhong, Zhangsan he Lisi dou/ge mai-le liwu.

at I know of couple among, Zhangsan and Lisi all/each buy-ASP gift
 Among the couples I know, Zhangsan and Lisi both/each bought gifts.

The above contrasts indicate that the distributivity over focused subjects is different from distributivity marked by *dou* and *ge*. As distributive markers, *dou* and *ge* are incompatible with collective predicates due to the linguistic clash between two incompatible features, distributive vs. collective. On the other hand, the distributivity over focused subjects is not linguistically marked, and we propose it is introduced by discourse to save processing steps.

2.2. Discourse-oriented distributivity

In the alternative semantics of Rooth (1985, 1992), focus expresses a focus value $\llbracket \alpha \rrbracket^f$ in addition to its ordinary semantic value $\llbracket \alpha \rrbracket^0$. The former is a set of propositions from which the ordinary semantic value is drawn. So the focus semantic value for (9) is the set of propositions of the form ‘x bought gifts’. Suppose the domain of individuals includes Zhangsan, Lisi, John, Mary, and Linda. For the distributive reading of (9), the alternative propositions are the following:

(8) $\llbracket [\text{Zhangsan and Lisi}]_f \text{ bought gifts} \rrbracket^f =$
 {Zhangsan and Lisi (each) bought gifts, John bought gifts, Mary bought gifts, Linda bought gifts}

Suppose in (3a) the collective reading was available, and we had the same knowledge of the domain, the alternative propositions would be the following:

(9) $\llbracket [\text{Zhangsan and Lisi}]_f \text{ bought gifts} \rrbracket^f =$
 {Zhangsan and Lisi (jointly) bought gifts, John bought gifts, Mary bought gifts, Linda bought gifts}
 /{Zhangsan and Lisi (jointly) bought gifts, John and Mary (jointly) bought gifts, Linda bought gifts}
 /{Zhangsan and Lisi (jointly) bought gifts, John and Linda (jointly) bought gifts, Mary bought gifts}
 /{Zhangsan and Lisi (jointly) bought gifts, Mary and Linda (jointly) bought gifts, John bought gifts}
 /{Zhangsan and Lisi (jointly) bought gifts, John, Mary, and Linda (jointly) bought gifts}

If collective reading could be derived from (3a), without any clue that in the

domain who and who could form a unit, there were five ways in structuring the groups of alternatives demonstrated in (9). Obviously it is much more difficult or even impossible to get (9) in processing (3a), compared to (8). Therefore, we propose that for economic reasons in semantic parsing, (3a) tends to be distributive unless the original alternatives are ready sets. For example, in (6a), the alternatives are ‘the other couples I know’ and for the collective reading, there is no question like who and who can form a unit. (10) serves as an example as well:

- (10) zhiyou zhe-zu tongxue wancheng-le renwu.
only this-group student finish-ASP task
Only this group of students finished tasks. --- c/d

(10) is ambiguous in that the group of students could jointly finished the task or they each finished their own tasks. Then why is the collective reading available? It is because for the collective reading, the unit of distributivity ‘group’ has been implied. The collective reading of (10) has the implication that except this GROUP, the other GROUPs did not finish the task. In this case, the alternatives introduced by the focus are groups instead of individuals, which is similar to (6a) in which ‘couple’ serves as the unit.

To sum up, we have seen that distributivity in the focus constructions differs from distributivity introduced by operators like ‘each’ and we propose it is discourse-oriented: when grouping is not implied, the distributive reading is derived to be exempt from numerous grouping possibilities.

This proposal explains the two observations in 2.1. Focused subjects are compatible with collective predicates because though the collective reading is more costly, when distributivity is illegitimate, a collective reading is still available. Moreover, when the context implies that the subject is in the form of a group, such as in (6), the collective reading is available.

3. Predictions

This proposal predicts that the collective reading may be available if the grouping of alternatives is implied in the discourse, because in this case the intricacy of structuring alternative groups is avoided. Especially considering in Mandarin collective reading is derived by default as in (1), we predict that the collective reading must be there if it is implied that the plural subject is a group instead of individuals. In this section, we see whether there are linguistic data that satisfy this prediction.

3.1. subject suffixed with *-men*

The first case we testify is subject suffixed with *men*. The morpheme *men* is referred to as a plural suffix (Li and Thompson 1981:40). But Iljic (1994), who follows Lü (1947) in arguing that *men* is instead a collective suffix. Iljic points out that nouns suffixed with *men* always refer to a situationally anchored and defined group. In fact, according to him, nouns suffixed with *men* are often used in the context of allocution, in which a large degree of subjectivity is involved. ‘the speaker resorts to *men* whenever he has grounds to view several persons as a group, either relative to himself or relative to a third party’. Even in the pronominal system, *men* is not a plural suffix but a collective marker. ‘the so-called plural of personal pronouns is not an addition or a multiplication of elements, but a grouping of entities into one whole according to their position relative to the origin.’ (1994:97) ‘we do not amount to several I’s... but to a group in the name of which I speaks.’ Iljic’s argument is supported by Cheng (1999), and Cheng also points out that as a collective marker, *men* is not unique. Such markers have been reported for Ewe, Icelandic and Afrikaans (Den Besten 1996).

According to their arguments, the speaker would not use *men* until both the speaker and hearer have a good knowledge of the group the speaker refers to. Therefore, if the subject under focus is suffixed with *men*, we can assume that the speaker must also be aware of the unit of discourse alternatives introduced by focus. If we see *men* involves a process of grouping entities into one whole according to their position relative to the origin, it follows that the alternatives should also be in a group unit, which is structured according to the clues implied in *men*. Thus we predict that subject suffixed with *-men* in focus constructions should get a collective reading. (11) proves this prediction.

- (11) a. zhiyou tamen mai-le liwu.
 only they bought-ASP gift
 Only they bought gifts. --- c
 b. lian tamen dou mai-le liwu.
 even they all buy-ASP gift
 Even they bought gifts. --- c

Unlike subjects that are not suffixed with *men*, (11) gets only a collective reading. See the contrast in (12):

- (12) a. zhiyou tamen anshi wancheng-le renwu.
 only they on time finish-ASP task

- Only they finished the task on time. --- c
- b. zhiyou Zhangsan he Lisi anshi wancheng-le renwu.
 only Zhangsan and Lisi on time finish-ASP task
 Only Zhangsan and Lisi finished the task on time --- d

In our proposal, (12b) has to be distributive to save the process of structuring alternative individuals, because without proper context, we have no idea about the relationship between Zhangsan and Lisi and whether they can form a group, but only to see them as two individuals. Naturally, it follows that the alternatives must be in the unit of individuals as well. However, in a, *tamen* refers to a group that has been properly structured in that discourse by the speaker: the individuals that consist in *tamen* may belong to a working group or share some properties. This implies that the alternatives must also be in the unit of groups, and the grouping included in *tamen* makes the alternative groups obvious in the discourse.

3.2. Cleft sentence

Another way to testify the first prediction is through cleft sentences. Cleft sentences in Mandarin are led by the copular *shi* and usually imply a contrastive element. For example, subjects focused by *shi* occur most often in the context like this:

- (13) A: Zhangsan jintian chidao le.
 Zhangsan today late Part
 Zhangsan was late today.
- B: bu shi Zhangsan, shi Lisi chidao le.
 not be Zhangsan, be Lisi late Part
 It was not Zhangsan. It was Lisi that was late.

Since the cleft sentences would imply a contrastive set in the discourse, the collective reading should be available because it is exempt from structuring alternative groups.

- (14) shi Zhangsan he Lisi mai-le liwu.
 be Zhangsan and Lisi buy-ASP gift
 It is Zhangsan and Lisi that bought gifts. ---c/ ?d¹

¹ The collective reading is the dominant one and for some speakers, the distributive reading is hard to get.

Unlike being under focus of ‘only’ or ‘even’, the subjects in (14) have both readings. But if the alternative set is given in advance, the collective reading is quite dominant.

- (15) bu shi Zhangsan he Lisi de-le da jiang, shi Jane he Mary.
not be Zhangsan and Lisi win-ASP big prize, be Jane and Mary
It is not Zhangsan and Lisi that won the big prize, it is Jane and Mary. --- c/??d

(15) also proves the prediction that once it is clear how the alternative set is structured, the sentence gets a collective reading.

It is worth to note that for cleft sentence, in which collectivity and distributivity are competing with each other, the reading is sensitive to different predicates. The collective reading is more easily to get with some predicates than the others. See (16):

- (16) shi Zhangsan he Lisi chiwan-le zhuozi shang de fan.
be Zhangsan and Lisi eat up-ASP desk above of food
It was Zhangsan and Lisi that had eaten up the food on the desk. --- c/??d

It is difficult to get distributive reading from (16), because the distributive reading is about the scenario that Zhangsan and Lisi each has a desk with their food on, which is less normal than the picture that there is one desk with some food on it before and somebody has eaten up it. This is compared to the predicate ‘bought gifts’ in (14), in which the distributive reading is more easily to be realized. But for the predicate in (16), the distributive reading is not competitive at all.

However, the predicate does affect the pattern in 2.1, in which distributive is still the only reading available, though the situation is relatively hard to get.

- (17) zhiyou Zhangsan he Lisi chiwan-le zhuozi shang de fan.
only Zhangsan and Lisi eat up-ASP desk above of food
Only Zhangsan and Lisi eaten up their food on the desks. --- d

Though discourse-oriented distributivity is sensitive to context, it does have the tendency that one reading may overwhelmingly dominant, as in (17). Our proposal accounts for this phenomenon and its prediction is proved by data of subject suffixed with *men* and cleft sentences.

4. Conclusion

It is discovered that when subjects are under focus of ‘only’ or ‘even’ in Mandarin, it gets a distributive reading instead of a collective one, which is contrary to Link’s (1998) generalization that distributivity tends to be marked in all languages. To explain the phenomenon, we propose that distributivity is introduced in the discourse that structuring alternative groups is impossible.

Predictions of the proposal are proved by the cases of plurals suffixed with *men* and cleft sentences. *men* is a collective marker that designate the speaker’s grouping and cleft sentences may imply a contrastive group. They both encode discourse information which helps structure groups.

Discourse-oriented distributivity is different from that introduced by operators like *each*. It is derived to make the semantic parsing easier. The question left is why this strategy is limited in Chinese, but is not adopted in other languages such as English. I leave this to my further research.

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