Distributivity and the Semantics of Chuan in Mandarin Chinese
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In Chinese, both CHUAN and DOU can express the meaning of ‘all’ as in (1a) and (1b).

(1) a. naxie shu, wo **dou** kan-wan le
   those book, I all read-finish ASP
   ‘I finished reading all of those books.’

b. naxie shu, wo **chuan** kan-wan le
   those book, I all read-finish ASP
   ‘I finished reading all of those books.’

In addition to the meaning similarity, CHUAN share some properties with the much discussed DOU: (i) the NP associated with CHUAN must come to its left, and (ii) it can be associated with a singular NP and yields the meaning ‘all of its parts’. Despite these similarities, CHUAN has distributional properties distinct from DOU. First, unlike DOU, which can appear with a Wh phrase and makes it a universal quantifier, CHUAN is incompatible with a Wh-phrase.

Second, while DOU is obligatory in the lian ‘even’ construction, CHUAN cannot appear there.

(2) a. shei **dou** hui lai
   who all will come
   ‘Everyone will come.’

b. *shei **chuan** hui lai
   who all will come
   ‘Everyone will come.’

Third, there are predicates with which DOU can appear but CHUAN cannot. For instance, take the VP mai yibu chezi ‘buy one car’. When this VP appears without DOU, it can only have the collective reading (see (4a)), and to elicit the distributive reading, the presence of DOU is necessary, as in (4b). Interestingly, CHUAN cannot appear with such a VP, as shown in (4c).

(3) a. lian Zhangsan *(**dou**)* lai le
   even Zhangsan all lai ASP
   ‘Even Zhangsan has come.’

b. *lian Zhangsan **chuan** lai le
   even Zhangsan all lai ASP
   ‘Even Zhangsan has come.’

(4) a. tamen mai le yi-bu chezi
   they buy ASP one-CL car
   ‘They (as a group) bought one car.’

b. tamen **dou** mai le yi-bu chezi
   they all buy ASP one-CL car
   ‘They each bought one car.’

c. *tamen **chuan** mai le yi-bu chezi
   they all buy ASP one-CL car
   ‘They all bought a car.’

To account for these differences, we first adopt Lin’s (1998) idea that DOU is a generalized distributivity operator with quantificational force distributing over the members of a plurality cover (Schwarzschild 1996). We argue that the difference between CHUAN and DOU is that CHUAN is not a distributor and its semantic function is solely to ensure that the value of cover is a good fit in the sense of Brisson’s analysis (1998) of (non)-maximality of definite plurals.

Brisson correctly points out that with the ordinary meaning of the as the maximalization operator, the meaning of **the students are sleeping** and that of **the students are all sleeping**
become indistinguishable. The fact is, an ordinary definite plural does allow a small number of exceptions, whereas *all* eliminates that possibility. Without changing the meaning of *the* as the maximalization operator, Brisson derives the non-maximal reading of an ordinary definite from the notion of “ill-fitting” cover. What *all* does is to ensure that the plurality cover that it distributes over is a good fit. The definition of a good-fitting cover is given below.

(5) Good-fitting cover
    a. Good fit is a relation between a cover and the set denoted by a definite NP
    b. The cover is a good fit if there isn’t any member of the set that is stuck in a cell with some non-member.

We propose that the only semantic contribution of *CHUAN* is to give a good-fitting cover, and that, unlike *DOU*, *CHUAN* does not possess quantificational force.

This proposal accounts for the distributional differences between *CHUAN* and *DOU* presented above. To license a Wh-word as a universal quantifier, there must be a licenser which has either universal quantificational force (according to Cheng 1995) or distributive force (according to Lin 1998). Whichever analysis is adopted, it is correctly predicted that *CHUAN* cannot license a Wh as a universal quantifier. As for the *lian* ‘even’ construction, we argue, following Wu (1999), that *DOU* is obligatory because it distributes the property of the predicate over every member of Rooth’s (1985) P-set, which is invoked by focusing. *Even NP VP* has an implication that the denotation of the NP is least likely one among the P-set to have the property denoted by the VP (cf. Karttunen and Peters 1979). That means that for every member x of the P-set, \( f_{VP} (x) = 1 \). For this implication to come out, universal quantification over the P-set is necessary. Under our analysis, *CHUAN* is not capable of appearing in this construction simply because it lacks the required distributional/universal force. The reason why (4c) is not good also comes from this lack of distributional force. (4a) suggests that a predicate like *buy one car* needs an overt distributor (= *DOU*) to produce the distributive reading. Not being a distributor, *CHUAN* needs a VP that can yield distributivity without *DOU*. Predicates like *sleep, leave*, are inherently distributive (i.e., For all plural entity X, if X sleeps, then for all \( x \in X \), x sleeps), and they are compatible with *CHUAN*. The question is why *CHUAN* is not compatible with the collective reading. Under Schwarzschild’s theory (1996), a collective reading is just another distributive reading with a cover which includes a set of all the members of the plural NP (cf. Schwarzschild 1996, 5.6). In other words, in a collective reading, the cover already has a set of all the members, the question of ensuring a good-fitting cover does not even arise. To summarize, our proposal neatly accounts for the distributional differences between *DOU* and *CHUAN*. It also supports the notion of ill-fitting vs. good-fitting covers as a crucial ingredient in distributivity.

Our semantics of *CHUAN* has some syntactic implications as well. In Lin (1998), the requirement that the *DOU*-associated NP must come to the left of *DOU* is derived from a feature driven movement. *DOU* is a head of DistP (in the sense of Beghelli and Stowell 1997), and the NP must move to or thorough Spec of DistP for the [+distributive] feature to be checked off. The fact that *CHUAN* imposes the same condition suggests that (i) there is a DistP headed by a phonologically null Dist\(^0\), and (ii) the NP associated with *CHUAN* also must move to/through Spec of DistP. Notice, however, that the example (4a) shows that the null Dist\(^0\) is compatible only with inherently distributive verbs like *sleep* and cannot license the distributive reading for a predicate like *buy one car*. Our current hypothesis is the following. Distributivity is always licensed via DistP. Dist\(^0\) can be overt (=*DOU*), and when it is overt, the head itself has the distributional force. The null Dist\(^0\) itself is not a distributor but has a purely syntactic feature
[+distributive], which needs to be semantically matched. To fulfill the need, a [+distributive] verb must raise to Dist$^0$ at LF, and only an inherently distributive verb can qualify.

**Partial References**