Indefinites in Chinese and the theory of D-V Merge
Wei-wen Roger Liao (USC)

BACKGROUND   Two classes of indefinites are distinguished with respect to whether existential closure (EC) applies: existential (with EC and entailing existence, including referential and quantificational indefinites) vs. quantitative (without EC; purely quantity denoting without entailing existence). This distinction emerges on the surface in Chinese **bare numeral indefinites (BNIs)**, as observed in Li (1998) and Tsai (2001). In subject positions, an existential BNI in Chinese needs a *you* (literally 'have/exist') marker, which seems equivalent to EC, to license its presence, while a quantitative one (must) remains bare. Witness the differences in English (1) and Chinese (2):

(1)   **Three people** cannot play this game.
     a.   'Three specific persons cannot play this game.'   [existential BNI]
     b.   'This game is not designed for three people.'   [quantitative BNI]

(2) a. **You** **san**   **ge**   **ren**   bu-neng   wan   youxi   [existential BNI]
         have   three   CL   person   not-can   play   game
         'Three (specific) persons cannot play the game.'
    b. **San** **ge**   **ren**   bu-neng   wan   youxi   [quantitative BNI]
         three   CL   person   not-can   play   game
         'This game is not designed for three people.'

Li (1998) argues that the two types of BNIs have different syntactic structures. Linking the projection of D(eterminer) to referentiality (which entails existence), she proposes that existential BNIs be analyzed as DP (with a covert D^0), and quantitative BNIs as NumP (DP is not projected). These different nominal structures are in turn selected by corresponding predicate types. The obligatory appearance of *you*, therefore, is to license the empty category in existential BNIs. However, Li's account fails to explain the contrast in (2), in which the two types of BNIs are nevertheless selected by the same predicate. On the other hand, Tsai (2001) correctly notes that quantitative BNIs are much more restricted than existential BNIs in terms of their distributions. Some of the environments are listed in (3) that allow quantitative BNIs (in both subject and object positions), and those do not in (4) (See Tsai 2001: 146):

(3) a.   V-de/bu-V constructions
     San   **ge**   **ren**   chi-de-wan   **wu**   **wan**   **fan**   [quantitative NBIs]
     three   CL   people   eat-can-finish   five   bowl   rice
     '(Any) three people can finish (any) five bowls of rice'
    b.   Modal constructions
     San **ge** **xuesheng**   keyi/yingai   jiao   **shi** **fen** **zuoye**   [quantitative NBIs]
     three CL people   can/should   hand.in   ten   CL   assignment
     '(Any) three people should hand in ten assignments.'

(4)   *(You) **san** **ge** **xuesheng** xie-le   **shi** **fen** **zuoye**   [existential NBIs]
     have   three CL student   write-Perf. ten   CL   assignment
     'There are three students who wrote some ten assignments.'

Tsai (2001) employs a derivational mapping hypothesis. Observing that environments in (3) all contain a modal element, he correlates the EC (which is supported by *you*) with head movements. Complications aside, Tsai's account is that a modal element triggers the covert V-to-Modal movement in (3), which extends the mapping cycle, and *you* is consequently not needed. This amounts to taking *you* as a last resort repair strategy. Consequently, Tsai's analysis too has difficulties accounting for the contrast in (2).

ANALYSIS   We propose a minimalist analysis that not only provides a unified mechanism for Chinese BNIs, but also integrates Li's and Tsai's analyses. Sharpening Tsai's intuition, we observe that a quantitative BNI is specifically licensed by two conditions: non-dynamic aspects and lower modals (Deontic, Generic, and modals under Tense; see Cinque1999). The former are in zero forms in Chinese and are only compatible with the latter. For example, the following sentence is ungrammatical:

(5)   Zhangsan   keyi   chi(*-le/*-zhe/*-guo)   niu-rou.   [*Deontic Mod + Dynamic Asp]
     Zhangsan   can   eat –Perf./Prog./Exp.   cow-meat
     'Zhangsan can eat beef.'

On the other hand, the example in (4) shows that an overt aspectual marker always brings about an existential interpretation of BNIs. Crucially, the existential entailment of BNIs bears directly on the verbal domain. To capture this bond, we propose that the D head of a BNI is directly merged with a verbal element:

(6)　　$[_{XP}$ D [X NP/NumP]]　(where X is [+V])

The structure follows naturally from the minimalist thesis, in which the X-bar theory is dispensed with. We assume that D^0 has a quantificational feature [QF], relevant to the instantiation of NPs (i.e. from a predicate/type to an entity/token; see Vergnaud and Zubizarreta 1992:610). Subject and object BNIs are therefore subject to the same mechanism: the unvalued quantificational feature [uQF] in the empty D^0 is valued by its closest head (through spec/head or long-distance agreement). Reflecting our observations in a parallel fashion, the subject BNI is licensed by Modal, and the object BNI by Asp^0 (echoing the EPP-merge in Prinzhorn and Vergnaud 2004):

(7)　　a.　$[_{AspP}$ D Asp $[_{VP}$ NP/NumP V]]]　　(D-V merge in the object domain)
　　　　b.　$[_{ModP}$ D Modal $[_{vP}$ NP/NumP v]]]　　(D-V merge in the subject domain)

We suggest that the overt aspectual markers (i.e. dynamic ones) in Chinese carry a feature corresponding to existential closure, the ontology of which is related to the general theory of aspect in Klein (1994) (i.e. a specific Topic Time of event; see Liao (2004) for an analysis of Chinese aspects along this line). This explains why existential construals of object BNIs are correlated to dynamic aspects. In cases where subject and object BNIs are both quantitative, the non-dynamic zero Asp^0 is unmarked for [QF], and Modal, now being the closest head with a matching feature, in turn values the object BNIs, as well as the subject BNI. We therefore capture the essence of unselective binding in minimalist terms. The sources of [QF] for subject and object Ds are schematized as follows:

(8)

	Subject	Object	Source of [QF]	Ex.
a.	Quantitative	Quantitative	Modal (unselective binding)	(3)
b.	Quantitative	Existential	N/A (systematic gap)	(5)
c.	Existential	Quantitative	*You* (for subj.) / Modal (for obj.)	(9b) below
d.	Existential	Existential	*You* (for subj.) / Asp (for obj.)	(4)

In the cases of (8c) and (8d), where the subject BN is introduced by *you* 'have', we argue that the *you* itself heads a predicate (analogous to English *there*-sentences), introducing the subject BNI in an independent phase, which escapes from the modal quantification. The proposed structure and the construal mechanisms are in (9a), which deals with a problematic case for earlier approaches like (9b):

(9)　　a.　$[[_{ModP}$ D_1　*You*　BNI_1] $[_{ModP}$　Mod^0　PRO_1　$[D_2$ Asp [V　BNI_2]]]]$
　　　　　　　　[∃x] [∃]　　[x]　　　　[∀]　　　　[∀y] [ø]　　　　[y]
　　　　　　　　　　└──┘　　　　　　　　└────┘
　　　　　　　　　Agree (spec-head)　　　*Agree (long-distance)*

　　　　b.　You　**san**　**ge**　**ren**　chi-de-wan　**shi**　**wan**　**fan**　　　[mixed BNIs=(8c)]
　　　　　　　have　three　CL　person　eat-can-finish　ten　bowl　rice
　　　　　　　'There are three (specific) people who can finish (any) ten bowls of rice.'

Our theory therefore captures Li's proposal with respect to the prominence of NumP in quantitative readings, while resorting Tsai's mapping approach to feature agreements with relevant functional heads.

IMPLICATIONS　　Challenging the standard theory, the proposed D-V merge suggests that D may be separately merged from N at syntax. At first sight, this seems to violate compositionality at the syntax-semantics interface. We argue, however, that the proposed structure is compatible with what Chung and Ladusaw (2004:4) calls the Restrict mode. Extending Chung and Ladusaw's proposal, we take Restrict as a generalized version of Predicate Modification, which is operative not only between AP and NP, or VP and AP (as assumed in the standard theory), but also between VP and NP/NumP. Given the nature of compositionality, then, this becomes a natural move to make:

(10)　a. red umbrella　　　(AP and NP)　　　b. run fast　　　(VP and AP)
　　　　c. Chinese [V BNI]　　(VP and NP/NumP)