The Syntactic Root of Numeral Quantifier Floating

Introduction There is a general assumption that the term Floating Quantifiers (FQ) covers both the phenomenon of all-floating (AF) and Numeral Quantifier Floating (NQF) (Sportiche (1988), Miyagawa (1989)). Recent literature has found out, however, that AF and NQF display quite different behaviors (Bobaljik (2003), Fitzpatrick (2006)). For example, while a floated all bears a local, anaphor-like relation to, and may be licensed by A-movement of its associated NP (Kayne (1981)), NQF is sensitive to the A-bar movement of the associated NP (Yamashita (2001), Fitzpatrick (2006)). The A- and A-bar property of AF and NQF, respectively, is shown in (1) and (2).

Claims In this paper, I give evidence from Mandarin Chinese to show that NQF is also possible in Chinese. Specifically, I show that the floating of NQs in Chinese patterns with that in Japanese in that it is also sensitive to A-bar movement of the associated NP. These are shown in (1)-(2). (1) is taken from Bošković and Takahashi (1998). As shown in (1a), scrambling of the object, together with the NQ may create new binding relations. However, when the NQ is left behind, as in (1b), no new binding relation is possible. This shows that the movement that strands the NQ is A-bar movement. Similar paradigm in Chinese is given in (2). While clause-internal movement of the object, together with the NQ, can create new binding relations, as in (2a), the one that strands the NQ cannot, as in (2b). The paradigm supports the claim that NQs can only be stranded by A-bar movement.

Analysis I propose that the obligatory A-bar property associated with NQF is deducible from other independent mechanisms. I propose that traditional NPs (TNP) in Chinese and Japanese have the structure as in (3), plus the assumption that the highest projection of the TNP is a phase (Svenonius (in press)), and successive cyclic movement through phase edges is A-bar movement (Chomsky (1999, 2000)). With the assumption above, NumP in (3) will be a phase. Therefore, to observe Phase Impenetrability Condition (PIC) (Chomsky 1999), movement of the NP out of NumP is impossible without passing through [Spec, NumP] first. Since successive cyclic movement passing through phase edges is A-bar movement, the obligatory A-bar property of NQF is accounted for.

Discussion The analysis is claimed to have several theoretical consequences. First, it explains why NQF is not available in languages like English, as shown in (4a,b). Without the classifier projection, the TNP in English will have the structure as in (4c). Movement of the NP in (4c) out of the QP will thus be blocked either by PIC, if the NP moves out in one step without passing through [Spec, QP], or by Anti-locality (Abels (2003)), if the NP moves out from the complement position through the specifier position. This is consistent with the claim in Kobuchi-Philip (2007) that NQF is generally available only in languages with classifiers, serving as a domain restriction on NPs. Second, the analysis here may be extended to account for the A-bar property of other sub-extraction constructions, such as the Split Topicalization (ST) constructions in German, as in (5) (van Riemsdijk (1989)), with ST as a case of sub-extraction. One of the theoretical implication of such analysis is that [Spec, TP] should be made ambiguous between A- and A-bar positions. It is an A-bar position when an NQ is stranded, as in (6a), and A-bar otherwise, as in (6b), an ideal move given the minimalist consideration of phrase structure building.
(1) a. [Gakusei-o huta-ri], [otagai-no sensei]-ga sikatta
   [student-ACC 2-cl] [each other-GEN teacher]-NOM scolded
b. *[Gakusei-o], [otagai-no sensei]-ga huta-ri sikatta
   [student-ACC] [each other-GEN teacher]-NOM 2-cl scolded
   ‘Each other’s teacher scolded [the two students],’

(2) a. Zhangsan you liang-ge xuesheng, yong bici-de keben zhidaō ti,
   Zhangsan have 2-cl student with each other-’s textbook instruct
   ‘Zhangsan instructs two students with each other’s books.’
b. *Zhangsan xuesheng, yong bici-de keben zhidaō liang-ge ti,
   Zhangsan student with each-other-’s textbook instruct 2-cl
   ‘Zhangsan instructs two students with each other’s textbooks.’

(3) *[NumP Num(ber) [CP Cl(assifier) [NP N(oun)]]]

(4) a. *Students came two.  b. *Students were arrested two.  c. [QP Q(uantifier) [NP N(oun)]]

(5) *Augen kenne Ich [NP keine Frau [CP die schönere ___ ti ] hat [ als Ich ],]
   eyes know I no woman who more beautiful (ones) as than I
   ‘As for eyes, I know no woman who has more beautiful ones than I have.’

(6) a. Xuesheng, lai-le liang-ge ti,  b. You [liang-ge xuesheng], lai-le ti,
   student come-asv 2-cl have 2-cl student come-asv
   ‘Two students came.’  ‘Two students came.’

References