Numeral Quantifiers as Simplex $\phi$Ps

**Background:** Numeral Quantifiers (NQs) occur in a wide range of syntactic environment in Japanese, as in (1). Numerous attempts have been made in the generative tradition (Watanabe 2006, Nakanishi 2003, to cite just the most recent two) to describe the syntactic distribution and/or semantic interpretations characteristic of one part or another of the paradigm. To the best of our knowledge, however, no existent analysis succeeds in characterizing the complete paradigm in (1); crucially, the $X$-no-$NQ$ alternant in (1b) has thus far escaped due attention—the alternant of great theoretical importance, as will be seen below.

**Proposals:** This paper argues that a more comprehensive analysis of Japanese NQs becomes possible by making the following two proposals. First, assuming that nouns in Japanese are “transnumeral” (Bisang 1993) and as such immune to counting by themselves (Chierchia 1998), we propose that NQs, in principle, may not form a Nominal Extended Projection (NEP) with an associate noun in their complement (i.e., *[\text{NP} \text{THREE STUDENTS}]*) but must rather project a simplex phrasal category (i.e., *[\text{THREE}]*) in Japanese. Second, we propose that Japanese NQs are nevertheless of the nominal functional category “$\phi$” in Déchaine and Wiltschko’s (2002) sense; NQs qua $\phi$Ps can therefore be either arguments or predicates.

**Analysis:** Given the two proposals above, examples (1a–b, d) receive the structural analyses in (2). (2a–b) represent structures of “canonical” predication with the genitive marker no as the “RELATOR” (den Dikken 2006) taking the predicate complement and the subject specifier; the NQ sannin is the predicate in (2a), while it is the subject argument in (2b). These are structures for (1a) and (1b), respectively. (1d) is structurally ambiguous: sannin either adjoins to VP as a kind of secondary predicate (Miyagawa 1989), as in (2c), or constitutes the predicate of the “reverse” predication (den Dikken *ibid.*) mediated by the nominative marker ga as the RELATOR, as in (2d). For the structure of (1c), see Implications and (9).

**Consequences:** First, as in (3), only the X-no-NQ alternant is well-formed when coordinated names are involved. This follows from the fact that only in this alternant does the NQ play the subject (or argument) role of predication; see the nonsensical predication in (4b). Second, in a somewhat similar vein, only X-no-NQ, where the NQ is argumental, allows for modification to the NQ; compare (5a) and (5b), for example. Third, the collective and distributive readings available with examples like (1d) (see Ishii 1999) arise from the two structures in (2c–d); we can add, in further support of postulating (2c), the scopal parallelism in (6)—a state of affairs to be left unexplained if (2d) is the only structure permissible.

**Implications:** First, that Japanese NQs are morphologically complex might help explain why NQs cannot combine with their associate noun: the classifier part of NQs (e.g., -nin), serving the “individuation” function for the associate noun (Bisang/Chirechia *ibid.*), might itself be a noun that complements the number part of NQs (e.g., san) to project a NEP, namely $\phi$P. Second, quantifiers (Qs) such as nanika ‘something’ in Japanese— as a functional category distinct from NQs—also fail to form a NEP; as in (7), a Q can “float” from its associate noun and co-occur with an NQ, too. Third, although NQs resist forming a NEP with their associate, this may not be true of the determiner system of the language. As in (8), NEPs of the D-NP complementation do seem to exist in Japanese, distinguishing D from non-NEP-forming quantificational categories, Q and NQ. Fourth, related to the third, (1c) could conceivably represent an additional type of NEP in Japanese—perhaps a relatively new grammatical development—with the NQ as the $\phi$ head taking the complement NP to project argumental $\phi$P, as in (9) (see Nakanishi *ibid.*). Fifth, the present analysis also implies that for nominals, reference seems an intrinsic property of argument terms, while (weak) quantification is not necessarily so, thus capable of being a predicate (cf. Milsark 1977).
(1) a. Sannin no gakusei ga kita.
   three CL GEN student NOM came
   ‘Three students came.’
   
   b. Gakusei no sannin ga kita.
   
   c. Gakusei sannin ga kita.
   
   d. Gakusei ga sannin kita.
   (scrambled variant: Sannin gakusei ga kita.)

   sannin = predicate (in RP; R = no)
   
   b. [RP [R Gakusei no] [aP sannin]] ga kita.
   sannin = argument (subject in RP; R = no)
   
   c. Gakusei ga [VP [aP sannin] [VP kita]].
   sannin = predicate (VP adjunct)
   
   d. [RP [R Gakusei ga] [aP sannin]] kita.
   sannin = predicate (in RP; R = ga)

(3) a. *Sannin-no Taroo-to Ziroo-to Saburoo ga kita.
   -to ‘and’
   
   b. Taroo-to Ziroo-to Saburoo no sannin ga kita.
   (with no pause before sannin)
   
   c. *Taroo-to Ziroo-to Saburoo sannin ga kita.
   
   d. *Taroo-to Ziroo-to Saburoo ga sannin kita.

(4) a. [SUBJ Sannin]-wa [PRED Taroo-to Ziroo-to Saburoo]-da.
   -wa = topic marker, -da = copula
   
   b. *
   [SUBJ Taroo-to Ziroo-to Saburoo]-wa [PRED sannin]-da.

   otonasii ‘quiet’
   

(6) a. Gakusei ga sannin konakatta.
   NEG > 3, 3 > NEG
   konakatta ‘not came’
   
   b. Gakusei ga sankai konakatta.
   NEG > 3, 3 > NEG
   sankai ‘three times’

(7) Kudamono-o [QP nanika] [aP mittu] tabe-yoo.
   fruit-ACC something three CL eat-let’s
   ‘Let’s eat some fruit, three of it.’

(8) a. [DP Ano [NP kudamono]-o tabe-yoo.
   ano ‘that’
   
   b. *[NP Kudamono]-o [aP ano][aP are] tabe-yoo.
   are ‘that (one)’

(9) [aP [NP Gakusei] [o sannin]] ga kita.
   sannin = heading φP argument

References