Long-distance restrictions on distributivity

This paper presents long-distance semantic selection demonstrated in distributive constructions in Shan (Burma, Kra-Dai) and proposes a distributive morpheme that selects sets of alternatives, requiring non-overlap in both the restrictor and scope.

Cardinal restriction. A noted difference between adnominal distributive constructions and determiner or adverbial constructions is the "counting quantifier requirement" for adnominal distributives that prevents such phrases as **most men each* (for example, Safir & Stowell 1988; Law 2022). This contrast is demonstrated in (1).

(1) a. Each man read books / the book(s) / two books. DET
b. The men each read books / the book(s) / two books. ADV
c. The men read *books each / *the book(s) each / two books each. ADN

Adnominal constructions require a quantized, indefinite distributive share, such as *two books*. This restriction is also found with, e.g., adnominal *jeweils* in German (Zimmermann, 2002, p. 33).

The puzzle. Shan has this restriction not only for adnominal distributives (2), but also for the common determiner distributive in (3). Bracketing identifies syntactic constituents. While bare nouns can often be interpreted as indefinite in Shan, it is not possible for a bare noun such as *pâplik* 'book(s)' to replace *(pâplik) sɔ̌ŋ pâp* 'two (books)' in (2) or (3).

(2) lukhén laj [pâplik [[sǎam kɔ̂ **lǎj]** *(sɔ̌ŋ pâp)]]
student get book three CLF.HUM DIST two CLF.BOOK
'The students gets two books for every three students.' ADNOMINAL

(3) [lukhén nɯŋ kɔ̂ **lǎj]** tɔ̀p waa khǎw laj ʔǎw wâj *(sɔ̌ŋ pâp)
student one CLF.HUM DIST reply that 3 ACH take keep two CLF.B
'Every student told the teacher they took two (books).' DETERMINER

The distributive construction is formed by a numeral and classifier representing the distributive key amount (*sǎam kɔ̂* 'three (people)' in (2)), an indeterminate pronoun *lǎj* / *lǎɯ*, and a following numeral and classifier representing the distributive share amount (*sɔ̌ŋ pâp* 'two (books)') in the adnominal case. The distributive marker *lǎj* can appear in similar positions to *each* as a determiner as in (3), an adnominal, as in (2), or an adverbial (omitted for space). Aside from the obligatory numeral and classifier in the restriction of the quantifier, Shan distributive constructions also require that the VP predicate of a determiner or adverbial distributive construction include a numeral expression. (2) and (3) cannot omit the quantity *sɔ̌ŋ pâp* 'two (books)'. This quantity may be as distant as within an embedded clause, as in (3).

Data presented here comes from fieldwork with four Shan speakers. In addition, all examples of this construction found among the 14,343 Wikipedia articles written in Shan follow the pattern presented above. One example is provided in (4), where the overt subject, *nɯŋ luk lǎɯ* 'each bulb' has the determiner distributive construction.

(4) nɯŋ luk lǎɯ mí [kɔn 6–10 kɔn]
one CLF.RND DIST have clove six–ten clove
'Each bulb has six to ten cloves.' (Wikimedia 2025)
Note: Some Shan nouns, such as *kɔn*, use the noun as a numeral-classifier.

Proposal. The Shan distributive *lǎj* is semantically closer to English *every* as described by Haslinger et al. (2025) in allowing a non-atomic complement, as with

sǎam kɔ̂ 'three (people)' in (2), and requiring non-overlap in the quantifier restrictor. This non-overlap restriction is not formally represented in (5), and is not required for the subsequent argument. However, there is an additional restriction on the subsequent predicate argument that it include a quantized, indefinite property, such as *(pâplik) sɔ̌ŋ pâp* 'two (books)' in (2) or (3). This indefinite expression can even be embedded within another clause.

To account for this, I follow Kratzer & Shimoyama (2017) in treating indefinite expressions as sets of alternatives and employ Hamblin function application to maintain the alternatives through the intervening nodes until they reach the distributive operator. This would make it possible to distinguish between definite and indefinite expressions since within the same situation, the definite expression would yield a singleton set, while the indefinite expression would contain multiple alternatives. To rule out the bare noun cases, which in Shan are underspecified for number, it would be necessary to rule out sets of alternatives such that there is one member that is a sub-part of another alternative. The same restriction applies to the distributive key amount. (5) gives a semantics for determiner *lǎj*, which takes the distributive key alternatives as its first arguments, the thematic role of the distributive key, and then the alternatives corresponding to the event predicate. Adnominal and adverbial *lǎj* have slightly different semantics but the same definedness condition.

(5) $[\![lǎj]\!] = \{\lambda Z \lambda \Theta \lambda V \lambda e. \forall e' \leq e[[\Theta(e') \in Z] \rightarrow \exists f \in V[f(e')]]\}$
if for $Y \in \{V, Z\}[|Y| \geq 1 \wedge \neg \exists z, z' \in Y[z \leq z']]$, and undefined, otherwise.

In the case of the adnominal distributive, the distributive share argument of the distributive operator is a set of individuals, so the bare noun denotation in (7) is ruled out. In (5), the distributive share argument, V, is a set of functions from events to truth values. This requires the parthood relation in (6) using event mereology.

(6) $f_{\langle e,t \rangle} \leq g_{\langle e,t \rangle}$ iff $\exists e, e'[f(e) = 1 \wedge g(e') = 1 \rightarrow e \leq e']$

For the bare noun version of (1-a) 'Each man read books', which is grammatical in English but not in Shan using distributive *lǎj*, perhaps there is a situation where there are three books a, b, and c. Then, we would expect the denotation of the DP *books* to be as in (7), and the denotation of the VP should be as in (8). Then, if $\mathsf{e^a}$ and $\mathsf{e^b}$ were the events of reading a and b respectively, these would be subparts of the event of reading both a and b ($\mathsf{e^{ab}}$). This would rule out the VP denotation in (8) as an acceptable predicate for a Shan distributive.

(7) $[\![\text{books/pâplik}]\!] = \{\mathsf{a}, \mathsf{b}, \mathsf{c}, \mathsf{a} \bigoplus \mathsf{b}, \mathsf{a} \bigoplus \mathsf{c}, \mathsf{b} \bigoplus \mathsf{c}, \mathsf{a} \bigoplus \mathsf{b} \bigoplus \mathsf{c}\}$

(8) $[\![\text{VP}]\!] = \{\lambda e.\mathsf{read}(e) \wedge \mathsf{theme}(e) = \mathsf{a}, \lambda e.\mathsf{read}(e) \wedge \mathsf{theme}(e) = \mathsf{b}, \ldots, \lambda e.\mathsf{read}(e) \wedge \mathsf{theme}(e) = \mathsf{a} \bigoplus \mathsf{b}, \ldots\}$

Discussion. This project presents a previously unexplored feature of Shan distributivity that the distributive construction requires not only that the distributive key be specified by a quantity, but that another part of the sentence include a cardinal expression as well. This restriction on the semantics of more deeply embedded structures has not been reported in accounts of distributivity in other languages. This pertains to a cross-linguistic account of distributivity and the interpretation of indefinite expressions that needs to be explored further.

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