

**Outline of a Formal Syntax of Numerical Expressions, with Especial
Reference to the Phenomenon of Numeral Classifiers**

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0. I take as my starting point my earlier paper on so-called numeral classifiers (Lehman 1979), in which I was mainly concerned with the question whether or not classifiers are really, as is often claimed in the literature, a more or less language-and-culture-specific, comprehensive system of semantic classification¹ of the world and of experience, or rather something basically to do with the way the language handles the phenomenon of quantification. This was part of a more general line of work that is best understood by referring to my (1985b) paper, 'Cognition and Computation.' I shall not bother in the present paper to go into the substance of either of the previous papers. But it is useful, I think, to outline here the general conclusions of the earlier classifiers paper.

1. I argued that in reality classifiers did not point to a general scheme of classification. I argued this from two standpoints. First there was the straightforward substantive evidence (actually acknowledged quite generally, though just as generally brushed aside, e.g., by three of the most prominent proponents of the contrary conclusion, Becker (1975 — It is not altogether clear whether or not Becker, who takes great pains to show that a noun may be 'classified' in many different ways, should really be subject to this criticism, but he certainly does claim at least that the relation between a noun and whatever the classifier signifies is a membership/'kind of relation), Denny (1979, 1985), and Placzek (1985a,b) that such purported comprehensive schemes are never anything like comprehensive and never rigid. That is, even for the fairly restricted subset of nouns referring to

¹ I am using the word 'classification' strictly in the technical sense of a taxonomic system of categories, of the kind in which claims that, for any item and for any such category, that the item 'is a kind of' whatever the category may be. In fact clan in this sense is not the general way in which items *cross-reference* with categories. There is a good discussion of this in Wierzbicka (1985): a knife, say, may be categorised as either a tool, a weapon, or an eating utensil, yet is not a *kind of* any of these in the sense that a human being, whatever other category it can be indexed with, is a *kind of* living being/animal (see now Keller and Lehman in press). In the looser sense, in which 'classification' need mean nothing more than the various categories a term may be indexed/cross-referenced with, of course the numeral classifiers indeed constitute a system (an open-ended one) of classification.

classes of concrete objects, the purported classification according to perceptually universal features of shape or, more generally, extension was always optional even when this was far and away the most conventional 'classification,' the default case. It is always possible to 'classify' the object class in enumeration by attending to some different feature, extensional, functional, mnemonic and so on. More importantly, the optional alternatives (In any case often a matter of deliberate and valued ingenuity on the part of adept native speakers and writers) for different classes of objects classified 'by default' with the same simply extensional classifier are rarely if ever coincident. For those idiolects, say, of Burmese in which railway trains (more commonly 'classified' as *asin*:/အဝိုင်း/) as well as rivers, pencils and the like are classified (I shall refrain from using inverted commas round this term hereafter, leaving it understood that I do not accept the idea that 'classification' is the real point of this phenomenon) as 'long, thin things' (*ahkyauung*:/အရှည်/), the train, but hardly the pencil, is almost equally well classified as a vehicle/something to ride on (*ast*:/အစီး/). Furthermore, the so-called extensional features that motivate the theory of classifiers in question turn out not to be systematically extensional at all. And at the same time, the reason one class of objects can be classified by a given classifier may be very different from that motivating the use of the same classifier for another class of objects.

Consider, for example the common Siamese classifier *lêm*/လံ့. It is the default classifier for books, maybe the default classifier for things like bullock carts, and for some speakers (but hardly all) also for candles, and in all these cases the motivation is far from extensional classification, or, indeed, anything we might call perceptual. It has to do simply with the idea that books are clamped together (between covers), carts are clamped together (one part to another), and candles have a wick clamped within the wax. The reasons that, in Burmese, things as diverse as stupas, folded manuscripts and fishing nets, as well as Buddhas (sacred personages) are alike classified as *ahsu*/အဆူ are not only wholly obscure but also necessarily inhomogeneous; for instance, the reason both Buddhas and stupas fall together here seems to be that stupas, according to Buddhist cosmology, are in principle *relic-bodies* (Pāli *kāya*) of the Buddha — one may speculate at will that folded manuscript books may be included because of the shaky supposition that they are thought primarily to be religious in content (the doctrine-body of the Lord Buddha?), but the fishing nets fall through the holes in the network of this account! The notion that this could be part of a scheme of classification rests upon the non-empirical claim that there must be a 'feature,' however abstract, however vacuous, that just this set of object-classes is felt by Burmans to share, even though all Burmans deny any such intuition; any appeal to a quite irretrievable etymological sense of this

classifier is, of course, totally irrelevant as well as unempirical. And what, pray, on this view, is to be made of the fact that the default classifier for academic subjects, problems, conferences, reasons, pastimes and 'similar' (in what sense?) abstract nouns are enumerated by means of the classifier *ayaʔ/ṭṭṭ* ('place' in the sense of an ordinal place in a list of, simply, 'categories')? I suppose it is possible to claim, again by vacuous generalisation, that what they share in common is the 'feature' of 'not falling under any other specific rubric,' and this is about as useful as saying, for the myriad concrete count nouns (in fact a non-fixed list of them) classifiable with *hku/ṭ* — the word means merely 'instance') that they share a classificatory-perceptual feature of being, alike, 'miscellaneous.'

But enough. This catalogue need not be further extended. The general point should be clear enough. The classifiers are actually some kind of device used in enumerative and (though not in Burmese — see Lehman 1979, 1985a) other noun-modifying expressions such as relative clauses, attributives and the like (on the demonstration that all these are indeed quantifiers of some kind, see my three papers already cited) to link the head noun with the quantifier — say, for the moment informally, an agreement device. The linkage is in the general case mnemonic only. Obviously there are some (not comprehensively many) default conventions for choosing the device, and it is equally unproblematic that for perceptually fairly uncomplicated non-abstract things, or rather the nouns naming them, the easiest things to seize upon for this purpose may be some spatial-extensional aspect of the thing in question. Nothing much more can be said in general.

Anyhow, following along in this general line of argument it is clear that I am claiming that noun classifiers/numeral classifiers (neither term is ideal, but both are fixed by tradition) are to be accounted for by a theory treating them as matters of **agreement**, much in the usual linguistic sense in which a subject, say, is said to agree with its verb in person and number, an adjective with its head noun in gender, number and/or case, and so on. As to such categories as person or number, it ought to be intuitively obvious that they cannot be appealed to as providing any scheme of classification for nouns in the intended sense, whilst any standard text book in linguistics (there is an especially good and simple treatment in Hock 1986) will demonstrate that gender is mainly morphosyntactic in function (agreement, again) arbitrary and not in general a notional scheme of classification. But, having regard specifically to classifiers, none of this can be taken as arguing against the idea that some 'aspect' of a noun class chosen for enumerative agreement marking may be so chosen as mnemonically appropriate, may even be defined, for quite culturally parochial reasons. For instance, consider the rather specifically Burmese-Buddhist ideas linking stupas and Buddhas,

mentioned above; it is sufficient for a classifier to 'remind' the hearer, or at least the clever speaker-writer (clever, literary, classifier choice is frequently the opposite of transparently motivated), of what it is that is being quantified. But the motivation may just as well be drawn from a pool of universals of human perception-cognition, as in the case of the extensional features used in the enumeration of nouns referring to objects with fairly simple and differentiated shapes. The 'feature' so chosen may be a part of the minimal lexical-semantic specification of the noun (and remember that there are more often than not a plurality of, say binary, features to use this way), e.g. 'something to ride on' for carts, or it may be part of one's encyclopaedic knowledge (knowledge-structure, in terms of a theory of cognition — cf. Keller & Lehman in press), e.g., 'something to ride on' in the case of horses. About these things I have nothing further to say in the present paper.

I have argued in my earlier classifiers paper (1979) that the theory I am now elaborating extends more naturally and homogeneously than its opponent (mainly semantic) theory of classifiers to the case of the so-called 'measure words.' I mean, of course, the words used along with quantifiers when the quantifier expression is headed by a non-count, e.g., a mass, noun: 'water, one cupful' and the like. I wrote there that the nouns being quantified, e.g., counted, were underlyingly compounds headed by a simulacrum of the measure word itself, a head systematically deleted/left empty in the sense of empty-category theory, under a quite general and independently motivated rule that omits heads of noun phrases in case (with certain limited exceptions²) they are 'self-classifiers,' viz., duplicated by the classifier. I shall not further elaborate that point in this paper, but I think it eminently worthwhile observing that there is evidence I inadvertently forgot about previously supporting this view. For in Burmese (Okell 1969:215) when one is counting 'rounded numbers' (order-of-magnitude numbers) of count nouns (where the classifier is the integral power of the base: tens, hundreds, thousands, etc.), one has always the option of using in the position of the noun a compound whose second (head) member is the very

2 It seems to me now that the difference between true self-classifying nouns, that 'delete' in the presence of the corresponding classifier (standard unit-of-time and unit of spatial measure words, for instance) and those that do not must be that the former do not allow the word to be compounded with a following head noun of associated meaning, while the latter do. So, — *tala* တွဲလ 'one month,' but *ein* အိမ် (house) *taein* တအိမ် 'one home;' cf. *ein(hsaun)* တေဆောင် (100 house-structures) / *ein lahsaun* အိမ် တဆောင် 'one house.' *la* in the sense of 'month' simply fails to compound this way: we get only *la-taya* လ တရာ '100 months.' Of course, in other than discourse-initial or topic-initial position, heads of enumerated NPs are more nearly free to be empty regardless of the distinction between self-classifiers and others, e.g. in answers to 'how much'/'how many' type questions.

word that, in counting unit members of the class, would be found as the classifier! E.g.,

1. hke:dan hnaya

දෙර ද ද

pencil 2 hundred(s)

1'. hke:dan ahcaun: hnaya

දෙර පැපර්: ද ද

pencil long-thing 2 hundred

'pencil-stick' 2 hundred

2. The second part of my earlier argument was more formal, more deeply embedded in the aforementioned theory of quantification, and this paper is not the place to recapitulate that sort of thing. Let it suffice for me to say that a language that does not mark its nouns in any systematic and obligatory way, say morphologically-inflexionally, for number, is likely also to be a language in which the noun refers most immediately to the sense (intension) rather than the extension, the set of things held to *instantiate* (be the members of) the *proper class* (see all previous references to my papers and Keller & Lehman in press). This is not a new idea but it is newly put, for good reason, in terms of a specific theory of quantification embedded in a specific theory of cognition. In such a language it ought not be surprising that you cannot enumerate the 'sense' but only the instantiations, the membership of the set that, taken together with the intension, defines the proper class, as in any formal set theory distinguishing sets from proper classes (see Lehman 1985 for the relevant citations). I propose, then that in such languages the use of classifiers, so-called, i.e., the perceived need for a morphosyntactic agreement marking between the noun and the quantifier expression, has much to do with the idea that in counting one is *mapping* sets into intensions, i.e., *pairing* instantiations with senses. Another virtue of this way of stating the matter is that it allows for those languages that use class-agreement (having nothing to do with grammatical gender, which they may also have) in quantification, or at least in counting, even though they do inflect nouns for number. Sinhalese is such a language, and moreover one that is not ordinarily described as a classifier language, perhaps because the morphology of the class-marking in enumeration is unarguably inflexional in form.³ Since

³ I append to this paper a paradigm of the Sinhalese system, courtesy of my pupil A. N. Ariyaratne.

(especially Keller & Lehman in press) a formally and substantively adequate theory of meaning and of quantification must say that the reference of a noun is universally a proper class in the intended sense, then the only difference between the two kinds of languages in this respect is quite superficial. One kind quantifies, as it were, after the fact of instantiating/pairing, the other in the course of it (the more usual classifier languages), so there is no reason to be surprised at the Sinhalese situation, although it is equally easy to see why class-agreement is infrequent in the case of the former kind of languages.

What I must now do is say exactly what an appropriate theory of agreement-and-cliticisation looks like before I try to apply it to the case of the classifiers and therewith try to provide a serious account of the syntax of enumerative (and other quantificational) expressions within noun phrases. It seems to me that the clearest way to do this is to begin with a digression concerning a relatively uncontroversial case of cliticisation and agreement. I shall choose the case of subject-verb agreement, as found in the standard so-called pro-drop languages such as Spanish, Italian or Latin, and more narrowly the instance of this phenomenon found in several Tibeto-Burman languages, Haka (Laali) Chin and Lushai for instance, and shall come back to the numerative expressions when I have made the case for the proposition that the Chin-Lushai type of subject clitic is indeed a case of AGREEMENT in the sense of the Government and Binding theory of syntax, more particularly the theory of Empty Categories (see especially now Lehman and Namtup 1986 and Namtup 1989 for the version of Empty Category theory used here as well as all necessary references). I shall show, in other words, that the syntax of subject clitics and of the classifiers works pretty much the same way. The choice of this line of exposition is convenient as well because it provides an opportunity for me to correct an old style transformational treatment of the subject clitics (involving the idea that the clitics are 'copied' onto the verb from an optionally 'deleted' true subject NP; it also allows me to outline, at least, why it is that Chin-Lushai, unlike the aforementioned pro-drop languages remains a free empty argument language — that is, it does not restrict the occurrence of empty nominals ('pro') to the subject position alone licensed by the agreement clitic.

The general idea of subject-verb agreement is well understood. Many languages have some kind of inflexion on the verb (or on the auxiliary) that makes the verb agree in person and number with the subject of the clause. A classical pro-drop language is one in which there is a pairwise distinctive inflexion for each combination of person and number, so that the person and number of the subject, which need not appear overtly, is fully recoverable. In other words everything (save things like gender or honorific marking)

that a pronominal subject might contain is so recoverable. The referent, if specifiable, of the empty pronominal (*pro*) is found in the same way (syntactic control or pragmatic means) that it is found for an ordinary, lexical pronoun, namely taken from its possible (or, in control cases, obligatory) antecedent in the sentence, in the discourse more generally or in the knowledge-structure context more generally. In fact in such languages *pro* (the Empty Category) is licensed for occurrence only under this 'rich' feature agreement condition. This state of affairs is nowadays often discussed under the heading of null subject languages (a null subject 'parameter' within general syntactic theory).

Other languages are not similarly restricted in the occurrence of *pro*. Languages without the any kind of person-number agreement generally seem to allow empty arguments in any of the syntactic argument (NP) positions in a clause. Thai languages are like this; so is Chinese, so are many Tibeto-Burman languages — but not all; the so-called pronominalising languages (see DeLancey 1988 for a good summary, and descriptions with references) mark the verb with 'particles' (at any rate, bound formatives) for agreement (as to person and number) for both subjects and objects (indirect objects, in fact, *pace* DeLancey). I shall soon return to these. Still other languages seem to fall in between, languages such as English, French or German for instance (on the degree to which they fall between the true *pro*-drop languages, see Pollock 1989). These languages have what you might call a degenerate subject agreement system; person-and-number combinations are not exhaustively pairwise recoverable. In English, for example it is not at all recoverable except in the present tense, and then only in so far as one can recover whether the subject is third singular or 'other.' German comes closer to full recoverability, spoken French marginally less so. These languages seem generally not to allow *pro* at all just in case the clause is finite (i.e., has any inflexional system — under a category INFLexion in Government and Binding syntax in which the AGREement subsystem may be lodged (but see, now, Pollock 1989 for some of the new arguments to the effect that 'INFL' in fact is to be understood as a catch-all that really subsumes such separate phrase-structure categories as tense, aspect, negation, AGR and the like — for the purposes of the present paper I am sticking to the older, simpler formulation, though the current arguments for the less shallow phrase-structure of the finite clause are distinctly interesting). Stated simply, only non-finite complement clauses may have empty subjects that do not arise from traces of the movement of an argument due to such processes as relativisation, and it is supposed that this is because AGR-free INFL wives the licensing restriction. Nevertheless, these languages look after all like *pro*-drop languages in that it is still only in subjects that *pro* can appear, namely, in just the argument position that

would, in the finite clause, be subject to AGREement with the verb, however indifferently. We argue, in fact, that these are after all a degenerate kind of pro-drop languages under the following assumption.

Under a 'parameter setting' theory of first language acquisition (see now especially Platt 1989), it is supposed that if the child ('acquisition device') notices that there is AGR of the relevant kind, it will assume that (α) pro can be base generated only in the argument position that AGR connects up with, and (β) it can then occur only if person-number recoverability is complete (sufficiently rich agreement inflexion) or if (non-finite clauses) AGR is empty. On this construal, English, French, German and so on are pro-drop languages in the sense that there is enough AGREement of the right kind to set the parameters (α) and (β); the reason they are only degenerately so is that the AGR is not rich enough.

Clearly there are further qualifications needed to make this sort of analysis more thoroughly realistic. As a matter of fact these qualifications or additions serve on the whole to lend added support to the general point of view; they do not look like cosmetic devices to make a bad idea seem to work. Notice, for example, that the leading idea really has nothing to do with the subject position save contingently — in spite of the all too common rubric of 'null-subject parameter' that is used in talking about these phenomena. In so far as AGR is just subject agreement, it is only subjects that can be empty under (α) and (β) above. If, however, there happens to be object agreement (and we know such things exist in natural language), it ought to be the case that, if sufficiently rich, it will license empty categories in that argument position as well. This prediction turns out to be correct.

Consider, as an example, the well-known object clitics of the Romance languages (the references are easily recovered from Pollock 1989). If a verb (under conditions that do not concern us here) has an object (proclitic (and for these, too, person and number is pairwise recoverable) the object post-verbal argument position of the object (the word order being SVO) is allowed to be empty, though in fact it need not be. E.g., in French (V= any appropriate transitive verb),

2. me-V/me-V ... à moi
V's me
te-V/te-V...à toi
V's you (sg.)

The same sort of thing applies in the related case of the reflexive clitics (which, of course, also involve object position). E.g., Spanish,

3. se-V/se-V ... él mismo V's himself

Since all clauses have subjects but not necessarily objects, subject agreement takes precedence. So the licensing of empty objects in non-finite complement clauses is less straightforward (Pollock 1989).⁴

For the moment at least, so much for the pro-drop phenomenon and its relatives. I shall return obliquely to this matter at the point where I argue in favour of the view that all this agreement morphology is actually clitic in character (I shall define clitics appropriately, then), not just object agreement morphology, which everyone says is clitic. Only then shall I be able to argue successfully that the Chin-Lushai system is one of subject (and indirect object) clitic agreement.

First however, it is necessary to take account of a fact about the Chin-Lushai system (and, by extension the system of the pronominalising T-B languages more generally) that on first view seems to falsify pro-drop

⁴Even the degenerate pro-drop languages, English for instance, allow for at least some empty arguments in positions not licensed as above. The conditions, however, at least intuitively, fit well enough into the spirit of the foregoing analysis. Arguably at least, the so-called optional transitive verbs of English are really transitive verbs with underlyingly empty object positions. A quite large subset of English transitive verbs allow this, and especially with the modal auxiliary 'can.' Thus,

- (i) I can kill/He can hear/We can see/She can eat/...

but the following allow an empty object only under fairly restrictive pragmatic contextual conditions of application.

- (ii) ?You can hit (referring to, say, baseball playing)
 ?They can cut (referring to a set of knives, say)

The determining condition seems to be, roughly, that the object has to be understandable as having a generic range uniquely, and non-vacuously, determinable from the meaning of the verb itself. One can kill any and all 'live, animate' things; one can see 'sights,' 'visible things;' one hears 'sound,' one eats 'food'/'edible stuff,' and so on. It is, however, not at all obvious what a possible class of 'hittable,' or 'cuttable,' things might be (save unabstract) except, as it were, after the fact of the attempt at hitting. In this case person-and-number recoverability is assured in advance; licensing by agreement need not apply. Generically, one sees 'something-or-other' visible, and that is necessarily third person singular (*disjoint*-singular, of course). But there is one more thing, about which the quite extensive pro-drop literature is totally silent: in the case of any verb that selects only certain classes of subjects ('see' needs animate subjects, and so forth) that feature or bundle of features, too, is automatically understood to be true of the empty subject if such the subject is; similarly, then, in the case of unspecified objects of verbs that impose demonstrable and lexicalised selection restrictions upon the class of possible objects.

parameter theory in a fundamental way. These languages have subject agreement, and IO agreement, but the fact that these argument positions can be, and in the default case generally are, empty has nothing to do with pro-drop theory, because any argument position in these languages can be empty; subjects and objects are empty because they are arguments, not because they are specifically licensed argument positions. This makes nonsense of any attempt to bring an account of empty subjects in such languages (e.g., Chinese, Thai, Vietnamese) under the heading of a so-called null-subject parameter (see Platt 1989, with especial reference to the work of Hyams; Namtíp 1989, with especial reference to the work of Huang). How can it be accounted for, if the theory is to be upheld?

The answer is not really hard to find. Chin, Lushai (Mizō ṭòŋ) and the other pronominalising languages have subject/IO agreement all right, but this AGREEMENT morph happens not to reside under INFL! This is the conclusion to be drawn whether we think that the pro-drop languages have AGR as 'part of the INFL category or, as is now more common, we think it is a phrase-structure category of its own, but one dominated by the INFL category. We can easily see that it does not reside in INFL because INFL itself is the category having to do with mode, in the first place, and aspect in the second place (on the newer view aspect is again a category of its own, dominated by INFL), and mode and aspect markers in these languages follow the main verb, whilst the agreement markers partly follow the aspectuals and modals but partly are attached to the left of the main verb. The Haka Chin and Lushai cases are easiest, since subject agreement is uniquely of the latter sort, and it is only the object agreement markers that occur some in the one position some in the other. The fact that these two positions interact but that the aspectuals and modals (INFL type categories) have nothing to do with pre-main-verb position is enough to let one postulate that AGR is outside the domain of INFL. Furthermore, the fact that the agreement markers are found bracketing the verb complex as a whole suggests strongly at least that these markers do not constitute a distinct phrase structure category at all. Rather they must be attached by some sort of morphosyntactic rule to the verb/verb complex — to the main verb itself, on the left, and to the final inflexional ending, on the right. Conditions (α) and (β) of the Pro-drop parameter setting, consequently, simply do not apply. Examples:

4 (Laal). ka-ning pēē lāāṭ
I to-you give fut.

4' (Lushai). ka pee ǎng chē
I give fut. to you

But now it is necessary to show that all such AGReement markers, those in the pronominalising T-B languages and those in the pro-drop languages, subject and object markers alike, are in fact technically clitics. Problems of motivated definition arise at once. DeLancey calls subject and object agreement morphs simply affixes (in fact, he is chiefly concerned with the pre-verbal ones, which he calls prefixes). Chhange (1986:156 ff.) refers to them (but influenced there by me) as clitics. In the pro-drop languages, moreover, while no one denies that the object agreement morphs are clitics, the question has hardly even been raised for subject agreement, since it is closely merged with, and conditioned in its form by, the modal stem-formative morphs of INFL, though it is invariably a discrete final element of that 'ending.' If they have been called anything in particular, the INFL+AGR has been called an affix. But let us at least consider the category of clitics for them, if only in order to bring the subject and the object agreement system into a single category.

Hock (1986:87) defines a clitic, somewhat informally but usefully, as falling between the category of affixes and full words. But, like most of the authorities that have tried to give a precise definition (e.g., Zwicky 1985, Zwicky and Pullum 1983), he proceeds to talk about the matter chiefly in phonological terms, more particularly having regard to word accent. This tradition, I suspect, comes down to us because of the well known fact that in Latin clitics have a very definite and peculiar way of shifting the accent of the word they are suffixed to, without ever taking an accent themselves. It is not, however, as one can see by looking at the references just offered, all that useful by itself, and too much slips through the network of such attempted definitions of the category of clitics, with the unfortunate result that, for instance, in Chin-Lushai the preverbal agreement elements are easy to construe as clitics whilst the post-verbal ones are not. This is because (in these rigidly verb-final, head-attributive languages) the proclitics (if I may so call them by running ahead of my demonstration), uniquely amongst formatives in these languages, are not accented, more exactly, bear no inherent tone; they are assigned a pitch (high-level or non-high level) by the rule of tonal complementation: if the pitch contour of the following syllable ends high, the proclitic is low, and conversely. The post-verbal agreement markers have inherent tones of their own (cf. post-verbal *chè*, the agreement marker for a second person singular indirect object, in example 4', above — and note that I have not marked tone on the preverbal markers in either language). Similarly, as I have already mentioned, in many Romance languages, we are forced to dissociate the object agreement markers, as clitics, from the inflexional 'affixes,' or 'endings,' marking

subject agreement. This sort of thing is analytically messy at best, and it borders upon incoherency at the worst.

But consider, now, a salient fact about all these elements. Not only have they no phrase-structure category of their own, they all 'stand for' full words in Argument positions elsewhere in the sentence. In this they are all unlike other morphological elements of language variously called affixes and particles. It is therefore particularly important to see how, in the theoretical framework of current Government and Binding syntax, it is supposed that AGREEMENT really works. More especially, it is necessary to find out whether the two sorts of markers are accounted for by the syntactic mechanism of agreement. More particularly still, we must ask ourselves whether the object clitics, say in Romance, are or are not the result of some pronominalising movement rule out of the Argument position that these elements 'stand for.' This is because, first, there are some interesting reasons (Zwicky and Pullum 1983) for insisting that moved elements are not clitics. Secondly, it will turn out that the subject agreement markers cannot be the result of movement, so that if the two kinds of agreement markers fall under the same processes and fall into the same morphosyntactic category, either both are placed by syntactic movement rule, or neither is. In any case, one may see readily, as in examples (2) and (3), above, that the object agreement clitics do not require vacating of the Argument position of the object. This is crucial in view of the excellent reasons adduced (see Chomsky 1981) for supposing that the only real 'transformational' rule of syntax is a movement rule (no 'deletion,' 'copying,' or other such rules), and that, furthermore, if I understand the current position, Arguments can only move to 'landing sites' that are unoccupied terminal phrase-structure categories; verbs can (see, e.g., Pollock 1989) move to (contract with) 'auxiliary' elements (inflectional elements in particular, but also negation markers), and auxiliary verbs can similarly contract with Arguments — English 'I'll,' 'you've,' 'she's,' and the like, but arguments do not move to contract with anything. If this sort of theoretical idea is at all right, then, *a fortiori*, the object agreement elements of Romance and of Chin-Lushai, which alike, in spite of not looking clitic-like in accentual terms, seem to attach directly to their verbal neighbours and do not, in any case, require their respective Argument positions to be vacated. Example (cf. 4', above):

5. kěi in_ nǎng a? ka pe_ ǎng chè
 I (erg.) you to I give will to-you
 "I'll give [it] to you."

So, it seems as though our problem is now twofold: how do these agreement markers arise if not through movement out of Argument positions, and in what way might we argue successfully that the subject agreement markers of Romance are clitic? The latter question is readily disposed of. These elements, and they are *discrete* substrings of the inflexional complex, 'stand for' Arguments, and are, therefore, referentially co-indexed with them, rather in the way pronouns are co-indexed with their antecedents, if any (see Namtup 1989 for a splendid treatment of this whole issue). In fact, the real distinction is simply in the fact that pronouns arise in Argument positions and leave them only for approved landing sites. I shall then turn my attention immediately to the former question, which in fact also applies to pronouns, namely, if pronouns are base-generated in their respective noun phrases, as is now generally assumed, and if a pronoun has a determinate antecedent, as by 'control' or the means by which a bound anaphor (reflexives and reciprocals like 'each-other') has a determinate antecedent in its own clause or in the immediately superjacent one, how does the syntax determine that the pairing of anaphor and antecedent is correct? How does the index of reference on the pronoun (arbitrarily chosen) come to match that of the antecedent; how is it ensured that the appropriate person-and-number features of the pronoun meet those of its structurally determined antecedent? These are far from trivial questions, and the present paper is hardly the place for pursuing them in depth or in detail (again, see Namtup 1989) but something about the matter has got to be said here. This is the case if only because these questions are so poorly, murky treated in the bulk of the current syntactic literature; it is simply assumed that 'somehow' a pronoun, say, 'takes,' its reference and other such features from the antecedent (whether as above or by what I have earlier called pragmatic means) even though, with pronouns generated in the base, it is far more straightforward to suppose that any Argument selected comes with an index of reference already on it (the case is most strongly made for the non-specific pronominals like 'one,' and *pro* — see Lehman 1985, Lehman and Namtup 1986). A good instance of the opacity with which this sort of thing is treated is that of Napoli's (1989) treatment of coindexing generally.

The basis for a more explicit and coherent account of these matters is, fortunately available. The central idea is that the features of at least the head of a phrase category must be able to 'percolate,' i.e., move up through the higher nodes of the phrase structure tree so as to distribute over the entire immediate sub-tree of the phrase, and even over to more distant nodes in the tree. I have no reason to give the details of the proposal here, but the arguments for it were brought into Government and Binding theory by T. Nishigauchi (1987, especially chapter 3), mainly for the purpose of being

able to handle various sorts of agreement between terminal elements that may not be within the same clause or within the bounds of the very important syntactic principle of subadjacency. Two terminal elements of a tree are related within the confines of subadjacency just in case the clause, say roughly, of one of them is immediately within that of the other, so that no clause, or containing noun phrase, intervenes. Thus the relationship between pronoun and antecedent in (6), below, satisfies the subadjacency principle, and in 6' does not (see Chomsky 1981:56 ff.).

6. $s_1[John_i \text{ wants } s_2[pro_i \text{ to sleep}]]$

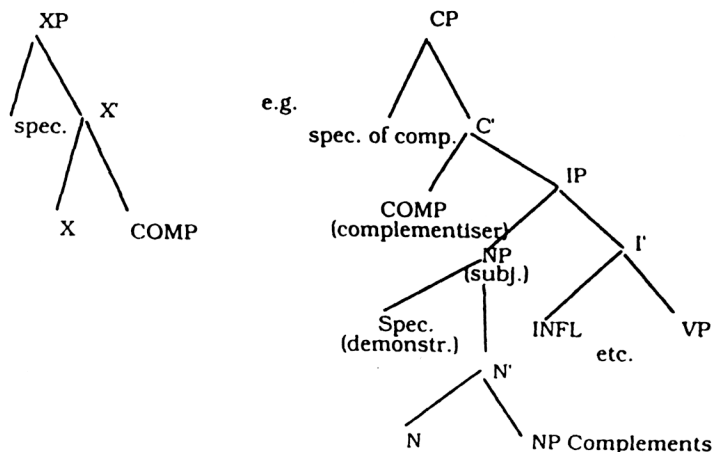
6'. $s_1[John_i \text{ thought that } s_2[it \text{ would be difficult } s_3[pro_i \text{ to feed himself}_i]]]$
 |.....|

The idea of feature percolation seems to have been borrowed, more or less, from the theory of Generalized, or Head-Driven, Phrase Structure Grammar (for which, see Sells 1987 and Pollard and Sag 1987, respectively). Since this idea seems, in some form or other, independently necessary for a variety of syntactic phenomena, we will do well to adopt it and apply it to the cases of AGREEMENT we are currently looking at.

If INFL contains AGR, and AGR subsumes, e.g., features of person and number, these features of person and number cannot in general have got there from the subject Argument position, since, in the usual pro-drop languages the subject position may be empty (*pro* of arbitrary reference, person, number, etc. — for its precise indexical specification see Lehman 1985b). So, it must be the case that the features go 'the other way,' that is, that the features start out on the clitic AGREEMENT marker, and since the clitic is morphologically part of INFL (in these languages) and INFL, on this *theory is the head of the Inflectional Phrase* X-bar category (IP), these features can go up to the IP node, from which, apparently from Nishigauchi's argument, they may spread, with few constraints of interest here, to other maximal X-bar categories and then down to their heads. If, in the case we are examining, the subject Argument is not empty we can say that the two match just in case the ones percolating in either direction do not meet those coming in the other in a feature contradiction (say, either a person or number mismatch, or both) — I am assuming the 'Barriers' (Chomsky 1986) version of X-bar theory with just two non-terminal phrase-category levels (projections of X), X' and X" (XP — X, one of the part of speech categories, N, V, P, Adj, and so on; with XP dominating the Specifier (Spec.) of the phrase plus X', and X' dominating the terminal head of the phrase (X⁰) Complement. I am also supposing that whilst the subject is not the head, but only the Specifier of the IP (clausal) category, the

features in it start out on the noun, or pronoun, itself, namely on the head of the NP in Spec. of IP. Nothing, however depends much upon this last assumption, and I shall pass along without making this discussion more complicated than it needs to be. The general scheme is:

7.



So, we must suppose that AGR Subject clitics in INFL represent the subject NP through the mechanism just outlined, and that, similarly, the more overtly clitic object clitics of Romance represent object arguments by having similar features percolate up from INFL, then down through VP to the possibly empty object of VP. In a very similar vein, in the Chin-Lushai case, and presumably the case of the other S-T pronominalising languages, the subject clitics attaching on the left side of V itself go up through VP, on up through to IP, thence down to the subject NP, possibly empty; and the object clitics attached at the right side of INFL, which, with the right-headed (left-branching) word order of these languages, will be on the right of V, will have agreement features that go up to *I'* (ultimately to IP, then) and thence down to the, possibly empty, object of VP (part of the VP Complement). Note particularly that none of the percolation pathways postulated above even violate subadjacency, assuming that subadjacency is defined only on 'bounding categories,' and that the bounding categories of these languages are just NP and IP or CP (for this distinction, again, see Chomsky 1981:141, fn. 41). From this viewpoint, we may even speculate

plausibly on the reason why the pronominalising T-B languages vacillate so wildly between left and right verb-string attachment in the case of both subject and object agreement. For, with the word order as stated, right attachment of the clitics has the consequence that the percolation path has to go through fewer maximal projections (phrasal categories) to intersect with those of the corresponding Argument position, but left attachment has the advantage of placing the clitics on the same side of the verb as the corresponding Argument positions, thus more consistently with overall word-order.

I believe that the above provides for a coherent account of clitic person and number agreement in the case of languages as otherwise diverse as the Romance pro-drop languages and the Tibeto-Burman pronominalising, free empty category languages. In particular, I have been able to argue that the latter distinction is of no importance for a proper account of agreement, i.e., that the mechanism is the same whether the clitic agreement elements are in INFL or attached to the main verb directly.⁵

Having shown, for more or less obvious cases of cliticisation, how clitic agreement works syntactically, I can now return to the matter of the classifiers and show that the same sort of argument not only provides a neat and coherent account of them but also goes a very long way towards resolving the question of the syntactic structure of enumerative expressions, and quantifier expressions more generally, in the classifier languages of Southeastern Asia. My chief concern will be with Burmese and Thai, as good examples of the differences that can exist amongst classifier languages with regard to the syntactic structure of quantifier expressions.⁶

⁵ It will ultimately be necessary, in this account of the pronominalising languages to determine whether V moves to 'Aux' (i.e., INFL) as in English, Romance, and so on; but even if it does the argument will have to be that, with the INFL formatives all right of V and the Chin-Lushai subject clitics all left of V, the subject clitics must have attached to V prior to any such movement. Otherwise we should fail to explain why these language remain free empty NP languages. In many T-B instances, there is massive evidence for this movement, since the INFLexional (aspect and mode) endings are certainly verbal suffixes, which is not obviously the case (on phonological-junctural evidence) for Laal or Lushai, but is the case for, e.g., Southern, N'men, Chin languages. This rather complicated question must be pursued in another context.

⁶ In the present paper I shall have nothing to say about, for instance, those many T-B languages, such as the Kuki-Chin languages, in which the classifier uniformly, and especially in cardinal enumeration, precedes (with vowel reduction, tonal complementation and other phonological accidents of pre-cliticisation — owing to quite general morphophonological processes reducing many non-final syllables of words — see Lehman 1973b) the number, but the matter is not without importance, since the prenumerical cliticisation of the classifier appears to correlate rather closely with the fact that bare numbers cannot be used, even in abstract

3. It will be convenient to begin with some elementary observations about enumerative expressions, and for present purposes I shall restrict myself to these, because although classifiers can be used with specifiers (articles and, with severe restrictions, attributives) and complements (noun complement/relative clauses) as well as with enumeratives in Thai, they can be used with enumeratives only in Burmese, and this seems the more wide-spread situation amongst Southeast Asian classifier languages in general.⁷ First, it is clear that cardinal numerical expressions, including non-specific cardinal 'numbers' like 'all,' 'many,' or 'some,' are not attributives in the usual sense. That is, they do not even *appear* to commute with predicates of relative clauses. 'Three men' is simply not commutable with 'men who are three,' even if the latter expression can be taken as a truncated version of 'men who are three in number,' itself a doubtful expression, since we would expect '[the] men, who are three in number,' that is with an appositive relative clause, as an image of '[the] three men.' For all this I have given the citations in my earlier (1985b) paper; at any rate it is certainly not the case that 'three men' is about men each of whom is 'three,' in the way 'good men' is about men each of whom is good. Ordinal expressions, on the other hand, construe semantically like complements, and I have shown elsewhere (1986) that the way ordinal expressions serve to partition/sub-set the sets named by their head nouns is exactly like the way relative clauses do the same thing: in plain language, 'the *i*th man' selects out a particular individual from the whole class of men, just as 'the good men' selects out the individual at the intersection of the class of men and the class of 'good things' in general. 'One man,' however, only lets you know the cardinality of the subset of men referred to, a subset selected/partitioned on some other, possibly unspecified basis. So, while it will not be surprising that I can show that ordinal expressions are syntactically part of the NP complement, it will be a matter of some difficulty to answer such questions as whether cardinal expressions are in the specifier, as perhaps most of the English facts seem to indicate, or not, as the Burmese and Thai facts show strongly.

Let me begin, then, somewhat arbitrarily, by considering Burmese cardinal expressions. I shall restrict myself to modern spoken Burmese and

counting recitation, without a classifier — which, by the way makes for quite evident complications in performing such ordinary calculations verbally as the subtraction of *change* (coins taking one classifier) from standard monetary units taken as bank notes (which take a quite different classifier) — what is known in English as the problem of adding, or subtracting, apples and oranges.

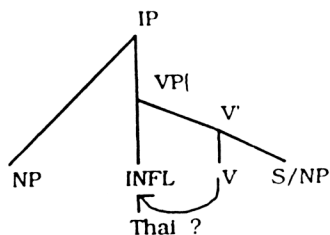
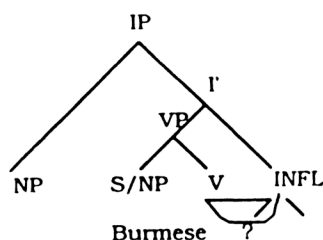
⁷ I am informed, by Claudia Ross, that Professor Zhu Dexi has recently encountered certain Southern dialects of Chinese where the general classifier *ge* is the general mark of modification between a noun and any of its modifiers.

the written styles that are not archaising, because the syntax of these expressions, indeed of expressions involving classifiers generally in older forms of Burmese seem materially different and remain for the present rather mysterious. I shall also restrict myself to considering only expressions that do not involve self-classifiers that delete head nouns (see above); this will have absolutely no effect on the analysis. The Burmese noun phrase is right-branching,⁸ and the order of its constituents is **spec., comp, head-noun**. Thus, for example

⁸ Any number of central issues in the application of GB theory to these languages hang upon this matter. I think they are worth addressing, however summarily (see note 10) — inescapable, perhaps. Consider the usual, somewhat vague view that postulates a close parallelism between V-Argument word order, a tendency towards right-, or left-branching phrase-structure sub-trees, and a tendency towards head-modifier/modifier-head order. There is a good discussion in Hock (1986) of the fact that perhaps no language shows this sort of correlation at all perfectly. In note (8) above, I point out that some attachments to XP are modifiers/predications, and some are not (and that spec. of NP at any rate contains elements that fall less easily into the class of modifiers/predications, than does comp. of NP. It may well be the case that there exists a close correlation, maybe even an identity, between this and the fact that, for instance in Burmese, whilst Arguments of verb phrases and predications of these Arguments are rigidly placed, left-branchingly, before the head of the maximal phrase, and the VP, the verb above all, precedes INFL as a left branch from I' (see Lehman 1986 for the related argument that the auxiliary verbs in INFL are, *notionally* main verbs), numerical expressions follow the head noun (as *right-branching* adjuncts of NP — see below). Also, that, in Thai, strictly right-branching with respect to modifiers and even quasi-modifiers in the NP, the INFLexional phrase (IP) is right-branching only with regard to elements that are logico-semantically strictly predications/modifiers of their respective heads: objects and other complements of the verb, and the verb phrase itself with respect to INFL — at least regarding modals, which appear always before the verb, which can be taken as a predication of the modality, whilst (after movement of the verb up to INFL? — cf. Pollock 1989) the aspectuals within INFL, plausibly seen as modifying the verb, follow it (Tasaneer 1984).

I must, however, point out that the arguments of my 1973a paper in favour of the view that Burmese, a verb-final language with relatively free word order amongst all the preceding Arguments, has the relatively 'flat' phrase structure of a so-called non-configurational language (see discussion in Chomsky 1986), specifically lacking VP, must now be superseded by the present arguments appealing to the current version of X-bar theory with all its motivations from the standpoint of the way the phrase structure serves to provide the link between the semantic thematic structure of lexical items and the syntactic argument structure (see Chomsky 1986 and, now, especially Napoli 1989 on these issues, particularly concerning the 'projection principle' in GB theory). After all, the word order is at best only relatively free; the SOV order is far and away the least marked/default one. The part of my older argument that appealed to the fact that in Burmese the object can be separated from its verb, as in English it cannot for instance, by all sorts of adverbial material now seems to have little force as a principle for deciding constituent structure than it did at that time, especially in view of the variability of where adverbial material may be positioned by adjunction (see, again, Napoli 1989): perhaps it is just that in Burmese one can have V-adjuncts, but in English only VP adjuncts. I am unable at present even to think about this productively. In the final analysis the facts addressed in my 1973 paper (which I shall not recapitulate here), may come down to no more than this: that adverbials, being less centrally than objects complement arguments of a verb (see Napoli 1989), and subjects (preeminently the 'external' arguments in the sense of Williams 1984 — see Napoli's 1986 discussion of the subject-Argument position) can be marked

9.

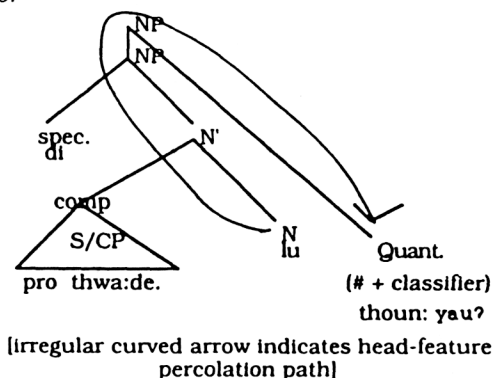


The cardinal enumerative expressions, however, go neither in spec. nor in comp. of NP; in fact they come strictly after the head noun. Furthermore, the intonational facts¹⁰ indicate unambiguously that the enumerative is some kind of an appositive, or parenthetical element. This is no place to argue the theory of abstract syntax, but it is an inescapable proposition in the present framework that appositives are **adjoined** to a constituent category, and the accepted form of adjunction is that adjunction to X^1 (X any syntactic category, 1 any of the three X-bar levels, 0/ X^0 , 1/ X' , or 2/ XP) creates a duplicate X^1 node that immediately dominates the adjunct (see the discussion of this process in Chomsky 1986). If the NP constituent structure is as in (8), then the structure of (9) must be (10).

9. dl thwa:de. lu thoun: yau?
 ၃ သွားတယ် လူ ၃ ရောက်
 ၃ class.

¹⁰ The tone of the head noun takes its phrase-final form and it is impossible for a classifier that ends in a voiced segment to voice the otherwise unvoiced initial of the immediately following number; in speech of an even moderate speed there is a distinct pause before the enumerative, a pause that is not possible in 'unbroken' speech between spec. and comp., or either and N.

10.



This is where we might expect an adjunct to be on the comparative evidence from sentence adjuncts; in this otherwise rigidly verb-final language, appositive attachments to a sentence as a whole come immediately after the sentence and with the same intonational pattern. E.g., (with an omitted subject filled in as an after-thought)

11. thwa:me, kyun-do ha
 သွာ: မယ် ၊ ကျန်တော် ဟာ ။
 go fut. I as-for
 '[I'm] going. [uh!] I am.'

There are a few things about the proposed structure (10) of cardinal enumeratives to notice. First, the terminal category of the expression has been labelled **Quant** and it meets the conditions for being what I have said (note 10) is a minor category. This has not been an idle choice of labelling. There is no reason to think that number and other cardinal-type quantifiers ('some,' 'any,' 'most,' even 'all,' and the like) are of any other category (N, Adj, V, Prep). They are not adjectives because, as stated, 'five books,' is not 'books which are five.' The counter-evidence to this claim, namely the existence of expressions of the form 'The men were few in number/five in number' is not sufficient (or even sufficiently clear) to force us to think that the quantifiers in this kind of sentence are predicate adjectives. That they are also not verbs or prepositions is so obvious it needs no illustration. Though numbers may have some noun-like properties (chiefly specialised idioms like 'The Jackson Five,' 'The Chicago Seven,' 'the many exceed the few,' 'the nine of them'), it is reasonably sure that in general numbers cannot take articles and are not the heads of noun phrases on any sensible

construal. In fact, the Burmese evidence that I shall now proceed to adduce offers a plausible account of the noun-like surface properties of cardinal numbers.

Consider the classifier cliticised onto the number (the integer) by means of head-feature percolation from the head noun. It serves to turn the purely numerical integer into something with noun-like properties, something with certain nominal features. Indeed, we may plausibly, and conveniently translate the Quant. into something roughly on the order of 'three ones'/'three units' (in the sense of unit-integers of the numerical base 10). This is confirmed (see details in Lehman 1979) by the fact that, as seen above, we count 'rounded numbers' of things in order of magnitude groupings (tens, hundreds, thousands, ten-thousands, hundred thousands and so on), where the head of the noun phrase always has the optional shape $N+N_{om}$ (om , = 'order-of-magnitude,' i.e., an integral power of the base). These, of course, are true nouns, as in English, we have 'a hundred/ thousand/ dozen/ score' and the like. So, subsets of thousands of men are counted, as is everything counted, with just the true numbers 1-9 (the logical syntax of zero is too complicated to deal with here), to which the head features representing the order of magnitude 10^3 are attached by feature percolation. Or, in the general case, where the actual head of the noun phrase has no such overt N_{om} attached, no problem arises, owing to the fact already adduced, that lexical nouns in general are not inherently marked for number. There will be no head features going over to Quant. that can contradict the order-of-magnitude features already inserted there from the lexicon. In the case of counting units, similarly, the classifier is a clitic (probably a empty, pro-element) equivalent to *hku*·, 'unit-element' and it combines with the head-features of the lexical head noun to form the overt 'classifier.' There can be little, if anything, further to say about the Burmese cardinal numbers. That some cardinal pluralities are 'inexact' causes no difficulty, for the (possibly covert) head noun may contain features for that, in which case, attached to the integer $t1?$ /တစ် ('one') under Quant, we get, $tachou$:/တချို့: ('some'/'a [vague] plurality'), and so on. Similarly, it is unproblematical that integers in English, say) can also be used nominally as names for sets of the given cardinality (a four of clubs, The Twelve — see above).

I pass along then to Burmese ordinal numbers. It is well known that Burmese makes a somewhat awkward job of expressing ordinals. Small ordinal numbers are no problem ('first' through 'fifth,' anyhow, and for more educated persons, 'first' through 'tenth') because the ordinal words are borrowed from Pāli (an Indo-European language) as straightforward adjectives that are nearly always proposed to the noun in spec. of NP, but are

perfectly capable of being treated as predicate nominatives in relative clause (comp. of NP). Thus

12. ta.ti.ya. sa-ou?
 တတိယ စာအုပ်
 third book
- 12' ta.ti.ya. hpyitte. sa-ou?
 တတိယ ဖြစ်တယ် စာအုပ်
 [pro] 3rd which-occurs
 book
 "a book that comes third."

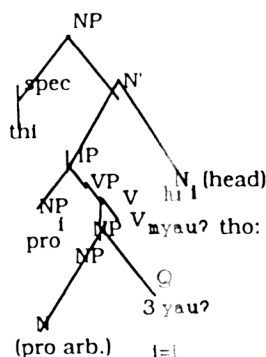
Otherwise, however, one must employ, borrowing from a literary construction, as will be seen, a circumlocution that turns out to be simply a relative clause modifying the noun being ordinarily quantified, but one that is generally truncated in colloquial usage (the literary marker of relativisation is left off, though its presence is perfectly acceptable). In this form, (12') becomes

13. thoun: ou? myau? (tho:) sa-ou?
 သုံး အုပ် မြှောက် (သော) စာအုပ်,
 3 cl. raise -ed book.

where *ou?* is the classifier for books, *myau?* is the verb meaning something like 'to be raised to a higher amount/level,' and *tho:* is the relativising form of the literary realis-mode verbal ending *thi/သည်* (see Lehman 1985c) and not any sort of 'complementiser.' Thus, the phrase-structure of the literary form for 'this third person'

14. thi thoun: yau? myau? tho: lu
 သည် သုံး ရောက် ရောက် သော လူ
 this 3 cl. raise - -d person

will be, as nearly as need be, where the downstairs verb requires that its two arguments be of the same class, thus ensuring that the classifier in the cardinal enumerative adjunct of its second argument be appropriate also for the head noun of the construction, referentially identical to the downstairs subject.



It remains, so far as Burmese is concerned, only to say something about the relation between that language's placement of cardinal enumeratives in an NP-adjunct and the English, and no-doubt general European language, placement of these phrases, as it seems, in spec. of NP. So far as English is concerned, the evidence is not wholly satisfactory, but on balance one must conclude that cardinals are indeed in the specifier. The only clues I can think of to go upon are the very uncertain phonological-junctural ones. One the one hand, it is quite common to have a fairly major intonational pause between a cardinal number and the preceding article/demonstrative, as in the standard way of saying

15. my, three, sons
these, five apples

and this might be taken as evidence that the number is parenthesised, hence, an adjunct. But one may not overlook the fact that at least most of these phrases can be said without the pause in question (the second of the above is harder that way than the first), and some of them, e.g. with just the definite article, allow no such pause at all. From the last fact, especially, I feel forced to conclude that the cardinal expressions are within the specifier and not a parenthesised adjunct.

I take it that the evidence is conclusive, however, for the Burmese adjunct placement. What is interesting, nevertheless, is that the NP adjunct is known to have an especially close functional and morphosyntactic relation with the NP specifier. I will not take time or space to outline the evidence for this point here, but merely refer the reader to my paper on ergativity in

older Burmese (1985c), where I show that the nominative/absolute case is marked precisely on the NP adjunct with an at least partial copy of the demonstrative, a phenomenon found again in Chin and Lushai. I now think *it is possible that something rather like feature-percolation* may be the means for this 'copying' too, but no systematic research has been done on the question. The problem is that the only evidence for feature percolation, so far, is for head-feature percolation, and whilst the head noun is the head of its maximal noun phrase, and the terminal element of the NP adjunct is, on the same grounds, functionally a head (it heads the adjoined NP, and is indeed the source of that added NP), the features of the specifier do not belong to any kind of head. That, however, there seems to be an especially close relation of some kind between NP specifiers and NP adjuncts rather generally is also seen in the fact, to be mentioned below, that in, for instance, Thai, the least-marked/default order of constituents in the noun phrase is the one in which the cardinal enumerative is not only immediately adjacent to the specifier, but also not classifier-marked independently of the demonstrative.¹¹

I now pass, finally, to a consideration of quantifier expressions (in the broad sense) in Thai, and to begin with, Thai cardinal enumerative phrases. It is necessary first, however, to make several general observations about the structure of NP in Thai and the problems of the substantive evidence for its elucidation. In Thai, though not in Burmese or Chin-Lushai, a classifier can, in certain circumstances, introduce specifiers and/or complements of the noun phrase. The general rule (see Namtip 1989) seems to be that a classifier can appear more than once in an NP just in case there is no cardinal quantification expression, but if there is one it will, alone, 'attract' the class classifier. There are conditions, discourse conditions it seems, in which even then the classifier need not be used, but this is not the place to discuss such matters. However, I shall make the somewhat idealized assumption that it is obligatory with a cardinal number; at any rate, with a

¹¹ This is probably also a good place to make a point first made by Namtip Pinkarawat in her thesis (1989). She develops, for the way in which certain 'co-verbs' in Thai, such as benefactive

hǎj/ไห้, must have all the Argument positions they share with the matrix verb filled by coreferents of those Arguments of the main verb. Arguing that the theory of 'Control' cannot coherently accommodate an account of this fact, she goes on to postulate a process she has called Argument Inheritance, a process that she suggests is driven by head-feature percolation, in this case of the subcategorisation and selectional features, from the verb as the head of VP. In the course of her demonstration, she is forced to conclude that the clauses that are subject to Argument Inheritance are always clauses outside the domain of the processes of Binding and Control from the matrix clause, and that these clauses are, therefore, adjuncts to the main clause. She therefore suggests that there may be a special affinity of adjuncts for the effects of head feature percolation, though neither she nor anyone has yet pursued this suggestion — a suggestion made more interesting potentially, in the light of the present paper.

head noun position, or, if a lexical noun is in head position, percolation from either direction acts as a filter to ensure that the NP is well formed only if the features 'match'.¹²

The Thai ordinal enumeratives leave little to be said. With one marked exception, the classifier always appears prefixed to the word *thîi*, and once again it is easy to suppose that the latter is in apposition with the head noun and, when suffixed with a number, gives the meaning 'ith.' However, the word order, on this view, makes no sense in Thai whatever, for the classifier is not attached to the number word. Rather, we must suppose that the number word is the predicate of a (truncated ?) complement clause to the head noun, thus:

18. [NP [NP hû chaay] [comp. of NP khon C_{PT} hîi [pro sǎam]]
 မှု ဘု ကု ဟီ သံ
 man class. comp three
 "[the] third man"

4. Having made this last point, I think I have exhausted the subject of the present paper, and it remains for me simply to reiterate the main contentions of the paper. The so-called noun classifier, or numeral

¹² In Shan dialects, by the way, a relativised direct object in a complement clause is allowed freely to surface as a 'shadow pronoun,' *man*, for animate and inanimate nouns alike; and if the head noun, say *kon* 'person' is inserted together with its doublet *ko* (which is otherwise the classifier for ordinary human beings) the default general classifier *an* can appear as a proclitic in the complementiser of the complement clause (or, it may be that the classifier actually occurs in spec. of comp., if there is an overt complementiser in head of comp., but this is at odds with the general evidence favouring the view that the classifier is always a clitic, i.e., has no independent (minor) X-bar category of its own. These questions certainly demand further investigation. I have just written of the lexical insertion of a noun together with its doublet, that is, together under a single N^0 node. The Burmese evidence on this matter is interesting. Consider adjectives supposedly attributive to a head noun. Actually (see Okell 1969:49-50 for a good discussion), these are not true attributive adjectives at all (there seem not to be any such things in Burmese). Rather, they are phonologically contracted compounds of two nouns, one of which (it may be the preceding or the succeeding member) is an adjective nominalised with preclitic prefix *a/ဘ* (Lehman 1975b). So, for instance,

1. lu-gaung:
 လူကောင်း:
 person-good
 good person

is quite uncontroversially derived by contraction from *lu akaun*: လူဘကောင်း, 'man, a good-one.' Okell's interesting discussion of the subtle differences of construal as between the 'open' and the 'contracted' form, (the adjectival noun can contract with the noun proper only if it follows the latter) are beyond the scope of the present discussion, but in a general way it remains the case that compounds of noun and nominalised adjective, contracted or not, tend to signify a 'tighter,' more 'inherent' class relationship between the two than is signified by a noun with a relative clause having an adjective for its verb.

classifier, is not in any way part of a comprehensive scheme of classification of the world and experience. It is rather a fairly loose system by which agreement is marked, with a clitic, between a head noun and a number (in Thai, a head noun and one or more of its constituents and adjuncts). The means by which the clitic is selected involves the mechanism of head-feature percolation, a mechanism independently motivated by a proper theory of the way the whole complex of nominal arguments is inherited by adjunct clauses from the matrix clause (Namtip 1989). The apparent motivation for the pervasive use of classifiers seems to have at least something to do with the fact that (most) languages employing them systematically (and Thai and Sino-Tibetan languages in any event) have nouns unmarked for number (the bare noun stem is no more singular than plural), referring to the sense, alone, of the semantic class. The syntax of the classifier expressions has been presented, and argued for, in some detail above, and in particular it has been shown that cardinal numerical expressions in these languages are adjuncts of the noun phrase (right-external, in Tibeto-Burman languages, NP-internal left-adjuncts of N or N', in Thai — probably because Thai word order motivates left-adjuncts only, but nothing may precede a head noun). Ordinal enumeratives are relatively unproblematical: they are NP complements — relative clauses, essentially, in these languages.

Finally, it should be easy to see that my proposal needs at worst only trivial modification to accomodate it to the current MIT idea (see Mahajan 1989; cf. also Pollock 1989 in the same general spirit) that AGREEMENT is quite generally an instance of specifier-head agreement. That is, let AGR be an AgrP-head, the percolation works up to that maximal projection, of which the subject NP is indeed the specifier. And I have already argued that, really, the features go up in that direction, as must be the case with the possibility of empty subjects, anyhow.

In the case of verb-object agreement, see Mahajan. In the case of the classifiers that AGREE with the head noun in class-features (via percolation, still, as the mechanism), it is already indicated (see the discussion of Burmese (and T-B) classifier placement) that my NP-adjunct position has a privileged relationship (positionally and otherwise) with specifier of NP, so that there is little, in the present state of our understanding, to choose between the notion of this sort of adjunction and the idea of, in some sense a split specifier (in T-B, at any rate). Therewith, if the relevant features percolate from the classifier, as again is necessary in the case of empty head nouns anyhow, then it is, once more, spec.-head AGREEMENT, and, within the intended sense, strictly local, as Mahajan's argument requires. This leaves just the Thai case as a real, though I think, hardly insoluble problem; for, I have proposed that the quantifier phrase, in Thai, is internally/parenthetically adjoined to N', but by a trivial extension of the previous

reasoning about the privileged relationship between specifiers and max.XP adjuncts, it is easy to suppose that there is a sufficient relationship to provide a principled account of the AGREement facts between head noun and classifier-clitic, whilst remaining well within the spirit of Mahajan's argument and the more general arguments along the same lines of Chomsky (1989).¹³

¹³ This paper was originally presented to the 22nd International Conference on Sino-Tibetan Languages & Linguistics, at Honolulu, in October of 1989. I am especially grateful to Jim Matisoff, Scott DeLancey and others at that conference, and to my graduate student, J. Fraser Bennett, for comments and suggestions that, I hope, have led me to improve the paper and remove numerous errors, inconsistencies, and obscurities of the original version.

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