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LSA Syntactic Analyticity
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Analyticity in the nominal domain: classifiers and the structure of DPs in languages of Southeast Asia

Focus of interest: variation in DP-internal syntax in Southeast Asian languages:
• many language families (Tibeto-Burman, Tai, Austronesian, Austroasiatic), different typological properties

• random and unconstrained ordering of elements?
• often not in line with general headedness/direction of selection:
  e.g. Thai/Khmer head-initial SVO but seem head-final in DPs (due the final occurrence of the heads Num, CL, and Dem); head-final Burmese seems to have a head-initial Dem/D;

(1)	Thai, Khmer:	N	Adj	RC	Num	CL	Dem
(2)	Burmese:	Dem	RC	N	Adj	Num	CL
(3)	Hmong, Malay, Vietnamese:	Num	CL	N	Adj	RC	Dem

• What is responsible for the diversity, and is there a common structural base? How could such a base be identified?

Discussed based on: Simpson, Andrew. 2005. Classifiers and DP Structure in Southeast Asia.
    In *The Oxford Handbook of Comparative Syntax* 806-838

Classifiers as important clues to the internal structure of DPs

(1) The status of classifiers
• two different views:

> (a) numbers and classifiers instantiate distinct functional head positions, Num and CL (e.g.
>   Pan 1990, Tang 1990):
> (b) numbers and classifiers comprize a single functional head CL/Num/Q
>   (e.g. Kawashima 1993, Muromatsu 1998)

Gil (1994), support for position (b):

> (i) numbers and classifiers commonly occur together as a single *uninterrupted* sequence.
> (ii) numbers and classifiers in many languages pattern phonologically as a single unit
>   the classifier is affixed to the numeral
> (iii) in some languages, the number+classifier sequence can be separated as a unit from the
>   rest of an NP (Num-CL floating)

(4) nay-ka **chayk-ul** ecey **sey-kwon** ilk-ess-ta   Korean
     I-NOM book-ACC yesterday 4-CL   read-PAST
     'Yesterday I read four books.'

(5) saouq-kou canaw mane-ka thoun-ouq we hke pa te.
     book-ACC I   yesterday 3-CL   buy DIST POL REAL
     'I bought three books yesterday.'

Support for position (a):

   (i) two distinct morphemes   two distinct heads; classifiers in SEA languages are
        phonologically unreduced   independent functional words not inflectional affixes

   (ii) classifiers are *functional* elements with the primary semantic function of *individuating* NPs
        (Muromatsu (1998), Cheng & Sybesma (1999), Li (1998a/b/1999) and others); the
        individuation function of classifiers is distinct from number specification provided by
        numerals

Effects of (ii): Vietnamese, Hmong, Nung: classifiers occur alone without any numeral, simply
functioning to individuate the NP:

(6) **tus** tsov tshaib tshaib plab
     CL tiger hungry hungry stomach
     'The tiger is/was very hungry.' (Hmong, Jaisser 1987)

Numerals occurs without any classifier when numeral specification is vague and individuation is not
(necessarily) implied or focused.

   (a) **Nung** and **Burmese**: classifiers optional with numbers which are multiples of ten
   (b) **Jingpo** classifiers often omitted with numbers over ten
   (c) '**Thai** classifiers do not occur with large numbers like 1000 unless individuation is implied'
       (Aikhenvald (2000), p.100)
   (d) **Malay** classifiers omitted when approximate and vague numeral reference is made, no
       specific individuation Hopper (1986):

(7) adalah **dua tiga pondok** kechil-kechil bersama-sama dekat rumah Temenggong
     be   **2 3   hut**   small   small   together   near house Temenggong
     'There were **two or three small huts** close together near Temenggong's house.

   CL and Num perform distinct formal functions   separate syntactic heads

Also: **Nung** (Tai): number 'one' not adjacent to classifier: CL N Num[one] :

(8) an   **ahn tahng nuhng** ma
     take **CL chair one**   come
     'Bring a chair.' (Saul & Wilson 1964)

Ejagham (Benue-Congo): all numbers non-adjacent to CL:

(9)   a-**mege**   '   i-cokud   a-**bae**
        NC-CL   GEN   NC-orange seed   NC-two
        'two orange seeds' Watters (1981)

   distinct functional head positions

Languages where (certain) adjectives occur between Num and CL   Num and CL not a single functional head:

(10) a. yi   xiao ben shu   b. liu da jian xingli
         one small CL book   6   big CL luggage
         'one small book'   'six big pieces of luggage' T'ung & Pollard (1982)

(2) Headedness and directionality in the DP.

If Num and CL are separate heads   important consequences for analysis of DP-structure
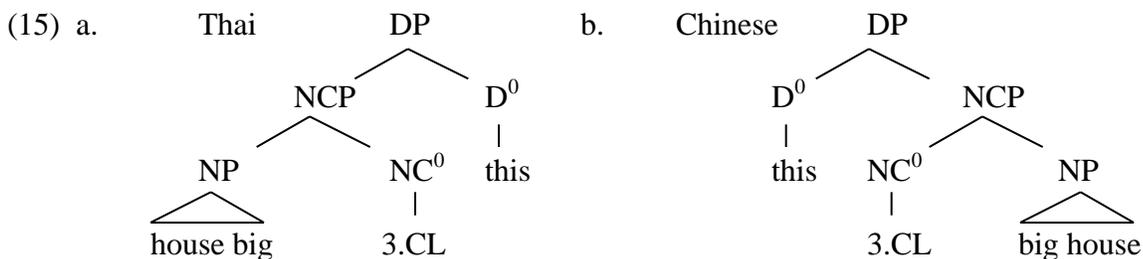
(11)   Thai: [$_{DP}$ N   Adj   Num CL Dem]
(12)   Chinese: [$_{DP}$ Dem Num CL   Adj N]

(13)   baan   yai saam lang nii   Thai
        house big 3   CL this
        'these three big houses'
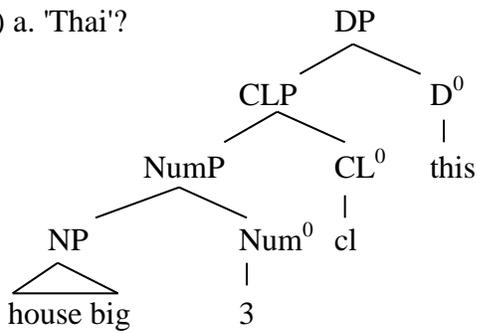
(14)   zhe san suo da fangzi   Chinese
        this 3   CL big house
        'these three big houses'

If Num and CL a *single* head "NC^0"   (9) and (10) mirror images of each other
   (10) base-generated head-initial DP; (9) base-generated fully head-final DP

(15) a.   Thai   DP   b.   Chinese   DP

                    NCP   D^0 D^0 NCP

               NP   NC^0 this   this   NC^0 NP

          house big   3.CL   3.CL   big house
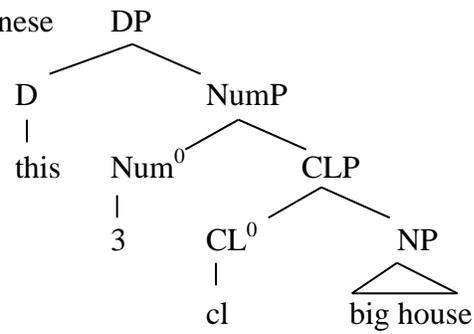
BUT if Num and CL different heads   (11) and (12) cannot *both* be base-generated
(12)   Num higher than CL; (11)   CL higher than Num

(16) a. 'Thai'?

```
                    DP
          CLP            D⁰
     NumP      CL⁰       |
  NP      Num⁰ cl       this
house big    |
             3
```

b. Chinese

```
              DP
      D              NumP
      |        Num⁰        CLP
    this        |      CL⁰      NP
                3       |
                        cl    big house
```

• common assumption: Num higher than CL: nouns first individuated by a classifier, then quantified over by a numeral/other quantifier
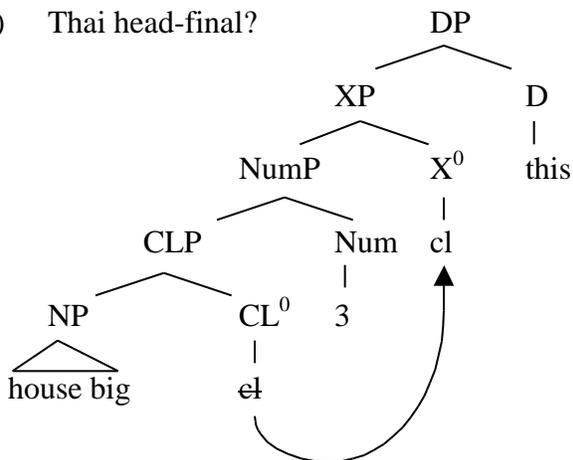
    Thai order in (11) not simply base-generated; in a "pure" head-final DP one expects the ordering: [N CL Num Dem] with Num selecting CLP to its left.
    must be some movement-distortion in (11)
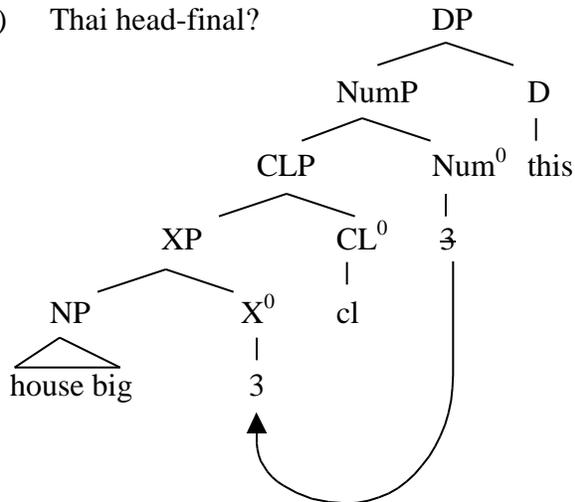
• 3 possibilities:

      (i) the Thai DP is head-final (though Thai is elsewhere head-initial)   [N Num CL] from movement of CL to a higher rightward head position above Num, i.e. [N t_i Num CL_i]
        BUT: should violate Head Movement Constraint

(17)   Thai head-final?

```
                        DP
              XP              D
        NumP       X⁰        |
   CLP       Num   cl       this
 NP    CL⁰    |
house big |   3
          cl
```

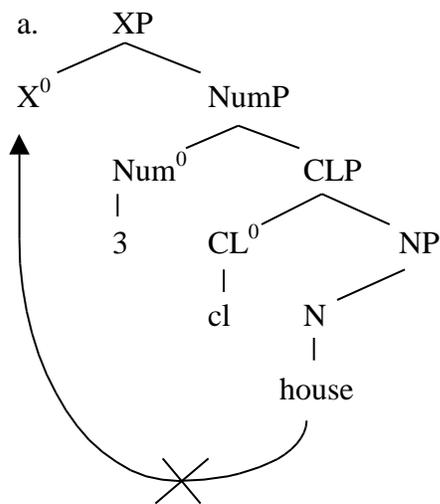   (ii) [N Num CL] from lowering of Num to a position below CL, i.e. [N Num_i CL t_i]
        BUT: barred due to lowering

(18)   Thai head-final?

                                    DP
                          NumP   D
                                            |
                    CLP   Num^0 this
              XP   CL^0 $\bar{3}$
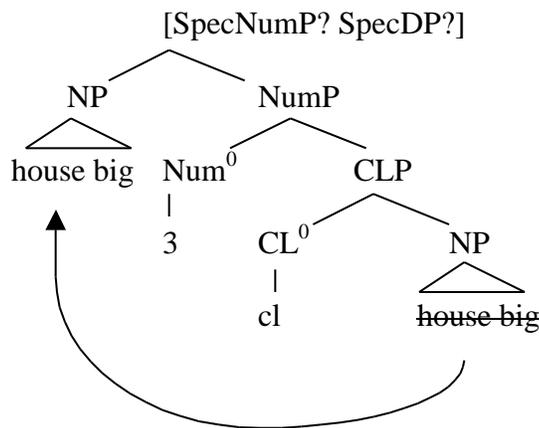   NP   X^0 cl
      house big   3

(iii)   assume Num and CL do not change positions   the Thai DP is head-initial and N
         moves leftwards from position to the right of CL; as N-raising should be blocked by the
         HMC + because adjectives and relative clauses intervene between N and Num^0 CL^0 as in
         (1),   assume movement of NP:

(19)   a.   XP   b.   [SpecNumP? SpecDP?]
         X^0 NumP   NP   NumP
                 Num^0 CLP   house big   Num^0 CLP
                  | |
                  3   CL^0 NP   3   CL^0 NP
                         | |
                         cl   N   cl   ~~house big~~
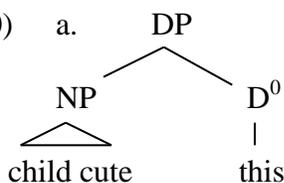 |
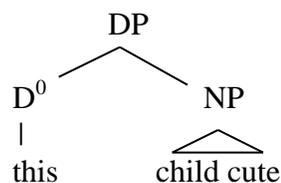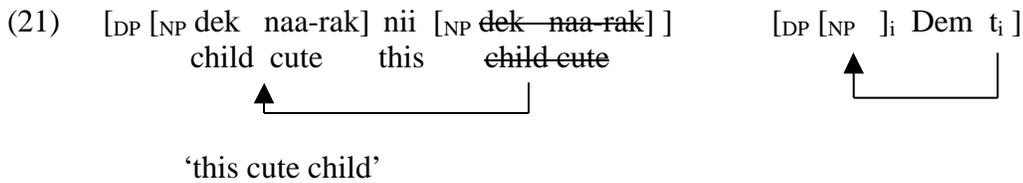   house

• same conclusion of NP-movement also forced by Dem position: if Thai head-initial + only one
direction of selection per language   DP-final Dem either in D^0 and NP complement raised leftwards,
or DEM in leftward SpecDP and NP raised leftwards:
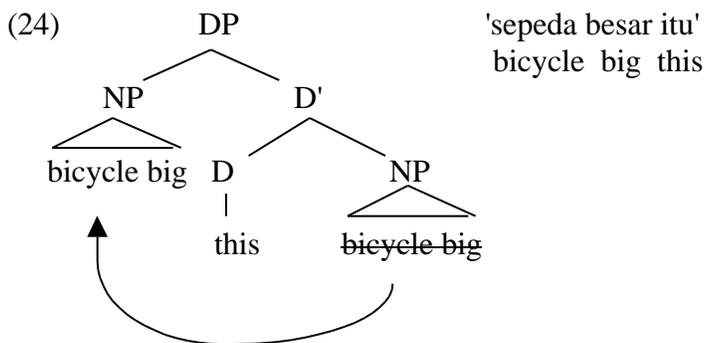
(20)   a.   DP   b.   DP
         NP   D^0 D^0 NP
                      | |
      child cute   this   this   child cute

(21) [$_{DP}$ [$_{NP}$ dek naa-rak] nii [$_{NP}$ ~~dek   naa-rak~~]]   [$_{DP}$ [$_{NP}$]$_i$ Dem t$_i$]
         child cute   this   ~~child cute~~

         'this cute child'

Other head-initial SEA languages with DP-final Dems: **Hmong**, **Vietnamese**, **Indonesian**.
    need DP-internal NP raising with these languages too
PLUS NOTE: these languages are otherwise regularly head-initial *inside* the DP (Num>CL>NP):

(22)   tiga buah sepeda besar   (Indonesian)
         3   CL   bicycle big
         'three big bicycles'

(23)   NumP

         Num   CLP
          |
          3   CL^0 NP
                  |
                  cl   bicycle big
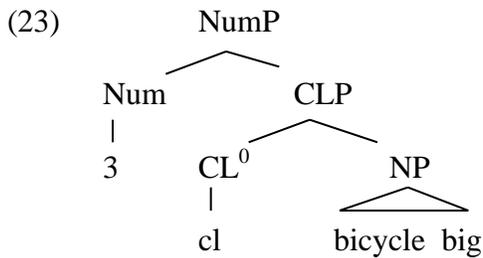
DP-final Dem is sole exception to head-initial pattern   assume due NP movement

(24)   DP   'sepeda besar itu'
                                            bicycle big this
         NP   D'

    bicycle big D   NP
                  |
                 this   ~~bicycle big~~

Because the conclusion of [$_{DP}$ [$_{NP}$]$_i$ Dem t$_i$] is well-justified for Hmong/Vietnamese/Indonesian,
adds extra plausibility to the [$_{DP}$ [$_{NP}$]$_i$ Dem t$_i$] analysis of Thai.

• ALSO NOTE: **Nung** (a Tai language related to Thai) has parallel ordering of elements in the DP
(and elsewhere) as standard Thai, with the exception of NUM and CL, which *precede* the N:
    Nung shows suggested underlying order of Thai:

(25)   Nung (northern Tai): **Num CL** N Adj
         Thai (southern Tai):   N Adj **Num CL**

To allow for both Thai and Nung   need some kind of movement. Most natural to assume NP-movement occurs in standard Thai.

• FURTHER SUPPORT: DP-internal NP-movement occurs in other languages: **Indonesian** neutral order [Num CL NP Dem] sometimes occurs as [[NP]$_k$ Num CL t$_k$ Dem]:

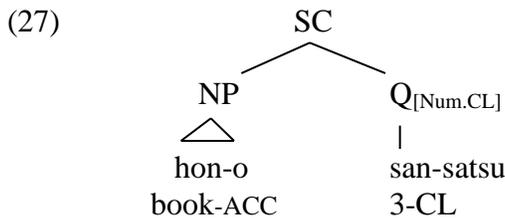(26)   maka adapun mengerjakan [**lobang sa buah itu**] sampai lima enam hari
        and   indeed make   **hole   one CL that** took   5   6   day
        'Indeed it took 5 or 6 days just to dig that one hole.' (Hopper 1986, p317)

Similar alternations in **Vietnamese**: neutral order [Num CL NP]   [NP$_k$ Num CL t$_k$] in poetry/literature and 'inventory forms' (Nguyen 1997).

• **CONCLUSION**: Thai is regularly head-initial in DP. Surface forms result from NP-movement.

An alternative possibility to NP-movement: NUM-CL as a predicate to NP

Muromatsu (1998) Num and CL are not functional heads selecting NP, but make up small clause *predicates*, predicating onto NP subjects within DP.

(27)   SC
                       ╱   ╲
                 NP   Q$_{[Num.CL]}$
               ╱╲ |
              hon-o   san-satsu
             book-ACC   3-CL

    [NP [Num CL]] structures can be base-generated without movement.
• support for the 'predicate' theory: numerals and certain quantifiers can occur as predicates:

(28)   a.   the apostles were twelve in number
        b.   they are many (in number)

(29)   mie-guo-zhe   wu-shi   Classical Chinese
        destroy-country-NZL   50
        'His extinctions of countries were fifty.' (Meng 3B/9)

However, only *weak* not strong quantifiers can occur in subject-predicate structures:

(30)   *the men are all/each

But in Thai, Num allows both weak *and strong* quantifiers:

(31)   dek   soong khon / laai khon / thuk khon
        child   2   CL   several CL   every CL
        'two children/several children/all the children'

as strong quantifiers can occur   cannot be a subject predicate structure
Such strong quantifiers are impossible as predicates in Thai:

(32)   *dek-law-nii thuk-(khon)
         child-group-this every-CL
        intended: '*These children are all/every.'

    assume DP-internal NP-movement analysis instead

(3) What causes DP-internal NP-movement?

• Greenberg (1975), Gil (1994) and others: sequences of N/NP > numeral/classifiers often occur in **written list** or **'inventory'** forms + when people are involved in situations such as **buying commodities** in a store and **placing orders for food** in a restaurant.

Generalization: if both [Num CL NP] and [NP Num CL] are possible in a language (e.g. in Indonesian, Vietnamese)   [NP Num CL] occurs preferred in lists or buying/food-ordering situations and often only occurs in such situations.

NB: [NP Num CL] also occurs as a conventional way of itemizing elements in written shopping lists in English which otherwise do not permit such orders, as shown in (34):

(33)   saya mau membeli beras dua kilo
        I   want buy   rice   2   kilo
        'I want to buy two kilos of rice.'

(34)   Sugar, 3 pounds
        Bread, 2 loaves
        Wine, 4 bottles

[NP Num CL] orders are very widespread, and occur throughout the major classifier languages in Asia, either as the ONLY possible ordering (Thai, Khmer, Burmese), or as alternatives to [Num CL NP] orders in certain situations (Indonesian, Vietnamese, Chinese, Japanese, Korean).

Why?

• Possible functional answer: placing NP before Num/CL is a natural/useful way of ordering this information in certain types of *presentational* situations   information about the identity of the NP is presented before information about its cardinality.

Such ordering is practical/useful at certain times, e.g. a storekeeper receiving information about what goods a customer wishes to purchase: identifying the type of goods before the quantity (i.e. ordering NP before NUM/CL) presents the information in a sequence which mirrors the actions of the storekeeper, who first needs to identify and locate the required goods and then select a certain quantity of them. Presentation of the information in this way is helpful and efficient/logical.

placement of the NP in DP-initial position is like **presentational focus** or **topicalisation**
• in both CP and DP, newly presented nominal elements may be fronted so that they precede additional information added on about them.

Classical Chinese: had both [Num NP] and [NP Num CL] forms. [NP NUM CL] occurs in initial presentation of the new referent in (23), [Num NP] without NP-fronting follows when the referent has been established as old, identified information:

(35)   you da jiang   er ren. Er jiang…
        be   big general 2 CL   2 general..
        'There were two great generals. The two generals…' (Schafer (1948, p.413)

• Thai, Khmer and Burmese no alternative to [NP Num CL] order   suggest that "presentational focus" has become grammaticalized as obligatory (similar to the grammaticalization of XP-fronting in German main clauses)

NEXT QUESTION: So, did modern [NP Num CL] develop from earlier [[Num CL NP] through NP-fronting?
ANSWER: No, not as far as we know.
FOLLOW-ON QUESTION: So how can we explain the "sudden development" of [NP Num CL]?
A possible explanation lies in considering a different theory of [NP Num CL], the 'adverb' theory.

The adverb theory of NP Num CL
Num CL are *not* inside the DP but are adverbs base-generated in distinct adjunct-like positions. Fukushima (1991), Ishii (2000) Greenberg (1975). Due:

(a) Num CL can occur separated from NP in other VP-/S-final adverbial positions:

(36)   mii **nisit**   maa   haa khun **soong khon**   Thai
        be   student come find you   two   CL
        'Two students came to look for you.'

(37)   xi   sang **di**   yu Qin **qi-bai-li**   Chinese
        west lose   land to Qin 700 li
        'On the west we lost 700 li's land to the Qin' (Meng 1A/5, in Pulleyblank 1995)

(b) Before the formal establishment of the functional category "Classifier/CL", "classifiers" would have been the heads of independent NPs occurring as adverbial type elements modified by numerals:

(38)   [NP ren]   [NP shi-you-wu   ren]
          person   10-and-5   person
         '15 people

(c) NUM and CL in Japanese can be co-ordinated with adverbs:

(39)   Shoonin-ga   kinoo   [**san-nin katsu tashika-ni**] sono jiko-o   mokugekishi-ta
         witness-NOM yesterday **3-CL and certainly**   that accident-ACC witness-PAST
         'Three witnesses certainly witnessed that accident yesterday.' (Fukushima 1991)

(d)   Instances of 'floated' NUM-CL pairs which could *not* have been base-generated with the
associated preceding NP   must be base-generated independently:

(40)   a. Taroo-ga   pisutoru-o ippatsu   kinoo   utta
             Taroo-NOM pistol-ACC one-CL(blast) yesterday shot
             'Yesterday Taroo shot off one blast of his pistol.' (Fukushima 1991)
         b. *Taroo-ga   ippatsu-no-pisutoru   kinoo   utta
             Taroo-NOM one-CL-GEN-pistol-ACC yesterday shot

• **Proposal**: early sequences of NP and numerically-quantified adverbial NP were re-interpreted as
parts of a single DP. When this happens, the NP>Num CL ordering results in an instantaneous
analysis of movement, as this is the only analysis consistent with speaker's head-initial parameter of
selection. The natural linear ordering of NP > Num CL present in NP + adverb structures is re-
interpreted as DP-internal presentational focus movement. Movement arises instantaneously from
structural re-analysis.

(41)   early: [NP NP] [NP Num N]   is reanalysed as: [[NP NP] Num CL ~~NP~~]

NEXT PROBLEM: It now needs to be proved that re-analysis of NP + adverb Num-CL really has taken
place and that NP Num-CL is not *still* NP followed by ADV, as argued in Fukushima and Greenberg.

EVIDENCE: (a) in Thai & Khmer, Dem follows Num and CL   Num and CL are DP-internal:

(42)   [DP dek   saam khon **nan**]   keng maak   Thai
           child 3   CL **Dem** clever very
         'Those three children are very smart.'

(b) Burmese case-markers & postpositions follow Num & CL   Num & CL are DP-internal, not
adverbial:

(43)   canaw [DPsaouq hna ouq]-**ko**   weh hta teh
         I   book 2   CL ACC buy ASP REALIS
         'I bought two books.'

(44)   U-Win-Win [PP [DP meitswee thoun yauq] **ne**] Yangoun thwaa teh
         U-Win-Win   friend   3   CL with Rangoon go REALIS
         'U-Win-Win went to Rangoon with three friends.'

(c) Aspects of the interpretation of [NP Num CL] sequences   Num & CL are DP-internal. Example
(45) Num and CL in S-final adverbial position   partitive interpretation:

(45)   **dek** sia chiwit laew **saam khon**   Thai
        child lose life   ASP   3   CL
        'Three of the children died already.'

(46) NP NUM CL sequence   *no* partitive interpretation possible

(46)   **dek** **saam khon** sia   chiwit laew   Thai
        child 3   CL   lose life   ASP
        'The three children died already.'

Partitive readings assumed possible when numerical quantification is applied to a definite DP from a
DP-external position (47a); partitive readings are blocked when numerals occur under the scope of D^0
inside the DP, (47b):

(47)   a. [$_{QP}$ Three of [$_{DP}$ the children]].
        b. [$_{DP}$ The three children]

Thai (45): Num & CL DP-external   partitive reading
Thai (46): Num & CL adjacent to NP   no partitive reading possible
    conclude Num & CL in [NP Num CL] are DP-internal.

Similar evidence in Burmese: (48) [Dem NP Num CL] only a non-partitive interpretation   Num and
CL are DP-internal under the scope of the D^0:

(48)   canaw eh-dii saouq hna ouq weh hta teh
        I   Dem book 2   CL buy ASP REALIS
        'I bought those two books/NOT:*I bought two of those books.'

Cross-linguistically, not all [NP Num CL] forms pattern in the same way. [Dem NP Num CL] in
Japanese (49) similar to Burmese (48) may have the opposite partitive interpretation to Burmese:

(49)   Jiro-wa sono hon-o   san satsu katta   (Muromatsu 1998)
        Jiro-TOP DEM book ACC 3   CL   bought
        'Jiro bought three of those books./NOT:*Jiro bought those three books.'

    Japanese Num CL may not be inside DP and might be adverbial as argued in Fukushima (1991)
and Ishii (2000). Burmese may also still allow for such an adverbial possibility. Case-markers often
follow Num CL in Burmese, but can also occur between NP and Num CL and (50)   same partitive-
like interpretation as Japanese (49)   still possible that Num CL in Burmese occurs outside of the
DP:
(50)   U-Win-Win eh-dii saouq-**ko**   hna ouq weh teh
        U-Win-Win Dem book **ACC** 2   CL buy REALIS
        'U-Win-Win bought two of those books.'

The historical development of Khmer [NP NUM CL]

(51)		Old Khmer	Middle Khmer	Modern Khmer
	a.	N Num		
	b.	N CL Num	N CL Num	
	c.		N Num CL	N Num CL

Possible explanation of the development:

(a) old Khmer: early 'classifiers' were really just nouns
N CL Num = sequences of two NPs: [NP N1] [NP N2 Num] (noting that [NP N Num] exists independently in Old Khmer - (51a))

(b) middle and modern Khmer: grammaticalisation of N_2 as the new category classifier
   two-NP structure is re-analysed as one NP/DP, Num and 'CL' internal to DP
causes important change in CL/Num word order, reversing linear order of CL and Num
pattern (c) replaces pattern (b):

(52)   [NP N1] [NP N2 Num]   [N CL Num] triggering change to [N Num CL]

   when grammaticalisation and re-analysis occurred   forced Num and CL as functional heads within DP to be re-aligned in a *head-initial* order following the general direction of headedness in Khmer

• if correct   shows strong pressure for languages to adopt consistent head-initial orders
   grammaticalisation and reanalysis not random; there are clear principles of headedness governing the organisation of DPs.

CONCLUSIONS:
• DP-internal NP-movement as a significant cause of word order variation
• NP-movement is the result of reanalysis of an earlier adverbial form
• adverbial Num-CL forms may still exist in certain languages
• the switch in CL/Num order in middle Khmer is understandable once one adopts such an account of the development of classifiers in DPs

SECTION 2: DP-internal X^0-movement and grammaticalization

How X^0-movement and grammaticalisation may be responsible for further surface variation in DPs in SEA languages.

(4) Bare classifiers and definiteness

• an interesting pattern found in various SEA languages – bare classifier-NP sequences with no Num:

(53) **Nguoi chong** rat tot   Vietnamese
      CL   husband very good
      'The husband was very good.'

(54) **Tus tsov** tshaib tshaib plab   Hmong
      CL tiger hungry hungry stomach
      'The tiger was very hungry.'

(55) leo **tu me** da   tu po   va..   Nung
      then **CL wife** scold CL husband say
      'Then the wife scolded the husband and said…'

• an important general observation: bare classifier-NP/CL-NP sequences are commonly associated with **definiteness effects**; when a DP has a definite interpretation, a bare classifier is generally found to occur with it in these languages, similar to Cantonese

• Cheng & Sybesma (1999): classifiers in Cantonese are definite elements like determiners in other languages; classifiers however occur in CL^0 so   CL-NP with definite interpretations are simply CLPs and do not project any higher functional structure such as NumP or DP

• a different approach: bare classifier structures are regular DPs in which CL raises up to D^0

• to be accounted for: although CL-NP may be definite, when Num occurs   can only be indefinite:

(56) toi mua tam cai ghe   (Vietnamese)
      I   buy 8   CL chair
      'I bought eight chairs.'

   unexpected if classifiers are inherently definite; expect (56) = either 'the eight chairs' or 'eight of the chairs'

   need to capture the fact that classifiers are definite at some times but not at others
• also: when indefinite [Num CL NP] is combined with a demonstrative   definite interpretation:

(57) goh saam bo sue   (Cantonese)
   Dem 3   CL book
      'those three books'

(58) slong ahn sleng   te   (Nung)
      2   CL province Dem
      'those two provinces'

   the locus of definiteness is the D^0 position above NumP + the occurrence of a particular morpheme in either D^0 or SpecDP   interpretation of the DP as definite

Suggestion: bare classifier [CL NP] forms are definite due to (optional) CL raising up to D^0
either D^0 or SpecDP must be overtly instantiated for the definite interpretation to be triggered
otherwise the DP is interpreted as indefinite by default

• when Num occurs, no possible CL-to-D due to HMC, hence no: [*CL$_i$ Num t_i NP]
instead Dem has to be inserted into D^0 (or SpecDP) to trigger a definite interpretation

(59)
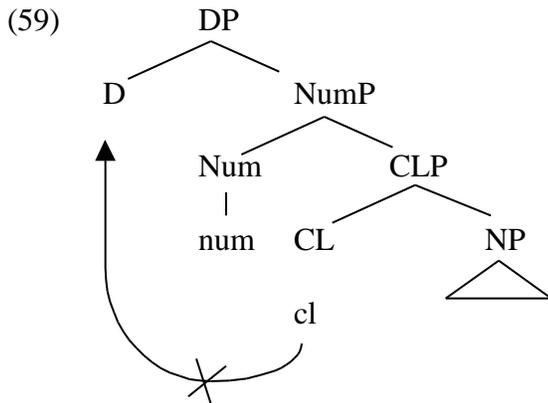
• potential empirical evidence for the higher D position: **two CL structures**
in certain varieties of Vietnamese, a second general classifier element may occur before the regular
classifier and results in sequences with clear definite interpretations (Nguyen 1997):

(60)   **cai con** dao [anh cho toi muon], no that sac
       CL CL   knife you give me borrow, it real sharp
       'The knife you gave me is really sharp.'

(61)   **cai chiec** ban nay
       CL CL   table Dem
       'this table'

   shows that there is another X^0 head-position above CL^0 + this X^0 is (a) instantiated by a classifier
and (b) specifically associated with definite interpretations of the DP

• **grammaticalization of $CL_{general}$ in D^0**
suggestion: the possibility of inserting $CL_{general}$ directly into D^0 is due to movement and reanalysis.
Sustained CL-to-D movement $CL_{general}$ allows for potential reanalysis as a D^0-element   allows
CL^0 to be lexicalised and instantiated by a second classifier as in (60-61)
Simpson (1998), Wu (2004), Simpson & Wu (2000), Roberts & Roussou (2003): grammaticalisation
due to similar movement and reanalysis

   synchronically, if $CL_{general}$ and a second regular CL are selected in the numeration CL_{gen} is
inserted into D^0, and no CL-to-D movement (45-46)
if $CL_{general}$ not selected together with a second regular CL   the classifier base-generated in CL^0
undergoes CL-to-D to trigger the definite interpretation

(5) Num-raising and indefiniteness

• further surface variation from head-movement: the patterning of number 'one' in Thai and Nung
• closely-related Tai languages; the regular position for Num is before CL (62)
• however, number one is commonly placed *following* CL in Thai and *only* occurs DP-*finally* in Nung (63a/b):

(62)   a. dek **saam khon** (Thai)   b. **slam ahn** vet   (Nung)
         child **3   CL**   **3   CL** spoon
         'three children'   'three spoons'

(63)   a. dek **khon nung** (Thai)   b. **ahn** tahng **nuhng** (Nung)
         child **CL   one**   **CL** chair **one**
         'one/a child'   'one/a chair' (Saul & Wilson 1980)

• both Thai & Nung (re-)positioning of number 'one'   'one' now commonly placed in the DP-final position that demonstratives/DEM occur in (64):

(64)   a. dek song khon **nii** (Thai)   b. slong ohng dehk **te**   (Nung)
         child 2   CL **Dem**   2   CL   child **Dem**
         'these two children'   'those two children'

Thai (65a)   'one' in DP-final position is in complementary distribution with Dem
'one' can otherwise occur in the pre-CL Num^0 position with a Dem following CL (65b):

(65)   a. *dek   khon **nung nii**   b. dek   **nung** khon **nii**
           child CL   **one   Dem**   child **one** CL   **Dem**
                                               'this one child'

    'one' in Thai & Nung is coming to be an **indefinite determiner** which contrasts in its indefinite specification with the definiteness encoded by demonstratives

The Syntax of Num-to-D Raising
• sections 2/3 argued for NP-movement over Num & CL in Thai, i.e. [NP$_i$ Num CL t$_i$]
• section 2 also argued that elements to the right of Dem in Vietnamese, Nung, Indonesian, Thai & Khmer raised to the left of Dem as a single constituent: [[Num CL NP]$_i$ Dem t$_i$]
    in Thai & Khmer when a Dem occurs   there will be two applications of leftwards XP movement:
[1]

---

[1] If no NP over Num CL raising occurs, the surface order is that of Vietnamese, Nung, and Indonesian, and if NP-movement but no movement over Dem occurs, the order is that found in Burmese.

(66)   underlying structure: [Dem Num CL NP]

        NP movement: [Dem **NP$_i$** Num CL **t$_i$**]   occurs in Thai/Burmese

        movement over Dem: [[**NP$_i$ Num CL t$_i$**]$_k$ Dem **t$_k$**]   occurs in Thai, Khmer

What are the landing-sites for the two movements? - Three possibilities.

(i) NP moves to SpecNumP, [$_{NumP}$ NP Num CL] moves to SpecDP

(ii) NP left-adjoins to NumP, [$_{NumP}$ NP Num CL] left-adjoins to DP

(iii) Movement of NP and [$_{NumP}$ NP Num CL] are both instances of DP-internal topicalisation, to the specifier positions of DP-internal topic projections below and above D^0; similar to the assumption (Rizzi (1997)) that there may be iterated topic positions in the higher part of clausal structure.
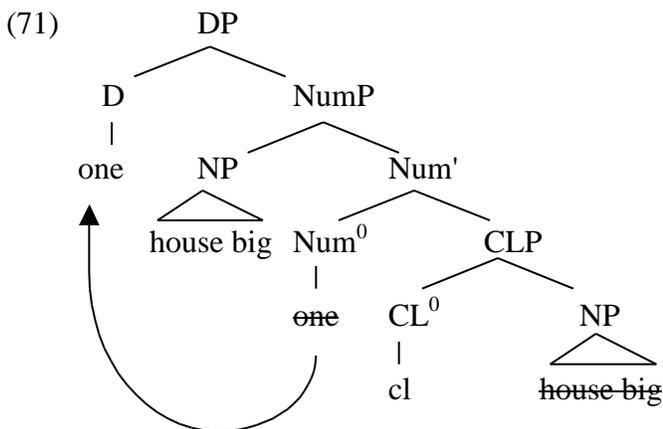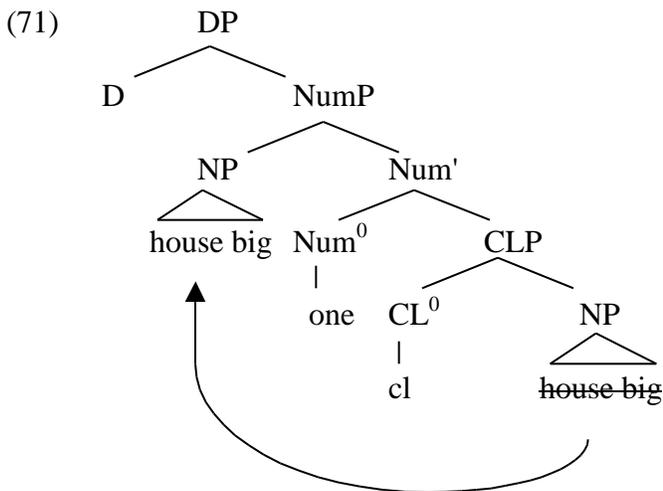
Possibility (i):

(67)

(68)

17
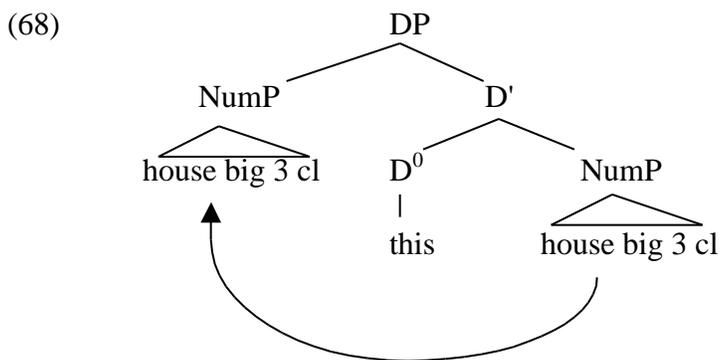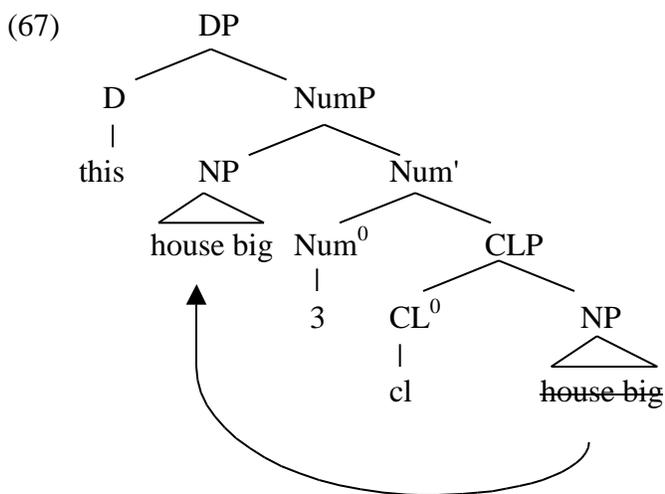
'one' raising

- 'one' is base-generated in Num^0 and raises up to D^0
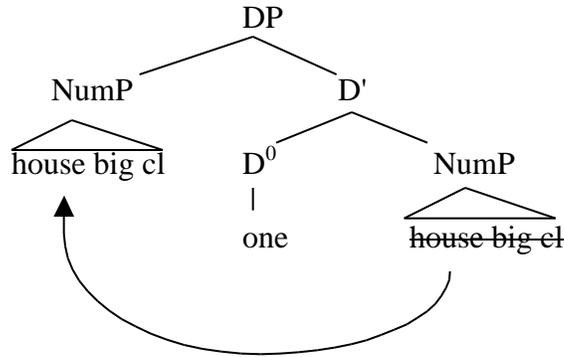- note that it is not possible to have any other number in Num when 'one' is in the DEM position:

(69) *dek   saam/nung khon nung
      child 3/one   CL   'one'

THE DERIVATION:

(70) underlying structure: [one CL NP]
      NP movement over Num CL: [**NP$_k$** one CL **t$_k$**]

      'one' raises from Num^0 to D^0:   [**one$_i$** [NP$_k$ **t$_i$**   CL t$_k$]]

      NumP raises over D^0:   [**NP$_k$ t$_i$ CL t$_k$**]$_m$ [one$_i$ **t$_m$**]

(71)

(71)

18

(73)

```
                        DP
                   /          \
              NumP              D'
             /    \           /     \
       house big cl        D⁰         NumP
            ↑                |           \
                           one        house big cl
```

(73)

$$\text{DP}$$
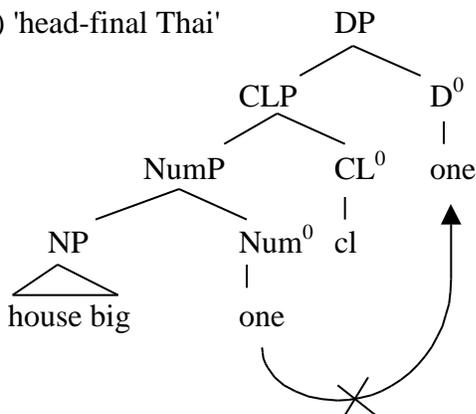
NumP ... D'

house big cl

D^0 | one

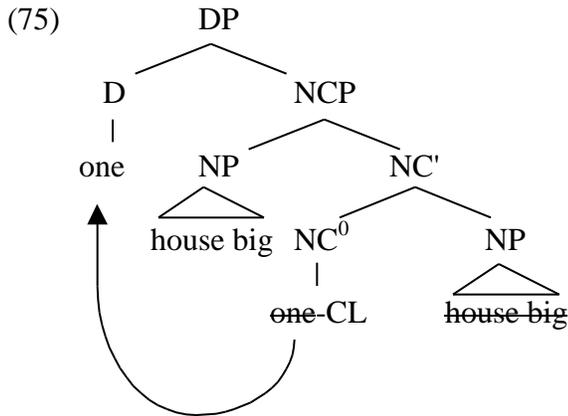NumP — house big cl

• **three conclusions**

• good support for the conclusion that the DP in Thai is not head-final; if the DP was head-final and 'one' raised rightwards to D^0 over CL, this should violate the HMC (74); Num-to-D raising can only be possible if Num is higher than CL   the Thai DP is head-initial   NP to the left of Num CL has raised there from a position to the right of CL

(74) 'head-final Thai'

```
                            DP
                       /          \
                    CLP            D⁰
                  /      \          |
              NumP       CL⁰       one
             /    \       |
          NP      Num⁰   cl
         /   \     |
     house big   one
                   ↘        ↗
                      ✕
```

• further support for the assumption that Num^0 and CL^0 are independent functional heads - if 'one' raises out of the regular position of numerals and up to D^0 classifiers are not suffixes attached to numerals in a single head; affixes/subparts of words are not normally stranded by operations of movement; instead   Num and CL are independent words in discrete functional heads; see tree (75);

Illicit extraction of a sub-part of a head if Num + CL form a single head 'NCP':

(75)

```
                        DP
               ┌─────────┴─────────┐
               D                  NCP
               │            ┌───────┴───────┐
              one          NP              NC'
                          ╱│╲        ┌──────┴──────┐
                      house big    NC⁰            NP
                                    │              ╱╲
                                one-CL          house big
```

•• the Thai and Nung new indefinite determiner 'one' targets the same position as definite D^0 elements (demonstratives)   supports the assumption that both definiteness and indefiniteness are encoded in the same position D^0 in DPs   indefinite nominal expressions are full DPs in the Tai languages.

Aside: the number 'one' may also raise to D^0 in English. In contrast to other numerals, 'one' cannot co-occur with other instantiations of D^0 unless it is interpreted like the adjective 'unique' and is followed by a relative clause as in (76):

(76) a. The two/three men/*one man left.
     b. These two/three books are mine/*/??this one book is mine.
     c. The unique/one person *(I like) is David.

(6) Head-movement below D^0 and Num^0: N-to-CL

• further classifier-related variation - **'classifier-less' DPs**
• no classifier occurs with a numerically-quantified NP although individuation is implied
• two basic forms:
        (a) in some language certain nouns are commonly quantified without any CL;
            frequently e.g. 'year', 'day', 'time' etc, sometimes 'person', + other high frequency terms:

(77)   a. hai nam   b. ba lan   (Vietnamese)
            2 year   3   time
            'two years'   'three times'

        (b) in certain languages (e.g. colloquial Minangkabau and Indonesian) the use of a CL
            is optional with a fully wide range of nouns, e.g. in Nung:

(78)   slam (tew) kha-lo   (Nung)
        3   (CL) road
        'three roads'

20

• three possible analyses

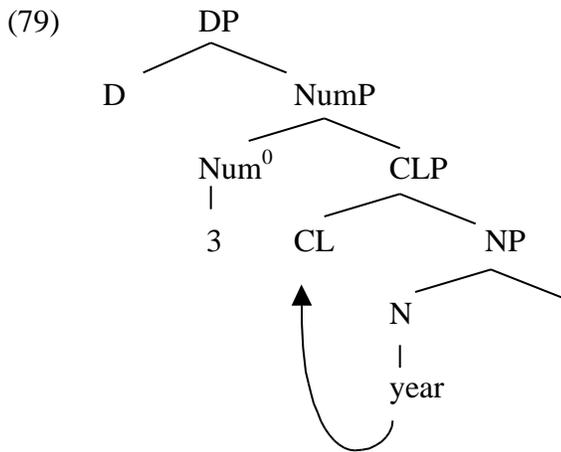I: No CL position in type (a)?   some nouns require no individuation?
Problem: will not generalize to cover type (b) where the nouns do have classifiers, these are just optional.

II. Type (a) elements 'year' and 'time' are base-generated in CL and there is no N/NP?
Unlikely – if no N-position   there are classifiers which classify/individuate nothing, but classifiers are by definition functions which apply to a second complement term   the presence of a CL requires the presence of an N/NP; also   will again not generalise to cover type (b).
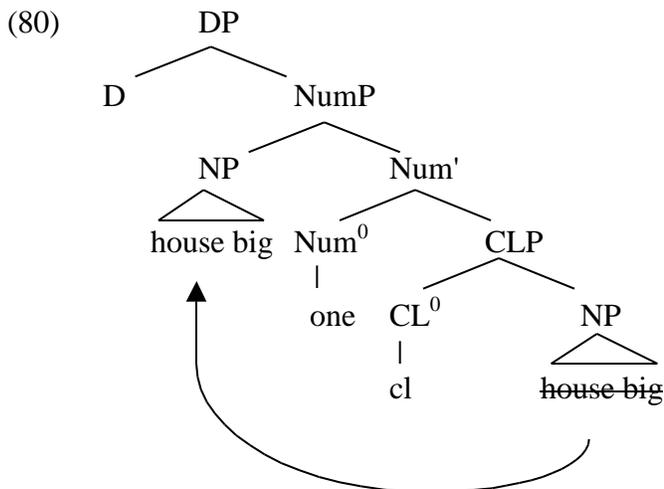
III. If there is Num-to-D and also CL-to-D, possibly there is also N-to-CL:
the elements 'year/time' are base-generated in N^0 and raise to CL instantiating both positions

(79)

```
              DP
          /        \
        D           NumP
                 /        \
             Num⁰          CLP
              |          /      \
              3        CL        NP
                       ↑        /   \
                               N
                               |
                             year
```

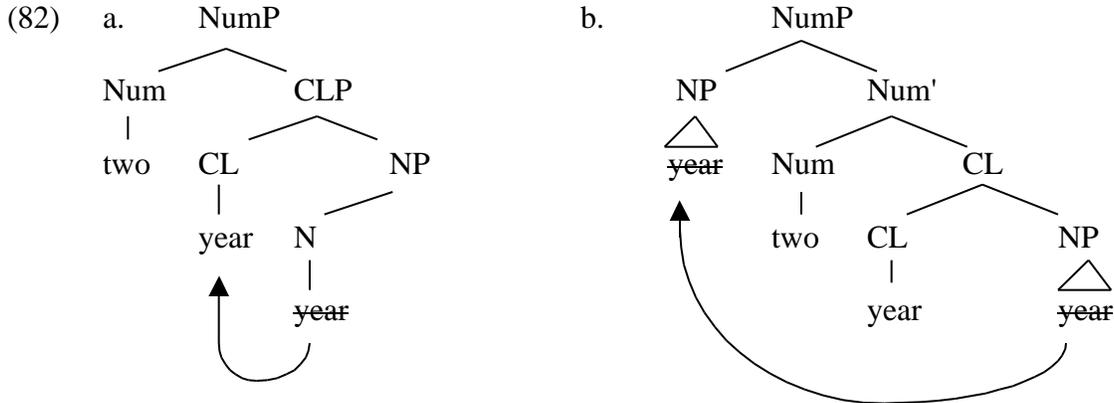• CL and N are linearly adjacent in Vietnamese, Indonesian, Chinese   difficult to see N-to-CL
• Thai & Khmer: different surface linearisation of DP structure   N and CL are not adjacent but separated by numerals in Num due to NP movement: (i.e. [N(P) Num CL]);   possible to check the N-to-CL hypothesis;

(80)

```
              DP
          /        \
        D           NumP
                 /        \
               NP          Num'
              / \        /       \
        house big  Num⁰          CLP
                    |          /      \
                   one       CL⁰       NP
                              |        /  \
                              cl    house big
```

21

(81) shows that elements such as 'year' and 'time' appear in CL to the right of Num, so not in N^0 indicates N-to-CL movement:

(81) a. soong pii   b. saam khrang   c. sii khon   (Thai)
         2   year   3   time   4 person
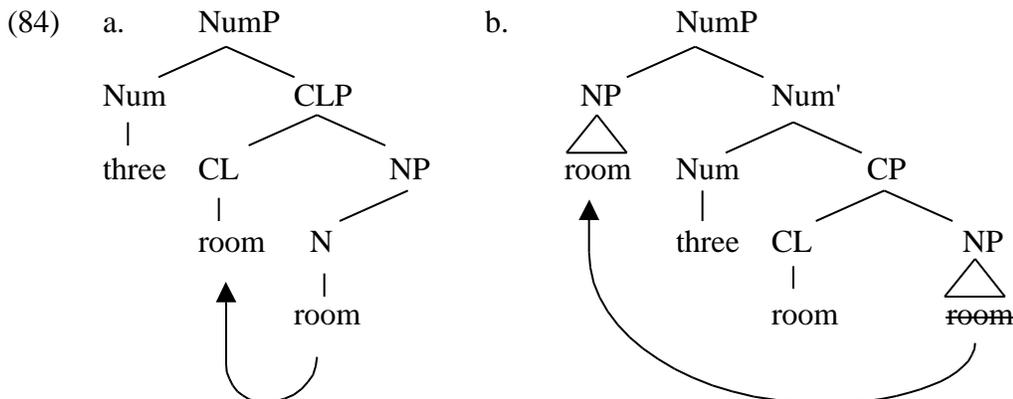   'two years'   'three years'   'four people'

Derivation of N-to-CL in Thai:

(82) a.   NumP   b.   NumP

         Num   CLP   NP   Num'
          | △
         two   CL   NP   year   Num   CL
                   | |
                  year   N   two   CL   NP
                                                                         | △
                            year   year   year

• the N-to-CL analysis suggests that certain nouns may be able to function as their own classifiers and lexicalize CL^0 as well as N^0. This possibility is seen in Thai, Burmese, Lahu and other languages in a second way with the occurrence of "**self-classifiers**" or "**repeaters**" – the repetition in CL of the element in N:

(83) a. hoong saam hoong (Thai)   b. cun   ta   cun   (Burmese)
         room 3   room/CL   island one island/CL
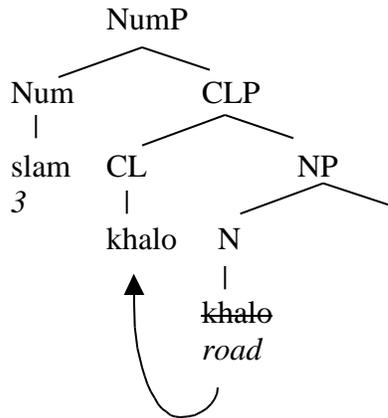   'three rooms'   'one island'

   the idea of an element being used to classify/individuate itself is plausible and commonly attested.

• if one assumes the 'copy theory' of movement (Chomsky 1995),   movement between N and CL and the copy left in N is not deleted/is spelt-out phonetically in repeater cases (though the copy of NP-movement would be deleted, otherwise giving rise to a redundant, identical sequence of elements):
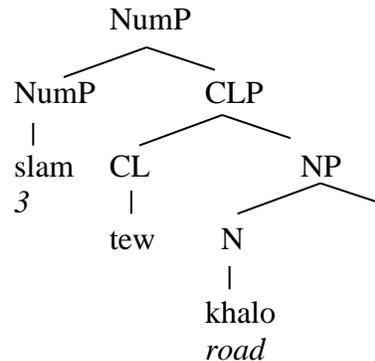
(84) a.   NumP   b.   NumP

         Num   CLP   NP   Num'
          | △
         three   CL   NP   room   Num   CP
                  | |
                 room   N   three   CL   NP
                                                            | △
                           room   room   room

22

• the N-to-CL raising analysis of type (a) will extend to cover type (b)
if a CL is not selected from the lexicon there will be N-to-CL; if a CL is selected, there will be no N-to-CL (85) represents Nung (78);[2]

(76)   a. overt CL not selected   b. overt CL selected

• finally, if N-to-CL occurs regularly, and if the 'movement and reanalysis' approach to grammaticalisation is correct, one might expect certain 'N's might become reanalyzed as CLs; cross-linguistically CLs are indeed known to develop from Ns;

(7) Conclusions

• **surface variation in DP structure is the result of a combination of XP and X^0 movement inside the DP**
• **X^0 heads may commonly raise to instantiate/lexicalize more than one position**
• **regularization of (head-)raising leads to grammaticalization and categorial reanalysis**

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[2] In this sense classifiers pattern a little like expletives – when an expletive such as 'there' is selected in a numeration, it will be inserted into SpecIP, but when no such expletive is selected, the subject of a clause has to raise to instantiate the SpecIP position.

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