

Notes

Chapter 1

1. Also see Chomsky (2020: 16): “linear order and other aspects of externalization don’t strictly speaking belong to the I-language.”
2. As Hall [Partee] (1964: 407) put it: “Šaumjan’s theory seems to rest in part on the assumption that word order is independent of syntactic structure in all languages.” Later proponents of an unordered underlying structure include Staal (1967: chapter 1), Sanders (1970, 1975), Bartsch and Vennemann (1972: 38–39), and Hudson (1972). For the abbreviations in (1) and (2) see the list of Abbreviations and Symbols in the front matter.
3. This is the Final-over-Final Condition of Sheehan et al. (2017) and related work by the same authors. See section 5.2 for further discussion.
4. That movement is the basis of word order variation is argued for persuasively, to my mind, in Kayne (1994, 2018).
5. There are also more complex cases where the target moves within a larger constituent containing both higher and lower nontarget material, as in *Aylan*, [*pictures of [whose body]*] [] *have stirred great global sympathy*, . . . (with analogues in the movements possible within nominal and verbal projections of N(P) and V(P)).
6. Larson’s (1988: 346fn11) generation of a direct object in the specifier of a VP shell in the presence of other postverbal complements and/or adjuncts ($[_{IP} I [_{VP} wrote_i [_{VP} a letter t_i [_{VP} [_{PP} to Mary t_i [_{PP} in the morning]]]]]]$) is a precursor of this idea, even though it is problematic in other respects. For one thing it violates Baker’s (1988) Uniformity of

Theta Role Assignment, because a direct object would be merged as a complement when no Prepositional Phrase (PP) is present and as a specifier when one or more PPs are present. Another problem, pointed out by Cecilia Poletto (pers. comm., 04.08.2021), is that a temporal adjunct and the indirect object would be composed with the V before its closest argument, the direct object. Another problem still is that languages with the order V PP_{manner} PP_{place} PP_{time} would be taken to differ from languages with the order V PP_{time} PP_{place} PP_{manner} (Boisson 1981, 1993; Lu n.d.; Hinterhölzl 2001, 2002, 2009: 243–44) in hierarchical structure and scope relations, which is an unwelcome result as it misses the possibility of assigning one and the same structure and scope to the PPs merged preverbally and ending up in different orders postverbally owing to the different way the V(P) raises around them (with the *whose-pictures* pied piping and without pied piping, respectively).

Chapter 2

1. Dryer (2018) claims that some of the orders that Cinque's (2005) account of Greenberg's Universal 20 ruled out are actually attested in at least few languages. In Cinque (in preparation) I argue, on the basis of the same sources utilized by Dryer and of additional ones, that none of the putative counterexamples is real. In every one of those languages the unexpected order is not the only possible order of demonstrative, numeral, adjective, and noun. Other orders coexist in those languages that conform one or more of the 14 orders admitted by Cinque's (2005) account. Hence, none of them is a convincing counterexample, as we know that some alternative orders are derived by special focus-driven movements, which are distinct from the movements responsible for the canonical orders of the language. In some languages (e.g., Lebanese Arabic, studied in detail in Ouwayda and Shlonsky [2015, 2017], Shupamem, studied in Nchare [2012] and Korean, studied in An [2014, section 7]) numerous alternative orders are reported to be possible, some of which at any rate belong to the 14 orders admitted in Cinque (2005) and here. In a larger sample of over 2,000 languages I have found no evidence that if one of the 10 orders excluded in Cinque (2005) is available, it is the **only** order possible. This suggests to me that only 14 orders are genuinely possible. (I refer to Cinque [in preparation] for more detailed discussion.)

2. Possessive adjectives and relative clauses deserve a separate treatment because they can also move independently; possessives to determiner

position in some languages (his/Bill's many interesting books), or to informationally different positions in others (Italian: *quei <suoi> molti <suoi> altri <suoi> importanti <(?)suoi> contributi <suoi> al dibattito <suoi>* lit. 'those <his> many <his> other <his> important <his> contributions <his> to the debate <his>' as well as Hungarian - Szabolsci 1994 and Dékány 2021: chapter 4). Also see Dryer (2019) on the unexpected word order behavior of possessives across languages. On relative clauses see Cinque (2020).

3. For example, singular, dual, plural, . . . number, as argued for on semantic grounds in Bartsch and Vennemann (1972: 134) and Heycock and Zamparelli (2005: section 4.1) and as is apparent from the word order of some Oceanic, Mayan, Mon-Khmer, Tai-Kadai, and Papuan languages (where it is presumably expressed as a modifier), is merged between cardinal numerals (+ classifiers) and adjectives. As for determiners, at least one type is merged between demonstratives and cardinal numerals; and Case is the outermost functional Head (the interface between the nominal domain and the clause): [Case [DemP [DET [NumP [PL [AP [N]]]]]]]. To avoid confusion with the Amount/NumberP dominating (ClassifierP and) CardinalP I indicate singular, plural, dual, . . . number as PL(P).

4. On the segregation of the nominal and verbal Heads and the nominal and verbal modifiers on the opposite side of N and V see sections 3.3 and 4.1, respectively.

5. I ignore here "complements" of the noun, which I take, following Kayne (2002, 2004b), to be later attracted to the front of the nominal projection, eventually appearing in head-initial languages to the right of the noun due to the further fronting of the remnant. See Cinque (2005: fn34), and note 51 of chapter 3.

6. This order is found in many languages, including Chinese (Sinitic [Zhang 2013]), White Tai (Tai-Kadai [Conklin 1981: 47]), Hmong (Hmong-Mien [Niederer 2011: 1295]), Uzbek (Turkic [Beckwith 1998: section 4.2]).

7. This order is found, among others, in the Papuan languages Abun (Berry and Berry 1999: chapter 5), Adang (Haan 2001: chapter 9), and Tobelo (Holton 2003: section 2.1.3); in the Austronesian languages Nga'da (Conklin 1981: 272), Tetun Dili (Williams-van Klinken et al. 2002: 24), Helong (Balle and Cameron 2014: 45–47), and Uab Meto (Metboki and Bellamy 2014: section 1); in the Sino-Tibetan languages Daai Chin (So-Hartmann 2009: section 5.4.3.4) and Jingpo (Cheung

2003: section 4.3.2); and in the Chibchan languages Cuna (Quesada 1999: 232) and Teribe (Quesada 2000: 127).

8. This order is found, among others, in the Sino-Tibetan languages Burmese and Lahu (Goral 1978: 30), in the Mon-Khmer language Stiêng (Bon 2014: section 2.5), and in the Tai-Kadai language Tai Lue (Hanna 1995: section 2).

9. This order is found, among others, in the Totonacan languages Huehuetla Tepehua (Lhiimaqalhqama') (Kung 2007a: section 7.3, 2007b: section 2) and Upper Necaxa Totonac (Beck 2004: section 2.2; García-Vega 2018: section 1), in the Sino-Tibetan language (Eastern) Tamang (Lee 2011: section 5.2), and in the Austronesian languages Rongga (Arka 2008: section 2) and Luangiua (Salmond 1974: 142) (alongside the order in (3)b). Also see Kayne (2020b: 340fn10).

10. See, for example, (i):

(i) ndòò ú-[↓]kwá é-péá (Denya; Kießling 2018: 47)
10.CLF:bunch Ass.10- 8-plantain 10-two
'two bunches of plantains'

11. This is the order found in English (*five hundred books*), among other languages.

12. This order is found in the Papuan language Adang (Haan 2001: section 10.3), in the Austronesian languages Uab Meto (Metboki and Belamy 2014: section 4.1) and Helong (Balle and Cameron 2014: 45–46), in the Sino-Tibetan language Mising (Doley and Post 2012: section 2), and in the Grassfields Bantu language Yemba, exemplified in section 3.1 (Harro and Haynes 1991: 31).

13. Stiêng has the order N multiplier base (Miller 1976: 32), and so does Jingpo (cf. Cheung 2003: section 3.4 for the order N Num and Numeral Systems of the World's Languages [<https://lingweb.eva.mpg.de/channumerals/Jingpho.htm>] for the order multiplier base: mā³¹ li³³ fǐ³³ Lit. four ten = 'forty'). Tetun Dili (Central Malayo-Polynesian) has the order N multiplier base for tens and N base multiplier for hundreds and thousands. See (i):

(i) rihun rua atus tolu rua-nulu (Williams-van Klinken et al. 2002: 22)
thousand two hundred three two-tens (=2,320)

14. While Greenberg (1989: 106) and Hurford (2003: 596) state that no example of [base multiplier] N is found in their samples, this order is attested in the Austronesian language Rongga with multipliers bigger

than 1. See Arka (2008: section 2 and 13–14). As I suggest in section 5.3, the rarity of such an order may bear some relation to Sheehan et al.'s (2017) Final-over-Final Condition (FOFC), or what FOFC follows from.

15. For the Omotic language Maale see (i) and for Kashmiri (and other languages) see Tatsumi (2020: section 2.1).

- (i) tábbó lamʔ-ása kéll-éll-ó (Amha 2001: 136)
ten two-ORD day-F-ABS
'the twelfth day'

16. See (ia) for the Austronesian language Uab Meto, and (ib) for the Tai-Kadai language Tai Lue (Li):

- (i) a. uab no n-tenu (Metboki and Bellamy 2014: 65)
talk ORD 3SG-three
'the third talk, third subject matter'
b. maa¹ too¹ thoon³ soong¹ (Conklin 1981: 107)
dog CLF ORD two
'the second dog'

The same order is found with numbers higher than 6 in the Niger-Congo Atlantic language Mankanya (Gaved 2020: 95).

17. For the Oceanic language Kove see Sato (2013: section 6.1.6.2) and for Koromfe (Niger-Congo, Gur) and other languages displaying this order see Tatsumi (2020).

18. Tatsumi (2020: 2) says that while he found several languages displaying the orders (5a–c), he found only one language displaying the order (5d), Àhàn (Niger-Congo, Atlantic). Also cited as displaying this order per Tatsumi (2021: 2,101.104) are Mandarin Chinese, Maltese and the Oceanic language Belep.

Though rarer than the previous orders, possibly for the same reason mentioned in note 14 for the order base multiplier N, two additional languages displaying the order Ord Card N appear to be Kokota (Oceanic ((ia)) and White Tai ((ib))

- (i) a. fa palu mane (Palmer 2009: 87)
ORD two man
'the second person'
b. ʔan1 chii saam1 haang6 (Conklin 1981: 47)
CLF Ord three floor
'third floor'

19. Tatsumi (2020: 2) says, “Crucially, the last two combinations in Table 1 [= (5e) and (5f) here] are not attested in my sample.”

20. Sohn (1999: 265).

21. For the Bantu language Ichindali see (ia), and for the Sino-Tibetan language Daai Chin (ib):

- (i) a. umwana gwangu umwisa ngani (Kibona 2019: 907)
child my beautiful very
‘the very beautiful child of mine’
b. aang-ki boo:k sa: (So-Hartmann 2009: 113).
shirt white INTNS
‘a very white shirt’

22. For Italian see *un uomo molto alto* lit. ‘a man very tall’. For Apatani see Abraham (1985: 124–125).

23. For the Turkic language Sakha, see (i), and for the Portuguese-based creole Korlai see *The Atlas of Pidgin and Creole Language Structures Online*, <https://apics-online.info/valuesets/40-8>, example 40-14. The Mongolic language Monguor, whose DP-internal order is Dem Num A N, also appears to display the order [[A INTNS] N] (see Chuluu 1994: 29, example 259).

- (i) bu kirakij baɣajɪ deriebine-tten (Stapert 2013: 244)
this tiny INTNS village-ABL
‘from this very tiny village.’

24. Yareba (Papuan) and Shupamem (Bantoid) appear to display the unexpected orders A N degree adverb ((6)e) and degree adverb N A ((6)f), respectively, alongside the neutral orders N A degree adverb ((6)b) for Yareba (see Weimer and Weimer 1975: section 4.12), and degree adverb A N ((6)a) for Shupamem (see Nchare 2012: 187). This recalls the case of Bulgarian *Mnogo beše visok* lit. ‘Very he was tall’, which when compared to the neutral *Beše [mnogo visok]* ‘He was very tall’ is felt as involving focalization of *mnogo* (Iliyana Krapova, pers. comm., January 17, 2021). Perhaps the Yareba and the Shupamem orders (6e) and (6f) involve a similar focus fronting of the degree adverb. More complex is the case of Basque, which has the order degree adverb N A.art ((6f)) in definite DPs and N degree adverb A art ((6c)) in indefinite ones. The former may involve a remnant movement derivation (I thank Richard Kayne for raising the case of Basque and for relevant discussion).

25. See *a six inch(*es) long pencil* (Matushansky 2008a: 33n15), and the Bulgarian example in (ib) of note 26.

26. See (1a), and (ia'), which is possible alongside (ib):

- (i) a. un uomo alto due metri (Italian)
lit. a man tall two meters
- a'. edin čovek visok dva metra (Bulgarian [Iliyana Krapova, pers. comm., January 17, 2021])
lit. a man tall two meters
- b. edin dva metra visok čovek (Bulgarian [Iliyana Krapova, pers. comm., January 17, 2021])
lit. a two meters tall man
'a two meter tall man'

27. See the order in (i) (Ivana Jovović, pers. comm., February 20, 2020). Her Bosnian also allows the alternatives (iia) and (iib) (namely, the orders in (7a) and (7b), respectively). Boban Arsenijević (pers. comm., April 29, 2021) judges the order in (iib) as the most neutral in Serbian:

- (i) čovjek dva metra visok
lit. man two meters tall
- (ii) a. dva metra visok čovjek
lit. two meters tall man
- b. čovjek visok dva metra
lit. man tall two meters
'a two meter tall man'

28. Alongside (ib), which conforms to the order (7a), Chinese also allows the order (ia), which however implies some contrast either on 'tall' or on 'two meters' (Shengyun Gu and Yangyu Sun, pers. comm., February 16, 2020):

- (i) a. gao liang mi de ren
lit. tall two meter DE person
- b. liang mi gao de ren
lit. two meter tall DE person
'a two meter tall man'

29. See Schwarzschild (2005) for further discussion. If the cardinal modifying the measure Head is itself complex (comprising a multiplier and a base), and if the color or size AP modifies a common noun 'color'/'size', as argued in section 2.7, the overall structure would be:

- (i) a. $[_{NP} [_{NPsize} [_{APsize} [_{DegreeP} [_{MeasureP} [_{CardinalP}$ multiplier base]
measure] degree] AP] NP] N(P)]
 b. ein hundert Meter zu hohes SIZE Gebäude
 one hundred meter too tall SIZE building

Also see note 26 of chapter 3.

30. Perhaps this is true even in languages that apparently (Wierzbicka 1999: 274) have no word for ‘color’. Andrew Radford observes that while the noun *color* may be redundant in English with adjectives of color such as *red*, it is not redundant, hence more natural, with modifiers that are not intrinsically color modifiers, such as *steel* (*a steel color pen*), though Ian Roberts would only accept *a steel-coloured pen*.

31. See the Mandarin example in (ia) (Zhang 2015: 388), the Nanning Cantonese example (ib) (de Sousa 2011: 32), and the Bulgarian example in (ic) (Iliyana Krapova, pers. comm., January 17, 2021).

- (i) a. na si ge hong yanse de panzi
 that four CL red color DE plate
 ‘those/the four red plates’
 b. wɔŋ²¹ ʃek⁵ tʃi⁵⁵ pət⁵
 yellow color CLF pen
 ‘the yellow pen’
 c. červen cvyat kosa
 red color hair
 ‘red hair’

32. For Niuean (Oceanic) see (i):

- (i) Ne fai fle lanu moana a ia (Massam 2001: 159)
 PST have house color blue ABS he
 ‘He had a blue house.’

For Lao (Tai-Kadai) see Enfield (2004: section 4.8) and for Vietnamese (Austroasiatic, Viet-Muong) see Nguyen (2004: 51fn33) and Clark (1989: 187). This order is also possible in Bulgarian (alongside the orders in (9a) and (9c) [Iliyana Krapova, pers. comm., January 17, 2021]), in Pnar (Austroasiatic, Khasic) (Sutradhar 2006: section 3), as well as in Hmong (Miao-Yao) and Khmer (Austroasiatic, Mon-Khmer) (see the examples in Clark [1989: 187]).

33. For the Mayan language Mocho’ see (ia). For Bulgarian see (ib):

- (i) a. we mis saq chi:nh (Palosaari 2011: 156)
 DEF cat white color
 ‘the white cat’

- b. kosa červen cvyat
hair red color
'red hair'

34. See (i), which is acceptable, but somewhat emphatic, for Shengyun Gu (Yangyu Sun would instead use a relative clause: *yi liang yanse shi hongse de che*). As Audrey Li (pers. comm., July 16, 2020) points out, even (i) may actually involve a relative clause, where *yanse* is the subject and *hong* the predicate, as also shown by modification by *hen*, which is obligatory for her, as in predicate contexts:

- (i) yi liang yanse (hen) hong de che
 one CLF color red DE car
 'one/a red car'

Yuri Lander (pers. comm., Augut 3, 2020) finds the order [[‘color’-GEN A_{color}-GEN] N] acceptable in Russian, in poetic style.

35. “There are many indications that in the tripartite construction consisting of quantifier (Q), classifier (Cl), and head noun (N), Q is in direct construction with Cl and this complex construction, which will be called the classifier phrase, is in turn in construction with N” (Greenberg 1975: 29). For the plausibility of assuming that all languages are “numeral classifier languages” (pace Ionin and Matushansky 2018: section 3.5.1), see Krifka (1995: section 3), Muromatsu (1998: section 3.3.3), Kayne (2003b), Wągiel and Caha (2020), and Cinque (2006a) based in part on the impossibility for certain nouns with measure interpretation to be modified by an adjective, as is the case with Chinese sortal classifiers (cf. Cheng and Sybesma 1998: section 2.2, 1999: section 2.2.1). See, for example, the Italian cases in (i):

- (i) a. E’ tornato tre anni (*difficili) fa. ‘He came back three (hard) years ago.’
 b. L’ho rivisto due giorni (*brutti) dopo. ‘I saw him again two (ugly) days later.’
 c. L’ho incontrata solo tre volte (*bellissime). ‘I met her only three (beautiful) times.’ (cf. Moltmann 2021: section 3.2)

The English translations sound only marginal (or even possible, to some speakers), just as counterparts of (i) with pre- rather than postnominal adjectives sound better, but still odd, in Italian too, for reasons that remain to be understood.

36. On the distinction between individual and kind classifiers in Chinese, and its underlying partitive structure see Liao and Wang (2011). Also see Huang and Ochi (2014); and, for Japanese, Tatsumi (2017). Classifiers in Kana have been claimed to form a constituent with the noun rather than with the numeral (Ikoro 1994: section 3), but this is dubious. See Isaac (2016: section 3.1) for evidence that in the closely related language Gokana the classifier clearly forms a constituent with the numeral. Also see Aikhenvald (2000: 111fn7).

37. For critical discussion, also with respect to proposals assuming the existence of both constituencies, like those of Huang and Ochi (2011), Zhang (2011, 2013) and Li (2014), see Her and Tsai (2020). The existence of a second type of ‘sortal’ classifier forming a constituent with the noun rather than with the numeral, and overtly co-occurring in certain languages with the one forming a constituent with the numeral (Cinque 2022b), raises a potential problem for Greenberg’s generalization seen in (3) above; and may require banning a landing site (for N) between the numeral and the classifier, and one (for [CLF [N]]) above Num in the structure [Num [CLF [N]]].

Chapter 3

1. Recall that with “Head” (capital H) I refer to the (minimal) phrasal constituent that heads a certain (sub)projection, indicated as X(P). See the text preceding (2) of chapter 2.

2. Each pair in (3) illustrates the case of the CLF following the (cardinal) numeral or the case of the CLF preceding it. Hall (2019: 29fn28) documents 10 of the 28 orders of (3).

3. For Upper Necaxa Totonac (Totonacan) see Beck (2004: section 2.2) and for (Eastern) Tamang (Sino-Tibetan) see (i):

(i) cu gor som lha:nan grhen wala dim-gade (Lee 2011:
section 5.2)
this CLF three very big red house-PL
‘these three very big red houses’

4. See Caron (1987: 155), where also the following example is given as an illustration:

(i) n⁵⁵əy-t¹⁵əy py³³ee t⁵¹aw c⁵⁵uu c⁵iəʔ
these four CLF dog black
‘these four black dogs’

5. For the order Dem Num N A see Ruhlen (2008: 1252) and for the order Num-CLF see Benton (1968: section 1).

6. On these Oceanic languages, which also display other orders, see Brill (2002: sections 7 and 9.1.3.2, 2014: section 8.2.2). Dem CLF Num N A is also an alternative order of Upper Necaxa Totonac (David Beck, pers. comm., March 12, 2021).

7. In Lahu (Sino-Tibetan) classifiers follow the Numeral. If the order Dem N Num A given in Croft and Deligianni (2001: 7) for Lahu (alongside Dem N A Num) is a possible order in addition to the one given in Caron (1987: 155) (N A Dem Num CLF), then Lahu shows the overall order in (3c). This is also a possible order of Shiwilu (Jebero—Kawapanan) alongside Dem Num N A. See (i), from Valenzuela (2016: 362).

- (i) asu' ker' katu'-dan a'llupi-dan-t-a'su'
this manioc two-CLF.MANIOC large-CFL.MANIOC-V
'these two large maniocs'

8. Wamsley (2019: 13) gives the following order for the Hakha Chin noun phrase: [Dem [head N] classifier numeral adjective case Dem], where the rightmost demonstrative is plausibly a demonstrative reinforcer; a conjecture supported by the glosses in many of the examples in Danaher (2019).

9. For Stiêng see Bon (2014: part III, section 2.5). This order is also an alternative order of the Sinitic language Bai (whose canonical order is A N Dem Num) if one considers the following two examples, from Fitzgerald (1941) and Xu and Zhao (1984), reported in Dryer (2008: 25):

- (i) a. sur a kuai ga (Fitzgerald 1941: 233)
mountain one CLF high
'a high mountain'
b. ke⁴² lu⁵⁵ ŋ³³ pe³¹ (Xu and Zhao 1984: 24)
bowl this five CLF
'these five bowls'

10. Lawton (1980: section 2.1, 1993: section 5.2.1) attributes to Kiriwina (Kilivila) the unmarked order N Dem Num A, saying that “when a noun is introduced as a theme in conversation, the order of NP constituents is as stated above ((head noun) (deictic) (number) (adjective)). The order is significant only for the basic NP; otherwise the order of NP constituents is free, being subject only to the constituent which is semantically prominent being placed first” (Lawton 1993: 150). The numeral classifier is

prefixed to the numeral (Lawton 1980: section 2.3.2). While Senft (1986: 105) gives an example with the order Num N Dem A (cf. Dryer 2018: 821), he also gives an example with the order Dem Num A N (69). Following the judgment of one of the editors of Lawton (1993) (Malcolm Ross on page v of the preface) I take Lawton's description to be the more accurate one.

11. For Yunnan Bai see Wiersma (2003: section 5.1); for Puxi Qiang see Huang (2004: 216), where the following illustrative example is given:

- (i) tshumpa phu the χsi-la (220)
blue clothing that three-CLF
'those three pieces of blue clothing'

12. For Kayan Lahta, see Ywar (2013: section 4.1), who gives the illustrative example in (i), and for Yao'an Lolo, see Merrifield (2010: section 4.1).

- (i) naɫ faʔɫ piɫ doɫ shuɫ baɫ (Ywar 2013: 62)
1s chicken small that six clf
'those six small chickens of mine'

13. On the order N A Dem Num in Awara see Quigley (2002: section 3.7). For the position of classifiers she says: "Demonstratives are phonologically bound to the left of the classifier, and quantifiers are phonologically bound to the right of the classifier"(17). On the order N A Dem CLF-Num in West Makian, see Voorhoeve (1982: sections 2.2.10 and 2.3.2.1) and Asplund (2015: section 5.4.2). Jingp(h)o may be another case. Kurabe (2012: section 4.2) gives the following as the overall order of its nominal phrase REL-DEM-GEN-NOUN-ADJ-DEM-PL-[CLF-NUM]-NOMINAL PARTICLE, saying that demonstratives can simultaneously precede and follow the head noun.

14. For Mising see Doley and Post (2012: section 2.1), and for Nyishi, see Abraham (2005: sections 2.5.1 and 4.3). Also see Hall (2019: 29fn28).

15. This is also a possible order of Dulong (LaPolla 2017: 136).

16. Tongan shows the order N Dem A Num with deictic demonstratives and N A Num Dem with anaphoric demonstratives (Macdonald 2014: chapter 1). The numeral classifier *toko* obligatorily precedes numerals (Macdonald 2014: section 4.3.4).

17. For the order N Dem A Num see Sapir (1976: 145), and for the order CLF Num see Sapir (1965: section 9.113).

18. On Coast Tsimshian (Tsimshianic) see Hall (2019: 29fn28); on Tojolabal (Mayan) see Curiel Ramírez Del Prado (2017: section 5.4).

19. For Kavalan (Austronesian) see Lee (2016: section 2.4.1) and for Q'anjob'al (Mayan) see Mateo Toledo (2017: section 5), who gives the example in (i):

- (i) heb' naq ka-wan yalixh winaq tu la
PL CLF two-CLF:human small man Dem
EVID:mirative
'those two small men'

20. For Chrau Thomas (1971: 127) gives the order Num CLF N Modifier, and Thomas (1976: 135) gives the order N A Dem. For Vietnamese (and Nung) see Hall (2019: 29fn28).

21. This is also an alternative order of Rongga:

- (i) esa zhua mbo ito ndau (Arka 2008: 2)
CLF two house small that
'those two small houses'

22. For Kele see Ross (2011: section 2.6) and example (i). For Lele see Boettger (2015: section 4.7.4, 244).

- (i) pihin ha-mow il tóti (Ross 2011: 132)
woman one-CLF old this
'this old woman'

23. This is the order given by Quesada (2012: 126) for Buglere. See the example in (i):

- (i) niumbada bido-bu jlene je
vestido CLFropa-dos azul Dem
dress CLF- two azure that ['those two azure dresses']

This is also a possible order in Teribe, alternative to N A CLF Num Dem (Quesada 2000: 127).

24. For the orders A N Num Dem and CLF-Num of Galo, see Post (2007: sections 6.1.2.1 and 8.2.1). This is also one of the alternative orders of Mising. See Doley and Post (2012: section 2.1), who give the example in (i):

- (i) bii-kə bottə-nə okum-ikii dor-kon də-m
3.SG-GEN big-NZR:SUB house-dog CLF:ANIM-one Dem
'that one big house-dog of his'

25. For Abun (West Papuan) see Berry and Berry (1999: section 5.2); for Sudest (Oceanic) see Anderson and Ross (2011: section 2.6). Also see the case of the alternative order of Tongan (note 16).

26. I will not try to document these orders, nor the 64 orders computed by multiplying 2 six times (given that each of the six Heads of the sub-projections of (i) of note 29 of chapter 2, repeated here, can either precede or follow its modifier, depending on the language—(ib) and (ic) represent the order in German and English, in which all the Heads follow their modifiers).

- (i) a. $[_{NP} [_{NPsize} [_{APsize} [_{DegreeP} [_{MeasureP} [_{CardinalP} multiplier base] measure] degree] AP] NP] N(P)$
 b. ein hundert Meter zu hohes SIZE Gebäude
 c. one hundred meter too tall SIZE building

Capitals in (ib) and (ic) indicate the nonpronunciation of the common noun corresponding to the adjective of size, which can be pronounced in languages other than German or English; e.g., Chinese (Shengyuan Gu, pers. comm., February 27, 2020).

Note that this drastically reduces the orders that would be expected from the combinations of 7 elements (factorial $7 = 5,040$) if the right constituencies and the restriction (1) on movement were not considered.

27. *Un(o)* ‘one’ is very plausibly silent in Italian also in *questo libro* ‘this book’ (cf. the analogous case of Mandarin Chinese [Her et al. 2015: section 3; Zhang 2019: section 2.2]), and *il primo libro* ‘the first book’ (and in their English equivalents), if we compare them with *questi due/tre/ etc. libri* ‘these two/three/etc. books’, *i primi due/tre/ etc. libri* ‘the first two/three/etc. books’.

28. <https://apics-online.info/surveys/63>.

29. On the multiple possibilities found in German see Ionin and Matushansky (2018: section 5.3.4).

30. It remains to be seen whether the construct state Semitic numerals and the Slavic numerals governing genitive Case on the noun can be given a unified analysis with the clear cases of numerals as phrases in specifier position. The possibility of the presence of a silent head NUMBER/AMOUNT argued for in Kayne (2003b, 2007), Zweig (2006), and Tatsumi (2018) for the latter case may provide one such unification. For further general discussion see Shlonsky (2004), Danon (2012), Caha (2015), and references cited in these works. On the system of Irish (Celtic, more generally, and other VSO languages) discontinuous complex numerals, see Duffield (1995a: Chapter 5, Appendix, and 1995b).

31. See, for example, the different distribution of English *all* and *every* with respect to the definite article or a possessive adjective: < *the > *all* < the > *whims of Mrs. Thatcher* vs. < the > *every* < *the > *whim of Mrs. Thatcher*; < *her > *all* < her > *whims* vs. *her every* < *her > *whim* (examples originally due to Andrew Radford). In other languages ‘all’ and ‘every’ are expressed by the same morpheme, once above, and once below, determiners/demonstratives. See, for example, the case of Japanese in (i), provided by Hiromi Sato (pers. comm., February 27, 2000 date):

(i) <subete no> korera no <subete no> (?san-satu no) subarasii hon
 <all GEN> these GEN <all GEN> (?three-CLF GEN) nice book
 ‘<all> these <every> (three) nice books’

32. Also see West Polesian (Slavic [Roncero Toledo 2019: 174]) for the co-occurrence of indefinite quantifiers and cardinals, which arguably occupy a distinct position from multal/paucal quantifiers, as shown in Italian by their different positioning with respect to *altro* ‘other’ in its “additional token” interpretation: *Dammi <altri> due <*altri> minuti* ‘Give me two more minutes’ vs. *Mi diede <molti/pochi> altri <*molti/pochi> esempi* ‘He/she gave me many/few other examples’. Cf. Cinque (2015).

33. As distinct from numeral classifiers (and akin to Gender, on which see Picallo’s [2008] “Class functional projection”). Nominal classifiers are closer to the noun than the numeral classifiers and can co-occur with the numeral classifiers, as in Akatek Maya (ia) and Thai (ib).

(i) a. kaa-(e)b’ xoyan ‘ixim paat (Zavala 2000: 125)
 two-CLF CLF_{numeral} (for round objects) CLF_{nominal} tortilla
 ‘two tortillas’
 b. mã tua lé g sǝ·ŋ tua nán (Haas 1942: section 3)
 dog CLF_{nominal} little two CLF_{numeral} that
 ‘those two little dogs’

34. (Integrated) nonrestrictive, kind-defining, finite restrictive, finite maximalizing, infinitival, and participial relative clauses appear to be merged at different heights of the nominal extended projection, and they too appear, like PPs, to be able to move independently of the NP (like the “extraposed” relative clauses of English and the derived predemonstrative relative clauses of Chinese and several head-final languages). See Cinque (2005: 327fn34) on PPs and Cinque (2020: sections 3.5 and 3.6) on relative clauses.

35. While the primary interest here lies in a system that may characterize the possible vs. impossible orders, the tendencies of the Greenbergian

tradition should also find some place in it. For some tentative general discussion, in addition to the present section, see section 4.2.

36. It remains to be seen whether the same proportions are found in attributive contexts (namely in [[degree word adjective] N], which is more typical of [more harmonic with] rigid head-final languages, and with [N [adjective degree word]], which is more typical of [more harmonic with] rigid head-initial ones, as well as with the less harmonic [N [_{AP} degree word adjective]] and [[_{AP} adjective degree word] N]; cf. (6) of chapter 2). Predicative and attributive usages do not always go together. In K'iche' (Mayan), for example, a degree word precedes the adjective in predicative position but follows, in suffix form, in attributive position (see Can Pixabaj 2017: section 3.5.1). “Harmonic” here means involving movements of the same kind at every level of embedding (see sections 3.2, 4.2, and 4.3).

37. See Greenberg (1972: 10–11) for the idea that a classifier is akin to a base with value ‘1’ (plus some further classificatory value). For further discussion see (Allasonnière-)Tang and Her (2020) and references cited there.

38. For Uab Meto see (i):

(i) tui nono m-bo nua' (Yakob Metboki, pers. comm.,
February 20, 2020)

[pen [CLF [ten two]]]
‘twenty pens’

39. (Allasonnière-)Tang and Her (2020: 511, section 6) report that their “detailed statistical analysis of a geographically and phylogenetically weighted set of 400 languages shows that the harmonization of word order between numeral bases, classifiers, and nouns is statistically highly significant, as only 8.25% (33/400) of the languages display violations.”

40. I thank Yoshio Endo for this and the other Japanese data reported here. Korean behaves like Japanese (see (ia)) and so do Hungarian and Basque (Hackstein 2010: 39–40). German instead displays a head-initial ordering, like that of Italian (see (ib)).

- (i) a. Kim Jhølsu kyosu nim (Hwang 1991: 121)
family name given name professor Mr.
b. Herr Professor Wolfgang Ulrich Dressler
Mr. professor given name(s) family name

For a more fine-grained classification of what I referred to here as “occupational title” see Acquaviva (2019: sections 2.2 and 3). Also see

Acquaviva's article and Matushansky (2008b) for discussion concerning complex names and for the different structures taken to underlie them. We differ here from Ionin and Matushansky (2018: 121–122), who do not believe that the different orders of English and Japanese names “have any deep linguistic significance” (122).

41. In its honorific usage the final *-e* of *signore* is obligatorily truncated (v. **Il signore professore/capitano Folena*), unless it enters a coordination of honorific titles (*il signore e la signora Folena* ‘Mr. and Mrs. Folena’).

42. For the silent (functional) N(P) (‘person’) heading the projection in (8a) and (8b) see immediately after these examples. For the Head status of the given name and the modifier/genitive-like relation of the family name to the given name see Krifka (1985: 85–86), and the interesting confirmation coming from Persian (Matushansky 2008b: 606fn22). The occupational title (which alternates [in Italian] with kinship terms: *la signora zia* lit. ‘the Mrs. aunt’) can itself be a subprojection when it contains an occupational subspecification, like Italian [*un [medico_i [virologo t_i]]]], or the English of at least some speakers [*a [virologist doctor]_i t_i]*, and the same holds of given names and family names when these are complex, each constituting a subprojection.*

43. Basque and Hungarian are like Japanese for the order of family name > occupational title > honorific title (Hackstein 2010: 40). Head-final Bangla is mixed, having the order given name > family name, like Italian and German, but given name/family name > honorific title, like Japanese and Korean (Tsunoda 1994: 6; also see Tsunoda 1990). Japanese itself can have the order given name > family name with foreign names (e.g., Noam Chomsky [Yoshio Endo, pers. comm. October 10, 2021]).

44. This is just a tendency as there are many inconsistencies. See for example that of SOV Yidiny:

(i) bama:l yabuɽuŋgu mija gangu:l wawa:l (Dixon 1977: 480)

person.ERG girl.ERG animal.ABS wallaby.ABS see.PST
‘the girl saw the wallaby’ (lit. ‘person girl saw animal wallaby’)

Generic nouns are attested in several other Australian languages.

45. “Generic nouns,” such as ‘thing’, ‘person’, ‘animal’, are also present in Seri (language isolate [Moser 1977: 18]), and in the Malayo-Polynesian languages Acehnese (Durie 1985: section 5.8) and Taba (Bowden 1997: section 7.2.2.2), among other languages.

46. As noted in chapter 2, n3, I use PL instead of Number to avoid confusion with the silent or overt number/amount Head selecting numerals (as discussed in the text before (8) of section 2.7). Plural, dual, singular, etc., may well head different subprojections. See, for example, the case of the Papuan language Yele, where plural and dual morphemes co-occur (in compliance with Kayne’s [2005b: 15] Principle of Decompositionality):

- (i) [U kpâm dê y:oo] (Henderson 1995: 73)
 his wife DU PL
 ‘his two wives’

In some languages diminutive particles too appear as Heads, in prenominal position in head-initial languages (as in Teop—Oceanic (iia)) and in postnominal position in head-final languages (as in Kokama—Tupi-Guaraní (iib)). They appear closer to the noun than PL.

- (ii) a. a maa si mono iana (Teop [Mosel with Thiesen
 2007, section 7.6, example (1)])
 DET PL DIM parcel fish
 ‘little fish parcels’
 b. ca+ yawara kira +nu (Kokama [Cabral 1995: 336])
 1 dog DIM PL
 ‘my little dogs’

On the functional heads that in some languages are required to license adnominal modification (often called “linkers”), see Manzini (2021) for discussion.

47. For a different derivation of head-initial/head-final languages see Moro and Roberts (2021).

48. As discussed in note 16, the order of postnominal modifiers in Tongan is N Dem A Num with deictic demonstratives and N A Num Dem with anaphoric demonstratives (Macdonald 2014: chapter 1).

49. The order of postnominal modifiers in East Uvean (Wallisian) (Polynesian) is N A Dem Num (Livingston 2016: 34).

50. The prenominal order of modifiers in both Laz and Argobba is Dem Num A N.

51. Here I will not be concerned with DP/PP complements. For the nominal domain of head-initial/-medial languages I will simply adopt Kayne’s (2002, 2004b) idea that DP complements are attracted by (a Case and) a

preposition merged higher up in the structure, followed, in head-initial/-medial languages, by remnant movement, which locates the PPs after the Head (but see Adger 2013 and Baggio 2021 for a direct merger of PPs high up in the structure). Cinque (2005: 237fn34) notes that head-final languages, which show the PPs before demonstratives in the nominal domain, can be taken to lack the remnant movement part of the derivation present in head-initial/-medial ones.

52. A similar situation is found in Iraqw (South Cushitic), where nouns can be followed by number, determiner, possessive, and Case suffixes (Mous 1992: 84). One example with a possessive suffix given in Mous (2007: 13) is (i):

- (i) hiikwa-‘ée’ kudá koo’an ló’wa hhoo’ i amá
cattle-1SG.POSS DEM4 five very nice BE where
‘Where are those five nice cows of mine?’

53. Kipsigis has the rare possibility of demonstrative (rather than determiner) spreading.

54. Also see the case of the Kordofanian language Moro. Jenks’s (2014) discussion can be rendered compatible with phrasal movement rather than head-noun movement if all “arguments” and “adjuncts” of the noun are merged above NP, as argued for in chapter 1 and in chapter 4 (section 4.3: 73).

55. The differences between the other mirror-image pairs are more difficult to assess because they involve special conditions (see Abels and Neeleman 2007: section 4.2, 2012: 29fn4).

56. “In any well-formed constituent structure tree, for any nodes x and y , if x precedes y , then all nodes dominated by x precede all nodes dominated by y .” (Partee et al. 1990: 442, cited in Abels 2016a: 180fn2).

57. Cf. Abels (2011: 4). For critical discussion and for an approach altogether different from the present one, and from Abels and Neeleman’s (2012), see Medeiros (2017, 2018), and the discussion in Abels (2016b).

58. On the SOV nature of Dutch (partly obscured by the raising of the finite verb to CP in main clauses) see Koster (1975, 2000) and many other works since (pace Zwart 1997: III).

59. I report here Barbiers’s (1995: section 4.3) rendition of Koster’s (1974) findings. Instead of *door ‘n stuurfout* ‘by/because of a steering error’, Koster (1974: 612) had *door gás te geven* ‘by giving gas’.

60. On the characteristic mirror-image order of circumstantial PPs in head-final and head-initial/-medial languages see Bartsch and Venneman (1972: section 6.2), Boisson (1981, 1993: 106–107), Hinterhölzl (2002: 132), Cinque (2002: section 2.2), Schweikert (2005: 102), Sabel (2011: section 7), and Lu (no date). Focus-sensitive operations may conceal the existence of a strict order of circumstantial PPs, but the order becomes visible whenever some factor makes the focus-sensitive operations unavailable. See Schweikert (2005) and Cinque (2002) for discussion.

61. The derivations suggested in the remainder of the section are a particular implementation within the present framework of Barbiers's analysis and derivations. Also see Hinterhölzl (2009: section 3.3). The (partially) symmetric external merge of Abels and Neeleman's (2012) account could also accommodate these orders by base-generating the PPs directly to the left or to the right of the V(P), thereby abandoning the strict head-final nature of Dutch (though arguments and AdverbPs would necessarily have to be base-generated to the left).

62. It remains to be seen how best to capture the distribution of focus particles that Barbiers (1995) also discusses.

Chapter 4

1. See Roberts (2019: 359–364) on the behavior of these adverbs in double-object and verb-particle constructions.

2. On the partial raising of the lexical verb in English also see Johnson (1991) and Blight (2004: section 2.2.1).

3. The hierarchical/linear representation of (6), as a product of Merge, with V(P), Asp(P), T(P), and other Heads as final Heads (if linear order is part of narrow syntax) has something in common with Haider's (1992, 2000, 2013, 2015) and Fukui and Takano's (1998, 2000) approaches, except that these Heads not only move in the derivation of head-initial languages (here via the *whose-pictures* pied piping mode) but also in the derivation of head-final ones, via the *pictures-of-whom* pied piping mode. As noted in section 3.3, the fact that they select their complements in their specifiers is compatible with antisymmetry.

4. On the general order in (7) see sections 1 and 2 of Rackowski and Travis (2000) on Malagasy (VOS) and Niuean (VSO): “there . . . seems to be a correlation between preverbal elements which appear in their

hierarchical order and postverbal elements which are in the reverse order” (127). Also see Massam (2000, 2010). On what is found preverbally in “verb-initial languages” see the first part of Greenberg’s (1963) Universal 16: “In languages with dominant order VSO, an inflected auxiliary always precedes the main verb.” Carnie and Guilfoyle (2000a: 10) also state that a trait of VSO languages is represented by “preverbal tense, mood/aspect, question, and negation particles.” Also see Pearson (2000: 359), the Konstanz Universals Archive (<https://typo.uni-konstanz.de/rara/category/universals-archive/>) numbers 501 and 1553, Dryer (1992: sections 4.3 and 4.5), Hendrick (2000), Chung (2017), and Clemens and Polinsky (2017), among others.

5. In Tangsa in embedded contexts the complementizer follows the modal/tense/aspect morphemes:

- (i) [anʔa lɔpɔ tʰiŋ ŋâləmə] cʰəm m-aʔ (Boro 2017: 505)
[here play should COMP] know NEG-3
‘(They) did not know that (they) should have sex here.’

6. In a sense, the only difference between Turkish (see (11a)) and Italian (see (12)) resides in the pied piping mode of the (copula+)*miş* in Turkish and of the 3rd plural person auxiliary *hanno* in Italian. If Italian, like Turkish, utilized the *pictures-of-whom* pied piping, (12) would appear as (i), like Turkish (11a):

- (i) Loro [[mangia-to] e [bevu-to-]](ha)-nno
they eat-PST.PART and drink-PST.PART-(have)-3rdPL
‘They have eaten and drunk.’

7. What remains to be clarified are inflectional suffixes, and their derivation, which in the Morphology as Syntax approach (Collins and Kayne 2021; see also Manzini and Savoia 2007) are taken to be built in narrow syntax.

8. The VOS languages, in Hammarström’s sample of 5,230 languages (see Hammarström 2015), are around 3.3% of the totality of languages and the VSO languages around 9.5%, VOS and VSO languages thus reaching together at most 13% of the total number of languages (also see Greenberg 1963: 76–77; Cinque 2013b: 70, 2017: 340fn42 and references cited there). The rigid head-final languages are apparently also a minority among the SOV languages. Greenberg’s (1963: 109) rigid subtype of SOV languages (his group 23.III/PO/GN/AN) also lists

languages that are not as rigid as Japanese, Korean, or the Dravidian languages: with Hindi, Bengali, and Burushaski having initial complementizers and postverbal complement clauses; with Modern Armenian having different postverbal constituents; with Burmese having postnominal adjectives and numerals; with Nama Hottentot having postnominal possessives and postverbal objects; with Quechua having certain postverbal infinitival complements and adjuncts; among others. See Cinque (2017: section 4.1) for further discussion and references. Greenberg's notion of rigid SOV languages is "languages in which the verb is always at the end" (79), rather than languages in which all the Heads are always at the end.

9. In terms of the proposals in Roberts (2019: 173–174) these would represent mesoparameters.

10. See Cinque (2013b: 50fn8).

11. Sabel (2011) reports that among the Oceanic VOS languages, Kiribati and North-West Fijian have the inverse order of manner and frequency AdverbPs but the direct order of $DP_{IO} DP_{DO}$, whose overall derivation needs to be worked out in the present context.

12. Given that DPs/PPs (like possessive adjectives, relative clauses, and PPs in the nominal extended projection [cf. note 2 of chapter 2 and note 51 of chapter 3]) can also move independently to different Case/scope/specificity positions, they may appear in more than one place with respect to adverbs. See, for example, (i), from Rackowski and Travis (2000: section 1.3):

- (i) Tsy manasa tsara foana <ny lamba> intsony
<ny lamba> mihitsy <ny lamba> Rakoto
Neg PRES.AT.wash well always <DET clothes> anymore <DET
clothes>at.all<DET clothes> Rakoto
'Rakoto does not wash at all any longer always well the clothes.'

In Malagasy the predicate appears to raise very high as even topics are after the subject (VOXSTopic). See Pearson (2001: section 3.1.2, 2007: section 3.1), and in particular Pearson (2007: 10) for evidence that such topics display weak crossover and reconstruction effects, suggesting the presence of movement. As to the left peripheral topic of Malagasy, Paul (2002: section 8) claims that it "is probably not generated via movement as almost any element may appear in the topic position and islands are not respected." This description seems to qualify it as a "Hanging Topic" (Cinque 1977, 1990: chapter 2), which arguably is never found clause-finally (see Kayne

2020a: section 3). The overall linear order of Malagasy thus seems to be HangingTopicVOXS(movement)Topic. The Mayan VOS language Ch'ol (which, like Niuean, alternates this order with VSO) has instead the order TopicFocusVOS (Coon 2010: 223).

13. In languages, like most of Mayan, where VOS alternates with VSO, VOS is only possible if the direct object is a bare NP. With full DP objects the order is obligatorily VSO. See for example Clemens and Coon (2018: 247). If bare NPs are closer to the V(P) than DPs, which are presumably raised to a higher position of specificity, the alternation could be analysed as movement of the V(P) to an initial position pied piping a smaller portion of the V(P) extended projection, the one containing the lower NP, though not the higher DP. For a different analysis see Clemens and Coon (2018).

14. In more rigid head-initial languages even high adverbs may appear post-verbally in the mirror-image order of that of head-final and many head-medial languages. See for example the case of VSO Peñoles Mixtec:

- (i) ní šitu ba?a na?i -dě (cf. Daly 1973: 15)
PST plow well probably -he
'He probably plowed well'

This suggests that the VP raises with the *whose-pictures* pied piping mode across the lower adverb *ba?a* 'well', after which the T(P) morpheme also raises with the same pied piping mode (dragging along the VP) above the epistemic adverb and the (pronominal) subject, whereas in, say, English V(P) raises above the lower adverb without pied piping, arguably followed by the possible raising of T(P) with the *pictures-of-whom* pied piping mode.

15. On the syntax of verb clusters there is a substantial literature. In addition to Abels' works just cited, see, for data, different analyses, and further references, Haegeman (1992, 1994), Zwart (1995, 1996), Koopman and Szabolcsi (2000), Wurmbrand (2004, 2017), Barbiers (2005), Hinterhölzl (2006b, 2009), Svenonius (2007), Salzmann (2013b), Hendriks (2018), Barbiers et al. (2018), Haider (2020b: section 2.3), Van Craenenbroeck et al. (2019), and Roberts (2019: section 2.3.1).

16. But see Hinterhölzl (2006b: section 5.1) for the important observation that some apparent verb clusters involving 'want' may still be biclausal, as evidenced by the order of a lower adverb before a higher one, something impossible in a single clause (*volere* 'want' also enters

mono- and biclausal structures in Italian [Cinque 2006b: 61fn54, section 7.1]).

17. Let me quote from Abels (2011: 7, section 3.1) (see also Wurmbrand 2017: section 2, table 2): “For Aux>Mod>V clusters she [Wurmbrand (2004)] reports 1-2-3 order for Dutch and Swiss German, 1-3-2 orders for Standard German, the Allemanic Vorarlberg dialect, and certain Swiss German speakers, 3-1-2 orders for various German and Swiss German dialects, as well as the Allemanic Vorarlberg dialect, 2-3-1 orders for Afrikaans and, under certain circumstances West Flemish, 3-2-1 orders for some German dialects and the Allemanic Vorarlberg dialect, and no 2-1-3 orders.” The systematic absence of 2-1-3 orders is also reported in Barbiers (2005: 233), Svenonius (2007: section 4), and Hendriks (2018: 55). As for the claim of its existence in Swiss German varieties (Salzmann 2013a, 2013b), see the critical discussion in Wurmbrand (2017: table 2 note f, section 3.1). Abels (2016a: section 3.1) also has a careful discussion of some apparent counterexamples, including 2-1-3 orders, which he shows are not genuine problems for a theory of neutral word order. For Dutch varieties see in particular Barbiers (2005), Barbiers et al. (2018), Hendriks (2018), and Van Craenenbroeck et al. (2019). The possibility of the orders in (26a')–(26e') and the impossibility of (26f') is clearly illustrated by the Modern Greek determiner spreading paradigm (19) of Sichel (2002: 306), from Androutsopoulou (1994).

18. Different types of constructions (Aux Mod V, Mod Mod V, Mod Aux V, e.g., do not necessarily allow all the five orders nor the same range of orders. The determination of the possible and impossible orders in different constructions (and different languages, dialects, and geographical areas) is out of the question here. See Barbiers (2005) for dialects of the Dutch language area and Wurmbrand (2004, 2017) for Germanic in general and references cited there. As shown in Abels (2016a) the same pattern is found in clusters of four elements. Equally outside the scope of the present work is the phenomenon known as Verb Projection Raising (Haegeman and Riemsdijk 1986; Haegeman 1992, 1994; Wurmbrand 2017: section 3.2.3), where phrasal material is found interspersed between the verbs of the cluster. Haegeman (1992: chapter 3, 1994) argues that Verb Raising and Verb Projection Raising should be analyzed as two separate constructions.

19. For the idea, which I do not adopt, that PPs, DPs, and AdvPs should be formed on separate planes, see the last paragraph of section 4.4 for some critical discussion.

20. The analysis is closer to the VP movement analysis of Barbiers (2005: sections 3 and 4) than to Barbiers et al.'s (2018) approach, where a nonmovement derivation is proposed for the verb cluster (through external Merge) on the basis of the possible nominalized nature of the main verb in the orders 3-1-2, 2-3-1, 1-3-2. Hinterhölzl (2006b: 85) also takes the IPP complements in the 2-3-1 order to be nominalized. So the question whether a generalized movement approach to verb clusters is correct will have to remain open.

21. For problems with a head-movement derivation of Germanic verb clusters, which used to be the early standard analysis, see Barbiers (2005: 248) and Wurmbrand (2017: section 3.2.1.1).

22. I ignore here questions of antilocality, which can be circumvented by adding an additional projection.

23. This order requires movement even in a symmetric approach to word order that assumes that dependents are linearized either to the left or to the right of the Head in compliance with their different height of Merge and relative scope (à la Abels and Neeleman 2009, 2012), or that linearization only targets sister nodes (cf. Wurmbrand 2017: section 3.1). Here I assume, as in section 3.5, that all orders are derived by movement. Even if the main argument for verb cluster reordering taking place postsyntactically rather than via syntactic movement is that such a reordering has no semantic effect (cf. Wurmbrand 2017: section 3.1), I take this not to be a sufficient reason. There might be other requirements that force movement; for example, a requirement to endow every phrase on the main projection path of the sentence with a “verbal” feature. Also see Kayne (2020a).

24. Their different orders appear to be determined by the different ways the Head of the extended projection they belong to moves: the V(P) for AdverbPs (see Cinque 1999: chapter 2), and for PPs (see Schweikert 2004, 2005; Takamine 2010). Unlike what I assumed in Cinque (1999), I would now take the neutral order of complement DPs (bare indirect object and direct object) to also be a function of the movement of the V(P). As noted in Abels (2016a: 190) Pearson (2000: §2.4) reports that when we look at double object constructions across languages, there is only one unmarked order in OV languages and two in VO languages:

- (i) a. IO DO V (OV languages)
- b. V IO DO (“direct” VO languages)
- c. V DO IO (“inverse” VO languages)

25. The same claim is made concerning the English paradigm (ia)–(id) in Svenonius (2002: section 3.1):

- (i) a. Howard foolishly may have been trying to impress us.
- b. Howard may foolishly have been trying to impress us.
- c. Howard may have foolishly been trying to impress us.
- d. Howard may have been foolishly trying to impress us.

“A head movement account is inadequate, since heads generally cannot cross other head positions. If all the auxiliaries in [(i)] occupy lower positions, and if they are all taken to have moved in [(id)], then each one will have to have crossed at least two other head positions” (210). Also see Nilsen (2003: chapter 4).

26. This version of Rizzi’s (1990) Relativized Minimality which extends to \bar{A} -chains Chomsky’s (2000: section 6; 2001: (17)) insight that links of A-chains do not count as interveners was proposed in Krapova and Cinque (2008: section VII) to capture the fact that the order of *wh*-phrases in Bulgarian multiple *wh*-fronting reflects, up to the finest degree, their pre-*wh*-movement order. This version may subsume Haegeman’s (1993a: 71) “Relation preservation on A-chains,” which ensures order preservation of Subject, Indirect Object and Direct Object in West Flemish scrambling. Also see Haegeman (1993b, 1996a, 1996b).

27. Incidentally it is unclear whether the Head-Movement Constraint should still be held, especially if head-movement is abandoned in favor of XP-movement. Its effects appear to fall squarely under (the previous interpretation of) Relativized Minimality. This is true even if head-movement (X° adjunction to X°) is retained. See Roberts (2010, chapter 5).

28. See Chomsky (2019: 268, 278) for a critique of multidimensional phrase structure.

29. On the putative transitivity failures of adverb order raised in Nilsen (2003: sections 1.3 and 1.5) and after him in Zwart (2007a) see the discussion in Cinque (2006b: 139fn22).

30. This section follows in essence sections 4.2 and 4.3 of Cinque (2017).

31. On the role of generalizations (and related exceptions) in language acquisition see Yang (2015, 2016).

32. In Biberauer and Roberts’s (2017) terminology these cases are “nanoparameters.”

33. For some such cases in the Tibeto-Burman family see Dryer (2008: section 5.5).

34. The *enough* that modifies nouns and prepositions appears instead to have a [*pictures-of-whom* pied-piping] feature as it (preferably) precedes NPs and PPs (see Maling 1983: section 1.4).

35. “Direct modification” adjectives are attributive adjectives that cannot have a relative clause source because they are nonpredicative (some adjectives are ambiguous between a predicative and nonpredicative usage and thus can be used either as direct modifiers or as indirect ones, in Sproat and Shih’s [1990] and Cinque’s [2010b] sense).

36. The fact that their origin may ultimately be responsible for the different pied piping features of the different adjectival classes in Cypriot Maronite Arabic and Istro-Romanian is irrelevant. A child has to determine the feature responsible for the correct order without necessarily knowing from which grammars the adjectives were borrowed.

37. In Italian, provenance and classificatory adjectives, which are in direct modification of the noun, force the noun to move with the *whose-pictures* pied piping mode, while color, shape, size, and quality adjectives, which can be direct or indirect modifiers, allow either mode (see Cinque 2010b: chapter 6, for more detailed discussion) with the consequence that only the former adjectives are necessarily postnominal. Also see the case of classificatory adjectives in Polish, the only class of adjectives that can be postnominal, thus apparently triggering overt raising of the N(P) (Rutkowski and Progovac 2005). For finer distinctions among direct modification adjectives see Morita (2011).

38. In Biberauer and Roberts’s (2017) terminology these cases are “microparameters.”

39. The same is true of Maltese, whose adjectives are otherwise postnominal (Borg 1996: section 3.12). Those in the superlative form precede the numeral in prenominal position (Winchester 2019: 17). Also see the English case mentioned in Kayne (2008b: note 15), and reported in section 2.1 of this monograph: *The black*(est) two dogs that I’ve (ever) seen*.

40. In Biberauer and Roberts’s (2017) terminology these cases are “mesoparameters.”

41. In Biberauer and Roberts’s (2017) terminology these cases are “macroparameters.” Also see the discussion in Roberts (2019: section 2.5).

42. That both the attractor and the attractee may share features is also suggested in Rizzi (2016: section 6).

43. Raising further, in the case of Swedish APs, above any adverbial modifiers of the adjective, as shown in (i), from Platzack (2014: section 5):

- (i) Han var [[sina motståndare]_i mycket t_i överlägsen].
he was his.REFL opponents very superior
'He was quite superior to his opponents'

44. That the AP plausibly moves in this case without pied piping (the third case of movement assumed here) can be inferred from the fact that whenever an adjective takes two DP complements (like *skyldig* 'owing'), attraction is possible (in fact necessary) above the lower one (cf. (ia)), but when it takes place above both, the order is the direct one, not the mirror image one (cf. (ib)) (Platzack 2014: section 2):

- (i) a. Han var sin son skyldig en ursäkt.
He was his.REFL son owing an excuse
b. Han var skyldig sin son en ursäkt.
He was owing his.REFL son an excuse

Modulo phrasal instead of head movement is similar to what Platzack (2014) proposes. Also see Platzack (2014: section 1) for arguments that the DP complements are not preceded by a silent preposition, and Platzack (1982).

45. As Ian Roberts (pers. comm., November 18, 2019) observed street names are to be distinguished from road names. They are compounds (despite the orthography) as the stress pattern reveals: "OXford Street" vs. "Oxford rOAd".

46. The latter order is quite strongly preferred in British English (Ian Roberts, pers. comm., November 18, 2019): *the River Thames/Avon/Humber* vs. **the Thames/Avon/Humber River*. As also noted in sections 2.7 and 3.2, the order of proper noun and common noun appears to correlate typically with the order of the genitive and the noun, as noted in Greenberg (1963: 89–90, and more generally with the other correlations pairs of the head-initial and head-final word order types. See Cinque (2011).

47. Also see the case of Vanimo (Papuan), which has the order N Num A Dem with human nouns and either the same order or the alternative order N A Num Dem with nonhuman nouns (Ross 1980: section 2.1).

48. I am not concerned here with axial part (or relator) “prepositions,” such as ‘under’, ‘behind’, ‘next to’, and so on, which can follow the DP even in head-initial languages, possibly in correlation with the position of the genitive (for discussion see Cinque 2010a and references cited there).

49. These are often called “ambipositions,” among other terms. See Libert (2006) for discussion, and for distinctions to be made within this class of adpositions.

50. I thank Alireza Soleimani (pers. comm., January 11, 2017) for corrections in Goldberg’s examples and glosses.

51. In old Swedish one could have OVinf with objects whose D is not filled and VO otherwise (Holmberg and Platzack 2005: 449f), but here the difference depends on the object (whose associated FP may consequently be marked with a [*whose-pictures* pied piping] feature or a [*pictures-of-whom* pied piping] feature), not on the verb.

Chapter 5

1. Other left-right asymmetries are discussed in Kayne (2013).
2. “A head-final phrase αP cannot immediately dominate a head-initial phrase βP , if α and β are members of the same extended projection.”(p. 1)
3. I thank Richard Kayne, Andrew Radford, Ian Roberts, and Peter Svenonius for sharing their judgments on the two types of pied piping. For Peter Svenonius (3b) is unacceptable rather than marginal. As seen in chapter 1, example (6), the contrast between the two types is neutralized, or is much weaker, in nonrestrictive relative clauses (also see (i)), although it remains robust in restrictives. See (ii):
 - (i) a. John, whose pictures have never appealed to anyone, . . . (ok)
 - b. John, pictures of whom have never appealed to anyone,.. (ok; perhaps more natural in writing)
 - (ii) a. Here is someone whose pictures have always appealed to her.
 - b. *?Here is someone pictures of whom have always appealed to her.
4. Movement of the Head by itself (without pied piping) also appears to be quite marked, perhaps even more marked than the *pictures-of-whom* pied piping, at least to judge from the cross-linguistic rarity of the N Dem Num A order (Greenberg’s 1963: 52 “less popular” order) vis à vis the Dem Num A N order, and the relative rarity of V2 languages,

where the V(P) raises to CP without pied piping, thus not reversing the order of clausal arguments and modifiers.

5. This order was also claimed not to exist by Steele (1978: 42) and Haider (1992: section 5.2, 2000). Also see Dryer (1996: 1059), Kayne (2003a: section 9.3.2), and the Konstanz Universals Archive (numbers 1382 and 1553). On the apparent nonexistence of another FOFC-violating structure ($[_{CP}[_{VP} V O] C]$), see Dryer (1992: section 4.3, 2009: section 5), but also the exceptions noted in this section and those mentioned in Abels (2013: section 4.2).

6. The fact that auxiliaries inflected for agreement are so rare when they are not contiguous to the subject (as opposed to invariant particles, which are not FOFC-compliant [Biberauer 2017]) might have to do with the virtual necessity for them to enter a Spec-head relation with the preverbal subject. For alternative ways to derive the FOFC see Zwart (2011: 110–111), Haider (2013: 132–135, 2020a), Hinterhölzl (2016: section 7), Sheehan (2017), Roberts (2019: chapter 2), and references cited there.

7. Table (i) gives the percentages reported by a number of authors, (ii) the language numbers given in WALS, and (iii) the language numbers given in Hammarström 2015: 10):

Table (i)

	SOV	SVO	VSO	VOS	OVS	OSV
Ruhlen (1975)	51.5%	35.6%	10.5%	2.1%	0.0%	0.2%
Tomlin (1979)	45.8%	41.5%	11.0%	1.5%	0.3%	0.0%
Mallinson and Blake (1981)	41.0%	35.0%	9.0%	2.0%	1.1%	1.0%
Cysouw (2008)	47.1%	41.2%	8.0%	2.4%	0.8%	0.4%
Hammarström (2015)	43.3%	40.3%	9.5%	3.3%	0.7%	0.3%

Table (ii)

SOV	SVO	VSO	VOS	OVS	OSV
497	435	85	26	9	4

Table (iii)

SOV	SVO	VSO	VOS	OVS	OSV
2267	2107	502	174	38	19

This distribution of “head-final” and “head-initial” languages, close to 50-50, makes it plausible to take the currently existing languages to be a fairly representative sample (for word order) of all possible languages (despite the often noted fact that the currently existing ones are a tiny fraction of all the languages that were and are no longer spoken, that will be spoken in the future, and that will never be spoken). Tables (i), (ii), and (iii) actually show a slight predominance of VO over OV languages ((ii) totals 546 languages for VO and 510 for OV and (iii) 2783 for VO and 2324 for OV), and the order of modifiers in the nominal phrase shows an even clearer skewing of the head-initial order N A Num Dem over the head-final Dem Num A N order in the number of languages and genera (see (6a) and (6b) of chapter 3), though one could have expected a much wider difference. Perhaps, consistency in the movement options when the more marked ones are involved is only mildly sanctioned, while what is more severely sanctioned is changing mode from the less marked pied piping to the more marked one.

8. As already noted, Greenberg (1990) states that the order of the multiplier (M) and the base (B) tends to correspond to that of the numeral (Q) and the noun (N), proposing a universal implication $BM \rightarrow NQ$ or, equivalently, $MB \rightarrow QN$ (Universal 28 of Greenberg 1990). Also see Greenberg (1989: 105–106). These harmonic orders involve movement of the Heads base and noun with the same pied piping mode.

9. For the similar case found in Quechua, Cole (1982: 74–75) says that “in instances in which an adjective, an adverbial and an (accusative) argument of the adjective are present in the same sentence, the accusative argument normally precedes the adverbial, which itself precedes the adjective. The marked order adverb, accusative argument, adjective is also possible:

- [(i)] a. Marya-ta ashta llaki-mi ka-ni
 Maria-ACC very sad-validator be-1
 b. ashta marya-ta llaki-mi ka-ni
 very Maria-ACC sad-validator be-1
 ‘I’m very sad about María’”

10. Cf. Chomsky (2021: 13): Internal Merge is “the most economical subcase of Merge . . . , the case that involves least search by a huge margin.”

11. Although, as Ian Roberts notes, many OV languages are very stable, Tamil, Korean, and Japanese seem to show no sign of major word order change over their 1,000+ year histories.

12. For a similar idea, within a somewhat different system, see Roberts (2017: section 3.4) and his Input Generalization.

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