1 Greenberg’s Universal 20

Universal 20

When any or all of the items (demonstrative, numeral, and descriptive adjective) precede the noun, they are always found in that order. If they follow, the order is either the same or its exact opposite. Greenberg’s (1963) Universal 20 is perhaps not the most clearly stated one, but it can be taken to mean the following (Cinque 2005):

Universal 20 (Cinque’s restatement)
In prenominal position the order of demonstrative, numeral, and adjective (or any subset thereof) conforms to the order Dem > Num > A, and in postnominal position the order of the same elements (or any subset thereof) conforms either to the order Dem > Num > A or to the order A > Num > Dem.

Except it isn’t true
Hawkins (1983), based on further data, revised it:

(1) a. N Num A Dem Gabra, Luo, Logoli
    b. N A Dem Num Aghem
    c. N Dem Num A, N Dem A Num Noni

Universal 20 (Hawkins’ revision)
When any or all of the modifiers (demonstrative, numeral, and descriptive adjective) precede the noun, they (i.e., those that do precede) are always found in that order. For those that follow, no predictions are made, though the most frequent order is the mirror-image of the order for preceding modifiers. In no case does the adjective precede the head when the demonstrative or numeral follow.
The status of all 24 possible orders

According to Cinque (2005):

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ✓ | a | Dem | Num | A | N | MANY | ✓ | m | Dem | A | Num | N | zero |
| ✓ | b | Dem | Num | N | A | many | ✓ | n | Dem | A | N | Num | FEW |
| ✓ | c | Dem | N | Num | A | FEW | ✓ | o | Dem | N | A | Num | many |
| ✓ | d | N | Dem | Num | A | few | ✓ | p | N | Dem | A | Num | FEW |
| ⊗ | e | Num | Dem | A | N | zero | ✓ | q | Num | A | Dem | N | zero |
| ⊗ | f | Num | Dem | N | A | zero | ✓ | r | Num | A | N | Dem | FEW |
| ⊗ | g | Num | N | Dem | A | zero | ✓ | s | Num | N | A | Dem | few |
| ⊗ | h | N | Num | Dem | A | zero | ✓ | t | N | Num | A | Dem | few |
| ⊗ | i | A | Dem | Num | N | zero | ✓ | u | A | Num | Dem | N | zero |
| ⊗ | j | A | Dem | N | Num | zero | ✓ | v | A | Num | N | Dem | zero |
| ✓ | k | A | N | Dem | Num | FEW | ✓ | w | A | N | Num | Dem | FEW |
| ✓ | l | N | A | Dem | Num | few | ✓ | x | N | A | Num | Dem | MANY |

In this table, each block holds the order of Dem, Num, and A constant, and varies the position of N. 6 blocks, one line in each for each of four possible positions of N.

Digesting the table

Some generalizations we can draw from the table.

- Block 1 (a–d) contains only attested orders; block 2 (e–h) differs from block 1 in the order of Dem and Num, and contains only unattested orders.

- The order Num Dem is not impossible (r, s, t, w, x).

- The possible ones all have Dem last.

- So: **Num can precede Dem only if Dem is last.**

- Something else must be wrong with (v).

- Wherever A N is possible, N A is also possible, and vice-versa.

- Other things can occur between N and A (c, d, p, t), but nothing can occur between A and N (i, j, q, u, v).

- So: **A can only precede N directly, A can follow N at a distance.**
2 Capturing the generalizations

2.1 Understanding the attested orders

Trying to understand the generalizations

Let’s begin by assuming that there is a universal basic order—noun phrases have a “deep structure” that is constant across languages—and the different orders we find in different languages arise by moving things around in the tree.

(a) is a natural guess for the basic order—the semantics make sense, and it puts the functional elements like Dem up higher in the structure and the lexical elements like N lower in the structure.

(2) a. Dem Num A N [MANY](a)
   b. Dem Num N_i A t_i [many](b)
   c. Dem N_i Num A t_i [FEW](c)
   d. N_i Dem Num A t_i [few](d)

Moving N over A

In order to think about what happens when N moves over A, let’s consider the structure to be something like this, where the A is actually the head of an AP above the NP. (We could also assume that N moves by itself up to a higher abstract head, but that doesn’t seem simpler—either way would work, given the evidence we have at hand. But let’s assume only XPs are moving.)

Moving N over Num or over Dem
Similarly, we can consider (c) and (d) to be like this:

![Diagram](image)

**Moving N over A**

Assuming that this is the right way to look at the relative order of N and A (when they’re next to each other), then the fact that A N and N A are always both possible orders (so long as one of them is) suggests that nothing ever blocks this possibility.

The fact that the N A order is somewhat more rare suggests that the “default” (un-marked) option is not to move the NP, but languages can pick the marked option of moving.

**Dem N A Num**

The order Dem N A Num is also popular (given as “many”). How could this arise?

Well, N A itself comes from moving NP over A, and we can get Dem N A Num if we then move the AP up a step, like so:
N A Dem Num

The order N A Dem Num is also possible, but not popular (given as “few”). We can suppose that this happens in the same way:

N A Num Dem

The possibility N A Num Dem is very popular (given as “MANY”). And we can do the same trick, once more:

2.2 Summary of attested orders

What have we got so far?

Ok, so, let’s suppose there is something in the syntax of language that says: (a) [Dem [Num [A N]]] is the basic order and, (b) you can move any constituent to the left, forming a constituent with what was moved over. The various possibilities this provides are:

(3) Moving just NP
    a. Dem Num A N                      [MANY](a)
    b. Dem Num N A                      [many](b)
    c. Dem N Num A                      [FEW](c)
    d. N Dem Num A                      [few](d)
(4) Moving just AP  
   a. Dem [[A N] Num] [FEW](n)  
   b. [[A N] Dem Num] [FEW](k)  

What have we got so far?  

(5) Moving just NumP  
   a. [Num A N] Dem [FEW](r)  

(6) Moving NP and AP  
   a. Dem [[N A] Num] [many](o)  
   b. [[N A] Dem Num] [few](l)  

(7) Moving NP and NumP  
   a. [Num [N A]] Dem [few](s)  
   b. [[N Num] A] Dem (c plus r) [few](t)  

What have we got so far?  

(8) Moving AP and NumP  
   a. [[[A N] Num] Dem] [FEW](w)  

(9) Moving (NP,) AP, then NP (again)  
   a. N Dem A Num [FEW](p)  

(10) Moving NP, AP, and NumP  
     a. [[[N A] Num] Dem] [MANY](x)  

That’s only 14. What about the other 10?  

2.3 Ruling out unattested orders  

Num Dem A N?  

How would we get Num Dem A N?  

- A and N remain in their basic order, so NP did not move.  
- Num is on the other side of Dem, so NumP moved.  
- Except NP is inside NumP, so we couldn’t have moved NumP past Dem without also putting NP to the left of Dem.
• **Conclusion:** We can’t derive this one.

Just as well, Num Dem A N is unattested.

**Why Num Dem requires Dem to be final**

In order for Num to precede Dem, we must have moved NumP. NumP contains all of Num, A, and N, regardless of whether we’ve moved NP or AP already. So, there is no way to get Num to the left of Dem except by moving NumP (that is, everything) to the left of Dem—so Dem has to be last.

That’s ruled out the following six as underivable. Four to go.

(11)  
  a. Num Dem A N                [zero](e)  
  b. Num Dem N A                [zero](f)  
  c. Num N Dem A                [zero](g)  
  d. N Num Dem A                [zero](h)  
  e. Num A Dem N                [zero](q)  
  f. A Num Dem N                [zero](u)

**A can only precede N directly, but follow at a distance**

If A precedes N, that means that NP did not move into the specifier of AP. And so we can’t move AP without simultaneously moving N along with it.

If N precedes A, then the NP did move. If it moved into the specifier of AP, nothing’s different—we still can’t move AP without moving N along with it. However, if we suppose that it is possible to move NP out of the specifier of AP afterwards (used to derive (p)), the NP can get away from the AP. And of course, if NP moves alone (as in c–d), it can also get away from the AP.

(12)  
  a. N Dem A Num                [FEW](p)  
  b. Dem N Num A                [FEW](c)  
  c. N Dem Num A                [few](d)  
  d. N Num Dem A                [zero](h)  
  e. Num A Dem N                [zero](q)  
  f. A Num Dem N                [zero](u)
The remaining unattested examples

The reasoning above, that A cannot precede N at a distance, rules out the rest:

(13)  
  a. A Dem Num N                  [zero](i)  
  b. A Dem N Num                  [zero](j)  
  c. Dem A Num N                  [zero](m)  
  d. A Num N Dem                  [zero](v)  

3 Frequency

Frequency

Now, let us think a little bit about the frequency. We understand why the ones that are unattested are unattested—they can’t be derived. But why are some attested orders very frequent, and others not so frequent?

Let’s pursue the idea that there are a number of options a language can take, but that there is a preference between them. Cinque (2005) proposes:

- No movement (unmarked)
- Move NP plus move the AP (unmarked)
- Move NP but don’t move the AP (marked)
- Move NP but don’t move the AP but move the NP (quite marked)
- Move the NP all the way up (unmarked) or partway (marked)

Frequency

(14) Moving just NP

  a. Dem Num A N                    (unmarked) [MANY](a)  
  b. Dem Num N A                    (partial) [many](b) 
  c. Dem N Num A                    (partial, move higher) [FEW](c)  
  d. N Dem Num A                    (stop moving) [few](d)  

(15) Moving just AP

  a. Dem [[A N] Num]                (partial, move higher) [FEW](n)  
  b. [[A N] Dem Num]               (move higher twice) [FEW](k)
Frequency

(16) Moving just NumP
   a. [Num A N] Dem (partial, move higher) [FEW](r)

(17) Moving NP and AP
   a. Dem [[N A] Num] (partial) [many](o)
   b. [[N A] Dem Num] (stop moving) [few](l)

(18) Moving NP and NumP
   a. [Num [N A]] Dem] (partial, move higher) [few](s)
   b. [[N Num] A] Dem (stop moving) [few](t)

What have we got so far?

(19) Moving AP and NumP
   a. [[[A N] Num] Dem] (move higher)[FEW](w)

(20) Moving (NP,) AP, then NP (again)
   a. N Dem A Num (moving NP alone) [FEW](p)

(21) Moving NP, AP, and NumP
   a. [[[N A] Num] Dem] (unmarked) [MANY](x)

References

