Main point: There is evidence for a functional projection below DP and above NP, and all indications are that it is responsible for grammatical number; it is NumP.

To begin: • Modern Hebrew is basically a SVO language. • Deverbal nouns like the eating in Hebrew show NSO order. • As is common in accounting for VSO, we assume this is derived by head movement from a SNO base order.

Two basic kinds of noun phrases: Construct State (CS) and Free Genitive (FG).

Construct state:
- Never has a definite determiner in initial position
  —from this we conclude that there is a Ø D assigning GEN (DGEN).
- Imposes certain phonological changes on the head noun (beyt vs. beyit).
  —in order to make DGEN visible.
- Adjectives agree in definiteness with genitive argument.
- (Most embedded) genitive argument determines definiteness of whole DP

Free genitives:
- Initial determiner allowed
  —from this we conclude that there is no DGEN in FG.
- Genitive introduced by fel ‘of’
- Even when there is an initial determiner, the head noun precedes the genitive.
  —there’s not enough space in the clause without another projection.

We can use adjectives to see where things are (like we used adverbs in French).

(1) a. axilat dan (ha-menumeset) et ha-uga
eating Dan (the-polite) acc the-cake
 ‘Dan’s polite eating of the cake’

b. axilat dan et ha-uga (ha-menumeset)
eating Dan acc the-cake (the-polite)

(2) a. ha-axila ha-menumeset fel dan et ha-uga
the-eating the-polite of Dan acc the-cake
 ‘Dan’s polite eating of the cake’

b. * ha-axila fel dan ha-menumeset et ha-uga
the-eating of Dan the-polite acc the-cake

So, the generalizations are:

(3) CS: N Subj (??Adj) Obj
FG: Det N (Adj) Subj Obj

How can we explain these orders?

FG: • N moves up—but can’t be moving to D (since D is occupied by ha),
  so it must be moving to someplace lower, say, Num.
  • Assume adjectives are NP-adjuncts (like adverbs are VP-adjuncts).
  • Assume the genitive starts off in SpecNP (subject of NP)
  • Assume that fel ‘of’ is basically inserted where a noun needs Case but
    can’t get it anywhere else (cf. destroy the city ~ destruction of the city).

(4) DP
    D
    NumP
    ha-
    Num’
    Num
    NumP
    menumeset
    (??AdjP) NP
    N’
    DP
    fel dan
    N
    axila
    ha-uga

Free Genitive
CS:  
• *ha is prohibited, so we assume there is something else occupying D (D_{GEN}).  
• D_{GEN} assigns genitive to the subject—only rightward and only to adjacent DP  
  (similar claims were made about English objective Case—consider: I consider John (*wholeheartedly) to be a genius. John stole (*sneakily) a sandwich from the table.
• The subject appears before the adjective—it must have moved to get there.  
• The head noun appears first, before the subject—it must have moved to D.

(5) DP

\[
\text{Construct State}
\]

\[
\text{Simple CS: N POSS (A)}
\]

So, the only real difference between them is whether D_{GEN} is used or not.  
• If D_{GEN} is used: N moves all the way to D (through Num). Subject DP moves to SpecNumP to get Case from D_{GEN}.  
• If any other D is used: N moves only as far as Num. Subject DP gets Case from \textit{fel} (insertion).

As predicted, if these \textit{fel}-phrases are right-adjointed at the top, they should follow any adjectives.

(6) a. ha-bayit ha-gadol fel ha-mora  
  the-house the-big of the-teacher  
  ‘the teacher’s big house’  

b. * ha-bayit fel ha-mora ha-gadol  
  the-house of the-teacher the-big

(7) DP

\[
\text{Free Genitives}
\]

But remember (2a)—the \textit{fel} phrase comes before the object—so it is also possible to have a \textit{fel}-phrase inside the NP.

(2) a. ha-axila ha-menumeset fel dan et ha-uga  
  the-eating the-polite of Dan acc the-cake  
  ‘Dan’s polite eating of the cake’

Conclusion: “Dummy case marker” \textit{fel} shows up in two cases:  
• On rightward adjunct to DP  
• On subjects remaining in SpecNP

Also, nothing prevents tacking on a \textit{fel}-phrase to a CS nominal, as in this “picture NP”:

(8) tmunat ha-yalda fel ha-mora  
  picture the-girl of the-teacher  
  ‘the teacher’s picture of the girl’
The other kind of case where there is a fel-phase in a CS is a “clitic-doubled construct state noun phrase” (or “doubled CS”).

(10) a. beyt-o fel dan
    house-his of dan
    ‘Dan’s house’

b. beyt-a fel sara
    house-her of sara
    ‘Sara’s house’

Manifests N(Adj)SO order—suggesting that the fel-phase is still NP-internal.

(11) a. axilat-o (ha-menumeset) fel dan et ha-uga
    eating-his (the-polite) of dan acc the-cake
    ‘Dan’s polite eating of the cake.

b. * axilat-o fel dan ha-menumeset et ha-uga
    eating-his of dan the-polite acc the-cake

• Phonological change indicates D_{GEN}.
• Can never take initial determiner—also indicates D_{GEN}.
• But has fel on subject/possessor—D_{GEN} seems not to be assigning Case to subject.
• And has an extra pronoun. Why?
  —D_{GEN} has a Case to assign, fel tells us it isn’t being assigned to the subject—hence, the pronoun is needed in order to receive D_{GEN}’s assigned Case.

Side point: Where is the pronoun, how does this case absorption work?
Ritter proposes that the pronoun is a base-generated adjunct to N—that is, that N comes into the derivation looking like:

\[ \begin{array}{c}
  N \\
  D \\
  D_{GEN}
\end{array} \]

and when this N moves up to D_{GEN}, it can absorb D_{GEN}’s case by virtue of being part of the same complex head.

In support of calling this projection NumP:
• To keep the DP parallel to the clause we like to think it is something relating to agreement features like number, gender, …
• Conceptually, gender is inherent to a noun—you learn the gender as you learn the noun. In support:
  —M. Hebrew has minimal pairs where gender differentiates meaning: 
    maxsan ‘warehouse (m)’ vs. maxsan-it ‘magazine (f)’
  —Denominal verbs often retain the feminine suffix, but never plural suffix 
    toxnit ‘to program’, from toxnir ‘program (f)’ <toxni<it
    cf. toxen ‘content (m)’
  —Several possible feminine endings, unpredictable, learned (in fact, sometimes distinctive; mexon-a ‘machine’ vs. mexon-it ‘car’

Anyone notice that here [p. 52], toxnit is listed as ‘plan’ vs. toxna ‘program (computer)’—so which is it? It makes at least a slight different for her point about the arbitrariness of the choice of suffix—that is, that one suffix is not always more specific than the other

—Gender isn’t even a feature of Num, because there are nouns which idiosyncratically select for a feminine plural ending (presumably a feminine Num) yet the verb agreement triggered is still masculine.
Certain quantifiers (like *kol ‘all*) look like actual overt realizations of Num, too.

*kol ‘all* can only appear in CS constructions (no FGs with *fel, no doubled CSs), and can’t co-occur with an initial determiner.

(12)  

\begin{enumerate}
\item a. \textit{kol ha-yeladim} \\
    all the-boys
\item b. * \textit{ha-kol (ha-)yeladim} \\
    the-all (the-)boys
\end{enumerate}

In other respects, these act like normal CS constructions—e.g., definiteness of the whole things is determined by the definiteness of the genitive DP, possessor can be either a pronominal clitic or itself be a CS.

(13)  

\begin{enumerate}
\item a. \textit{kol [yaldey ha-kita]} \\
    all [boys the-class] \\
    ‘All of the boys in the class.’
\item b. \textit{kul-am} \\
    all-3.masc.pl \\
    ‘All of them’
\end{enumerate}

**Proposal:** In these cases, we have a Num (*kol*) with no NP; and \(D_{\text{GEN}}\) in D (making it essentially a CS construction).

(14)  

\begin{center}
\begin{tikzpicture}
    \node (dp) {DP};
    \node (num) [below left of=dp] {
        \begin{tabular}{c}
            \textit{fney ha-yeladim}\‘the two boys’
        \end{tabular}
    };
    \node (nump) [below of=num] {NumP};
    \node (dgen) [below left of=nump] {D_{\text{GEN}}};
    \node (d) [below of=dgen] {D};
    \node (dp2) [below of=d] {DP};
    \node (ha-yeladim) [below right of=dp2] {ha-yeladim};
    \node (num2) [below of=ha-yeladim, align=center] {Num; \textbf{fney}};
    \draw [->] (dp) -- (num);
    \draw [->] (num) -- (nump);
    \draw [->] (nump) -- (dgen);
    \draw [->] (dgen) -- (d);
    \draw [->] (d) -- (dp2);
    \draw [->] (dp2) -- (ha-yeladim);
    \draw [->] (ha-yeladim) -- (num2);
    \draw [->] (num2) -- (num);
\end{tikzpicture}
\end{center}

Whole DP inherits definiteness of genitive DP

But *kol* can take an NP complement: *kol yeled ‘all the boys’* (no *ha-* allowed, indicating NP), and in fact, it is possible to get *ha-kol ‘everything’* (although for some mysterious reason in these cases it is not possible to have a NP complement).

**Summary:**

The distributional facts about Modern Hebrew noun phrases can be captured by supposing the following things:

- DP contains a NumP which contains an NP.
- Hebrew can either opt to use \(D_{\text{GEN}}\) to mark genitive case on the possessor or not, in the latter case allowing “dummy” *fel to mark the possessor.
- N always raises to Num.
- \(D_{\text{GEN}}\) requires that something raise to it (morphological support?).
- \(D_{\text{GEN}}\) can assign genitive Case, but only rightward and adjacent.
- Number is at least a plausible candidate for the content of the intermediate projection, given that *two* is argued to be a Num.