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A unified theory of Case form and Case meaning: Genitives and Parametric syntax

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Abstract

The syntax of Genitive is shown to be the key to eliminate all proposed partitions of Case into grammatically relevant subclasses, in favor of only one distinction: that between *interpretable* and *uninterpretable* Case features. This reduction of Case types to [$\pm$ interpretable], once combined with other minimalist assumptions and some Case-checking hypotheses, nearly exhausts the core grammar of Genitive in various languages. The mapping of Genitive syntax to the Conceptual-Intentional system in terms of just [$\pm$ interpretable] is shown to be always straightforward, even if the interpretable and uninterpretable instantiations are distinguishable in certain languages and systematically ambiguous in others. The mapping to the Sensory-Motor system is more articulate and partly idiosyncratic: still, it is translated into a principled and deductive parametric structure, settable from positive evidence and guided by a number of plausible, independently proposed Third Factor conditions.

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1 Introduction and background

A fundamental question of theoretical linguistics, discussed for example in Chomsky (1995, 2001), Chomsky, Gallego and Ott (2019), is if and how the human language faculty provides an optimal solution to the problem of connecting form and meaning. Here we address this issue in the domain of Genitive Case and its superficially variable externalization.

In the history of traditional and generative theories of Case, various dichotomies have been proposed:

- (1) a formally unmarked vs. marked (often adpositionally)
- b abstract/grammatical vs. semantically concrete (typically localistic)
- c structural vs. inherent

We aim at unifying most of these distinctions, in the subfield of adnominal Case, by reconciling some insights rooted in a long tradition of scholarship¹ *via* the combination and generalization of three minimalist assumptions (Chomsky 1995):

- (2) a There are two (and only two) relevant core structural relations: Spec-Head and Head-Complement.
- b The Full Interpretation Principle forces checking and deletion of uninterpretable features with effects on both interface levels.
- c Case checking may take place *via* free riding on agreement.

By means of these assumptions, we reduce the dichotomies in (1) to just one: that between *interpretable* and *uninterpretable* instances of Case features, explaining several

¹ A line spanning at least from Maximos Planudes in the 13th century through Hjelmslev (1972), Jakobson (1936), Kuryłowicz (1964), Anderson (1971) about Case meaning, and from Benveniste (1966) to Vergnaud (1977/2008) and Chomsky (1980, 1995, 2001 a.o.) about Case syntax.

puzzling properties of Genitive across languages.

Our empirical base is a dataset covering the nominal syntax of a few dozen languages from Indo-European (henceforth IE), Afro-Asiatic, Uralic and other families of Eurasia, yielding a wide typology of Genitive forms/distributions: we account for the observed patterns through a Case-checking mechanism and a principled system of parametric choices.

2 A definition of Genitive

Head nouns and their projections, like other lexical heads, can be merged with a variety of NPs/DPs, in many languages through the mediation of a P. In some cases, the role of these NPs/DPs (or PPs) is that of non- θ -marked modifiers, as in the following examples:

- (3) a The woman [in red]
b The woman [with a purple hat]
c The house [of glass]

In other cases, however, the merged NPs/DPs are more transparently associated with argument θ -roles, such as for example Agent/Experiencer, Theme or Goal. This is certainly the case with many deverbal nouns, but also with *picture/story* nouns²:

- (4) a [John's] description [of the hotel]
b [John's] picture [of the hotel]
c [John's] gift [to the hotel]
d [John's] arrival [at the hotel]
e [data/DNA] collection [by the police]
f a conversation [with Koko]

An adnominal theme may even have the full array of interpretations of the corresponding verbal one. Consider the examples in (5) where *sinking* has two

² See Broekhuis and Keizer (2012: 275 ff.).

interpretations: it can have a causative/agentive interpretation analogous to (6a), as in (5a); or it can correspond to the unaccusative/middle structure in (6b), as in (5b)³:

- (5) a A British propaganda poster portraying the sinking of the Lusitania as an act of German barbarism⁴
b The sinking of the Titanic caused officials to improve passenger safety on boats
- (6) a A submarine sank the Lusitania/The Lusitania was sunk (by a submarine)
b The Titanic sank (after colliding with an iceberg)

It must be noted that head nouns combine at least with a further argument role, which has no obvious correspondent in clausal structures, sometimes called Possessor. We use this label because it is convenient even though slightly misleading; the role is in fact more properly defined as the *R-relation* of Higginbotham (1983), i.e. the role of the ‘subject’ of the noun phrase, which may be θ -selected or not:

- (7) [John’s] train (= e.g. the train he takes every day, the train he likes, etc.)

In this chapter, we use the label Genitive both in the abstract and the morphological reading, in the sense of Legate (2008). Also, by Genitive we mean a Case that, in a given language, can be associated with *all* the three adnominal arguments that we call ‘direct’: possessor, agent/experiencer, theme, the first two external, the third one internal⁵.

Thus, *by the police* in (4e), though associated with an agent θ -role, cannot be considered a Genitive because *by*-phrases in English are never used to express adnominal possessors or themes. On the other hand, we consider both *John’s* and *of the hotel* in (4)

³ This interpretation is sometimes called ‘anticausative’, a non-ideal label, but more transparent than the bewildering ‘inchoative’, sometimes encountered to refer to it.

⁴ Source: the Imperial World War Museum.

⁵ See Longobardi and Silvestri (2013) and references cited for evidence and details.

as Genitives even if they have different formal markings, because in English both DP 's and *of* DP⁶ can be used to express all the three types of direct argument: possessors, as in the examples (a) in (8) and (9); agents (examples (b)); themes (examples (c)):

- (8) a [John Lennon's] guitar was sold for a record \$2.4m
 b He studied [the Ripper's] murders of prostitutes in Whitechapel
 c McCartney talks about [John Lennon's] murder
- (9) a Selling the car [of a deceased relative] can be an emotionally draining task
 b The murders [of Jack the Ripper] were confined to London's East End
 c The murders [of journalists] have more than doubled in the last year

Finally, our definition of Genitive does not include direct adnominal arguments marked by categorially unselective 'linkers', such as Japanese *no*, Mandarin *de*, or the Persian 'ezafeh'. These linkers, whose fine properties vary cross-linguistically, are used to combine all sorts of categories with the head N, such as demonstratives, numerals, adjectives, etc., not simply argument or modifier NPs/DPs⁷.

2.1 The multiform nature of Genitive

Identifying the properties of Genitive is a puzzling task: this is witnessed, for instance, by the controversy between De Groot (1956), who gave an extremely analytic extensional list of all possible meanings of Latin Genitive, and Benveniste (1966), who tried to reduce

⁶ If only direct arguments in the sense specified above (possessor, agent/experiencer, theme) are considered Genitives, the *of*-phrase in (3c) is technically not a Genitive, even if it happens to have the same marking as the Genitives in (9). Notice that it could not be expressed by 's in English. Also, in German it would be marked by a preposition different from the one used for Genitives (*aus* rather than *von*).

⁷ See a.o. Ghomeshi (1997), den Dikken and Singhapreecha (2004), Haig (2011), Manzini, Franco and Savoia (2014), Franco, Manzini and Savoia (2015), Manzini and Savoia (2018), and references cited.

most of them to variants of a single abstract function, that of expressing the subject and object of nouns, after the model of Nominative and Accusative with verbs, i.e. of Cases depending on the structural configuration.

The generative tradition, since at least Chomsky (1970), has essentially followed the latter approach. The literature often stresses how in English the two formal realizations of Genitive exemplified in (8) and (9) enter alternations reminiscent of active vs. passive/middle constructions⁸: when both an *'s*-phrase and an *of*-phrase modify the same noun, the former, structurally higher, is interpreted as the agent, the latter as the theme; if the theme is ‘promoted’ to the higher position, the agent can be expressed only with a *by*-phrase:

- (10)a [The enemy’s] destruction [of the city]
 b *The city’s destruction of the enemy⁹
 c The city’s destruction (by the enemy)

In this sense, a language such as English may *prima facie* appear to justify two different adnominal Cases, even better than it formally justifies two clausal Cases, Nominative and Accusative, that are only distinct in the pronominal system.

Yet, ‘Genitive’ is used as a unique abstract Case label for both morpho-syntactic objects. The most obvious reason for this is the very origin of the label (γενική πτώσις in the *Τέχνη Γραμματική* ascribed to Dionysius Thrax): in all ancient stages of IE languages, and notably in Latin and Ancient Greek, two or more direct adnominal arguments can be realized by the same form. In other words, there is only one Genitive Case, though a noun may be constructed with more than one genitive argument:

- (11) eorum dierum consuetudine itineris nostri LATIN
 those.GEN day.GEN.PL habit journey.GEN.SG our.GEN.SG

⁸ In fact, they more closely resemble middle constructions, given the deactivated role of the understood agent (Roeper 1984, Roberts 1987, Giorgi and Longobardi 1991).

⁹ The example is ungrammatical only if the intended interpretation is that of (10a).

exercitus perspecta (Caes. *Gal.* 2.16, from Gianollo 2005: 76)
 army.GEN.SG well-observed
 ‘having accurately observed our army’s method of marching of those days’

In what follows, we keep with the tradition of calling Genitive the potentially diverse Case realizations of direct adnominal arguments¹⁰, but we claim that A) the situation of morphological uniformity found in ancient IE languages is the neutralization of a deeper distinction, witnessed for example by English DP’s vs. *of* DP; B) this distinction does not parallel that between Nominative and Accusative, but rather between Nominative/Accusative and some PP complements; C) all this sheds light on the notions of Case and feature interpretability.

We conclude that Genitive is in many respects an epiphenomenon, collapsing two types of Case and ultimately of grammatical objects.

3 Types of Genitive

Many languages are like English in that their Genitive, as defined in section 2, has more than one realization. In this section, we propose that these realizations fall into two crosslinguistic types, distinguished by a whole cluster of properties that goes well beyond their surface form and beyond the peculiarities of particular languages. We call the two types of Genitive ‘functional’ and ‘free’, following Longobardi and Silvestri (2013). We then show in section 4 that the two types of Genitive occur with the pertinent cluster of properties in a wide variety of languages.

3.1 *The functional Genitive*

The functional Genitive has a ‘structural’ flavour in the sense of Chomsky (1986: 193),

¹⁰ There are also languages, such as e.g. Turkish or Hungarian, in which the adnominal Case meeting the definition we gave for Genitive admits only one occurrence per head noun; in these cases there is no question about identifying it as a single Genitive Case, in which abstract type and morphological realization are in a biunique relation. These languages are treated in section 8.

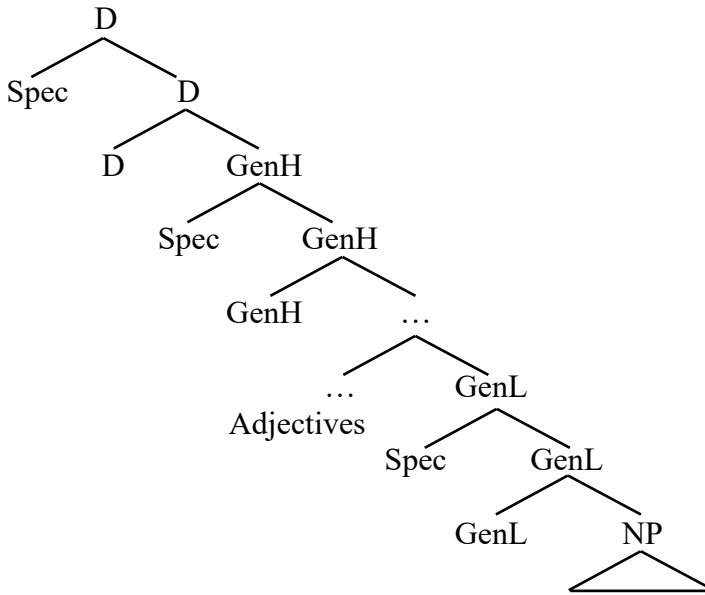
but, as we will show, the structural/inherent dichotomy does not exactly coincide with the functional vs. free characterization of Genitive.

The defining property of what we analyze as functional Genitives is precisely that they occur, cross-linguistically, in two dedicated functional projections: one is immediately *higher* than the base-generated position of attributive adjectives¹¹, and immediately below D; the other is immediately *lower* than the same adjectives. These two projections were termed GenS and GenO, respectively, in Longobardi (2001a), suggesting a parallel between Genitive and Nominative/Accusative checking; at the time, the latter was analyzed as the result of an agreement relation in the two functional projections $\text{Agr}_{\text{S}(\text{ubject})}\text{P}$ and $\text{Agr}_{\text{O}(\text{bject})}\text{P}$, introduced and disposed of in Chomsky (1995). Here, we rename these two functional projections GenH(igh) and GenL(ow) respectively, so as to avoid overstating the parallelism between the licensing/ θ -alignment of arguments in nominal phrases and in clausal structures, which are in fact subject to different conditions (see section 8). In (12) we provide a representation of the structure of the noun phrase with the functional Genitive positions theoretically available¹²:

¹¹ Bernstein (1991), Crisma (1991, 1996), Valois (1991).

¹² The exact structural representation of attributive adjectives is irrelevant for our argument, therefore is left unspecified in (12).

(12)



A fundamental difference between the functional projections for Genitive(s) and Agr_SP and Agr_OP (and their successors TP and vP) is that the existence or activation of GenH and GenL is subject to parametrization, because each individual language, in its inventory of functional projections, may include: only GenH, only GenL, neither or both. This does not seem to be the case with T and v. The distributional properties of GenH and GenL are not subject to parametrization, though: thus, they are fixed with respect to the base position of attributive adjectives, and are non-iterable. This assumption accounts for the crosslinguistically recurrent ungrammaticality of patterns corresponding e.g. to English *a new Mary's blue dress* or, in prepositional languages, to *John's Mary's nice picture*.

However, the fact that GenH and GenL are not the exact parallels of T and v should not lead one to the conclusion that there is no similarity at all between functional Genitive(s) and Nominative/Accusative. There is at least one characteristic that they have in common, that is morphological realization: arguments in Spec,GenH and Spec,GenL are often characterized by 'light' or Ø morphological marking¹³, and in particular are never introduced by a preposition; this matches what happens with

¹³ Here and in the following by Ø marking we mean non-distinctness from the least phonologically marked allomorph of the relevant word.

Nominative/Accusative¹⁴. This similarity, which is typologically well represented, is exemplified by Welsh in (13) and (14); the argument in Spec,GenL has Ø marking, exactly as the nominative and accusative counterparts in (14):

(13) a disgrifiad cywir [GenL y ddamwain] WELSH¹⁵
 description accurate the accident

b y disgrifiad cywir o'r ddamwain
 the description accurate of-the accident
 'the accurate description of the accident'

(14) a disgrifiwyd y ddamwain gan John
 was-described the accident by John
 'the accident was described by John'

b disgrifiodd John y ddamwain
 described John the accident
 'John described the accident'

The Welsh examples in (13) illustrate another salient property of functional Genitive(s). Under generally definable conditions, a functional Genitive 'replaces a determiner', transmitting its definite value to the whole DP (we call this phenomenon *definiteness inheritance*)¹⁶; this is notably the case in Semitic construct-state constructions, or in *John's book*, and is also shown by the absence of a determiner in (13a), containing *y ddamwain* 'the accident', and its presence in (13b), containing the PP *o'r ddamwain* 'of the accident', which is not a functional Genitive. Definiteness inheritance shows that GenH and GenL are an active part of the syntactic derivation; this

¹⁴ Abstracting away from Differential Object Marking phenomena.

¹⁵ Examples re-elaborated from Rouveret (1994).

¹⁶ The inheritance of definiteness by a whole nominal phrase from one of its genitive arguments has been most extensively studied in Semitic; following Longobardi (1996) the idea has been crosslinguistically extended to other languages.

reinforces the intuition that these heads and their projections are indeed functional.

3.2 *The free Genitive*

The existence of a *free* Genitive in languages is, as in the case of GenH and GenL, subject to parametrization, but its properties are not.

Its first defining property is that, unlike the functional Genitive, it is freely iterable, whenever an appropriate interpretation is available:

- (15) Il ritratto di Giulio II di Raffaello (% della National Gallery)¹⁷ ITALIAN
the portrait of Giulio II of Raffaello of-the National Gallery
'Raffaello's portrait of Giulio II'

Second, different from the functional Genitive, it must be overtly marked, either by inflectional morphology or by means of an adposition. The combination of these two properties makes the free Genitive structurally analogous to other PP arguments like those appearing in (4); this is confirmed by the fact that, in some cases, the relative order of a free Genitive and some other prepositional argument is, indeed, free:

- (16) a the arrival [of unexpected guests] [at the hotel]
b the arrival [at the hotel] [of unexpected guests]

A third difference between functional and free Genitive is that the latter never induces definiteness inheritance. Other than English 's vs. *of* phrases, the contrast is

¹⁷ More than two Genitives expressed in the same form (and on the same side of the head noun) are anyway difficult to process for many speakers, unless one of them is clearly contrastive:

- i. Il ritratto [_{THEME} di Giulio II] [_{AGENT} di Raffaello] [_{POSSESSOR} della National Gallery]
è di un anno più recente di quello della Galleria degli Uffizi
'Raffaello's portrait of Giulio II of the National Gallery is one year more recent than the one of the Galleria degli Uffizi.'

illustrated by the Welsh examples in (13): the free Genitive in (13b) (*o'r ddamwain*) is overtly marked by a preposition (*o*) and has no effect on the definite/indefinite interpretation of the DP containing it, which is introduced by its own article.

The free Genitive is not totally unconstrained, however. First, as already noted, some form of overt marking is *required*.

Then, languages that have the free Genitive have only one form of overt marking for it. This Uniqueness condition on the free Genitive probably follows from a more general principle of Anti-synonymy, proposed by Keenan (2009) in the study of anaphoric expressions and applied in Longobardi (2014) to negative operators. The principle blocks the proliferation of synonymous functional morphemes in a language; therefore, though each language may have different ways of marking different arguments of the noun, only one of them will characterize the free Genitive, where Genitive is defined as in section 2.

Finally, the free Genitive marker, if adpositional, obeys a generalised version of Giorgi and Longobardi's (1991) Consistency Principle: if the Genitive precedes N, the realization is postpositional; if it follows N, it is prepositional.

3.2.1 *The structural position of free Genitives*

If more than one argument of N is realized as a free Genitive, such arguments display no absolutely rigid linearization¹⁸. Yet, from their surface position the free Genitives always relate to semantic roles organized along the hierarchical structure possessor > agent/experiencer > theme, as shown in Giorgi and Longobardi (1991). Abstracting away from the possessor, this asymmetry corresponds to the clausal one.

It is implausible that the arguments we identify as free Genitives surface in their thematic positions. This is shown at least by the surface pattern observed in languages like Hindi, where free Genitives precede numerals and demonstratives, which in turn precede the head N (see (27b) below). This suggests an analysis broadly in the spirit of Kayne (1994, chapter 8), with free Genitives re-merged from their base θ -position to the

¹⁸ However, Milner (1982: 69-139) has shown that some orderings are preferred over others.

left-periphery of nominals¹⁹; then, according to the parametric typology of the language, they can be crossed over (or not) by the remnant projection of N (possibly a whole DP), resulting in a surface post-nominal position (as e.g. in Italian (15) or English (16)).

4 The two types of Genitive in our language dataset

In this section we show how the observable properties and patterns in our dataset corroborate the distinction between functional and free Genitive.

For ease of exposition, we summarize the clusters of properties of functional and free Genitives in (17) and (18):

(17) Functional Genitive: properties

- a subject to parametric variation, it may appear immediately after (GenL) or immediately before (GenH) structured adjectives (abstracting away from the surface position of the noun)
- b in neither of these positions is it iterable
- c there is no evidence of adpositional realizations and its formal expression can be morphologically $\emptyset$
- d it interacts with definiteness (definiteness inheritance) and, through this, can license the argument status of the head nominal under specified conditions

(18) Free Genitive: properties

- a it surfaces toward the right or left edge of nominal phrases, obeying Generalized Consistency:
Gen N > Postpositions, N Gen > Prepositions (Hawkins 1983)
- b it is freely iterable, whenever interpretable
- c it is always formally (adpositionally or morphologically) marked
- d it does not suffice to satisfy requirements on argumenthood/definiteness marking of the head nominal

¹⁹ This position should be higher than the D head of the whole DP: this could perhaps explain why D cannot probe free Genitives to receive definiteness from them (see property (18d) below).

- e it is subject to Uniqueness: every language has at most one form to express free Genitive

4.1 Functional Genitive: formal realization and typological distribution

In our dataset, several languages have a Case that can be identified as a functional Genitive, based on its being realized in a specific, non-iterable position (see (17b)), and, in some cases, its inducing definiteness inheritance (see (17d)). The actual morphological marking exhibits a wide range of cross-linguistic variation, which is however consistent with the generalization in (17c).

The various realizations of functional Genitive in our dataset are summarized in (19), with one example for each in (20). Some of them can be regarded as the prototypical realization and are rather straightforward, such as the inflected genitive of modern Greek and Slavic (see (19a)) but also the phrase-level affix of English and Scandinavian (see (19b)). The *-s* marker found in German is possibly related to English and Scandinavian, but it is not a phrasal affix, as shown by the impossibility of attaching it to an adnominal complement or modifier, as in **Der/Die Lehrerin aus Berlin(-s) Buch*; it is not a real inflection either, because inflection takes another form, as shown by the contrast between *ein Freund der Maria* and *ein Freund Marias*, where both *der Maria* and *Marias* are in the Genitive, the former inflected, the latter with the *-s* marker, which we treat as a word-level affix (see (19c)). The $\emptyset$ marking already seen in Welsh is what characterizes Hebrew Construct State as well (see (19d))²⁰, but also some construction with the head noun *casa* in Catalan and more idiosyncratically in other Romance varieties (Longobardi

²⁰ Silvestri (2013) noticed that there is some tendency to complement the $\emptyset$ -realization of functional Genitives with other means of signalling the relation between the noun and its direct arguments: e.g. in the case of Hebrew construct state, some special form of the head noun. Alternative ways are the presence of an agreement morpheme on the head, as in Hungarian, or the lexical restriction of the construction to a residual set of possible heads (in some Romance dialects).

2001b). The functional Genitive²¹ found in Romanian (see (19e)) is characterized by the fact that an argument can be inflected for Genitive only if it is adjacent to the cluster of features used as an enclitic definite determiner, and the Case itself is mostly marked on determiner words; for this reason we call it D-related. Bulgarian and Norwegian/Icelandic possessive pronouns probably represent restricted instances of this construction, *modulo* some subtler parametric distinction. Finally, there are languages in which functional Genitives exhibit ϕ -feature concord with N. They come in two varieties: the first comprises languages where the noun is the controller of agreement, as in Slavic genitival adjectives but also Romance possessive pronouns/anaphors (see (19f.i)); the second comprises languages where the Genitive is the controller, such as Hungarian and Turkish (see (19f.ii)).

Note that one and the same language can have several forms of functional Genitive, as for example most Slavic languages, which have the inflected form (19a) but also the noun-controlled agreeing adjectival form (19f.i) (cf. (20f.i) and (24a)): thus, functional Genitive does not seem to obey the Uniqueness condition (18e) which characterizes the free Genitive.

(19) Functional Genitive: formal realization

a	fusional ending	Modern Greek, Slavic Genitive
b	phrase-final affix ²²	English/Scandinavian <i>-s</i>
c	word-level affix	German <i>-s</i> , perhaps Arabic <i>-i</i>
d	Ø-realization	Hebrew construct state, Welsh, Catalan, Southern Italian dialects
e	'D-related Genitive'	Romanian Genitive

²¹ See Dobrovie Sorin (1987), Grosu (1988), Cornilescu (1993), Giurgea (2012), Giurgea and Dobrovie-Sorin (2012).

²² In languages which are otherwise prepositional.

- f φ -feature concord with N
- i Slavic genitival adjectives
(*i*-features on N, *u*-features on the genitive word)
 - or
 - ii Hungarian/Turkish Genitive
(*u*-features on N, *i*-features on the genitive word)

adjectival) in case of N-to-D movement: arguably, this accounts for Romanian D-related Genitives and some sporadic Romance constructions with the noun *casa*:

- (21) Casa (* nova) 'l mestre CATALAN
 home (new) the teacher
 'the teacher's (new) house'

These patterns are summarized in (22):

- (22) Spec,GenH in our sample
- Germanic pre-nominal -s Genitive (20b,c)
 - The Romanian D-related type (20e)
 - The two agreeing types (20f.i, f.ii)
 - Catalan Ø-marked Genitive (21)

In Spec,GenL, instead, one finds functional Genitives surfacing immediately below all adjectives. In these cases, N may happen to cross only over GenL but not over adjectives, as in German, most Slavic or Greek, where the functional Genitive in Spec,GenL surfaces post-nominally but adjectives are pre-nominal²³ (e.g. (20a)). It is also possible that N raises over some or all adjectives, and in this case it will obviously raise over GenL too, as in Celtic²⁴ (see the Welsh example (13a)).

N-raising above Spec,GenL and (some or all) adjectives does not necessarily result in a Welsh-type order, with N followed by adjectives in turn followed by the Genitive in Spec,GenL. As convincingly argued in Shlonsky (2004), Hebrew construct state is derived in a 'roll-up' fashion, by successive raising of N projections toward the D area; thus, the raised N projection replaces the article in definite constructions, and the

²³ We are abstracting away from Greek polydefinite constructions and some Slavic class adjectives.

²⁴ Duffield (1993), Rouveret (1994).

underlying linear order of the Genitive and all the adjectives is reversed (see (20d))²⁵.

Non-prepositional Genitive in Spec,GenL is also observable in some Romance languages²⁶, such as certain present-day Southern Italian dialects, where it is subject to restrictions concerning definiteness agreement between the head N and the genitive (San Marco in Lamis, Massaro 2019), or the type of head noun and its semantic relationship to the genitive DP (Verbicaro, Silvestri 2013)²⁷. The argument in Spec,GenL may induce long-distance definiteness inheritance (as in Welsh, in Hebrew construct state, or in Icelandic²⁸) or not (as in Greek or German)²⁹, according to independent criteria (Crisma 1999). These patterns are summarized in (23):

(23) Spec,GenL in our sample

- Greek (see (20a)), many Slavic Genitives like (24a)
- post-N Genitive with definiteness inheritance as in Icelandic (24b) and Celtic (13a)
- Semitic construct-state Genitives (20d)
- Southern Italian dialects (24d)

²⁵ See Fassi-Fehri (1993) for analogous structures in Arabic.

²⁶ The Old French construction in ‘cas régime’, as in *la meson son pere* lit. ‘the house his father’, i.e. ‘his father’s house’ may fall in this group, see Foulet (1919), Arteaga (1995), Delfitto and Paradisi (2009), Gianollo (2009), Sitaridou (2017), a.o.

²⁷ Silvestri (2013) observes that in this Northern Calabrese variety only nouns denoting body parts, toponyms, kinship terms, inalienably possessed or so perceived items such as home, land, container/containee relations etc. accept non-prepositional Genitives.

²⁸ For a discussion of Icelandic, see Norris (2011) and references cited.

²⁹ In Old English both options seem to be attested, though the former only in restricted syntactic environments, see Crisma (1999).

- (24) a novoje platje Maši RUSSIAN
 new dress Maša.GEN
 ‘Maša’s new dress’
- b þessar þrjár nýju kenningar Jóns (á vandamáli-nu) ICELANDIC
 these three new analyses Jón.GEN (of problem-the)
 ‘these three new analyses of Jón’s’ (adapted from Sigurðsson 1993: 181)
- c das neue Buch Marias GERMAN
 the new book Maria.GEN
 ‘Maria’s new book’
- d a buttigghja grossa/miricana/lorda u vinu (janku) VERBICARO
 the bottle big/American/dirty the wine (white)
 ‘the big/American/dirty bottle of (white) wine’ (from Silvestri 2013: 142)

4.2 Free Genitive: formal realization and typological distribution

Free Genitives are well recognizable because they can be iterated (see (18b)) and are always formally marked ((18c))³⁰. In terms of realization, there are two main subcases to be considered. The first is when the free Genitive is realized by clearly inflectional morphology, as in the Latin example (11) above or in the following one from classical Attic, both stacking two Genitives to the right of a head noun that has not raised up to D:

- (25) ἡ δὲ διαγνώμη αὕτη τῆς ἐκκλησίας τοῦ
 hē dè diagnómē haútē tēs ekklēσίας toû
 the PRT decree this the.GEN.SG.F assembly.GEN.SG.F the.GEN.SG.N
 τὰς σπονδὰς λελύσθαι
 tās spondàs lelústhai
 the treaty being-dissolved
 ‘this decree of the assembly that the peace treaty be broken’ (Thuc. 1.87.6)

³⁰ In principle, one may also expect languages with rich inflection to have inflected genitives with these two properties: such cases do exist and are treated in section 4.2.2.

The other subcase is when the Genitive is marked by an adposition. In our dataset, all uninflected Genitives satisfying (18b) and (18c) are marked by adpositions. The latter can take the form of prepositions or postpositions, according to the general pattern of the language.

A prepositional Genitive is unequivocally identified: linearization alone is sufficient to distinguish a prepositional Genitive from one marked through morphological inflection, which normally occurs after the nominal stem, not before it. The French construction in (26) exemplifies the free Genitive in a typical prepositional language³¹, also witnessed by other Romance, Germanic, Celtic, Semitic languages:

- (26) le portrait d' Aristote de Rembrandt (% du collectionneur) FRENCH
 the portrait of Aristotle of Rembrandt of-the collector
 'Rembrandt's portrait of Aristotle (of the museum)'

(adapted from Milner 1982: 78)

The free Genitive marked through postpositions, instead, is potentially more ambiguous, for it may not be easy to distinguish it from Case inflection. Of course, when Case spreads through agreement to all the [+N] categories in the NP/DP, it is unambiguously morphological inflection. Conversely, if the Genitive marker always occur as the rightmost element regardless of the category of the immediately-preceding element, and is not replicated on any other phrase-internal word, it qualifies as a postposition. Languages that mark the free Genitive by postpositions are represented for example by Basque and Hindi:

- (27) a Picasso-ren zezen-a-ren hiru irudi-ak BASQUE
 Picasso-GEN bull-ART-GEN³² three picture-PL.ART
 'The three pictures of the bull by Picasso' (Artiagoitia 2014: 23)

³¹ See also numerous previous examples from English, e.g. (4a,b), (9), (10a), Welsh (13b), Italian (15).

³² We adhere to the tradition in Basque linguistics of using GEN to gloss this phrase-final morpheme and ART for *-a*.

- b Mona Lisa-ka Liyonaardo-ka ek chitr HINDI
 Mona Lisa-GEN Leonardo-GEN one portrait
 ‘a portrait of Mona Lisa by Leonardo’

In our sample of languages, the pre- and postpositional realizations of the free Genitive observe the Uniqueness condition (18c) and Generalised Consistency (18a). The Consistency principle was proposed in Giorgi and Longobardi (1991) to account for the ban on internally right-branching pre-nominal modifiers in many languages (but also explains the complementary lack of post-nominal left-branching APs in, say, Basque). In a generalized form, applying to all branching categories, this principle also bans prepositional arguments from pre-nominal position and postpositional ones from post-nominal position. Intuitively, this principle belongs to same family as Biberauer et al.’s (2014) Final-Over-Final-Constraint, though it is still unclear how to reduce it to the latter. To sum up:

(28) Free Genitive: formal realization

- a Morphological inflection occurring on the head noun and often on other [+N] words (e.g. adjectives, determiners etc.)
- b Prepositions (e.g. Romance *de/di*, but also Germanic *of/von/van/av*, Hebrew *šel* in non-construct genitive constructions)
- c Postpositions (e.g. Basque *(r)en*, Hindi *ka/kī/ke* in ϕ -feature concord with the head noun)

In the next two sections we discuss two plausible generalizations concerning adpositional and inflectional Genitive, respectively.

4.2.1 A typological aside

The realization and distribution of free Genitives in our sample correlate and are in line with Greenberg’s Universal 24 (1966: 91), further developed in Hawkins (1983: 26-27, 66-68) on the basis of an expanded language sample:

(29) In languages with prepositions the genitive almost always follows the governing noun (Pr, GN)

(30) In languages with postpositions it almost always precedes (Po, NG)

(Hawkins 1983: 21)

Hawkins himself, however, noticed exceptions to both (29) and (30) in his database. However, by drawing the distinction between free and functional Genitives, and reformulating the generalization focusing on free Genitives³³ only, we come very close to a complete regularization.

Most exceptions to (29) are cases of pre-nominal *functional* Genitive (Danish, Swedish, Norwegian, Amharic), as witnessed by the fact that they trigger definiteness inheritance (see (17d)). Also, the Genitive in Milpa Alta Nahuatl is arguably functional, because it is characterized by Ø marking (see (17c))³⁴. The only remaining exception to (29) in Hawkins' sample is Arapesh (Papuan); we currently lack evidence to determine whether Genitives in Arapesh are functional or free Genitive, hence whether they constitute a relevant exception for our reinterpretation of (29).

In Hawkins' sample, Galla (Cushitic) is listed as an exception to (30); in Galla, however, Genitive is (described as) unmarked³⁵, therefore it has one of the defining properties of functional Genitives ((17c)). The other listed exceptions to (30) are languages for which we lack the relevant evidence to determine the functional vs. free nature of their Genitives: Kanuri and related Teda (Western Nilo-Saharan), Kamilaroi (Pama-Nyungan, near-extinct)³⁶, and two ancient languages (Sumerian, Elamite).

In sum, once (29) and (30) are restricted to *free*, truly adpositional, Genitives, the number of purported deviations reduces to at most one exception to (29) and three yet unanalyzed ones (*plus* two ancient languages) to (30).

³³ Recall that only free Genitives seem to be marked by true pre- or postpositions.

³⁴ Possession marking is affixed on the head noun, Langacker (1972).

³⁵ Identical to Accusative (Tutschek 1845: 56).

³⁶ Rutulian (NE Caucasian) was removed from the apparent exceptions by Hawkins (1983: 67) himself, as a mistake in the typological definition of the NP-internal order.

The correlation now virtually regularized can be explained in terms of Generalized Consistency. Furthermore, the linearisation choice typologically correlates with the distribution of full and reduced relative clauses: in languages where relative clauses must follow the noun (Romance, Germanic and Semitic), the free Genitive does too; in languages where they precede the noun (Basque and Hindi), the free Genitive is also pre-nominal.

4.2.2 *Uniform Genitive*

In principle, as we noted, nothing excludes that an inflected Genitive may satisfy all the conditions in (18). Being non-adpositional, however, such Genitive could also meet (17c). This seems to be the case in ancient Indo-European languages, where Genitives are morphologically inflected and there are no adpositional realizations of direct adnominal arguments. In these languages, inflected Genitives seem to have a certain distributional ubiquity. We have seen that in Classical Greek and Latin (see (11) and (25) above), they appear with the distribution of free Genitives: they can be iterated, like prepositional Genitives of e.g. Romance, and presumably occur in an edge position. However, these inflected genitives are also apparently found in the projections GenH and GenL; this is suggested for Latin by the pre-nominal Genitive of (11) (and by more examples in Gianollo 2005; also cf. Crisma and Gianollo 2006), but is also the case in Classical Attic Greek, where Genitives occur above and below pre-nominal attributive adjectives as exemplified, respectively, in (31a) and (31b) (see Guardiano 2003, 2011):

- (31) a τὸ τῆς πόλεως κοινὸν ἀγαθόν CLASSICAL GREEK
 τὸ τῆς póleōs koinòn agathón
 the the.GEN.SG.F city.GEN.SG.F common good
 ‘the public interest of the city’ (Lysias 31, 6)
- b τὴν ἄγριον τῶν θηρίων ῥώμην
 tèn ágrion tôn thēríōn rhómēn
 the wild the.GEN.PL beast.GEN.PL strength
 ‘the wild force of beasts’ (Plato, *Laws*, 824 a 5-6)

In sum, in these languages an inflectional Genitive occurs in the same form with the union of the distributions of free and functional Genitives: we term this pattern *uniform* Genitive. Descriptively this sum of distributions is a natural consequence of its realization, which is non-adpositional (so as to meet generalization (17c)) but formally as robustly marked as the adpositional one (sufficient to meet (18c)).

In Classical Greek and Latin, uniform Genitive covers all three types identified: free Genitive and the two functional Genitives occurring in the GenH and in the GenL projections.³⁷ We propose that this is not due to chance, but is predictable and represents a significant generalization about languages with inflectional free Genitive. We consider it as the effect of the principle of Maximization of Minimal Means (here the available morphosyntactic tools) of Biberauer (2019):

(32) Uniform Genitive generalization

If a Genitive occurs as free with an inflectional, rather than adpositional, marking (hence, it is compatible with the definition of functional Genitive), it will always cover all the three types: GenH, GenL and free Genitive³⁸.

Among modern languages, uniform Genitive is found in Finnish. The structure in (33) looks like a perfect example of a noun phrase with a the lower Genitive in GenL and

³⁷ Henceforth, we will use GenH and GenL also as a shorthand form to denote two types of Genitive, those occurring in the projections of GenH and GenL respectively.

³⁸ The implicational generalization seems to be unidirectional: for example Slavic and Modern Greek Genitives occur only in GenL and are inflected; as such, they could in principle be used as free Genitives as well, hence be uniform, but they are not. The choice of uniform Genitive seems to require explicit evidence in the primary data for the existence of free occurrences. We suggest that this is a consequence of the Functional First principle for parsing primary evidence proposed by Crisma and Gianollo (2006), which in turn may follow from the Subset Principle (Manzini and Wexler 1987): this suffices to block the application of Biberauer's Maximization principle in the opposite direction (from functional to free Genitive).

a higher Genitive in GenH:

- (33) Marian jatkuva papereitten tarkastus FINNISH
 Maria-GEN constant documents-GEN control
 ‘Maria’s constant checking of documents’

Other constructions, like the ones in (34a,b), show that the Genitive in pre-adjectival position can be iterated, therefore only one of the pre-nominal Genitives can be analyzed as occurring in GenH; the others are necessarily free genitives occurring at the edge.

- (34) a Leonardo-n Louvre-n Mona Lisa-n maailmankuuluisa muotokuva
 Leonardo-GEN Louvre-GEN Mona Lisa-GEN world-famous portrait
- b Leonardo-n Louvre-n maailmankuuluisa Mona Lisa-n muotokuva
 Leonardo-GEN Louvre-GEN world-famous Mona Lisa-GEN portrait
- c *Leonardo-n maailmankuuluisa Louvre-n Mona Lisa-n muotokuva
 Leonardo-GEN world-famous Louvre-GEN Mona Lisa-GEN portrait
 ‘Leonardo’s world-famous portrait of Monna Lisa of the Louvre’

The ungrammaticality of (34c) confirms that the Genitives are not randomly placed within the structure. Free Genitives cannot occur between adjectives and the head noun: the only available slot for Genitives in that position is the non-iterable functional projection GenL, therefore a sequence of two genitives in that position is ill-formed³⁹.

³⁹ In Estonian, the picture is similar, but complicated by the presence of the Elative Case, resembling the broadly ablative prepositions used in Romance and Germanic to express Genitive, e.g. German *von*, which coexists with the two functional Gen positions:

4.3 Genitive across languages

To sum up, we identified three types of Genitive (GenH, GenL, free), whose presence or absence in each language is subject to parametric variation. In principle, the possible combinations should amount to the power set of this triplet, with cardinality 8.

Of these 8 combinations, one would be the empty set, a language that does not have any of the three Genitives we identified; such a language, however, is not attested in our dataset. We can explain this gap in terms of an Effability⁴⁰ constraint, requiring all languages to have at least one way of expressing some direct adnominal argument. Note however that here we are abstracting away from arguments introduced by linkers, which could represent the empty class in the power set defined above. We are then left with 7 expected language patterns, which are in fact the attested ones in our dataset⁴¹:

(35) Functional and free Genitives in our dataset

a GENH — — Hungarian, Turkish

b — GENL — Greek

i. Leonardo kuulus Louvre'i portree Mona Lisast ESTONIAN
 Leonardo.GEN famous.NOM Louvre.GEN portrait.NOM Mona Lisa.ELA
 'Leonardo's famous portrait of Mona Lisa of the Louvre.'

The status of Indo-European Baltic is also probably slightly different. According to the literature (Rutkowski 2007, Rutkowski and Progovac 2006), in Lithuanian one finds evidence for GenH and GenL on the left side of the noun, but no evidence for further iterability i.e. for uniform Genitive or for any free Genitive.

⁴⁰ On Effability, see Katz (1978) and, as a condition on completeness of parameter systems, see Crisma, Guardiano and Longobardi (2020).

⁴¹ The summary in (35) does not comprise possessive pronouns or anaphors, which share properties with general Genitives but also require their own treatment. If possessives were added, one should probably tick an active GenH position for all of Romance, Celtic, Icelandic, and for Greek pre-nominal possessives enclitic on an adjective.

c	—	—	free GEN	Basque, Hindi, French
d	GENH	—	free GEN	English, Danish, Catalan (if (21) indeed instantiates GenH), colloquial Romanian
e	—	GENL	free GEN	Welsh, Irish, Hebrew, Arabic, Icelandic
f	GENH	GENL	—	Old English, Russian (if adjectival Genitives are GenH), perhaps Lithuanian
g	GENH	GENL	free GEN	i. German: with different formal realizations ii. Latin, Classical Attic Greek, Finnish, perhaps Estonian: with uniform realization

5 Free Genitive as unchecked Case

The previous overview reveals a broad crosslinguistic correlation between form and distributional freedom. Genitives restricted to the functional positions have less formal marking: in particular, they often admit the possibility of no marking at all, and present no uncontroversial evidence of adpositional realization. Free Genitives are always marked. The clearest illustration of this correlation is provided by Catalan or Hebrew:

- (36) a *la casa (nova) del mestre* CATALAN
the home (new) of-the teacher
b *casa (*nova) 'l mestre (nova)*⁴²
home (new) the teacher (new)

⁴² The impossibility of the pre-nominal position of the adjective, combined with the fact that, unlike Semitic, Romance does not have obligatory roll up movement of N, is an argument to suspect that the special Genitive licensed with *casa* is actually in GenH.

- (37) a ha-bayit ha-gadol šel ha-more
 the-home the-big of the-teacher
- b beyt (*ha-gadol) ha-more ha-gadol
 home (the-big) the-teacher the-big

The core of our proposal is that the connection between form and distribution ultimately derives from a deeper one between form and meaning of Case. In line with minimalist assumptions, features uninterpretable at the Conceptual-Intentional (C-I) level must be checked and deleted, hence an uninterpretable Case feature must be deleted in the course of the syntactic derivation and cannot provide an input to the Sensory-Motor (S-M) system:

- (38) a Case is a legitimate object at PF (S-M) only if it corresponds to a specific phonological instruction
- b Case is a legitimate object at LF (C-I) only if it corresponds to a specific semantic notion

We propose that ‘free’ and ‘functional’ Genitive differ precisely in terms of interpretability.

This idea is in line with Anagnostopoulou and Sevdali's (2015) proposal that certain verbal arguments that enter Nominative-Genitive (and other Cases) alternations in Ancient Greek and Icelandic reflect an alternation between interpretable or uninterpretable Case features. The latter type of Case triggers passive constructions, with the argument moving to SpecT and appearing in the Nominative.

5.1 Free Genitive as interpretable Case

Free Genitive is always formally expressed (typically through synthetic morphology⁴³ or an adposition), therefore it complies with (38a). We attribute this to the fact that the marker of free Genitives is [+interpretable], i.e. it is associated with a meaning in its own right, beyond the θ -role assigned to the argument; thus, it satisfies (38)b as well.

⁴³ I.e. uniform Genitive.

In fact, Dionysius Thrax (Τέχνη Γραμματική, Part 14 – ‘περὶ ὀνόματος’, ‘on the noun’) had already implicitly concluded that there exist meanings attributable to Genitive: ‘πτώσεις ὀνομάτων εἰσὶ πέντε ὀρθή, **γενική**, δοτική, αἰτιατική, κλητική. λέγεται δὲ ἡ [...] γενική **κτητική** τε καὶ **πατρική**’, ‘there are five cases of nouns: direct, **genitive**, dative, accusative, vocative. [...] the genitive is also called **possessive** and **paternal**’.

The general meaning of Genitive is thus something like ‘connected/belonging to/owned by/stemming from’ (to roughly follow Dionysius’ three denominations of this Case⁴⁴), where the understood subject of these predicates is semantically a noun, i.e. the head of an individual-naming expression: this meaning could cover a wide array of possible semantic relations with the noun⁴⁵, most of which perfectly overlap with and are non-distinct from the thematic ones, like Possessor, Agent, and Theme. When this overlap holds, the free Genitive must be linked to the corresponding θ -position of the noun frame, thus satisfying the θ -criterion for that noun and accounting for the c-command asymmetries discussed in Giorgi and Longobardi (1991) (see 3.2.1).

In this sense, free Genitive (Case) means ‘genitive’ (semantic notion), and once merged with a nominal expression can be so translated into the C-I system.

If this interpretation is correct, the distributional freedom of the free Genitive follows from the fact that it does not need checking/deletion, and therefore it is not subject to the distributional constraints restricting functional Genitives within the nominal extended projection, which we present and analyze directly.

6 Checking functional Genitive

Our hypothesis is that functional Genitives are *uninterpretable*, and therefore, under the Full Interpretation Principle (Chomsky 1995), need checking and deletion:

- (39) Checking allows deletion of [–interpretable] features which would stand in violation of the Full Interpretation Principle

⁴⁴ Cf. Liddell and Scott (1953), *sub vocibus*.

⁴⁵ Higginbotham (1983, 1985), Hall Partee (2006).

If this is the case, the fact that functional Genitives always appear in (i.e. overtly raise to) the Spec of a functional category GenH or GenL in the extended projection of N is entirely expected, for this is similar to what happens with typically uninterpretable Cases like Nominative and Accusative in the clausal domain. We provisionally formulate this requirement in terms of the following checking condition:

- (40) A Case feature on a phrase α is checked only if α is in the Spec of a designated head β (β = GenH or GenL in the case of Genitive)

However, the Spec-Head configuration in (40) is not the only constraint on the distribution of functional Genitives. Other conditions are needed to fully account for the existing variability.

In most cases, functional Genitives are post-nominal, being crossed over by N, whether they are in GenH or GenL. Whenever they surface pre-nominally, they always appear to either show ϕ -feature concord with the noun or to perform a determiner-like function (cf. property (17d)), as summarized in the descriptive generalization in (41):

- (41) Functional Genitives surfacing in pre-N position fall into *only* two categories:
- a they display ϕ -feature concord between the Genitive and the head N (see (19f))
 - or
 - b have determiner-like function, as in the case of the Germanic phrase- or word-level affix *-s* ((19b)) and (19c)).

We show how these conditions on the distribution of functional Genitives follow from natural mechanisms of Case checking.

6.1 *Checking via overt N-movement*

Given the structure in (12), the surface order N-Gen will always arise as the result of N(-projection) raising. The raised N may cross over GenL alone, as in Greek (20a), Russian, Icelandic and German (24a-c); or over GenL and some or all adjectives, as in Verbicaro (24d) and in Welsh (13a). Sometimes N raises to the leftmost position, all the way up to

D, thus crossing over GenH as well: the Genitive immediately following it may still be in GenL, e.g. in Semitic construct state (see (20d) and fn. 26), or in GenH (Romanian (20e)). For the sporadic Romance constructions involving special common nouns like *casa* ‘home’ (Longobardi 1996, 2001b), it is less straightforward to determine that the Genitive is actually in GenH (but see fn. 42). Nonetheless, especially the last cases suggest that N-raising over Genitive is a crucial ingredient of its licensing:

- | | | | | | | | | |
|------|---|---------------|-------------|--------------|-------|--|--|---------|
| (42) | a | casa | Rossi | | | | | ITALIAN |
| | | home | Rossi | | | | | |
| | b | ca' | ls | meus | pares | | | CATALAN |
| | | home-the.M.PL | my.M.PL | parents.M.PL | | | | |
| | c | beyt | ha-more | | | | | HEBREW |
| | | home | the-teacher | | | | | |
-
- | | | | | | | | | |
|------|---|---|------|----------|-------------|---------|--------------|------|
| (43) | a | * | (la) | Rossi | casa | | | |
| | | | | the | Rossi | home | | |
| | b | * | (la) | els | meus | pares | casa | |
| | | | | the.F.SG | the.M.PL | my.M.PL | parents.M.PL | home |
| | c | * | (ha) | ha-more | bayit | | | |
| | | | | the | the-teacher | home | | |

All these cases obviously instantiate a configuration in which the Genitive ends up visibly in the c-domain (i.e. within the complement) of N. We surmise that this is an essential requirement for licensing (42). We thus propose the following further checking generalization:

- (44) A head β can check a Case feature on a category α only if α is in the complement of β (where $\beta = N$ and $\alpha = \text{Genitive argument}$)

6.2 Checking via covert *N*-movement

For pre-nominal Genitives with determiner-like function (41b), exemplified by Germanic

s-genitives (see (20b,c)), Longobardi (1996) proposed that the cooccurrence of the definiteness-inheritance pattern with the impossibility of an overt determiner likens them to a covert version of the Semitic N-to-D movement. Thus, the LF representation of English (45a) will be (45b), nearly the gloss of the Semitic surface structure (45c):

- (45) a the teacher's new book about syntax
 b book the teacher's new *t* about syntax
 c sefer ha- more he-xadaʃ *t* 'al tabxir HEBREW

Therefore, also the Genitives of type (41b) are in the complement of N, *albeit* covertly, not on the surface, and thus comply with (44)⁴⁶.

6.3 *Checking via free riding on agreement*

The last case is that of languages with pre-nominal functional Genitives of the type (41a), the one with ϕ -feature agreement, which come in two types.

First, there are Romance possessive pronouns/anaphors, and Slavic argument adjectives (20f.i), where agreement on the argument is controlled by the gender/number features of the head noun.

The other case is represented by languages in which a pre-nominal Genitive, presumably in GenH, imposes its own ϕ -features on an agreement morpheme on the noun, as exemplified by Ugric and Turkic languages (20f.ii) (and, limited to possessive pronouns, in Finnish or Buryat). In this case, the checking of Genitive closely resembles that of Nominative in clauses (cf. George and Kornfilt 1981).

For all these Genitives, we suggest that a feature (Case) may be checked as a

⁴⁶ An active GenL not crossed over by N seems typologically more rarely attested (outside cases of Uniform Genitive: cf. 4.2.2). This is possibly in correlation with the fact that in many languages nouns raise overtly over adjectives (hence necessarily over GenL) though not as high as over GenH. Given (44), for constructions with linearly pre-nominal GenL we should postulate some degree of covert N-movement, which may explain surface exceptions to (41).

consequence of checking another feature relation, i.e. ϕ -feature agreement (see Chomsky 1995, 268). The idea of free riding of Genitive Case on agreement of ϕ -features is especially natural in heavily Case-inflected languages in which adjectival genitive and possessive expressions share the same morphological Case, along with gender and number, with their head noun.

The relevance of agreement for licensing Genitives is apparent in languages with pre-/post-nominal alternations, such as Somali, where the pre-nominal Genitive obligatorily controls agreement on the noun, the post-nominal one does not:

- (46) a *hormúud-ka kulliyád-da* SOMALI
 dean-the faculty-the
 b *kulliyád-da hormúud-k-eeda*
 faculty.F.SG-the dean-the-POSS.3.F.SG (from Lecarme 1989)
 ‘the faculty’s Dean’

6.4 *An empirical prediction*

The checking mechanisms in sections 6.2 and 6.3 make a subtle empirical prediction: given a noun phrase containing a Genitive in GenH or GenL, when D is filled, only pre-nominal Genitives agreeing in ϕ -features will be grammatical:

- (47) $[DP \dots D^\circ \dots [_{GenH/L} Gen \dots [\dots N \dots]]]$
 a if D° is filled, hence not an available landing site for covert N-movement, pre-nominal Genitive is licensed only through free-riding on agreement and non-agreeing Genitive is ungrammatical
 b if D° is empty, hence an available landing site for covert N-movement, non-agreeing Genitive is licensed through c-command by the noun at LF

This prediction turns out to be correct in German⁴⁷. A pre-nominal non-agreeing

⁴⁷ Assuming that the demonstrative fills D° or at least ‘freezes’ its availability to other fillers.

Genitive is grammatical when D is available for covert N-to-D movement, resulting in definiteness inheritance (like in English (45)). Also, a non-agreeing Genitive can co-occur with a demonstrative when it is in GenL and surfaces in post-nominal position, being therefore licensed through overt (partial) N-movement⁴⁸:

- (48) a Marias neue Bücher
 Maria.GEN new books
 ‘Maria’s new books’
- b diese neuen Bücher Marias
 these new books Maria.GEN
 ‘These wonderful books of Maria’s’

As predicted by (47), a non-agreeing pre-nominal Genitive cannot cooccur with a demonstrative, which saturates the D position; instead, a possessive pronoun agreeing in ϕ -features with the head noun can, at the appropriate register⁴⁹:

- (49) a *diese Marias neuen Bücher
 these Maria.GEN new books
 ‘These new books of Maria’s’
- b dieses unsere schöne Land
 these our wonderful land
 ‘This beautiful land of ours’

⁴⁸ Interestingly, in our dataset licensing through agreement occurs for GenH rather than GenL. Again, this can be related to the fact that visible N-to-D is less frequent than partial N raising, and the latter does not seem to compete with independent filling of intermediate extended projections, as is instead the case for N-to-D. Therefore, these factors combine to let agreement in GenL normally succumb against the competing licensing strategies based on movement.

⁴⁹ The construction in (49b) is stylistically marked, as discussed in Demske (2000: 203).

7 Genitive and Case theory

7.1 Case checking

To sum up, all the morphosyntax of functional Genitives follows from complementing (39) with the refined Case-checking theory in (50):

(50) A Case feature on a phrase α is checked only if

- a α overtly occurs in the Spec of a designated category γ in the extended projection of a head β
and
- b (i) α agrees with β
or
(ii) α is in the complement of (a copy of) β

With respect to (50), the only parameters specifically needed to account for cross-linguistic variation concern the morphological availability of agreement on the relevant head noun. The surface position of β in all these cases could be determined by Case-independent parameters about overt/covert movement (as discussed in Longobardi 1996 for N raising) and should not be functionally triggered by Case-licensing needs.

The fact that the Case-hosting category moves overtly to the checking position (leading to (50a)) could be related to the fact that the Case feature, lest it be transferred to phonology, must be deleted from the copy of the category which will be spelt out. The other copies will not be pronounced anyway.

7.2 The ambiguous nature of Case

As outlined in section 5, free and functional Genitive and, more generally, interpretable and uninterpretable Case are distinct objects. In the case of Genitive, the Western grammatical tradition since Dionysius Thrax has been under the illusion of unity created by the formal neutralization of free and functional types as uniform Genitive in Classical Greek and Latin.

This misconception merges two independently well-grounded but separate notions of linguistic theory. The first is a genuine Saussurean *signifiant/signifié* arbitrary function:

of N means ‘genitive’, not unlike *with N* may mean ‘comitative’, *through N* ‘instrumental’ etc. The other is *allomorphy*, displaying its familiar properties, such as contextual dissimilation and/or agreement in features with other items. For example, *John’s* is the allomorph of *John* in the SpecGenH of the N *describ+tion*, while nominative *John* (a prototypically uninterpretable Case form) is the allomorph of *John’s* in SpecT of the V *describ-e*. On the whole, the latter notion is reminiscent of Case as a contextual categorial feature in the spirit of Pesetsky (2013). This approach is broadly sustained by Silvestri’s (2013) considerations in fn. 21, namely that the contextual marking of a genitive construction, when present, can appear on the head noun itself, hence not as a Case marker in the traditional sense.

More generally, our proposal of all variants of uninterpretable Case as allomorphic is also supported by Anagnostopoulou and Sevdali’s (2015) analysis of alternations between oblique Cases in verbal complement positions and their nominative realization in subject position of a corresponding passive: in these constructions, the oblique Case selected by some verbs (for example, an Ancient Greek uniform Genitive) could be interpretable; the uninterpretable instance appears in the Nominative in passive structures because the phrase occurs in SpecT and not in an adnominal environment. Otherwise, the alternation is completely parallel to that between *of the city* and *the city’s* in English (10a) vs. (10c), *the city’s* just being the allomorph of Nominative in SpecGenH.

The special property of uniform Genitive, which historically lead to its unification, is that its form is ambiguous between checked and unchecked instances, and therefore its distribution spans over that of free and functional Genitives. Instead, adpositions never count as checked and deleted because they are necessarily interpretable independent words, subject to the Full Interpretation Principle⁵⁰.

7.3 *Inherent and structural: a dispensable distinction*

The [$\pm$ interpretable] distinction for Case markers and the related Case-checking mechanisms account for the syntax of Genitive in all the languages in our sample. At this

⁵⁰ If true adpositional Genitives are indeed absent from functional positions, this suggests that checking heads such as GenH and GenL are licensed *only* if they perform checking.

point, ideally, other notions, such as inherent vs. structural, should turn out to be redundant as explanatory devices in Case theory, at least for Genitive. Here we show that accounts originally based on the structural/inherent opposition can in fact be recast in other terms, so that the opposition can be altogether dispensed with⁵¹.

One case is the impossibility of ECM and raising in constructions like (51), which has been imputed to the inherent nature of Genitives⁵²:

- (51) a * the consideration of John (to be) intelligent
 b * John's consideration (to be) intelligent

However, further examples show that the ungrammaticality of (51) has nothing to do with Case. Consider the contrasts in (52), opposing verbal (infinitival) and nominal constructions derived from the same roots, all containing small clause complements:

- (52) a il suo apparire/il suo esser considerato ITALIAN
 his appearing/his being considered
 b il suo apparire strano/il suo esser considerato strano
 his appearing strange/his being considered strange
 c la sua apparenza/la sua considerazione
 his appearance/his consideration
 d *la sua apparenza strano/la sua considerazione strano
 his appearance strange/his consideration strange

All these examples contain the same functional Genitive, a possessive pronoun, but exactly the same pattern can be obtained using a free Genitive instead. The ungrammatical cases (52d) are those in which this Genitive is the subject of a small clause

⁵¹ This distinction is already dubious with respect to Genitive also because it has been used inconsistently: Genitive has been labeled as structural (e.g. in Chomsky 1981: 170) and as inherent (in Chomsky 1986: 193).

⁵² Kayne (1984, ch. 7).

raised over a noun rather than over a verb. Different from verbs, nouns are notoriously resistant to extraction from their complements, in this case the small clause (English also admits infinitivals in this case): this fact alone can explain why phrases thematically unrelated to a noun (raised across complement boundaries) cannot appear in the functional structure of that noun.

The inherent/structural distinction was invoked by Siloni (1997: 40-41) in a further case, namely to explain her observation that in languages like Hebrew and Arabic (Fassi-Fehri 1993) prepositional Genitives cannot occur as subjects of small-clause complements of nouns, but functional Genitives (i.e. construct state Genitives, presumably in GenL) can. Apparently, this is also true of Hungarian Genitives (Horvath 2010), occurring in GenH. However, in the present framework this difference is reducible to the free/functional (i.e. $\pm$ interpretable) distinction: it does not require inherent/structural Case contrasts, modulo the assumption that, in these languages, nouns must behave like verbs in allowing movement across complement boundaries. Notice that there is an interesting potential generalization to be explored, in this framework: in all these three languages, functional Genitives occur with morphological modification of the normal form of the head noun (construct state or head-marking agreement, parametrically defined: see section 9 below), which signals its argument-taking status and could be responsible for their verb-like behavior.

If this line of reasoning is correct, the distinction between inherent and structural is unnecessary (and perhaps insufficient) to account for the properties of Genitive Case.

8 Alignment of adnominal Case with θ -roles

The traditional descriptive notion of Genitive as a unique abstract Case is motivated not only by its formal unity in many languages, but also by its ability to bear different roles in any of its realizations.

In this, the alignment of adnominal Case with θ -roles is radically different from clauses. Consider the interpretation of English *of*-phrases, that may be superficially equated to Accusative in constructions such as *The enemy's destruction of the city* in (10). We saw in (9), repeated here for convenience, that single occurrences of *of*-phrases may be associated with any available θ -role:

- (9) a Selling the car [of a deceased relative] can be an emotionally draining task
 b The murders [of Jack the Ripper] were confined to London's East End
 c The murders [of journalists] have more than doubled in the last year

Unlike Accusative, which is assigned to an argument only if an external role is independently discharged on another argument (Burzio's (1981, 1986) generalization), *of*-phrases may realize the external argument as in (9b), and also the internal argument as in (9c), even if the external one is unassigned⁵³. In other words, the lower Genitive realization is not a dependent Case like Accusative.

These same properties of *of*-phrases are observable in the functional Genitive in GenL, as shown e.g. by German:

- (53) a die sorgfältige Beschreibung [GenLdes Unfalls]
 the accurate description the.GEN accident.GEN
 'The accurate description of the accident'
 b die sorgfältige Beschreibung [GenL Marias](von dem Unfall
 the accurate description Maria.GEN (of the accident
 /durch die Zeugen)
 /by the witnesses)
 'Maria's accurate description (of the accident/by the witnesses)'

⁵³ One could object that in (9c), the lower Case on the internal argument might be licensed by the presence of an empty pronominal subject of the NP. But the non-necessity of a PRO subject with a lower Genitive Case is confirmed by binding tests:

- (i) a John and Mary bought pictures of each other
 b * John and Mary bought my pictures of each other

In (i)a, *pictures of each other* can be interpreted as taken by someone else that need not be formally expressed by an empty category, given (i)b.

As shown in (53), German GenL can very well host an agent (or a possessor), not only a theme. This contrasts with the clausal counterpart in (54), where an Accusative construction is grammatical only if the subject is projected and raised to Spec,T:

- (54) a Gestern beschrieb Maria [den Unfall]
 yesterday describe.PAST.3SG Maria the.ACC accident.ACC
 ‘Yesterday Maria described the accident’
- b *Gestern beschrieb/wurde beschrieben [den Unfall]
 yesterday describe.PAST.3SG/was described the.ACC accident.ACC

A second widespread difference between nominals and clauses is that when no argument is realized in GenH, this higher Case position is never filled by an expletive element, unlike SpecT; in other words, EPP does not apply to GenH:

- (55) a * there’s arrival (of) many students
 b the arrival of many students

A third difference is that in some languages, nouns (even deverbal ones) allow (c-select) just one direct argument of the noun, therefore the notion of a unique adnominal Case is natural: this is the case e.g. of Ugric languages, like Hungarian and Khanty (Ostyak)⁵⁴, but perhaps also of some American languages like Quichua (Andean) and Kadiweu (Guaicuruan). This distinction can be encoded as a parameter [$\pm$ full c-selection], thus languages that only take one Genitive (or one adnominal direct Case) are [$-$ full c-selection].

⁵⁴ Several adnominal arguments may also appear as extraposed to the right end of the NP, or expressed through the mediation of adjectival/participial modifiers (Kiss 2004, Kenesei, Vago and Fenyvesi 2010).

- (58) [_{GenH} Marias] sorgfältige Beschreibung [_{GenL} des Mannes] GERMAN
 Maria.GEN accurate description the.GEN man.GEN
 ‘Maria’s accurate description of the man’
 *‘The man’s accurate description of Maria’

- (59) Mašini opisanye [_{GenL} Ivana] RUSSIAN
 Maša.ADJ.SG description Ivan.GEN
 ‘Maša’s description of Ivan’
 *‘Ivan’s description of Maša’

In Semitic, the mapping of Theme and Agent to a functional Genitive (arguably in GenL in a construct state construction) and a prepositional Genitive is the opposite of (57):

- (60) a tmunat (ha-xamanyot) šel vangox HEBREW
 painting the-flowers of van Gogh
 b tmunat (*vangox) šel ha-xamanyot
 painting van Gogh of the-flowers
 ‘Van Gogh’s paintings of the flowers’ (adapted from Shlonsky 2004, 1504)

The difference between (60) and (56)-(59) could be tentatively attributed to the fact that the functional genitive in the construct state construction is a form of GenL, not of GenH. This hypothesis should be tested on other cases of alternations between GenL and free genitive PPs, such as Celtic and Germanic; we leave this topic for future research.

The general pattern with multiple direct arguments in nominals is sufficiently analogous to the clausal one to encourage the suggestion that similar formal explanatory mechanisms (e.g. the Equidistance principle of Chomsky 1995) could apply to exclude the nested dependency between two chains. Reference to the notion of dependent Case⁵⁶,

⁵⁶ Legate (2008), Baker (2015).

sometimes used in clausal syntax, does not straightforwardly apply to these asymmetries, because there seems to be no dependent Case in these nominal structures. However, we will not pursue the issue here.

8.2 Clausal alignment and Burzio's generalization

Outside Indo-European, there are [+full c-selection] languages which show a more transparent parallelism between adnominal and clausal Case systems. Turkish transitive nouns, for example, really behave like verbs. Their structurally higher Case, often called Genitive, fully plays the role of an independent Case, rather like the IE one, e.g. English 's: it resembles clausal Nominative, being assigned to the external argument or to the Possessor role, and to the internal argument if (and only if) the external one is absent or expressed through a *by*-phrase. On the contrary, the Turkish structurally lower case seems to be formally, but also syntactically, identical with Accusative: as in clauses, its assignment necessarily depends on the assignment of the structurally higher Case to an overt external argument. Hence, it is limited to the internal argument, and the external argument can never bear it, even if it occurs alone:

- (61) a öğretmen-in kaza-yı tarif-i TURKISH
 teacher-GEN accident-ACC description-3SG.POSS
 'the teacher's description of the accident'
- b kazan-in tarif-i
 accident-GEN description-3SG.POSS
 'the description of the accident (by some X)'
- c * kaza-yı tarif
 accident-ACC description
 'the description of the accident'
- d * öğretmen-i tarif(-i)
 the teacher-ACC description(-3SG.POSS)
 'the teacher's description (of some X)'

The Turkish GEN-ACC pattern is also shared by other Turkic languages and by

various Tungusic, Mongolian, Finno-Ugric and Dravidian languages (data collected for *LanGeLin* by N. Radkevich):

- (62) a tuohu byhylaan-y juulaa-hyn-a YAKUT
witness accident-ACC describe-NMNL-3SG
‘a/the witness’ description of the accident’
- b Turka-l Stambul-u gadaŋa-tan EVEN
Turk-PL Istanbul.ACC conquest-3PL
‘the Turks’ conquest of Istanbul’
- c Turka-l Stambul-va gad'ariva-tyŋ EVENKI
Turk-PL Istanbul-ACC.DEF capturing-3PL
‘the Turks’ capturing of Istanbul’
- d Baator-aj ger-e ebderel BURYAT
Baator-GEN house-ACC destruction
‘Bator’s destruction of the house’
- e Turok’’jos-len Stambul-ez bas’tèle-zy UDMURT
Turk-PL-GEN Istanbul-ACC conquest-3PL
‘the Turks’ conquest of Istanbul’
- f Van'-an atyšör-ym myšmaš-že (MEADOW) MARI
Vanya-GEN dishes-ACC washing-3SG
‘Vanya’s washing of (the) dishes’
- g jērmaṇi-yiṇ yūrōv-ai verri TAMIL
Germany-GEN Europe-ACC conquest
‘Germany’s conquest of Europe’

To sum up, in languages of this type the structurally lower Case is formally identical with Accusative and, like Accusative, it is dependent on the presence of an external argument marked by their Genitive Case, essentially in agreement with Burzio’s generalization. We suggest that these differences between the languages in (61)-(62) and IE follow from a parameter distinguishing between the Turkish and the IE type:

- (63) [$\pm$ clausal alignment]: languages may either extend the clausal Case system to nominals or not.

Languages with [$-$ clausal alignment] will have the alignment system of IE Genitive, i.e. the lower Case position will check independent Case, against Burzio's generalization, and will be available to either direct argument. The value of this parameter will be logically neutralised in languages which are [$-$ full c-selection].

8.3 *The Agreement Generalization*

An interesting generalization emerging from our overview is the following: as noted, languages like Hungarian, Turkish and some other Altaic and Uralic languages are characterized by ϕ -feature agreement on the head noun controlled by the Genitive (see (19f.ii)); all such languages, if they have more than one direct argument, seem to have clausal alignment. Hence, it is tempting to suggest that the licensing of Accusative in e.g. Turkic noun phrases is precisely a necessary unidirectional consequence of the presence in NPs of the sort of subject-verb agreement of clauses:

- (64) Agreement Generalization: if a language is [$+$ agreement with all 3rd person DPs], it will also be [$+$ clausal alignment]

In other words, the existence of agreement with a subject necessarily triggers Burzio's generalization. Ultimately, this must derive from the fact that the features of the agreement morphology on the head cannot be left unvalued, probably because they would be unreadable at the Sensory-Motor interface (essentially PF-legibility (38a)).

Notice that languages may occasionally display traces of both alignment systems, the clausal and the full genitive one: Hebrew (but also some of the Altaic and Uralic languages) is a case in point. It has a Genitive system with two forms (functional, with construct state of the noun, and free, with prepositional Genitive: see (35)), but some roots introduce *definite* objects with a dedicated marker *et* (Siloni 1997), which appears with verbs, but also with corresponding nouns, displaying a syntax similar to that of Turkish Accusative described above:

- (65) a harisat ha-cava 'et ha-'ir HEBREW
destruction the-army ACC the-city
'the army's destruction of the city (Siloni 1997: 34)
- b ha-harisa šel ha-cava 'et ha-'ir
destruction of the-army ACC the-city
'the army's destruction of the city (Siloni 1997: 27)
- c ha-harisa šel ha-migdal('al-yedey ha-cava)
the destruction of the-tower (by the-army)
'The destruction of the tower by the army' (Siloni 1997: 48)
- d *ha-harisa 'et ha-'ir
the-destruction ACC the-city
'the city's destruction' (Siloni 1997: 82)

8.4 Ergative and Accusative systems: the Alignment Generalization

The formulation of (63) implicitly makes a prediction, namely that languages that are [+clausal alignment] will basically replicate their clausal patterns in the nominal system:

- (66) Alignment Generalisation: [+clausal alignment] languages with an Ergative/Absolutive Case system in clauses will project that system in their nominals, never a Nominative/Accusative one.

This pattern is well exemplified in NE Caucasian languages:

- (67) a Rasullul q:ačay Ø-iwč'awu LAK
Rasul.OS.ERG criminal.I.S.ABS I.S-murder.MASDAR
'the murder of the criminal by Rasul'
- b Rasulli tilivizor bušmul ARCHI
Rasul.I.ERG tv.3S.ABS 3S.buy.MASDAR
'buying of TV by Rasul' (Polinsky, Radkevich and Chumakina 2017: 60)

These languages have a formally distinct Genitive Case as well, which is used to express the Possessor role, but can also replace Absolutive and even Ergative in certain constructions, as shown in Polinsky, Radkevich and Chumakina (2017)⁵⁷.

No pattern analogous to (67) is observed in Basque, even if it is an ergative language in clauses, because it is [–clausal alignment] in nominals, with a single, dedicated adpositional Genitive marker used for every direct argument.

9 Externalization of Genitive: a parametric typology⁵⁸

Chomsky, Gallego and Ott (2019: 251), elaborating on Chomsky (2014), propose the following conjecture about narrow syntax and externalization (EXT):

(68) I-language is optimized relative to the C-I interface alone, with EXT ancillary

Our analysis of adnominal Case corroborates the first part of their conjecture, for the mapping from the Genitive system to C-I is straightforward: as a consequence of their [±*interpretable*] status, free and functional Genitive are mapped to a specific meaning and to no meaning at all, respectively; therefore, functional Genitives must be Case-checked and satisfy the Full Interpretation Principle just through θ -assignment, like Nominative and Accusative, in line with Benveniste's (1966) approach.

The externalization of the Genitive system, i.e. the mapping to S-M, is much more

⁵⁷ Notice that in nominals of accusative languages like Turkish, only one Case, called Genitive, is used in addition to Accusative; the Genitive of Archi and Lak, instead, is used in nominals alongside Absolutive or Ergative. It remains to be seen in further typological work if this is an accidental fact or another significant generalization.

⁵⁸ The parameters discussed in this section (and many more) are presented with their manifestations in the online support material of Crisma, Guardiano, and Longobardi (2020), at: www.parametriccomparison.unimore.it > MATERIALS > Parameter setting algorithm (<http://www.parametriccomparison.unimore.it/site/home/materials/articolo840060058.html>).

intricate; it results from the interaction of the unsurprising variety of morphological idiosyncrasies (summarized in (19) and (28)) and a number of hierarchically-structured parametric subsystems. Each subsystem displays internal interdependencies recalling Roberts' (2019) format, but partly interacts with the other subsystems, as often observed since Longobardi and Guardiano (2009). Such interdependencies can be shown to be either logical or reducible to general principles of language acquisition/usage, e.g. Keenan's (2009) Anti-synonymy; see Guardiano and Longobardi (2017), Crisma, Guardiano and Longobardi (2020) for discussion.

A first subsystem concerns head-marking strategies (see (41a) and section 6.3):

(69) [$\pm$ head marking]	GCN
[$\pm$ Person-controlled marking]	GFN
[$\pm$ agreement with all pronouns]	GFP
[$\pm$ agreement with all 3rd person DPs]	GP3

Parameter GCN determines whether a language exhibits a (supra)segmental marking of the head noun (call it a Poss^o morpheme) when the latter occurs with a functional Genitive (e.g. Semitic construct state, +GCN, as opposed to IE, –GCN).

Parameter GFN determines whether such head marking depends on the Person feature encoded on the Genitive (as, for instance, in Turkish, Yukaghir, Buryat, most Uralic, +GFN) or not (e.g. Semitic, –GFN), and is logically irrelevant in –GCN languages.

Parameter GFP determines whether, in +GFN languages, the morpheme marking the head noun agrees in Person/Number with the Genitive (+GFP, e.g. Turkish and Buryat, Hungarian and Finnish). In –GFP languages (e.g. Yukaghir), only 3rd person Genitives trigger a visible Poss^o morpheme on the head noun. This parameter is also logically irrelevant in –GFN languages.

Finally, parameter GP3 determines whether, in +GFP languages, the possibility to be a controller of the Poss^o morpheme on the head noun is generalized to all Genitive DPs (+GP3, e.g. Turkish or Hungarian). In –GP3 languages (e.g., Buryat or Finnish), ϕ -feature agreement is only triggered by overt or null personal pronouns, essentially acting

as a possessive paradigm in the latter case. This parameter is logically irrelevant in –GFP languages.

The subsystem in (69) already illustrates how parameters form an implicational structure: they display a clear internal hierarchical structure, and also interact with the subsystem of parameters that defines the presence vs. absence of uniform/free/functional genitives in a language, illustrated in (71), as we show directly.

The second subsystem defines potential parallelisms/contrasts between the alignment of clausal and nominal arguments with θ -roles (see section 8):

(70) [$\pm$ full c-selection]	CSE
[$\pm$ ergative alignment]	EAL
[$\pm$ clausal alignment]	CAL

Parameter CSE determines whether a nominal can realize arguments of the head other than direct ones⁵⁹ and indirect objects (+CSE, see section 8). In –CSE languages, such as Hungarian, the head noun expresses other complements by means of predicative modifiers.

Parameters CAL (see (63)) and EAL define the possibility of extending to nominals the clausal Case system (e.g. in Dravidian, +CAL) and, if so, the specific ERG/ABS system (e.g. in Archi, +EAL). These parameters are logically relevant only in +CSE languages: in order for the nominal Case system to be aligned as in the clausal system, the full argument/adjunct array must be available.

Thus, like the others, subsystem (70) displays an internal hierarchical structure. It also interacts with both (69) and (71). As for (69), we noticed how ϕ -feature agreement on the noun controlled by a functional Genitive makes parameter CAL predictable in +GP3 languages (cf. (64); hence the condition $\neg$ +GP3 in (72)). Interactions with subsystem (71) will be illustrated directly.

The third subsystem defines the presence vs. absence of uniform/free/functional genitives in a language:

⁵⁹ That is possessor, agent/experiencer or theme, as discussed in section 2.

(71) [$\pm$ uniform Genitive]	GUN
[$\pm$ free Gen]	GAD
[$\pm$ active GenL]	GFL
[$\pm$ partial GenL]	PGL

Parameter GUN determines whether a language has uniform Genitive or not (see section 4.2.2). Parameters GAD and GFL define the availability, in a language, of the free Genitive and GenL respectively⁶⁰ (see section 3.1 and 3.2). A subcase of GFL, parameter PGL distinguishes languages which do not display any productive realization of functional Genitive arguments ($-$ PGL) from those where GenL is realized under restricted conditions, and not fully productive ($+$ PGL), as in Southern Italian dialects and possibly Old French.

We have seen that, modulo an Effability condition, the parametric combinations generated by this subsystem are all attested, see (35) in section 4.3.

Like the other two, this subsystem displays an internal hierarchical structure. First, the value $+$ of parameter GUN in a language makes parameters GAD and GFL logically predictable: the distributional properties of Uniform Genitives cover those of adpositional and functional ones.⁶¹ Also, parameter PGL is relevant only for languages which do not already use GenL in a full-fledged way, i.e. $-$ GFL. The parameters in (71) also interact with other subsystems. As for subsystem (69), head marking strategies appear to be typologically and functionally in complementary distribution with the interpreted inflection required on uniform Genitives. Hence, only languages which do not exhibit

⁶⁰ The existence or absence of active GenH, on the other hand, is likely to be predictable from independent combinations of other parameter values, which exceed the space of this chapter.

⁶¹ Hence, parameters GAD and GFL are neutralized in $+$ GUN languages: the implicational condition $\neg +$ GUN in (72) signals that parameters GAD and GFL can be set only in languages where parameter GUN is not active.

head marking strategies can set parameter GUN, likely as an effect of Anti-synonymy.⁶² Concerning subsystem (70), clausal alignment is incompatible with uniform Genitive, because the latter, by definition, neutralizes clausal Case distinctions. Therefore, parameter GUN is only relevant in –CAL (and, indirectly, –EAL) languages⁶³.

In (72) is a summary of the parameters presented in this section. They are ordered according to the implicational conditions which make each of them relevant/settable, which are summarized in the third column, using the formalization introduced in Longobardi and Guardiano (2009), Guardiano and Longobardi (2017). This summary abstracts away from the fact that many of these parameters have implicational relations with other parameters outside the Genitive domain.

(72) Parameters in this section

(69)	GCN	± head-marking	
	GFN	± Person controlled marking	+GCN
	GFP	± agreement with all pronouns	+GFN
	GP3	± agreement with all 3rdPers DPs	+GFP
(70)	CSE	± full c-selection	
	EAL	± ergative alignment	+CSE
	CAL	± clausal alignment	¬+GP3, +CSE, –EAL

⁶² In (72), this information is contained in the implicational condition (–GCN or (+GFP, –GP3)), to be interpreted as follows: parameter GUN can be set only in languages where parameter GCN is not set, or in languages where parameter GFP is set but parameter GP3 is not. Similarly, the implicational condition (–GCN or +GFN), ¬+GP3 of parameter GFL means that the parameter is relevant only in languages where: 1) either parameter GCN is not set or parameter GFN is set, and 2) parameter GP3 is either not set or neutralized by other parameters.

⁶³ The condition ¬+EAL on parameter GFL indicates that the parameter is only relevant in languages where EAL is either not set or neutralized.

(71)	GUN	± uniform genitive	(−GCN or (+GFP, −GP3)), −CAL
	GAD	± free Gen	¬+GUN
	GFL	± active GenL	(−GCN or +GFN), ¬+GP3, ¬+EAL, ¬+GUN
	PGL	± partial GenL	−GFL

10 Conclusions

We found that the notion of Case (in the abstract sense of e.g. Legate 2008), as instantiated here by Genitive, reduces to two very distinct notions, independently well known to grammatical theory: the *sound-meaning* arbitrary relation instantiated by a specific functional morpheme and contextual *allomorphy*. The two are straightforwardly mapped to the C-I component as a [$\pm$ *interpretable*] contrast: only the former type is interpretable. Genitive, as a general term, covers instances of either type, each correlating with various detectable consequences on externalization in the S-M system.

On the one hand, this approach corroborates conjecture (68) above: the mapping of narrow syntax to C-I is optimal; in our case, it reduces to the outcome of Merge either between N and a free Genitive or between N and its θ -arguments, along with their simple compositional interpretation, with no ‘semantic’ parametrization. On the other hand, the mapping to S-M matches this distinction, but is also complex and variable crosslinguistically, including language-specific idiosyncrasies of morphology, phonology and lexicon.

However, a great deal of the variability follows from a tight deductive structure constituting an implausibly accidental crosslinguistic template for diversity; such structure is expressed in few subsystems of parameters, which turn out to be:

- (73) a internally *complete*, in Gianollo, Guardiano and Longobardi’s (2008) sense that all the possible language types they generate are actually attested;
b constrained and connected to each other by simple *implicational* principles whose nature is mostly logical or functional (plausibly induced by third factor pressure: Anti-synonymy, Effability, Maximization of Minimal Means, PF-legibility);
c *settable* from positive evidence only (Crisma, Guardiano and Longobardi 2020).

The abstract, restrictive and deductive nature of this variability is very different from a naive surface typology and calls for deeper descriptions and explanations: after all, this has been a crucial scientific object of cognitive study since the problem of selecting a grammar and of explaining this process have been put on the research agenda (Chomsky 1957, 1964). Thus, we conclude that externalization can well be ancillary to the language system, but has the structure of the objects of natural sciences that modern biolinguistics is trying to address, as envisaged in Boeckx and Piattelli Palmarini (2005). Hence, we propose to reformulate (68) as follows:

(74) I-language is optimized relative to the C-I interface alone, with EXT widely variable but within a principled deductive structure

Such neat structuring of variability can hardly be the product of chance, but points to general principles of biolinguistic necessity: thus, its source (in the faculty of language and/or third factor) must be a central topic of any theory concerned with explanatory and evolutionary adequacy.

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