Appendix: The parametric database

1. The full dataset

1.1 Table A

Table A lists 56 DP-parameters and their settings in the format defined in Longobardi & Guardiano (2009).

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1.2 Parameter format

In Table A, each parameter is identified by a progressive number (in the first column) and, additionally, by a combination of three capital letters (in the third column). The order of the parameters is not motivated except for ease of expression of crossparametric dependencies (see directly below), which are organized to go top-down.

The alternative parameter states are encoded as ‘+’ and ‘−’. The symbol ‘0’ encodes the neutralizing effect of implicational dependencies across parameters, i.e. those cases in which the content of a parameter is entirely predictable, or irrelevant altogether. The conditions which must hold for each parameter to be relevant (i.e. not neutralized) are indicated in the second column after the name of the parameter itself. They are expressed in a Boolean form, i.e., either as simple values of other parameters, or as conjunctions (written ‘,’), disjunctions (‘or’), or negation (‘¬’) thereof. A few empirically uncertain states are indicated by ‘?’.

As an example of how to read the notation, the implicational condition of parameter 34 (PDC) should sound as follows: p34 (PDC) can be set if and only if p8 (DGR) is set to + and either p9 (NSD) is set to + or p18 (CGR) is not set to + (or both); otherwise it will be neutralized (0).

Especially within compact modules of grammar, the set of implicational relations across parameters turns out impressively intricate, as witnessed e.g. by the consequences of parameters 1 (FGP), 2 (FGN), 7 (DGP), 21 (AST).

1.3 Languages

Columns in Table A represent 26 contemporary Indo-European languages as strings of parametric values. They belong to the following subfamilies:

**Romance**
Sicilian (Sic), Northern Calabrese (Cal; data from Verbicaro, Cosenza), Italian (It), Salentino (Sal; data from Cellino S.Marco, Brindisi), Spanish (Sp), French (Fr), Portuguese (Ptg), Rumanian (Rm)

**Greek**
Bovese Greek (BoG; data from the area of Bova, Reggio Calabria), Salentino Greek (Gri; data from Calimera, Lecce), standard Modern Greek (Grk)

**Germanic**
English (E), German (D), Danish (Da), Icelandic (Ice), Norwegian (Nor)

**Slavic**
Bulgarian (Blg), Serbo-Croat (SC), Slovenian (Slo), Polish (Po), Russian (Rus)

Celtic
Irish (Ir), Welsh (Wel)

Indo-Iranian
Farsi (Far), Marathi (Ma), Hindi (Hi)

All critical data used to set the parameters (with the partial exception of Bovese Greek) have been collected or checked with the assistance of trained native speakers.

1.4 The 56 parameters
Here is a very short description of each parameter, with special attention to their individual and crossparametric implicational structure.

Parameters 1–20 define the syntactic properties of four features typically associated with the functional category that heads nominal structures (D), i.e. Person, Number, Gender, and definiteness.

P1 (FGP) Grammaticalized Person
P1 (FGP) asks if a language displays obligatory speech role distinctions on the verb and/or on anaphors (+p1, FGP) or not (–p1, FGP). English reflexives, e.g., are specified for Person as opposed to Japanese zibun (Kuroda 1988).

Grammaticalized Person is taken to also entail obligatory syntactic representation of D in argument nominals (Bernstein 2008, Longobardi 2008). This does not imply that there cannot be instances of this category that remain phonologically empty: in languages with grammaticalized Person, superficially determinerless nominal arguments are possible, though only if certain features associated with D (Number, definiteness, count, boundedness) are irrelevant (i.e. not grammaticalized) or can be checked at distance (through other categories). This possibility has to do with the settings of the following parameters: p2 (FGN), p5 (FSN), p6 (FNN), p7 (DGP), p8 (DGR), p18 (CGR).

Languages with +p1 (FGP), in addition to Person agreement at least on verbs or on anaphors, also display the following characteristics:

a. Some argument/non-argument asymmetry in licensing determinerless nominal
b. Pronouns structurally higher than common nouns within argument DPs.

Languages with –p1 (FGP) should not necessarily have a D, nor any of the properties above.
It is not implausible that other features of D, such as Number and, indirectly, Gender (see below under p3, FGG), are grammaticalized only in +p1 (FGP) languages: hence the direct condition +p1 (FGP) for the next parameter (p2, FGN). Such a condition triggers an intricate cluster of indirect implications on the following parameters: p3 (FGG), p5 (FSN), p6 (FNN), p10 (DPQ), p11 (DDA), p15 (DIN), p16 (CPS), p18 (CGR), p20 (DNN), p22 (FFS), p23 (FSP), p24 (ADI), p34 (PDC), p38 (PHS), p39 (GSP), p42 (TPL), p43 (TSL), and p44 (TDC). P4 (NOD) and p9 (NSD) also depend directly on +p1 (FGP): both require the existence of D to be relevant. Consequently, all parameters depending on either p9 (NSD) or p4 (NOD) indirectly depend on +p1 (FGP) as well: p13 (DSN), p20 (DNN), p24 (ADI), and p34 (PDC).

P2 (FGN) Grammaticalized Number
P2 (FGN) discriminates between languages in which Number distinctions are obligatory at least on some part of a DP (+p2, FGN) and those which, though exhibiting lexical expressions for ‘one’, ‘few’, ‘many’, numerals etc., do not mark any of these distinctions systematically on DPs (–p2, FGN).

Languages that are +p2 (FGN) normally display obligatory marking of plurality/paucity/ ... /singularity at least on some part of nominal arguments, as well as further syntactic effects, such as Number agreement between nominal arguments and verbs/adjectives/anaphors. Languages with –p2 (FGN) do not.

Languages that are –p2 (FGN) allow free argument bare nouns ambiguous between count singular/plural denotation. Conversely, in +p2 (FGN) languages, superficially determinerless nominal arguments are possible only if Number is contextually identified on the head noun or on modifying adjectives.

If Number is grammaticalized, it can be spread from D to N (thus, the implication of p5, FSN, with +p2, FGN) or to other lexical elements (such as Adjectival Phrases in attributive or predicative constructions: thus, the condition +p2, FGN, on p23, FSP, as well); indirectly, +p2 (FGN) is also a condition on p6 (FNN), p10 (DPQ), p11 (DDA), p15 (DIN), p16 (CPS), p18 (CGR), p20 (DNN), p22 (FFS), p24 (ADI), p38 (PHS), p39 (GSP), p42 (TPL), p43 (TSL), and p44 (TDC).

P3 (FGG) Grammaticalized Gender
This parameter asks if a language displays obligatory Gender distinctions (+p3, FGG) or not (–p3, FGG). Languages that are +p3 (FGG) partition nouns, or at least pronouns, into a closed set of classes, based on inherent properties of N (or its referent), and trigger morphological processes, at least on reflexives. Languages that are –p3 (FGG) languages exhibit no obligatory marking of lexical class distinction on any part of nominal arguments, including pronouns.
According to these requirements, all the Indo-European languages in our sample (including English, which displays obligatory Gender distinctions on pronouns, and agreement with reflexives) set p3 (FGG) to +; in contrast, languages like Hungarian, Finnish, or Basque select the value –.

It is plausible that for Gender to be grammaticalized, Number must also be; indeed, according to Greenberg’s (1978) Universal 36, only languages exhibiting Number distinctions can display Gender distinctions as well: hence the condition +p2 (FGN) for p3 (FGG).

**P4 (NOD) NP over D**
P4 (NOD) separates languages in which most elements normally associated with the D-area, such as ‘articles’ (i.e. Person/Number/definiteness/count markers) or, in some languages, demonstratives and numerals, surface phrase-initially in the DP (–p4, NOD) from languages wherein they occur in absolute phrase-final position: this is taken to be a signal that the whole complement of D raises to some projection to the left of D (+p4, NOD).

The empirical manifestations of this parameter depend on the interaction with many other surface properties, i.e. on the settings of further parameters. Briefly, in languages with -p4 (NOD) neither Person or Number markers, nor definiteness or count markers, ever occur as the last element of a nominal argument; conversely, several such markers typically occur as the last element of nominal arguments in +p4 (NOD) languages: their final position is better detectable when the nominal contains either a (reduced) relative clause (p27, ARR, below) or an internal argument in a basically postnominal position.

The parameter is relevant only if a D-position can be unconditionally detected, i.e. only if (at least) Person is grammaticalized; hence the condition +p1 (FGP).

P4 (NOD) imposes direct conditions on two parameters encoding properties of D: p9 (NSD) and p20 (DNN). The former is relevant if the value of p4 (NOD) is set on –, which becomes in turn a condition indirectly required by the parameters depending on p9 (NSD), i.e. p13 (DSN), p24 (ADI), p34 (PDC). P20 (DNN) directly depends on +p4 (NOD), in disjunction with +p9 (NSD), and in conjunction with -p5 (FSN), or -p6 (FNN), or -p12 (DCN).

**P5 (FSN) Feature spread to N and P6 (FNN) Number on N (Bare Nouns)**
This is a pair of ‘gemini’ parameters, both conceptually (they govern exponence of Number on N) and empirically (they exhibit parallel implicational effects). They describe the property of the feature Number, taken to be interpreted in D (Longobardi 1994, Zamparelli 1996), of being spread to N (i.e. the head noun; +p5, FSN) or not (–p5, FSN), and, if spread, of being morphologically represented on N (+p6, FNN) or not (–p6, FNN).
The lack of robust morphological exponence of Number on N (which in turn correlates with the impossibility of bare nominal arguments, see Delfitto & Schroten 1991), can depend on two features:

a. Either the feature Number is not spread from D to N (–p5, FSN); obviously, for this parameter to be set, Number must be grammaticalized, hence the condition +p2 (FGN).

b. Or the feature Number, abstractly spread to N (therefore, the condition +p5, FSN, and indirectly +p2, FGN), is insufficiently morphologically supported on N (–p6, FNN).

Languages wherein Number is grammaticalized ( + p2, FGN) but not spread to N (–p5, FSN, e.g. Wolof or Basque) exhibit indeclinable nouns and no bare argument nominal, but manifest Number on other categories (typically determiners).

Spreading of Number to N (+p5, FSN) not only allows empty Ds, but also affects:

a. The possibility for the inflectional form of N to depend on the occurrence of certain morphemes in D, beyond phi-feature concord (p15, DIN)

b. The possibility for N to agree in Number with a non-singular cardinal numeral (p16, CPS)

c. The possibility for structured adjectives (+p21, AST) to be inflected for Number or not (p22, FFS) and, indirectly, to present alternation of inflectional markers (p24, ADI)

d. The possibility of inflectional concord on possessive pronouns (p38, PHS) and genitival arguments (p39, GSP).

A language with –p6 (FNN) should exhibit lack of robust Number exponence on N, along with absence of argument bare nouns, while a language with +p6 (FNN) is expected to exhibit both, with (at least) mass/plural readings. French exhibits traces of Number spread to N (+p5, FSN: endings -al/-aux or lexical forms like oeil/yeux), but no systematic morphological exponence of Number features on N (–p6, FNN). This seems sufficient to bar determinerless argument nominals (Delfitto & Schroten 1991).

Proper names (object-referring singular nouns) escape such a Number constraint on empty D perhaps in all languages, and anyway they are likely to be in D in French (Longobardi 1994, cf. p9, NSD, below).

P6 (FNN), like p5 (FSN), induces implicational effects on several parameters, in particular those associated with the lexicalization of D (p11, DDA; p18, CGR; p20, DNN; p42, TPL) and with the representation of D-features on elements other than D (p10, DPQ).

P7 (DGP) Grammaticalized partial definiteness and P8 (DGR) Grammaticalized definiteness
This is, again, a pair of ‘gemini’ parameters. They ask whether a language must formally mark
a definiteness value on its nominal arguments, i.e. express an operator of maximality in the
relevant domain of discourse.

We assume that, like other operators, definiteness is interpreted in D. In fact, the typical
device to encode definiteness is a specific morpheme that usually surfaces in D (article).
Dedicated definiteness morphemes, however, may also occur as suffixes on nouns and
adjectives (cf. p12, DCN; p13, DSN; p54, DOA, below).

There are likely to exist progressively wider notions of definiteness: in the simplest case,
the range of the variable bound by the maximality operator is limited to entities designated in
the previous linguistic text (anaphoric definiteness: an example is likely to be provided by
Mauritian Creole, Guillemin 2009). P7 (DGP) precisely asks whether the definite reading of a
nominal argument must be marked in the subset of cases in which it designates an entity
already explicitly introduced in the previous discourse (+p7, DGP) or not (–p7, DGP).

This parameter entails an impressive number of implications: the value – of p7 (DGP)
neutralizes the relevance of 16 other parametric choices. In two cases the relation is direct: for
p8 (DGR) and p54 (DOA) to be relevant, p7 (DGP) must be set to +. In the remaining 14 cases,
the dependency is triggered by transitivity (i.e. by an indirect relation): p9 (NSD), p11 (DDA),
p38 (PHS), p42 (TPL), p43 (TSL), and p44 (TDC).

P8 (DGR) asks if a language generalizes the overt marking of definiteness to all relevant
cases (+p8, DGR), i.e. also to environments where no previous mention of the designatum has
been made (including e.g. instances of situative Unika, cf. Ebert 1970, or of definite generics,
like ‘the dog has four legs’) or not (–p8, DGR).

Languages with +p8 (DGR) mark every definite nominal argument either through
definiteness morphemes, or through strategies of contextual identification (the typical case is
definiteness inheritance from a genitive argument of N, like the Germanic ‘Saxon’ Genitive, or
the Celtic/Semitic construct state). Otherwise nominal arguments, unless interpreted
referentially (like proper names), are indefinite (and must make a relevant choice in the
singular between a count and a mass interpretation, Crisma 2011).

Thus, languages with +p8 (DGR) apparently require a definite marker in all the
environments of p7 (DGP) as well: hence the condition +p7 (DGP). P8 (DGR) further entails a
set of conditions on the other parameters defining the representation of definiteness features
across nominal arguments; conditioning is either direct (p9, NSD; p11, DDA; p12, DCN; p14,
DOR; p18, CGR; p34, PDC; p44, TDC) or indirect (p13, DSN; p20, DNN; p24, ADI; p36, PAP;
p38, PHS; p42, TPL; p43, TSL).

P9 (NSD) Strong Person
P9 (NSD) defines whether attraction to the D area of referential nominal material (e.g. proper names, see Longobardi 1994, 2001a, 2008) is overt (+p9, NSD, e.g. Romance) or not (–p9, NSD, e.g. English).

Movement can be replaced by the insertion of a filler in D, with expletive function, usually homophonous with the definite article (cf. *Roma antica* vs. *l’antica Roma*). In languages wherein N is always trapped in a low position (as e.g. Greek, cf. p49, NOA, below), proper names can never overtly move to D; thus, the expletive remains the only viable alternative (Longobardi 2001a; Guardiano 2006, 2011a).

For principled Economy reasons (Longobardi 2008), common nouns seem universally unable to overtly raise to D; therefore, in +p9 (NSD) languages, the expletive is their only possibility to be referential (i.e. kind-referring) names, rather than indefinites.

Languages with –p9 (NSD) do not require D to be filled in either of the aforementioned cases.

The visible effects of this parameter appear to be neutralized in languages wherein D may remain empty with definite interpretations; hence the condition +p8 (DGR). Obviously, the parameter is relevant only in languages exhibiting a D position on argument nominals, i.e. with grammaticalized Person (+p1, FGP).

Empirically, it seems that the consequences of strong Person are visible only in languages in which the whole NP is not already raised to the left of D (–p4, NOD). The value + for this parameter is directly required, in conjunction and disjunction with other conditions, for p20 (DNN) and p34 (PDC) to be relevant. Conversely, the value – is directly relevant in conjunction with other conditions, for p13 (DSN) and p24 (ADI).

P10 (DPQ) Free null partitive Q

This parameter defines the possibility for certain languages (e.g. Finnish) to encode some count/mass distinctions even if they do not have articles, by means of differential Case-marking. In Finnish, Case alternations distinguish definite and indefinite readings with plural and mass nouns, but not with singular count nouns. Among morphologically singular nouns indefinitely interpreted, Case alternation distinguishes between a count reading (with oblique Case) and a mass-like reading (with partitive), extended to many nouns that are not always obviously mass-denoting (cf., e.g., ‘book’, ‘moon’).

Such Case distinctions seem to represent an unpronounced version of the so-called ‘partitive determiner’ in French (*du, des, …*), of a *little of* in English or, even more closely, of Italian *un po’ di*. This empty determiner would be an indefinite quantifier naturally assigning partitive Case, and selecting mass-like and plural interpretations on the noun following it, like the one systematically found in French negative contexts (*pas … de NP*).
This parameter asks if a language has such empty determiners (+p10, DPQ) or not (–p10, DPQ) even in positive polarity environments.

It is assumed that the null partitive Q can be found only in languages licensing empty determiners more generally, i.e. wherein Number distinctions are explicitly visible on N, hence its dependency on +p6 (FNN).

P11 (DDA) Grammaticalized Distal Article
This parameter asks whether definite articles encode obligatory distal/proximate distinctions (as in Wolof and one variety of Basque: +p11, DDA) or not (as in most European languages: –p11, DDA). The items used to express such distinctions are not to be confused with demonstratives, which are never used obligatorily.

The parameter logically depends on the very existence of articles in the language, either the definite article (+p8, DGR) or the ‘general’ article required in languages lacking robust Number exponence on N (i.e. –p5, FSN, or –p6, FNN).

P12 (DCN) Definiteness-checking N
P12 (DCN) asks whether the definiteness marker of a language is a bound morpheme cliticizing on N (as e.g. in Rumanian: +p12, DCN) or not (as e.g. in the rest of Romance: –p12, DCN). The morphological merging of the definiteness affix with N may follow from overt N-movement and is morphologically quite uniform.

The syntactic manifestations of the construction are instead varied, depending on other parameters. In some languages, these suffixed nouns can never surface after an adjective (e.g. Rumanian and Bulgarian). In others, they end up in a position to the right of adjectives (i.e. Scandinavian).

In Rumanian and Bulgarian, if an adjective occurs prenominally (i.e. always in Bulgarian, only in the case of high structured As in Rumanian, cf. parameters 27 to 29), the suffix still occurs on a DP-initial category, indeed on the first adjective itself. In Scandinavian, the adjectives, always prenominal, can and must precede suffixed nouns.

The difference is likely to be typologically connected to p9 (NSD): in +p9 (NSD) languages (Rumanian, Bulgarian) definite suffixes would contain Person specification, and thus be overtly attracted to D along with their host; in –p9 (NSD) languages (Scandinavian), the suffix would be unspecified for Person and unable, as such, to go to D with its host. The occurrence of definite suffixes on adjectives is supposed to be contingent on the condition that they are specified for Person. This is excluded in Scandinavian, which is left with two main subcases for connecting definiteness to D over on A.
a. If a language is *strong article* (p18, CGR) a free-morpheme definite article is inserted in D (Mainland Scandinavian).

b. If a language is –p18 (CGR), D remains empty and long-distance interpreted as definite (Icelandic, cf. Crisma 2011).

The parameter logically presupposes definiteness to be grammaticalized (+p8, DGR). The value + for this parameter is relevant for p13 (DSN, in conjunction with –p9, NSD), p36 (PAP) and, indirectly, for p38 (PHS); its value – is relevant, in conjunction/disjunction with other conditions, for p20 (DNN).

**P13 (DSN) Definiteness spread to N**

P13 (DSN) asks whether a language maintains definiteness suffixes on N in addition (rather than in alternative) to free definite morphemes in D (+p13, DSN) or not (–p13, DSN), when the presence of the latter morphemes is forced by the intervention of an adjective. Within Mainland Scandinavian, for instance, the intervention of an AP gives rise to such double definite marking in Norwegian (+p13, DSN), but not in Danish (–p13, DSN).

The parameter is naturally relevant only for languages with definiteness marking on N, hence its dependency on +p12 (DCN). Additionally, it is irrelevant in the subset of languages with +p9 (NSD, Rumanian, Bulgarian), in which the suffix simply appears on the first element (N or A) of the phrase.

**P14 (DOR) Definiteness on relatives**

P14 (DOR) asks whether the definiteness of the head of a relative clause is marked on the introducer of the relative clause itself, i.e. the latter overtly agrees in definiteness with the head (as e.g. in Arabic, +p14, DOR) or not (–p14, DOR). Obviously, the parameter is relevant only if definiteness is grammaticalized: hence its dependency on +p8 (DGR).

**P15 (DIN) D-controlled inflection on N**

P15 (DIN) asks if the inflectional form of N depends on the occurrence of certain morphemes in D, beyond simple phi-feature concord (+p15, DIN), or not (–p15, DIN). All IE languages seem to be –p15 (DIN). Arabic is +p15 (DIN): indeed, all nouns, when not introduced by a definite determiner, take a peculiar suffix (*nunation*) that, since it occurs on proper names as well (i.e. on all determinerless nouns), appears to be a morphological consequence of the absence of an article in D, rather than an *indefiniteness* marker.

It seems plausible that such strategies are found only in languages that independently display some more basic form of feature spread from D to N: therefore, p15 (DIN) depends on +p5 (FSN).
**P16 (CPS) Plural spread from cardinals**

P16 (CPS) asks whether nouns, when introduced by a non-singular cardinal numeral, must agree in Number with it (+p16, CPS) or not (–p16, CPS). The value +p16, CPS entails that nouns always remain in the singular, even with numerals higher than one (e.g. in Farsi or in Uralic languages). Cardinals are relevant here when functioning as D-checking elements (i.e. quantifiers), not in adjectival function. Obviously, the parameter holds only for languages with +p5 (FSN), i.e. languages with potentially agreeing numeral-noun sequences.

**P17 (CGB) Grammaticalized boundedness**

In all languages, plural and mass bare nominal arguments, in the appropriate atelic context, can denote intrinsically unbounded amounts of individuals or subparts of a substance (*John sells cars/meat for a living*): unbounded denotation is thus a consequence of bare mass/plural interpretation, and can be remedied through an overt determiner.

P17 (CGB) distinguishes languages where bare **singular count** nouns in argument contexts are generally bounded (i.e. never have a Number-neutral reading, but denote just one entity: –p17, CGB) from languages where they (when not understood as definite) normally have unbounded denotation (+17, CGB). Thus, in languages in which **boundedness** is grammaticalized (+p17, CGB), in order for a bare count singular to get a bounded denotation, an overt determiner is required systematically: the numeral for ‘one’ is normally used in these cases, and must not be confused with a ‘true’ indefinite article.

Languages that are +p17 (CGB), e.g. Hindi (Dayal 1992) or Hungarian, exhibit:

a. A **count** but Number-neutral reading of bare singular arguments (at least in the complement position of verbs with atelic interpretation and non episodic aspect)

b. A generic reading of bare count singulargs (even in languages with articles)

c. Specific (non-generic) or taxonomic reading of singulargs with the **boundedness** marker, as with English *one* (as opposed to English *a*)

d. Supposed incorporation of the unbounded N into the predicate. E.g., in Wolof, unbounded uninflected bare nouns may thus escape Delfitto & Schrotten’s (1991) constraint against empty D with numberless N (cf. p5, FSN, and p6, FNN).

The values of this parameter affect p18 (CGR; and, indirectly, p34, PDC), which is relevant only for –p17 (CGB) languages, and p19 (CCN), which instead is relevant only in +p17 (CGB) languages.

**P18 (CGR) Strong Article**
P18 (CGR)'s most salient surface manifestation is the presence of an ‘indefinite’ article, i.e. of an obligatory marker on singular indefinite count argument nominals, distinct from those used for definites and mass indefinites. Many languages (–p18, CGR) do not syntactically distinguish, in argument position, indefinite singular nouns interpreted as mass from those interpreted as count. Following Crisma (2011), we suppose that this property correlates with empty Ds non locally interpreted as definite through:

a. Definiteness suffixes occurring on non-phrases initial elements (Icelandic)
b. Non-phrase initial definite Genitives (Icelandic, Celtic, Semitic).

In other languages (+p18, CGR), indefinite nominals mark the count reading through a determiner-like element, most often a development of the numeral ‘one’, and correspondingly:

a. Definiteness bearing items must occur in the D area
b. Definite genitives may not transmit definiteness from a non-initial position (German).

Languages not grammaticalizing definiteness seem not to distinguish count nouns from the rest in any context, hence the condition +p8 (DGR).

If a language does not admit argument bare nouns at all, like French, a visible determiner-like item is needed on all nouns anyway; therefore, p18 (CGR) is an irrelevant (condition +p6, FNN).

Languages grammaticalizing **boundedness** already have bare count singualrs by definition, and use the numeral for ‘one’ only to mark **boundedness**, therefore, the condition -p17 (CGB).

The absence of a **strong article**, i.e. the option of an empty D with non-default readings, seems to affect the overt movement to the D-area also of elements such as possessives and demonstratives, hence the condition ⊤ +p18 (CGR) for p34 (PDC) and p42 (TPL).

**P19 (CCN) Boundedness-checking N**

P19 (CCN) distinguishes languages wherein the noun incorporates a marker for bounded indefinite readings as an enclitic affix (Farsi -i, Sinhalese -k: +p19, CCN) from those in which the **boundedness** marker only surfaces as an independent morpheme to the left of N, presumably in D (Marathi and Hindi ek: –p19, CCN). The parameter is logically directly conditioned by +p17 (CGB).

**P20 (DNN) Null-N licensing article**
In +p20 (DNN) languages, a determiner non-distinct from the simple article is used to introduce definite nounless argument nominals containing a genitive argument, an adpositional argument, or a relative clause. In –p20 (DNN) languages, such a function is played by another determiner (normally a demonstrative).

The first option is available, obviously, only in languages with a ‘full’ free-morpheme article, i.e. with an item that is not simply a filler for D nor a suffixed item; hence the disjunctive condition: –p5 (FSN) or –p6 (FNN) or –p12 (DCN). These phenomena seem to be empirically found only in languages with strong person. Hence the disjunctive condition +p4 (NOD) or +p9 (NSD).

Parameters 21 to 56 describe:

a. Syntactic properties of nominal modifiers, i.e. adjectives (21–24 and 52–56) and relative clauses (25–27), of genitive arguments and possessives (29–41), of demonstratives (42–44);

b. Type (28) and scope (45–51) of N-movement (henceforth “N-movement” is used to refer to the movement of the relevant projection headed or characterized by N).

P21 (AST) Structured APs

P21 (AST) distinguishes languages with freely ordered adjectival modifiers only (–p21, AST), having the basic distributional properties of relative clauses (of which they can be considered the reduced non-verbal or non-tensed version), from languages with adjectives occurring in DP-internal positions, different from those of relative clauses (+p21, AST).

Adjectives of this latter type, called ‘structured’, universally merge prenominally, and are taken to be ordered in the following interpretative sequence: High > Manner1 > Manner2 > Argument (cf. Sproat & Shih 1988, Crisma 1991, 1996, among others). Postnominal occurrences variously depend on N-movement across the DP (Bernstein 1991, cf. the relevant parameters below). This parameter entails implications on:

a. Parameters presupposing with the existence of structured adjectives (i.e. p22, FFS, and p38, PHS; indirectly: p24, ADI; p39, GSP; p56, ACP), or phrases whose presence is parametrized only in languages with structured adjectives (i.e. p27, ARR);


P22 (FFS) Feature spread to structured APs
This parameter distinguishes languages in which structured adjectives are inflected (at least) for Number (+p22, FFS) from languages in which they remain uninflected (–p22, FFS). It contrasts languages like English and Farsi (but also Hungarian), wherein adjectives do not agree in phi-features with N, with e.g. the rest of Indo-European.

The obvious conditions for this parameter to be relevant are that such features be grammaticalized and already spread to N (condition +p5, FSN), and obviously that there be structured adjectives (condition +p21, AST).

The value + of this parameter is a condition for the relevance of p24 (ADI), p38 (PHS), and p39 (GSP).

P23 (FSP) Feature spread to predicate APs
This parameter distinguishes languages wherein adjectival phrases in predicative constructions (probably including reduced relative clauses) concord (at least) in Number with a subject nominal (+p23, FSP) from those in which they remain uninflected (–p23, FSP); thus, it separates English, German, Irish, Welsh and Farsi, in which predicative adjectives are uninflected, from e.g. the rest of Indo-European.

The obvious minimal condition for this parameter to be relevant is for Number to be grammaticalized, and spread at least to N: therefore, p23 (FSP) depends on +p5 (FSN).

P24 (ADI) D-controlled inflection on A
P24 (ADI) distinguishes languages wherein structured adjectives in a DP display no variability in the morphological encoding of phi-features (–p24, ADI; e.g. Celtic) from those in which their morphology may be reduced contextually, depending on the content of the D-area (+p24, ADI, like most Germanic languages).

Obviously, this property is only visible in languages in which (at least) some phi-features are encoded on structured adjectives (i.e. +p22, FFS). Furthermore, the possibility of thus reducing the morphology of structured adjectives (the so-called Germanic weak inflection) seems to be a peculiarity only of languages wherein Person is not strong; thus, p24 (ADI) is taken to depend on –p9 (NSD) as well.

P25 (ADR) DP over relatives
P25 (ADR) defines whether relative clauses, probably always base-generated in a pre-DP position, are crossed over by the whole DP, and thus surface to the right of all other arguments and modifiers (+p25, ADR), or not (–p25, ADR).

Languages with –p25 (ADR) are expected to exhibit relative clauses linearly preceding the head (as e.g. in Basque, see Hualde & Ortiz De Urbina 2003: 762–822). On typological grounds, the value + of this parameter is relevant for p31 (GPR), cf. below.
**P26 (AER) Relative extraposition**

Languages wherein relatives are not systematically crossed over by the DP (i.e. –p25, ADR) can still exhibit postnominal relatives, as an effect of extraposition (+p26, AER). P26 (AER) asks precisely whether a subset of relative clauses may be postposed to the rest of the DP (+p26, AER) or not (–p26, AER).

Hindi and Marathi appear to set this parameter to the value + (postposing finite as opposed to participial relatives, Mahajan 2000), while Basque has both –p25 (ADR) and –p26 (AER).

Naturally, this parameter applies only to languages in which relative clauses are not already systematically crossed over by the DP, i.e. to –p25 (ADR) languages.

**P27 (ARR) Free reduced relatives**

This parameter governs the possibility for adjectives to freely occur as reduced relative clauses (+p27, ARR) or not (–p27, ARR). Adjectives occurring in this position do not have the distribution of ‘structured’ ones (cf. p21, AST, and passim below) but, rather, that of relative clauses, and may alternate with structured adjectives in +p21 (AST) languages. Conversely, -p27 (ARR) languages never allow adjectives as reduced relatives, or allow them only under peculiar constraints, typically (cf. English) as a last resort to avoid violation of ordering/heaviness restrictions on the complement of adjectives (cf. p56, ACP), or when they have a distinct verbal nature (e.g. participles).

Obviously, it is assumed here that all languages have at least one strategy to encode adjectival modification: thus, only +p21 (AST) languages may ask whether they can put adjectives in reduced relative position as well, while –p21 (AST) languages select this option by default. Thus, p27 (ARR) depends on +p21 (AST).

A good deal of crosslinguistic diversity in the DP-internal linear order is assumed to derive from different types (p28) and scopes (parameters 45 to 51) of N-movement (as usual understood as the relevant projection of N) from a common underlying structure like the following (adapted from Longobardi 2001b):

- Determiners (D) > Functional Genitive1 (GenS) > Cardinal Numerals (Card) >

**P28 (NPP) N-raising with obligatory pied-piping**

Two types of overt noun raising are available crosslinguistically: either N must successively-cyclically move to higher functional layers of the DP, **pied-piping** at each step all the material
it has come to precede the previous one (+p28, NPP), or it can move ‘alone’ (–p28, NPP; cf. then parameters 47 to 51). When N moves with pied-piping (+p28, NPP), it seems to always move at least up to a position before High Adjectives, with the consequence that all structured adjectives end up postnominally; the resulting sequence will be a complete mirror image of the base order of structured adjectives (roll-up, Shlonsky 2000): Arg > M2 > M1 > High.

A language with –p28 (NPP) should exhibit either prenominal adjectives surfacing in the order High > M1 > M2 > Arg (if N does not raise at all) or some postnominal structured adjectives, distinguishable from reduced relatives, potentially surfacing in the same order (if N raises without obligatory pied-piping), or some superset of these possibilities (according to parameters 45 to 51).

Obviously, p28 (NPP) is relevant only if a language displays structured adjectives (+21, AST). The setting +p28 (NPP) directly causes the relevance of p56 (ACP), while –p28 (NPP) contributes to the relevance of p47 (NM1), and indirectly of p48 (NM2), p49 (NOA), p50 (NGO), p51 (NOE), p52 (AFM), and p53 (ACM).

Parameters 29 to 41 govern the properties of the direct arguments of a nominal head (genitives), with 34–38 specialized for genitive personal pronouns (called ‘possessives’). Syntactically, there are two main types of genitival configurations: functional genitives (always non-adpositional), and free genitives (either adpositional or inflectional).

Genitives of the functional type are bound to precise structural positions, which cannot be duplicated: a higher one, before structured adjectives (call it GenS, best represented in Hungarian, or by Germanic prenominal -s genitive), and a lower one, after them (GenO). Instead, the free genitive, whose properties are described by p29 (GFR), occurs either before D or after both N and structured adjectives, and can be freely iterated.

Genitive arguments express three types of relation with respect to the head noun: Possessor (in a broad sense), Subject, and Object. When more than one such relation is represented in a DP, and when at least one genitive in such a DP is functional, their ordering depends on the hierarchy P > S > O (Longobardi 2001b).

Finally, in +p8 (DGR) languages, definite functional genitives, under appropriate conditions, trigger definiteness inheritance, i.e. transmit a definite reading to their DP, without any other definiteness morpheme occurring. This happens, in Indo-European, with GenO in Celtic and with GenS in Germanic (‘Saxon’ genitives).

P29 (GFR) Free Genitive
This parameter describes the existence, in a language, of free genitives, which can be realized either in the form of a pre- or postpositional phrase, or by means of rich inflectional
morphology. Normally each language exhibits only one of these strategies (Uniqueness, Longobardi & Silvestri 2012).

**Free** genitives are freely iterable and rather freely mutually ordered; they do not trigger definiteness inheritance. Apart from preceding relative clauses, prepositional **free** genitives occur DP-finally, postpositional ones DP-initially. Instead, inflected **free** genitives also occur in the structural positions normally associated with functional genitives (cf. +p30, GUN).

The setting +p29 (GFR) enters implicational dependencies with the parameters describing the internal formal properties of **free** genitive configurations: p30 (GUN), p31 (GPR), and p39 (GSP).

**P30 (GUN) Uniform Gen**

Certain languages, such as Latin (Gianollo 2005) and Classical Greek (Guardiano 2011b) within Indo-European, exhibit an inflected genitive that displays, with the same morphology, both the distributional properties normally associated with **free** genitives (i.e. it may be phrase-final and freely iterable) and those typically associated with functional ones (i.e. it can occur also prenominally, both to the left and to the right of structured adjectives, and is not iterable in such positions), thus providing a surface appearance of freedom.

P30 (GUN) precisely asks if a language displays such a genitive (+p30, GUN) or not (-p30, GUN). It is relevant only if p29 (GFR) is set to +.

If p30 (GUN) is set to +, all genitival arguments are morphologically realized as inflectional (non-adpositional) forms, and can surface in each and every of the structural configurations available universally for the arguments of nominal heads (i.e. **free** genitives, GenS and GenO). Hence the implication between +p30 (GUN) and p32 (GFO).

**P31 (GPR) DP over free Gen**

This parameter distinguishes languages displaying a free genitive to the right of the whole DP (+p31, GPR) from those wherein it appears to the left of the DP (–p31, GPR). For adpositional genitives, this distributional property is taken to strictly correlate with a realization one: phrase-initial genitives are postpositional, phrase-final ones are prepositional.

Obviously, for p31 (GPR) to be set, the value of p29 (GFR) must be +. The other condition that makes p31 (GPR) relevant is +p25 (ADR): typologically, genitives tend to precede the head noun if relative clauses occur phrase-initially as well (cf. Hawkins 1983: 73); therefore, only languages which allow pre-DP relatives might also allow pre-DP genitives.

**P32 (GFO) GenO**

This parameter defines whether a language checks a non-**free** genitive in a functional postadjectival position (+p32, GFO; Gianollo 2005, Longobardi & Silvestri 2012) or not (–p32,
GFO). In many languages, GenO may surface postnominally, depending, as in the case of adjectives, on the scope of N-movement (p50, NGO). In our Indo-European sample:

a. The Greek varieties, along with Celtic languages, uniformly exhibit a GenO;
b. Most of the Germanic languages exhibit a GenS, fewer exhibit a GenO (German, Icelandic and, among ancient varieties, Old English and Gothic);
c. Slavic is +p32 (GFO), with the exception of Bulgarian;
d. Modern Romance is –p32 (GFO), with the exception of Northern Calabrese, which seems to preserve a non-prepositional genitive with the properties of a GenO (Silvestri 2012).

As mentioned above, in languages wherein a uniform genitive is active (+p30, GUN), the position(s) usually held by GenO (as well as GenS) are systematically available, hence p32 (GFO) is irrelevant.

The presence of GenO is a good potential indicator of the scope of N-movement: thus, the value + for p32 (GFO), in disjunction with other conditions, is necessary for p50 (NGO) to be set; conversely, the value – for p32 (GFO), in disjunction with other conditions, is crucial for p51 (NOE) to be relevant.

Our system does not express the existence of GenS in a language in parametric form, because it seems predictable from the settings of existing parameters. In our database, GenS is present in all languages which are both –p9, NSD (which satisfies a necessary condition for its licensing: Longobardi 1996) and +p18, CGR (which requires its overt connection to the D area to check definiteness and count features), e.g. modern Mainland Scandinavian and West Germanic. Instances of GenS are likely to be found in +p30 (GUN) languages, as noted, and in languages in which it agrees with a morpheme on the head noun (Hungarian and Finnish, cf. p33, GFS).

**P33 (GFS) Genitive features spread to N**

Languages that are +p33 (GFS) exhibit phi-feature agreement from a non-free genitive to the noun, licensing the former (essentially head marking, in Nichols’ 1992 terms); –p33 (GFS) languages (all IE ones) never do.

If p33 (GFS) is set to +, then p41 (GCN) becomes redundant because it is already clear that N incorporates a dedicated morpheme when it has a genitive argument.

Parameters 34–38 deal with personal pronouns used as direct adnominal arguments (henceforth **possessives**). In many languages, they have special syntax: they can be licensed with determiner-like distribution or with adjectival one, in a dedicated position selected as
complement of definiteness suffixes, or as clitics themselves. Only if none of these possibilities arises will they be distributionally indistinguishable from all other genitives.

P34 (PDC) D checking possessives
P34 (PDC) governs the option of using possessives as definite determiners (+p34, PDC; Giorgi & Longobardi 1991) or not (–p34, PDC). It opposes languages like French, wherein possessives occur without any visible article (mon livre vs. *le mon livre), against those like Italian, in which a visible determiner is possible and normally required instead (il/un mio libro vs. *mio libro). Only in languages like French does the possessive itself entail the definite reading of the whole DP (mon livre vs. il mio libro).

This parameter seems to conceptually and typologically depend on full grammaticalization of definiteness (+p8, DGR). Also, it is relevant only in languages with strong Person in D (+p9, NSD) or without strong article (¬+p18, CGR), because otherwise the language would have GenS with determiner-like function more generally.

P35 (APO) Adjectival possessives
This parameter distinguishes languages in which possessives distributionally and morphologically behave as adjectives (+p35, APO) from those that do not (–p35, APO). The value + for this parameter seems to be a condition for p40 (AGE): only if a language shows adjectival possessives is it worth considering whether it also displays adjectival genitives more generally (see below).

P36 (PAP) Post-affix possessives
This parameter defines if a language licenses a special position for possessives after the suffixed article (+p36, PAP; e.g. Norwegian and Bulgarian) or not (–p36, PAP). In some languages (e.g. Rumanian) the acceptability of such a position is extended to all genitival elements, perhaps owing to richer inflectional morphology. Obviously, the parameter is relevant only in languages with a suffixed definite article (+p12, DCN). The value + for this parameter is one of the conditions for the relevance of p38 (PHS) and, indirectly, of p39 (GSP).

P37 (PCL) Clitic possessives
This parameter asks if a language licenses possessives as bound morphemes (+p37, PCL) cliticizing on the noun or another stressed item (e.g. prenominal adjectives in Greek). Otherwise the language is –p37 (PCL). The value + of p37 (PCL), along with +p22 (FFS), is required for p38 (PHS) to be relevant.

P38 (PHS) N-feature spread to pronominal possessives
This parameter governs the option of morphologically realizing the phi-features expressed on N also on possessive pronouns (+p38, PHS) or not (–p38, PHS). This option is only relevant in languages in which structured adjectives morphologically encode the phi-features of N (or in those that do not display structured adjectives at all, hence the disjunctive condition +p22, FFS, or –p21, AST), and possessives are expressed either as a clitic element (+p37, PCL) or in a post-affix position (+p36, PAP). In other cases, morphological agreement is predictable from the general pattern of determiners and adjectives in the language. The value – for this parameter makes p39 (GSP) irrelevant.

P39 (GSP) N-feature spread to free Genitive
This parameter, an obvious generalization of the previous one, defines if the phi-features of N are morphologically spread even to DPs or PPs expressing a full genitive argument (+p39, GSP; Hindi and Marathi) or not (–p39, GSP). This parameter is logically dependent on +p29 (GFR), and conceptually on the possibility of spreading N-features to adjectival phrases (+p22, FFS) and, indeed, to possessives (–p38, PHS).

P40 (AGE) Adjectival Genitive
Languages with +p40 (AGE) form thematic adjectives quite productively from various sorts of nouns in the place of genitives; –p40 (AGE) languages do not. This productivity correlates with the ability of thematic adjectives to bind non-null anaphoric/pronominal expressions like genitives and possessives: in our sample all the Slavic languages, with the exception of contemporary Polish, are +p40 (AGE).

This property appears as a generalization of the strategy of expressing pronominal arguments of N as adjectival possessives: thus, p40 (AGE) plausibly depends on +p35 (APO).

P41 (GCN) Poss°-checking N
This parameter asks if a language exhibits a distinctive morphological marking (call it a Poss° segmental or suprasegmental morpheme, cf. Nichols’ 1992 head marking) on the noun when occurring with a genitive argument (+p41, GCN; e.g. Semitic construct state), or not (–p41, GCN). Its value is relevant if there is no genitive feature spread to N (–p33, GFS); otherwise, these concord features already play the function of a Poss° morpheme.

Parameters 42–44 form a subset defining the syntax of demonstratives (Guardiano 2012). Demonstratives are assumed to first merge, like other definite elements, in a low area of the DP (Alexiadou et al. 2007, Roberts 2010). Their defining semantic property is locality, i.e. “the property of ... referring to elements located in the external context (deixis in a proper sense), already mentioned in the linguistic context (anaphora in a broad sense), or ... marked as
relevant in ... a ‘shared universe’ (topicality)” (Guardiano 2012: 107). **Locality** is interpreted in relation to the D-area; hence it may trigger movement of demonstratives to that area (presumably to some projection to the left of D). It also entails, indeed, a type of definite reading.

**P42 (TPL) Strong partial locality**

It has been noted, especially in the typological literature, that deictic demonstratives sometimes behave differently from discourse-oriented (anaphoric/cataphoric or topical) ones (cf. Guardiano 2012 for a summary of the literature); indeed, in some languages, only deictic demonstratives systematically surface in the D-area, while non-deictic ones may stay lower. This gives rise to a ‘split’ system with positional alternations, as in Greek or Spanish.

P42 (TPL) asks if in a language at least some demonstratives (i.e. ad least deictic ones) are attracted toward the D-area (+p42, TPL) or none are (–p42, TPL). Overt movement of (at least some) demonstratives to the D-area is always found in strong article languages (hence the condition –+p18, CGR) and in those that require a filler for D for independent reasons, i.e. when Number is not spread nor morphologically encoded on the noun (hence the disjunctive condition -p5, FSN, or +p6, FNN). The value – for this parameter makes p43 (TSL) and p44 (TDC) irrelevant.

**P43 (TSL) Strong locality**

In languages which do not move all demonstratives toward the D-area, deictic ones normally surface only DP-initially, while the others can surface in a non DP-initial position as well (-p43, TSL). In other languages, the system is uniform, with all demonstratives moved to the D-area (+p43, TSL). This parameter is a generalization of the previous one: hence the condition –p42 (TPL).

**P44 (TDC) D-checking Demonstratives**

P44 (TDC) asks if demonstratives in the D-area replace (+p44, TDC; e.g. Italian or English) or co-occur with (–p44, TDC; e.g. Greek) definiteness-compatible articles. It presupposes:

a. The existence of an ‘article’, hence the condition –p5 (FSN) or +p8 (DGR);

b. The possibility for demonstratives to access the D-area, as formalized by the condition –p42 (TPL).

Parameters 45 and 46 govern the raising of N (in both languages with and without pied-piping; cf. p28, NPP) across numerals. Parameters 47–51 select the options available crosslinguistically only when N moves, without pied-piping, across the projections where
adjectives are merged. As noted, when N raises over APs with pied-piping, it appears to move over all of them. Assuming the base-generated sequence, given above, of numerals (Card > Ord), structured adjectives (High > M1 > M2 > Arg; Crisma 1991, 1996), and a functional genitive position (GenO) preceding N in this order, it is assumed that, except for proper names in + p9 (NSD) languages and for nouns ‘lifted up’ by special affixal morphology (e.g. definite enclitics: + p12, DCN), all nouns in a given language uniformly raise to one and the same structural position, crossing over none/one/some/every category intervening between D and their source position.

P45 (NOC) N over Cardinals
In principle, N might move to a very high position (i.e. next to D), thus surfacing after determiners but before all other elements of the DP, including cardinal numerals. In this case, all structured adjectives (if any), as well as numerals, will occur postnominally (+ p45, NOC; e.g. Semitic languages). If cardinals, instead, surface prenominally, a language is – p45 (NOC), like all the Indo-European languages in our sample. As mentioned, all parameters governing N-movement, and some further ones, turn out to be directly or indirectly relevant only if this first parameter is set to –: p46 (NOO), p47 (NM1), p48 (NM2), p49 (NOA), p50 (NGO), p51 (NOE), p52 (AFM), p53 (ACM), and p56 (ACP).

P46 (NOO) N over Ordinals
This parameter defines the possibility for N to productively raise over ordinal numeral adjectives (+ p46, NOO) or not (– p46, NOO). In certain languages (e.g. Farsi), only cardinals surface prenominally: starting from ordinal numerals, all the DP-elements listed in the sequence above surface postnominally (+ p46, NOO). As mentioned, this parameter is relevant only in languages in which N does not already raise to higher positions: if N surfaces over cardinals, it will a fortiori have raised over ordinals, hence its dependency on – p45 (NOC).

In turn, the value – for this parameter turns out to be directly or indirectly required for the relevance of the following ones: p47 (NM1), p48 (NM2), p49 (NOA), p50 (NGO), p51 (NOE), p52 (AFM), p53 (ACM), and p56 (ACP).

P47 (NM1) N over Manner 1 Adjectives
In all languages in which N does not raise with pied-piping (cf. p28, NPP), at least a small number of adjectives seems to be high enough to remain prenominal. The value + on p47 (NM1) indicates that the noun crosses all structured adjectives but High ones; in – p47 (NM1) languages it surfaces lower than Manner 1. Thus, in + p47 (NM1) languages, a class of High adjectives is prenominal; the prenominal position is instead unavailable for Manner 1, Manner 2, and Argument. Obviously, p47 (NM1) is implicationally dependent on the lack of N-raising
over ordinals (–p46, NOO). The additional condition for p47 (NM1) to be set is that N must not trigger (obligatory) pied-piping (–p28, NPP), for the reason given above.

The value – for this parameter is a condition for the following parameters: p48 (NM2), p49 (NOA), p50 (NGO), p51 (NOE), p52 (AFM), p53 (ACM), and p56 (ACP).

P48 (NM2) N over Manner 2 Adjectives
This parameter defines the possibility for the noun to precede the position of structured adjectives having Manner 2 interpretation (+p48, NM2) or not (–p48, NM2). In languages with +p48 (NM2), High and Manner 1 structured adjectives are prenominal, while Manner 2 ones are always postnominal. Of course, its value is relevant only if p47 (NM1) is set to –. In turn, –p48 (NM2) sets the following parameters (directly or indirectly): p49 (NOA), p50 (NGO), p51 (NOE), p52 (AFM), and p53 (ACM). The value – is also one of the possible conditions for p56 (ACP) to be irrelevant.

P49 (NOA) N over Adjectives
This parameter governs the option for the noun to raise over structured APs altogether, i.e. to precede at least the adjectives merged in the lowest positions, i.e. thematic or argument adjectives (+p49, NOA), or not (–p49, NOA). In languages with +p49 (NOA), argument adjectives never occur prenominally, while all the other structured adjectives do (e.g. Walloon, Bernstein 1991). This parameter is relevant only if p48 (NM2) is set to –. The following parameters are relevant (directly or indirectly) only in –p49 (NOA) languages: p50 (NGO), p51 (NOE), p52 (AFM), and p53 (ACM).

P50 (NGO) N over GenO
This parameter defines if functional postadjectival genitives (i.e. GenO) are crossed over by the noun (+p50, NGO) or not (–p50, NGO). As usual, for this parameter to be relevant, the noun must not raise over higher categories, i.e. surface before any structured adjectives (–p49, NOA); alternatively, the question is in any case relevant in languages displaying no structured As, i.e. –p21 (AST). The parameter is relevant, obviously, only in languages wherein a GenO is available (hence the condition ¬–p32, GFO). Furthermore, the value – for p50 (NGO) is one of the two disjunctive conditions for p51 (NOE) to be relevant.

P51 (NOE) N over external argument
This parameter asks if the noun visibly moves over its external argument (+p51, NOE) or not (–p51, NOE). P51 (NOE) is irrelevant, obviously, in languages in which the noun raises over higher categories, i.e. over GenO or, if GenO is unavailable, over structured adjectives, while it has to be set in languages with neither GenO nor structured adjectives. Hence, it is relevant
either in –p50 (NGO) languages or, if a language is –p32 (GFO), in –p49 (NOA) or in –p21 (AST) languages.

**P52 (AFM) Free MOD and p53 (ACM) Class MOD**
This pair of parameters governs the properties of adjectives in MOD. The label MOD is used to refer to a non-verbal postnominal DP-internal phrase, distributionally distinct from a reduced relative clause (cf. p27, ARR) because it can be followed by internal arguments. Such constituents can be APs, which thus end up in positions different both from those of structured adjectives and of relative clauses. APs in MOD surface postnominally and do not obey any ordering restriction. In some languages, like Greek, all adjectives can occur in MOD, without any further subcategorization (+p52, AFM). In others, few adjectives or none may occur in MOD (–p52, AFM). In languages with postnominal (crossed over) structured adjectives, the latter may be hard to tell apart from those in MOD (unless these happen to be formally marked somehow), hence the condition –p49 (NOA).

P53, in turn, asks if in a language a very restricted type of adjectives goes to MOD (+p53, ACM), or none at all (–p53, ACM). In +p53 (ACM) languages, a non-free MOD is available to specially interpreted adjectives only: e.g. Polish (Rutkowski & Progovac 2005) and Russian (with further internal micro-differentiation) display classifying adjectives (those forming natural kinds with the noun) postnominally (thus, presumably surfacing in MOD). Obviously, the parameter is relevant only in languages not already exhibiting free MOD, hence the condition –p49 (NOA).

**P54 (DOA) Definiteness on APs**
This parameter asks if definiteness of the whole DP is obligatorily expressed with an article introducing postnominal APs (+p54, DOA) or not (–p54, DOA). Adjectives in prenominal position are irrelevant because they seem to only take definite suffixes and only for purposes of D checking (Bulgarian, Rumanian; cf. p12, DCN). Thus, P54 (DOA) is only set in languages with APs surfacing postnominally, probably the product of several conspiracies of parametric configurations and processing constraints (expressed as a surface condition in Table A: +postnominal APs). Obviously, the parameter is irrelevant for languages without (at least partial) definiteness, hence the condition +p7 (DGP).

**P55 (AMO) Grammaticalized AP marker**
P55 (AMO) asks whether APs occurring postnominally are introduced by a generalized (i.e. independent of definiteness) overt functional head (+p55, AMO; e.g. Farsi) or not (–p55, AMO). Like the preceding parameter, this parameter is only set in languages with APs surfacing postnominally, hence, again, the requirement +postnominal APs.
P56 (ACP) Consistency Principle
This parameter defines the presence (+p56, ACP) or absence (–p56, ACP), in a language, of a general constraint on directional consistency of expansion, according to which:

a. Even if the head A of an AP in predicate position precedes its complements, when an adjective has a DP-internal attributive function and precedes the noun, it cannot be modified by internal right recursion;
b. Even if the head A of an AP in predicate position follows its complements, when an adjective has a DP-internal attributive function, and follows N, it cannot be modified by internal left recursion.

Therefore, a language with –p56 (ACP) is manifested by:

- [A DP/PP] order in predicate position, but [A N] and [[A DP/PP] N] order in DPs;
- [DP/PP A] order in predicate position, but [N A] and [N [DP/PP A]] order in DPs.

In the opposite case, the language will be +p56 (ACP). This parameter is relevant:

1. In languages in which the noun follows Manner 1 As (-p47, NM1), and the order A-complements occurs;
2. In languages wherein the noun precedes at least some attributive adjectives (either N-raising with pied-piping is obligatory or the noun crosses over Manner 2 Adjectives, i.e. ¬–p48, NM2) and predicative adjectives normally follow their complements.

2. Reduced subsets of languages/parameters
2.1 Syntax and lexicon
As mentioned above, 21 languages in our sample overlap with those of Dyen et al. (1992), thus allowing for syntax-lexicon comparison. The list of correspondences is found in Table 1.¹

<table>
<thead>
<tr>
<th>Table 1. Correspondences with Dyen et al. (1992)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Languages in Table A</td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td>Italian</td>
</tr>
</tbody>
</table>

¹ The labels on the languages in the right-hand column refer to the column ‘List Name’ in the database of Dyen et al. (1992).
2.2 Character-based experiments

In order for Table A to be processed by character-based algorithms one must minimize the impact the implications (i.e. the number of blank characters), though retaining as much information (as many parameters) as possible. The compromise was represented by the subset of all parameters exhibiting fewer than ten blanks (‘0’ or ‘?’) in Table A, resulting in 37 (out of 56) parameters, exposed in Table A’ below, used as an input to Structure and PAUP*, as well as to the usual UPGMA and Kitsch. Of these 37 parameters:

a. Ten parameters do not exhibit any implication with the values of other parameters (i.e. cannot have zeros in principle): p1 (FGP), p7 (DGP), p17 (CGB), p21 (AST), p25 (ADR), p29 (GFR), p33 (GFS), p35 (APO), p37 (PCL), p45 (NOC).

b. There are 14 parameters which are subject to implicational conditions, but happen to exhibit no zeros among our languages: p2 (FGN), p3 (FGG), p4 (NOD), p5 (FSN), p6 (FNN), p15 (DIN), p16 (CPS), p22 (FFS), p23 (FSP), p27 (ARR), p28 (NPP), p32 (GFO), p41 (GCN), p46 (NOO).

2.3 Table A′
| References | Section 1: | Section 2: | Section 3: | Section 4: | Section 5: | Section 6: | Section 7: | Section 8: | Section 9: | Section 10: | Section 11: | Section 12: | Section 13: | Section 14: | Section 15: | Section 16: | Section 17: | Section 18: | Section 19: |
|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 1 | ± gramm. person | FGP | ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ ++ + |


