

Chapter 10

Rethinking “defective goal”: Clitics and noun incorporation

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In this paper we revisit Mithun’s (1984) classic typology of noun incorporation (NI) constructions and offer an analysis for the various types of NI using Roberts’ (2010) notion of “defective goal”. We suggest that the cross-linguistic variation across NI types can be captured by three parameters: (i) whether the host of the incorporated nominal element is V or v , (ii) whether the incorporate is n or D with a referential index, and (iii) whether the object is a “defective goal” or not.

In his most recent book, Roberts (2010) unfolds a perspective on sundry cases of head movement that is centred on what he calls a “defective goal”. The idea is that in syntactic configurations in which a probe π engages in an Agree relation with a goal γ whose feature content is a proper subset of that of π , the effects of chain formation and displacement arise without movement needing to be involved: thanks to the subjective probe–goal relation, a chain is formed between π and γ , with exponence at π as a simple result of chain reduction (which as a rule singles the highest member of a chain out for phonological realisation).¹ This approach to “head movement” in terms of subjective probe–goal relations at the same time makes the phenomenon squarely syntactic in nature (it is a

¹Roberts (2010: 61): “Usually, the ‘head’ of the chain – that is, the position that asymmetrically c-commands all the others – is the one non-deleted position because this is the locus of the most feature-checking/valuing relations.”



result, after all, of a syntactic Agree relationship) and has the potential to take “movement” out of the equation entirely.²

The centrepiece of Roberts’ application of the defective goal approach to head movement is his analysis of object cliticisation in the Romance languages. In our contribution to this volume, we would like to present some thoughts, in the general spirit of Roberts’ approach but fine-tuning them in a number of ways, on the syntax of definite direct objects, object clitics, and noun incorporation. Starting out from Roberts’ (2010) own proposal for object cliticisation and his suggestions regarding noun incorporation, we proceed in §2 by reviewing Mithun’s (1984) typology of noun-incorporation constructions, and develop an explanatory account of this typology in which Roberts’ analysis of clitics as defective goals is mobilized to maximum effect as a point of variation among noun-incorporating languages, in conjunction with two other microparameters that fit naturally into the system: the locus (*v* or *V*) and size (*n* or *D*) of the incorporated nominal element. In object cliticisation and a subset of N-incorporation constructions, the combination of *v* and a nominal element attached to it forms a complex probe with a defective goal. How clitic doubling fits into this perspective is addressed in §3. In §4, we explore an analysis of object pro-drop afforded by the logical possibility for *v* by itself to be a proper featural superset of its goal, sanctioning the latter’s silence. After §5 takes a brief look at definiteness agreement and person, we close in §6 with a note on an important difference between two ways in which a functional head can be a proper featural subset of a c-commanding functional head: through extended projection (which does not implicate probing), or via a probe–goal relationship involving two different extended projections.

We believe that these thoughts taken together enhance, at the empirical level, the efficacy of Roberts’ “defective goal” approach to head movement phenomena and, at the theoretical level, the delimitation and significance of subjective probe–goal relations in the morphosyntax.

1 Clitics

Roberts (2010) takes a novel approach to the problem posed by clitic constructions, with particular reference to object clitics, as in French (1b), the clitic counterpart to (1a), with a full-fledged definite object-DP.

²We write “has the potential to take” rather than simply “takes” because of a lack of clarity on this point in the book. On the one hand, Roberts’ (2010: 160) prose makes it perfectly clear that he believes that “given that copying the features of the defective goal exhausts the feature content of the goal, Agree/Match is in effect indistinguishable from movement. For this reason we see the PF effect of movement.” Yet on the other hand, the trees that he presents still make it look like movement is involved (as Matushansky 2011 also notes in her review of the book). We take the prose and not the trees to reflect the true nature of Roberts’ thinking on the matter.

(1) French

- a. j’ai surpris les filles
I have surprised the girls
‘I surprised the girls’
- b. je les ai surprises
I them have surprised.F.PL
‘I surprised them’ (said of feminine direct object)

Roberts argues that in a structural configuration in which a probe π c-commands a goal γ and the feature content of γ is a proper subset of that of π , we get the effect of displacement: in such a defective (π, γ) relationship, only one of the partners is spelled out – typically the structurally higher one (i.e., the probe, π). Roberts takes an object clitic to be just a bundle of φ -features, and to thereby constitute a proper subset of v – which, apart from the φ -features that match those of the object also has a category feature and possibly plenty of other formal features as well.³

- (2) [_{vP} [_v [$\varphi_{\{ \varphi, [+N] \}}$]] [_v [$\{ [+V], \text{ACC}, \dots \}$]]] $\{ \{ \varphi, [+N] \}, \{ [+V], \text{ACC} \} \}$ [_{VP} V $\varphi P_{\{ \varphi, [+N], \text{ACC} \}}$...]]

For Roberts, this explains why the object clitic is spelled out on v rather than in the A-position that non-clitic objects find themselves in: the probe v and the clitic, its defective goal, form a chain which, through chain reduction, gets an exponent (in the form of a pronominal element representing the φ -feature bundle) in the position of the structurally higher member of the chain, v .

2 Noun incorporation

In Section 4.2.2 of his book, Roberts (2010) unfolds what he calls “a note on noun incorporation” (NI), whose purpose it is “to sketch how Baker’s data and results concerning NI and related issues might be captured in terms of the general approach to head-movement advocated here, and what some of the consequences of that may be” (p. 188). In his brief discussion, while rightly stressing the similarity between noun incorporation and object cliticisation, Roberts suggests that

³For the purpose of linearisation, we are representing the clitic as a φ -feature bundle adjoined to v and forming a complex probe $\varphi+v$. It may be that linearisation can be dealt with in ways not exploiting adjunction; but for simplicity and transparency, we will use adjunction structures throughout the paper. In the adjunction structures employed in this paper, the feature content of the adjunction complex is the sum of the feature bundles of the host and the adjunct. Throughout, we annotate this as follows: [_v [$X_{\{ \text{FFx} \}}$]] [_v [$\{ \text{FFv} \}$]] $\{ \{ \text{FFx} \}, \{ \text{FFv} \} \}$.

nouns that incorporate are *n*'s associated with an object that projects no further up than *nP*. This leads to (3) as the representation of noun incorporation constructions along the lines pursued by Roberts:

- (3) [_{VP} [_v [_n _{[+N]}]] [_v _{{[+V], ACC, ...}]] _{[+N]}, _{[+V], ACC} [_{VP} V *nP* _{{[+N], ACC} ...]]}}

Once again, the object is a defective goal: its features form a proper subset of the features on the complex probe *v*. The noun will therefore be spelled out on the verb, and the *nP* in VP, the defective goal, remains silent.

Roberts intends this note as an indication of how his notion of a defective goal might be of service in the account of a nominal displacement phenomenon close in nature to object cliticisation. And indeed, it seems to us that in a proper understanding of the complexities of noun incorporation, defective probe–goal relations play an important role. But (3) is only the tip of the iceberg.

In the ensuing subsections, we will show that (3) does indeed have a place in the syntax of noun-incorporation constructions: it accounts well for one subtype of Type I in Marianne Mithun's (1984) classic typology of noun-incorporation phenomena. But Mithun's typology features several other members, which also need to be analyzed. The goal of the remainder of §2 is to present an account of Mithun's complete typology of noun incorporation, in a theoretically parsimonious way, and mobilising Roberts' notion of "defective goal" as fruitfully as possible.

2.1 The typology of noun incorporation and pseudo-incorporation

Mithun's (1984) monumental study of noun-incorporation phenomena in a wide range of different languages resulted in a typology of four distinct types of N-incorporation cases. Of these, the first has two subtypes, which we will refer to in this paper as Types Ia and Ib; the latter has taken on the title "pseudo-incorporation" in the more recent literature on noun incorporation (see e.g. Mas-sam 2001b), and we will often use this label ourselves when talking about Type Ib.⁴

⁴Mithun herself does not use the labels "Type Ia" and "Type Ib", or "pseudo-incorporation". She does, however, make an explicit distinction among Type I noun-incorporating languages between morphological compounding cases and cases in which the verb and the noun are "simply juxtaposed to form an especially tight bond". In our structural analysis, Types Ia and Ib will turn out to be quite different: there is no obvious sense, from our point of view, in which they should be grouped together as subtypes of one basic incorporation type. But we will follow Mithun's classification for the sake of transparency and straightforward comparison.

- (4) *Descriptive typology of noun incorporation phenomena* (based on Mithun 1984)
- Ia lexical compounding: the incorporated noun is non-referential, generic; the incorporation complex denotes a conventional, institutionalized activity
 - Ib “pseudo-incorporation”: the incorporated noun is non-referential, but shows a much greater degree of morphosyntactic independence than in lexical compounding
 - II the incorporated noun lacks argument status, and does not usurp the verb’s structural case-assigning capacity, which is redirected to a phrase in the external syntax
 - III the incorporated noun can be referential and absorbs case, but cannot be associated with modifiers in the external syntax
 - IV the incorporated noun can be referential and absorbs case, and can be associated with modifiers in the external syntax

We will argue in this section that for an understanding of this typology, three things are essential:

- (5)
- a. the host of the incorporated nominal element – V or v
 - b. the nature of the incorporated nominal element – n or D^i (“i” = “referential index”)
 - c. the status of the object – “defective goal” or not

When the incorporated nominal element is attached to v , it can form an integral part of the v probe that is a proper featural superset of a defective goal in VP, in the sense of Roberts (2010). This is what we argue is the case in noun-incorporation cases of Types Ib and III. In Types Ia, II, and IV, the object is not a defective goal – either (as in Types Ia, IV) because the incorporated element is not attached to v but to V (which is not a probe) or because the object is not a proper featural subset of the feature content of the complex probe formed by v and the incorporated element adjoined to it.

The structural translation of the typology in (4) that (5) offers is given in (6), which sums up in a nutshell the proposal that will be spelled out in the subsections to follow.⁵

⁵In (6) and throughout the paper, “ D^i ” stands for a D(eterminer) with a referential index. For simplicity, (6) adopts a structural representation of the object-of relationship in which the object is the complement of V; but nothing in what follows is incompatible with a representation of the Theme as the specifier of VP; as in Hale & Keyser (1993) et passim.

(6) *Structural typology of noun incorporation constructions (this paper)*

- Ia host: V
 guest: *n*
 object: none
 $[_{VP} v_{\{[+V], ACC, \dots\}} [_{VP} [V [n_{\{[+N]\}}] [V]]]]]$
- Ib host: *v*
 guest: *n*
 object: defective goal
 $[_{VP} [V n_{\{[+N]\}}] [v_{\{[+V], ACC, \dots\}}]_{\{[+N]\}, \{[+V], ACC, \dots\}} [_{VP} V nP_{\{[+N]\}}]]]$
- II host: *v*
 guest: *n*
 object: non-defective goal
 $[_{VP} [V n_{\{[+N]\}}] [v_{\{[+V], ACC, \dots\}}]_{\{[+N]\}, \{[+V], ACC, \dots\}} [_{VP} V D^iP_{\{D, \phi, [+N]\}}]]]$
- III host: *v*
 guest: D^i
 object: defective goal
 $[_{VP} [V D^i_{\{D, \phi, [+N]\}}] [v_{\{[+V], ACC, \dots\}}]_{\{D, \phi, [+N]\}, \{[+V], ACC, \dots\}} [_{VP} V nP_{\{[+N]\}}]]]$
- IV host: V
 guest: D^i
 object: non-defective goal
 $[_{VP} v_{\{[+V], ACC, \dots\}} [_{VP} [V D^i_{\{D, \phi, [+N]\}}] [V]] xNP]]]$

Note that in (6.Ia) and (6.IV), *v* is included for parallelism with the other structures – but while *v* is a necessary ingredient of the other structures, it can freely be absent from (6.Ia) and (6.IV). This will be important later, in the discussion of the transitivity restriction on noun incorporation.

2.2 Incorporated nouns associated with defective goals

The notion of “defective goal” is particularly helpful in the analysis of noun incorporation of Type III, but it also plays a role in the account of Type Ib. Let us start with the latter, usually referred to as “pseudo-incorporation”.

2.2.1 Type Ib pseudo-incorporation

The representation in (7) differs from (2) in the size of the object (ϕP in (2), but a mere nP in (7)) and in the size of the feature bundle represented by the element adjoined to *v* ($\{\phi, [+N]\}$ in (2), but just $\{[+N]\}$ in (7): the only feature that *n* contributes is a categorial feature.

- (7) [_{VP} [_v *n*_{[+N]}] [_v_{[+V], ACC, ...}]]_{[+N]}, {[+V], ACC, ...}] [_{VP} V *nP*_{[+N]}]]

In both (2) and (7) the feature content of the complex probe *v* is a proper superset of that of the object. So the object is a defective goal in both structures. The representation in (7) is the equivalent of Roberts’ (2010) suggestion for the syntax of noun incorporation in general, given in (3).

(7) is useful for the analysis of what has been called pseudo-incorporation. In a typical pseudo-incorporation construction, the clause shows the valency and case pattern characteristic of intransitives, and the object is non-referential, lacking a referential index. On the assumption that referential indices are located on D, this means that pseudo-incorporated nouns must lack the D layer. But it can be modified (as in (8), from Niuean), indicating that it does not form a complex head with the verb. Massam (2001b) argues that pseudo-incorporation in Niuean involves determinerless noun phrases. (7) translates this structurally by analyzing the internal argument as *nP*, specified for category and hence eligible for adjectival modification, but not as large as DP. *nP* is not subject to the case filter, which is why in (8) absolutive case is available for the external argument.

- (8) Niuean
 ne inu kofe kono i Sione
 PST drink coffee bitter ABS Sione
 ‘Sione drank bitter coffee.’

The question of whether or not pseudo-incorporated objects form a complex head with the verb depends, given the proposal in (7), on whether chain reduction singles out the bottom or the top of the chain for exponence.⁶ When *nP* is the term that is subject to exponence, the incorporated noun will accept attributive modifiers, as in (8). In cases of pseudo-incorporation in which the noun does not accept dependents or modifiers, it will be the *v*-adjoined member of the chain that is singled out for phonological exponence, with *nP* fully silenced because it is a defective goal to the *n+v* probe.⁷

⁶The question of which member of the chain is spelled out in turn depends, at least in part, on whether *nP* remains in VP or makes its way into a position outside the c-command domain of the *n+v* probe by the time of spell-out. Exponence of *nP* will make the incorporation “covert”, but still ensures that the object and the verb are spelled out in close proximity to one another: *nP*, because of its minimal size, is not eligible for “scrambling” into positions beyond *vP*.

⁷We take Niuean (8) to represent the typical pseudo-incorporation pattern. But as our reviewers rightly point out, the term “pseudo-incorporation” has been applied with reference to a wide variety of phenomena. The use of bare morphologically accusative objects as “verbal modifiers” in Hungarian (as in *János verset ír* “János poem.ACC writes”) has been treated under this rubric

2.2.2 Type III noun incorporation

In Mithun's Type III noun-incorporation languages (which include Ainu, Chukchi, Mapudungun, and Nahuatl), the incorporated noun can be fully referential, playing an active role in the discourse. Baker et al. (2005: 145–146) illustrate this clearly for Mapudungun.

(9) Mapudungun

- a. ngilla-waka-n; fey langüm-fi-ñ
buy-cow-IND.1SG.SBJ then kill-3.OBJ-1SBJ
'I bought a cow; then I killed it.'
- b. # ti ullcha domo pe-fi-y ti ayü-domo-le-chi
the young woman see-3.OBJ-IND.3SG.SBJ the love-woman-STAT-ADJ
wentru
man
- c. ti ullcha domo ñi chaw pe-fi-y ti
the young woman 3.POSS father see-3.OBJ-IND.3SG.SBJ the
ayü-domo-le-chi wentru
love-woman-STAT-ADJ man
'the young woman[#](’s father) saw the man who loved the woman'

In (9a), we see that in Mapudungun an incorporated noun can set up a new discourse referent and serve as the antecedent for a referentially dependent element. In the contrast between (9b) and (9c), we discover a principle C effect similar to the one found in the English translations, which suggests that the incorporated object behaves in syntax like an independent referential expression does in languages such as English.

The fact that the incorporated noun in Type III constructions can be fully referential suggests that such noun incorporation should be given a different analysis from the one proposed in the previous subsection for pseudo-incorporation, with the difference lying in the size of the object. While for pseudo-incorporation a

(see fn. 13, below), as have the “weak definites” of Germanic (*John plays the double bass*). For the latter, an approach along the lines of (7) would require a treatment of the article as something different from D (see Zamparelli 2000). The behavior of bare singular objects in Norwegian (*Anna kjøpte bil* “Anna bought car”), for which Kallulli (1999) argues that they establish discourse referents yet lack the DP-layer (which is arguably why they cannot serve as subjects of secondary predication: *Anna kjøpte bil*(en) ny* ‘Anna bought car(DEF) new’), might also be folded into (7) – but then the ability to introduce a discourse referent must (for Norwegian, at least) be divorced from D.

bare *nP*, as in (7), seems right on target, for Type III noun incorporation we need an object that can harbour a referential index. If, as is standardly assumed, D is the locus of referential indices, the D-head must be active in the syntax of noun-incorporating languages of the Mapudungun type, Mithun’s Type III. We introduce this D-head (D^i , where “i” is the referential index) directly on *v*, serving as the incorporated element, as shown in (10). This D forms a discontinuous object with the *nP* in the θ -position. The noun lexicalizes the D-head, which is what gives rise to physical incorporation into the verb. (We will return to lexicalisation in §2.4.)

$$(10) \quad [{}_{\nu P} [{}_{\nu} D^i_{\{D, \varphi, [+N]\}} [{}_{\nu} \{[+V], \text{ACC}, \dots\}] \{D, \varphi, [+N]\}, \{[+V], \text{ACC}, \dots\}] [{}_{VP} V \ nP_{\{[+N]\}}]]$$

In Type III constructions there can be no “modifier stranding”, which means that it is impossible for the constituent situated in the object position of the verb to harbour any modifiers associated to the incorporated object.⁸ This will follow immediately if in the syntax of Type III noun-incorporation constructions, the object position is structurally occupied by a defective goal of the *v* probe.

Because the defective goal is destined to complete silence under Roberts’ (2010) proposal, it cannot harbour any modifiers of the incorporated noun. In the structure in (10), the *nP* in the verb’s object position is, by Roberts’ logic, a defective goal that remains completely silent at PF. Any modifiers merged inside *nP* will be silenced along with the rest of *nP*. Adjunction of modifiers to *nP* itself is impossible because *nP* occupies a θ -position: adjunction to θ -role bearers is impossible (Chomsky 1986: 6, McCloskey 1996: 57).

In their detailed comparative study of noun-incorporating languages, Baker et al. (2005) find that in Type III languages, the verb does not engage in morphological agreement with the incorporated object. The structure in (10) derives this – in part on principled grounds, and in part by executive decision. The principled part of the agreement story is the relation between the *v*-adjoined D (which is the locus of the referentiality of the object) and the *v* probe: since *v* does not c-command the D adjoined to it, it cannot establish an Agree-relation with this D. But *v* does c-command the object, to which D is linked and with which it forms a discontinuous object. If this object were as large as φP , it should be able to control

⁸We use “modifier stranding” as the familiar descriptive term for this, even though it will emerge later in the paper that we do not actually take modifiers of an incorporated noun that occur outside the incorporation complex to have literally been stranded (by movement of the noun). We would also like to emphasize that under “modifier stranding” we do NOT understand the presence of external possessors: this is a different phenomenon, often associated with “possessor ascension”. See Baker et al. (2005: 168) for discussion of the concerns raised by “possessor stranding/ascension”.

φ -feature agreement with v , which is not what we find in the languages studied by Baker et al. In these languages, the object position of the verb, to which V assigns its θ -role, is occupied by something too small (nP) to be able to engage in a morphological φ -agreement relationship with v .

But though the size of the nominal construct in the object-of- V position in (10) must be such that it is a defective goal for the $D+v$ probe, it is not guaranteed to be as small as nP : the syntax of (10) would be convergent also if the object were a φP . Our analysis of Type III noun-incorporation constructions thus leads us to suspect that the correlation that Baker et al. (2005) found between absence of “modifier stranding” and absence of agreement with the object is not necessarily absolute: there could be Type III noun-incorporating languages which do evince φ -feature agreement with the object. Whether such languages exist is something we are not in a position to confirm at this time.

Baker et al.’s (2005) third hallmark of Type III incorporating languages is that in these languages, incorporation of the (deep) object into an unaccusative verb is impossible.⁹ Baker et al. derive this in a rather complicated way, with an appeal to φ -feature deletion on the “trace” of the incorporated noun, in conjunction with a particular interpretation of the EPP. For us, the correlation between absence of “modifier stranding” and the ban on incorporation of unaccusative objects is also expected to necessarily be an absolute one. And as a matter of fact, from our proposal it follows much more straightforwardly than it does from Baker et al.’s: in the analysis of Type III incorporating languages in (10), the locus of incorporation is v , and this element is either not present in the syntax of unaccusative constructions at all, or too weak to be able to support incorporated nominal elements.¹⁰

⁹Barring (in some languages) meteorological predicates and constructions in which the incorporated noun is associated with a possessor. Baker et al. (2005) have an account for these cases – one which does not directly carry over to the proposal in (10). We have no immediate solution to offer for these exceptions.

¹⁰Chomsky’s (1995) original v -hypothesis had it that v is responsible for the checking of accusative case AND for the assignment of an external θ -role to the subject of a transitive clause. More recent work has extended the distribution of v to all things verbal, making a distinction between v^* (the “strong” v that occurs in transitive constructions and assigns an external θ -role) and “unstarred” v (the “weak” v found everywhere else). On that approach, the strong correlation between absence of “modifier stranding” and absence of incorporation in unaccusative constructions can still be made to follow from (10), on the assumption that “ v ” here is specifically the transitivising v^* .

2.3 Incorporated nouns not associated with defective goals

In Type IV noun-incorporating languages, incorporation of the (deep) object of unaccusative verbs is unrestricted. Baker et al. (2005) find that in Type IV languages it is also quite generally possible to strand modifiers, unlike in Type III languages. These things suggest that the host of the incorporate is different in Type IV languages, and that the object in these languages is not a defective goal.

2.3.1 Type IV noun incorporation

Type III and Type IV noun-incorporating languages are on a par (and as a pair differ in this regard from the other noun-incorporation types) when it comes to the referentiality of the incorporated noun. Baker (1996: 287–288 and sect. 7.4.3) shows for Mohawk, in the same way that Baker et al. (2005) later did this for Mapudungun (recall (9)), that the incorporated noun is fully active in the discourse. From our point of view, this means that a D-head is involved in Type IV noun-incorporation constructions, just as it is in Type III. It is important to establish that this is something the two types have in common.

But besides this parallel, Baker et al. (2005) demonstrate that Mithun’s Type IV noun-incorporating languages (including Mayali, Mohawk, Southern Tiwa, and Wichita) are diametrically opposed to Type III in three respects. We just mentioned that Type IV languages, unlike those of Type III, allow “modifier stranding” and incorporation in unaccusative contexts; in addition, in Type IV languages but not in Type III ones, the verb agrees morphologically with the incorporated noun. What might the difference between Types III and IV be, in analytical terms, such that these divergences fall out?

Our hypothesis regarding Type IV noun-incorporation constructions is that the incorporated D (spelled out as a noun) is attached not to *v* but to V, as shown in (11):

$$(11) \quad [{}_{vP} \nu_{\{[+V], \text{ACC}, \dots\}} [{}_{VP} [V D^i \{D, \phi, [+N]\} [V]] \text{xNP}]]$$

D does not form a discontinuous object with xNP (some extended projection of N) in the object position: although they can be interpretively linked (in a relationship of specification), the two are merged independently of one another. Importantly, in its V-adjoined position, D is not in a position to probe anything because its host, V, is not itself a probe. xNP, therefore, is not a defective goal, and not doomed to silence. This means that when both are present in the structure simultaneously, xNP and D can both be spelled out. xNP can harbour modifiers

that are semantically associated with the incorporated object, creating the impression of “modifier stranding” – although the modifier, included in xNP, is not actually being “stranded” by anything.¹¹

Besides the possibility of “modifier stranding” (or, better put, the presence of “classificatory” or specificational material in the external syntax), (11) also correctly predicts the fact that the incorporated object (the V-adjoined D) in Type IV noun-incorporation constructions enters into an agreement relation with the verb and checks *v*’s case feature. This is thanks to the fact that *v* in (11) c-commands the *v*-adjoined D^i and can hence engage in an Agree relationship with D^i .

Thirdly, (11) also makes it immediately understandable that in Type IV noun-incorporating languages, it is possible for the (deep) object of unaccusative verbs to incorporate. After all, nothing in (11) implicates *v* in the incorporation process: the incorporated element (D with its referential index “i”) is attached to V; this should be possible regardless of whether *v* is present or not (or on the featural properties of *v* when present).

A clear prediction made by (11) that is not raised by Baker et al. (2005) but which is indeed fulfilled is that in Type IV noun-incorporating languages the incorporated object must be a thematic dependent of the incorporator. Consider in this context the Mayali examples in (12) (Evans 1994):

(12) Mayali

- a. * an-barndadja gu-wukku ngarri-*mim*-wo-ni
 III-owenia_vernicaosa LOC-water 1A-fruit-put-PI
- b. an-barndadja ngarri-*mim*-bo-wo-ni
 III-owenia_vernicaosa 1A-fruit-water-put-PI
 ‘we used to put the fruit of *Owenia vernicaosa* in the water’

¹¹The proposed approach to “modifier stranding” is compatible with Rosen’s (1989) representation of “stranded” modifiers as associated with a silent noun, though it is not necessarily dependent on that representation.

A treatment of “modifier stranding” that does not take this term literally is recommended by the fact that the external-syntactic material associated with the incorporated noun in Type IV languages is not necessarily representable as a subconstituent of the noun phrase of which the incorporated noun is supposed to be the (moved) head. The external material in Type IV is characterized by Mithun as “classificatory” material. Its function is to specify the content of the incorporated noun further. This can be done by modifiers in the traditional sense (“red” as further specifying the content of “car”), but it can also be achieved by another, more specific nominal expression (“Cadillac” as a further specification of the content of “car”). The generalisation covering external material in Type IV languages is that it is specificational – regardless of how the content specification that it brings about is syntactically represented (i.e., irrespective of whether or not it can be mapped into a noun phrase).

What we see in (12a) is that *mim* ‘fruit’ cannot be incorporated into the verb *wo* ‘put’ by itself. This is because *mim*, in the structure of a “put”-type construction, is not a direct argument of the verb: the predicate for *mim* is *gu-wukku* ‘in the water’, or, on a Larson/Hale & Keyser-style approach, the complex predicate *gu-wukku wo* ‘put in the water’, not the verb by itself. Since Type IV incorporation, on our analysis in (11), involves the adjunction of the incorporated noun directly to the verbal root V, and since by hypothesis such adjunction is legitimate only if there is a direct thematic relationship between V and the incorporated material, it is impossible in Mayali (12a) to incorporate ‘fruit’ into ‘put’. Interestingly, it is possible to incorporate ‘fruit’ when ‘water’ forms a complex verb with ‘put’, as in (12b). This is immediately understandable as well: *bo-wo*, the head-level combination of ‘put’ and ‘water’ that we find in (12b), takes ‘fruit’ as its argument, and can therefore serve as a host for *mim* at the level of V.¹² The Mayali data in (12) thus support the idea that noun incorporation in Type IV languages involves a thematic relation between the incorporated noun and its verbal host, V.

This is a good moment to mention that in our approach to the difference between Type III and Type IV noun-incorporating languages, we take a stance that is almost exactly the opposite of the one taken by Rosen (1989) in her lexicalist analysis of noun incorporation. For Rosen (1989), the difference between Type III and Type IV languages is that in the former, the incorporated noun saturates a θ -role in the verb’s argument structure whereas in the latter it modifies that role, allowing for the assignment of the (modified) θ -role to a phrase in the external syntax. For us, on the other hand, Type IV languages are characterized precisely by the fact that the incorporated noun (adjoined directly to V) receives a θ -role from V. The material in the external syntax that the incorporated noun may be associated with in Type IV languages (“xNP” in 11) is not, on our analysis, a thematic dependent of the verb: rather, it stands in a specificational relationship to the incorporated noun.

¹²For completeness, we mention here that the complex verb *bo-wo* ‘put in water’ can also take *mim* as its argument externally, as in (i). Note that the form of the element glossed as ‘water’ is very different in (12a) (*wukku*) from the form found in (12b) and (i) (*bo*). We take this to suggest that *bo* in (12b) and (i) is not an incorporated locative but rather a base-generated subpart of a complex verb ‘put in water’.

- (i) Mayali
 an-barndadja an-mim ngarri-bo-wo-ni
 III-owenia_vernica III-fruit 1A-water-put-PI

2.3.2 Type Ia noun incorporation

For noun-incorporation cases of Types II–IV, there has always been much debate in the literature regarding the question of whether they should be given a lexical or a syntactic treatment. In the mainstream generative literature, Rosen’s (1989) paper is the primary representative of the lexicalist approach, and Baker’s (1988, 1996) work is the main champion of the syntactic approach. For Type Ia, on the other hand, there has never been any doubt as to how it should be treated: there is a broad consensus that this is a case of lexical compounding.

In standard, pre-1990s work on the syntax/lexicon distinction, the term “lexical compounding” used to make reference to cases in which a lexical element is attached to another lexical element in the lexicon, i.e., prior to entering the syntactic component. But in a theory in which there is no distinction, in the realm of derivational processes, between the lexicon and the syntax (i.e., in a theory in which “lexical word-formation operations” are part and parcel of the syntactic component), we can no longer appeal to a difference in timing between “lexical compounding” and the kind of noun incorporation seen in Type IV languages. There is just a single derivational engine, called “syntax”. So if the term “lexical compounding” is to mean anything in a single-engine theory of morphological and syntactic derivation, it can only make reference to the size of the elements combined: “lexical compounding” involves the combination of two elements that are both “lexical”; Type IV noun incorporation combines a lexical element with something that is not “lexical”.

Let us make this more precise. What we are describing is a difference between two types of noun incorporation, Types Ia and IV. Both specifically involve nouns – the process of noun incorporation is to be distinguished from cases of preposition incorporation or verb incorporation. So at a minimum, the incorporated element in all cases of “noun incorporation” must be categorized as being nominal. If we take the bare root (“N”) to be acategorial (as is standard in current mainstream generative morphosyntactic theorising), then in all cases of “noun incorporation” the adjoined element must minimally be as large as *n*, the categorising “little head” that identifies the root as a nominal one. For “lexical compounding” (i.e., Type Ia incorporation), this is exactly what we take the incorporated element to be: a “little *n*” adjoined directly to the verbal root, as in (13). What makes Type Ia incorporation different from Type IV incorporation, as analyzed in (11), is thus not the nature of the host (V in both cases) or the timing of the adjunction to V, but the size of the adjunct (lexicalized as a noun in both cases; see §2.4): *n* in Type Ia, and D^i in Type IV.

- (13) [_{VP} $v_{\{+V\}}$, ACC, ...] [_{VP} [_V [$n_{\{+N\}}$] [V]]]]

Both Type Ia and Type IV noun incorporation are characterized by the fact that the incorporated noun is attached directly to V, a lexical root. Viewed from the perspective of the host, then, we could call both Type Ia and Type IV incorporation “lexical”. The difference between them lies in the size of the nominal adjunct. Due to the fact that the incorporated nominal element is a mere *n*, it is not a referential element in Type Ia incorporation. The combination of *n* and V is entirely devoid of morphosyntactic content besides the adjunct’s category feature. Since the incorporated element is no larger than *n*, it cannot be associated with anything in the external syntax with which it forms a discontinuous object: *n* is itself the lowest point in the functional sequence. So “modifier stranding” or external specification is impossible in Type Ia.

In Type Ia noun incorporation, as in Type IV, the locus of the incorporated nominal element is V. In our discussion of Type IV cases in the previous subsection, we noted that this derives an important fact about such cases: that the incorporated element must bear a thematic relation to the incorporator. For Type Ia incorporation, this holds as well – as a matter of fact, this is something that Hale & Keyser (1993) draw prominent attention to in their discussion of conversion in English, which on their syntactic approach is an instance of Type Ia noun incorporation.

Hale & Keyser (1993) point out a striking regularity in the pattern of denominal verb formation in English (and similar languages). In the pairs in (14–16), we see that it is systematically impossible to base denominal verbs on the nominal head of the Theme argument of a complex predicate – despite the fact that the denominal verbs in the b-examples do exist independently (see the expressions immediately below them), they cannot be used in resultative secondary predication constructions in which the nominal base of the verb serves as the Theme of the complex predicate of which the constituent to the right of the verb is a part.

- (14) a. to shelve a book
 b. * to book on a shelf
 c. to book a ticket
- (15) a. to clear a screen
 b. * to screen clear
 c. to screen a movie
- (16) a. to coat a house (with paint)
 b. * to house with a coat (of paint)
 c. to house a family

A denominal verb can be formed out of an abstract verb (like “PUT” in (14), “MAKE” in (15), and “PROVIDE” in (16)) and a secondary predicate with which it combines, as in the a-examples; but when the element incorporated into the abstract verb is an argumental noun whose θ -role is not assigned to it by the abstract verb by itself, as in the b-cases (where the incorporated noun that serves as the base for the denominal verb is the Theme argument of “PUT”, “MAKE” or “PROVIDE” plus the secondary predicate that follows the verb), the output is ungrammatical. The regularity of the pattern discovered by Hale & Keyser (1993) strongly suggests that noun incorporation of Type Ia is subject to a thematic restriction – one that follows straightforwardly from an analysis in which the locus of incorporation is the verbal root “V” (as in Type IV).

2.3.3 Type II noun incorporation

The two cases of noun incorporation just discussed (Types Ia and IV) are both characterized by the attachment of the incorporated noun directly to the verbal root, which makes these “lexical” incorporation cases in the relevant sense of the term. Thanks to its being attached directly to V, the incorporated noun in Type Ia and Type IV is an argument of the predicate head. In Type II constructions, by contrast, the incorporated noun does not have argument status. The fact that the incorporate lacks argument status vis-à-vis the verb indicates that it is not attached to the verbal root: if it were, it would necessarily get the root’s internal θ -role assigned to it. So from the incorporate’s non-argument status, we conclude that Type II noun incorporation must be like Types Ib and III in having the incorporate attached to *v* rather than to V.

A defining property of Type II that sets it apart from Type III is that the incorporate does not absorb *v*’s case.¹³ If the incorporate were as large as D^i , this

¹³In Type Ib pseudo-incorporation of the Niuean type (recall 8), the pseudo-incorporate also does not absorb *v*’s case. The incorporate in both (7) and (17) is a *n*; and in (7) even the occupant of the complement-of-V position is just a *nP*. In fn. 7, we mentioned that Hungarian “verbal modifier” constructions such as *János verset ír* ‘János poem writes’ could be treated as pseudo-incorporation constructions of Type Ib. Here we see an explicitly case-marked nominal object (*vers-et* ‘poem-ACC’), classified as a “mere” *nP*. It is quite generally possible in Hungarian for morphological case to be hosted by things that are not necessarily as large as a full-blown DP (even non-nominal constituents can bear morphological case: *Mari jól futott* ‘Mari good.ACC ran, i.e., Mari had a good run’; *Mariit szépnek tartom* ‘I consider Mari.ACC pretty.DAT’; *szépnek, Mari szép* ‘(as for) pretty.DAT, Mari is pretty’). But there is no universal requirement that *nP* have case: Universal Grammar only demands that DPs have case (the case filter). In Type II incorporation constructions, by contrast, the DP present in VP must necessarily engage in a case-checking Agree-relationship with *v*.

would be hard to account for: a D with a referential index wants case (i.e., is subject to the case filter). From this, we conclude that Type II incorporation involves a *n* adjoined to *v* (see 17). In this regard, Type II is like Type Ib.

- (17) [_{vP} [_v *n*]_{[+N]}] [_v]_{[+V], ACC, ...}]_{[+N]} [_v]_{[+V], ACC, ...}] [_{VP} V DⁱP_{D, φ, [+N]}]]

Unlike in the case of pseudo-incorporation (Type Ib; recall 7), however, the complex probe [_v *n*+*v*] is not a proper featural superset of the object, which is a full DP originating in the object position merged independently of the incorporated object. In Mithun’s (1984: 859) terms, “[i]nstead of simply reducing the valence of the V by one, [Type II] permits another argument of the clause to occupy the case role vacated by the IN” (i.e., the incorporated noun). The b-examples in (18) and (19), from Yucatec Mayan (adapted from Mithun 1984: 858), illustrate this:

- (18) Yucatec Mayan

a. k-in-č’ak-k če’ ičil in-kool
 INCMPL-I-chop-IPFV tree in my-cornfield
 ‘I chop the tree in my cornfield.’

b. k-in-č’ak-če’-t-ik in-kool
 INCMPL-I-chop-tree-TR-IPFV my-cornfield
 ‘I clear my cornfield.’

- (19) Yucatec Mayan

a. k-in-wek-k ha’
 INCMPL-I-spill-IPFV water
 ‘I spill water.’

b. k-in-wek-ha’a-t-ik *pro*
 INCMPL-I-spill-water-TR-IPFV
 ‘I splash him.’

In Type II incorporation cases (which resemble applicative constructions of the Bantu type, as Rosen (1989) also notes), the feature sets of *n* and DP each get their own exponents: the “associate” of the incorporate is not a defective goal, and is not condemned to silence. In its base position, the DP can check the verb’s accusative case feature, and behaves in every way like an ordinary object. This accounts for all the properties of Type II incorporation.

2.4 On discontinuous objects and spanning

At the end of this survey of the typology of noun-incorporation constructions, we address two analytical details to which we have so far paid scant attention but which are vital ingredients of the account.

In the structures of Type III and Type IV noun incorporation, the incorporated nominal element is represented as a D (attached to v in Type III and to V in Type IV). In Type III cases, this D is associated with a nP in the object position. Two questions arise in connection with this:

- (20) a. How can D, a determiner head, have a noun as its exponent (as desired)?
b. How can D be associated with the nP in object position in Type III constructions?

Let us start with question (20a). The key idea here is that, in noun-incorporation languages of Types III and IV, lexical nouns can serve as exponents of a “span” (in the terminology of nanosyntax). A span is a series of heads in head-complement relations. The languages in question have lexical entries that can expone the entire nominal functional sequence, from n all the way up to D. This is correlated with the typological fact that polysynthetic languages as a rule lack true determiners (Baker 1996).¹⁴ Determinerlessness is a result of the lexical noun’s representing the entire string of functional heads in the extended projection of N, up to and including D. When N and D are in a contiguous span in the tree, they can and therefore must be co-lexicalized by a single morpheme, the “lexical noun”. This is the result of an economy principle variously known as minimize exponence (Siddiqi 2009, cf. also Noyer 1993), the union spellout mechanism (Muriungi 2009), or maximize span (Pantcheva 2010). The D attached to the verb in Types III and IV harbours the feature content of this entire functional sequence, and, in the languages in question, receives the lexical noun as its exponent.¹⁵

Regarding question (20b), in the noun-incorporation structure in (10), for Type III, the DP that serves as the object of the verb is discontinuous: its D- and φ -portions are base-generated directly on v , very much like an object clitic like *les*

¹⁴For *ti* in Mapudungun (9b) and (9c), we assume that it is not a true determiner but more like a demonstrative.

¹⁵When D and N are not in a contiguous sequence, they can, in principle, both be separately expone by the lexical noun, provided that n or N is not a defective goal to a probe with D attached to it. For further relevant discussion of “spanning”, see Ramchand (2008), Taraldsen (2010), Merchant (2015) and Svenonius (2016).

in French (1b) (a determiner with φ -feature content); the rest of the noun phrase (nP) occupies the object position in VP, where the noun phrase hooks up to the thematic role that it requires for interpretation as an argument of the verb. The discontinuity of the definite object, with D generated outside VP, is directly in the spirit of work by Sportiche (1998) and Lin (2000). In the configuration in (10), D is part of a $D+v$ complex that is a featural superset of the nP in object position, which serves as a defective goal for the $D+v$ probe. Chain reduction leads to the silencing of the defective goal, and exponence of the object in v -adjoined position.

2.5 Noun incorporation: Summary

In this section, we have presented a proposal for the typology of noun incorporation that preserves and extends Baker et al.’s (2005) major results, recasting their main parameters and supplementing them with Roberts’ (2010) notion of “defective goal”, thereby achieving greater descriptive adequacy than either Roberts or Baker et al. would have been able to attain by themselves.

Noun incorporation constructions of Types Ia and IV are united in our analysis by their choice on (5a): they both pick V rather than v as the host. The other three types of noun incorporation all have the incorporated element hosted by v . Types Ia and IV differ in the nature (and concomitantly the size of the feature bundle) of the incorporate (5b): n versus D^i . Types Ib and III are distinct from one another in this way as well. Type II is like Type Ib with respect to the choices on (5a) and (5b); but in Type II the object in VP is not a defective goal, in the sense of Roberts (2010), for the $n+v$ probe: it is a full-blown argumental and referential DP. So (5c) is what makes the difference between Type II noun incorporation and pseudo-incorporation (Type Ib), the latter behaving with regard to (5c) like Type III noun incorporation.

- (5)
- a. the host of the incorporated nominal element – V or v
 - b. the nature of the incorporated nominal element – n or D^i (“i” = “referential index”)
 - c. the status of the object – “defective goal” or not

Taken together, (5a–5c) provide just the right parameters to differentiate between the various distinct types of noun incorporation identified in the literature. With just (5a) and (5b), we would have been able to describe most of the differential properties of noun incorporation that Baker et al. (2005) manage to account for in their important work – albeit in a non-trivially different

way: where Baker et al. bank heavily on a parameter regarding the deletion of ϕ -features from the “trace” of noun incorporation, the present analysis eschews movement (hence “traces” or multiple copies) altogether and capitalizes on two formal properties of the incorporated element (its host and the size of its feature bundle). It is thanks to our third parameter, (5c), that we get a purchase on the difference between Types Ib and II, and, more generally, on the distribution of external-syntactic material associated with the incorporated element (“modifier stranding”). Baker et al. (2005) explicitly set Type II aside, and do not talk about pseudo-incorporation at any length. For a full perspective on the typology of noun incorporation, Roberts’ (2010) notion of “defective goal” (which Baker et al. did not have the benefit of) is essential.

3 On doubling

In the syntax of Type II noun incorporation, the incorporated noun (a n attached to v) can freely cooccur with an overt DP object in VP because the $n+v$ probe is not a proper featural superset of the DP in object position. In Type IV, the incorporate is itself a large feature set (D); but because it attaches low, to V rather than v , and because D+V is not a probe, an object in VP is never going to be a defective goal in the sense of Roberts (2010) either. In Type III noun-incorporation constructions, by contrast, the incorporated element is a D and its host is v – so here we get a complex probe D+ v that is a proper featural superset of any object inside VP, thereby turning any object in VP into a “defective goal” and forcing it to be silent.

For object-clitic constructions in languages of the Romance type, in which there is a clear formal identity between object clitics and definite determiners, we will adopt an analysis in which the clitic is a D attached to v – very much as in the analysis of Type III noun-incorporation constructions in §2. The syntax of object-clitic constructions thus looks as in (21), where the v -adjoined D is associated with a nominal constituent (some extended projection of N, “xNP”; in French (1b) this is ϕ P, controlling ϕ -agreement with the participle, but in Romance varieties without clitic agreement it may be just n P) in the object-of-V position that is a “defective goal” for the D+ v probe. Since the Romance languages have determiners, the exponent of the D attached to v will be a definite article (*les* in 1b), not a lexical noun (as in Type III/IV noun-incorporation languages; recall §2.4).

$$(21) \quad [{}_{vP} [{}_{v} D^i_{\{D, \phi, [+N]\}} [{}_{v\{[+V], \text{ACC}, \dots\}}]]_{\{D, \phi, [+N]\}, \{[+V], \text{ACC}, \dots\}} [{}_{VP} V \text{ xNP}]]$$

In light of our discussion of the syntax of Type III noun incorporation, (21) leads us to expect that the clitic should not be able to be associated with any overt material in the external syntax. This is certainly not dramatically inaccurate – but clitic doubling does exist (see e.g. Rioplatense Spanish (22), from Jaeggli 1986: 32), and needs to be accounted for.

- (22) Spanish
 lo vimos a Juan
 we saw P_{DAT} Juan
 ‘we saw Juan’

When D(=CL)+*v* co-occurs with an object, as in clitic doubling constructions, the associate of the clitic cannot be placed anywhere in the complement of *v*, c-commanded by D+*v*. Clitic doubling must instead involve the placement of the associate in a position outside the c-command domain of *v* – arguably the very same position used in “differential object marking” (DOM) and “object shift” constructions. The fact that in Spanish the associate of a clitic in a clitic doubling construction is adorned with the same marker (the dative preposition *a*) as a DOM-object goes along with this directly. We identify the spell-out position of the associate of the clitic in clitic doubling constructions as an outer specifier of *v*P, as in (23).¹⁶

- (23) [_vP [_{xNP} associate]_i [_vP [_v [_D D=CL] [_v]] [_{VP} ... ~~xNP~~ ...]]]

Note that the clitic, in its *v*-adjoined position, does not receive a θ -role from *V*. The associate must hence be the thematic member of the clitic-doubling complex. This compels *xNP* to bind a silent copy in a θ -position inside *VP*. The θ -role that *xNP*’s silent copy receives does not have to be one assigned by *V*: as Sportiche (1996) points out (citing Greek examples from Schneider-Zioga’s work), clitic-doubled objects can be subjects of (small) clauses in *V*’s complement. This is unproblematic for our proposal, as long as the spell-out position of the associate is outside *v*’s command.

¹⁶It is entirely possible that the DOM position is the specifier of a functional projection outside *v*P (rather than an outer Spec*v*P). See e.g. Manzini & Franco (2016) for a concrete proposal which also sheds light on the function of the prepositional element *a*. The fact that this element may be omitted in certain clitic-doubling varieties (e.g. Porteño Spanish; Suñer 1988: 399–400) seems to us not to affect the proposal in (23): whether or not *xNP* is marked by a prepositional element is a low-level point of variation, not a core-syntactic one. We thank a reviewer for raising this point as well as the issue addressed in the next paragraph in the main text.

Placement of a “double” of the incorporated object in a position outside the search domain of the v probe is a logical possibility for noun-incorporating languages as well. As Baker et al. (2005: 165) point out (following Baker 1996), doubling is indeed a different matter from “modifier stranding” in noun-incorporating languages:

All polysynthetic languages allow overt NPs to be dislocated, standing in a relation of resumption to pronouns expressed as agreement morphemes on the verb. Some languages expand upon this, allowing dislocated NPs to stand in a relation of resumption to ... an IN [incorporated noun] as well.¹⁷

Among both Type III and Type IV noun-incorporating languages (which differ with respect to the legitimacy of “modifier stranding”), we find cases in which the incorporated noun can be “doubled” by a noun phrase in the external syntax that is descriptively richer than the incorporated element. Like Baker, we treat these “doubles” as being located outside the c -command domain of v (i.e., outside VP). They can be in a dislocated position (an \bar{A} -position in the left or right periphery), or serve as appositions, or function as DOM-objects à la (23).

4 Object pro-drop and defective goals

In many of the empirical cases reviewed so far in this paper, adjunction of a nominal element to v turns v into a “super-probe”: a probe whose feature content is a superset of that of the goal, which is thereby declared defective in Roberts’ (2010) sense of the term. Imagine now that there could be languages, or situations within languages, in which v is a featural superset of the goal all by itself, without the help of a nominal element attached to it. Concretely, imagine a situation in which v in (24) possesses all of the formal features $\{\alpha\text{FF}\}$ borne by the object-DP. Will this turn the object into a defective goal, forcing it to be silent?

(24) [_{vP} $v_{\{\alpha\text{FF}, \dots\}}$ [_{VP} V [_{DP} $D_{\{\alpha\text{FF}\}}$...] ...]]

Whenever DP in (24) is not a common-noun phrase with idiosyncratic, encyclopedic properties that are not included in the feature bundle $\{\alpha\text{FF}\}$ possessed by

¹⁷What Baker calls “resumption”, we would prefer to refer to as “specification”. The “double” is typically more specific than the incorporate. The relation between the two has often been likened to classifier constructions – both Mithun (1984) and Rosen (1989) appeal to this notion. It seems to us that “specification” is a more appropriate term, not raising expectations about fundamental similarities with complex noun phrases involving classifiers.

v (more on this at the end of this section), we cannot prevent the silencing of DP in this structure: DP is a proper featural subset of v and c -commanded by v . This will then be a case where Agree between v and the object, the latter a defective goal, leads to pure silence in the object position. This reads exactly like the description of object pro-drop licensed in the absence of a clitic: in languages whose v has such featural wealth as to make it a superset of the object (with at least some of the object’s features spelled out on the verb, in the form of agreement morphology), it licenses the dropping of the object by turning the object into its defective goal.

For languages that have object clitics but no (general) object pro-drop, it is possible for the object to be silenced *only* when it is the associate of a D attached to v : only the presence of this D (the clitic) gives v the morphological feature content that makes it a featural superset of D’s associate φ P in the object position.

For languages whose inflected v by itself is rich enough to take the object as a defective goal, we will want any overt objects to be outside the c -command domain of v – in the “DOM” position in (23), or in an \bar{A} -position elsewhere in the tree. The silent object inside VP is recoverable by the local c -command relation with the coindexed object outside VP. The subjective probe–goal relation between v and the VP-internal object guarantees the latter’s silence.¹⁸

What are the features that can be included in the $\{\alpha\text{FF}\}$ on v in (24)? Obviously the familiar φ -features – but probably also idiosyncratic lexical properties such as [edible] or [spherical]. Such lexical properties of roots are addressed by the functional heads within the extended projection of the nominal root: classifiers are typically highly sensitive to geometric properties such as [spherical], for instance. These are also implicated in selectional restrictions: [edible] is relevant for the object of verbs like *eat*; [spherical] is for the internal argument of verbs such as *roll*. Such selectional restrictions are idiosyncratic properties of individual roots, hence most likely the province of V. But V is not a probe, so if selection involves a probe–goal dependency (which is not necessarily the case

¹⁸A reviewer asks how this account of object pro-drop languages can allow such languages to have non-specific lexical objects, which are not expected to be positionable in the “DOM” position. If in a particular object-drop language v is *systematically* in possession of all of the formal features borne by the object, non-specific objects will always be silent, and overt objects will always be interpreted specifically. There may be languages that work like this – languages in which the verb will need to be antipassivized in order for a non-specific “object” to be introduced. But our proposal does not predict that all object-drop languages should work this way: in languages in which v CAN possess all the formal features of the object, there is no reason to assume that it MUST, under all circumstances. Objects can be spelled out in VP and be overt whenever they are not defective goals – i.e., whenever v does not bear all of the object’s features.

but not seldom assumed), v will be the probe in the case of the “object of” relation: v will inherit the relevant selectional features from the root, and take care of their checking. A root such as *eat* will then combine with a v specified for the feature [edible], requiring that the object bear the matching feature; similarly, the v combining with the root *roll* will be specified for [spherical].

More microscopic encyclopedic properties of objects (such as sweet or tart, soft or hard, tender or chewy, for objects of *eat*; bouncy or not for objects of *roll*) are not usually active in selectional relations: *eat* cares about its object being edible but not about its sweetness or hardness; a classifier for spherical objects combines equally well with bouncy and non-bouncy spheres. In a late insertion theory, these encyclopedic properties are added only at spell-out, not fed into the syntax, and never involved in probe–goal relations or Roberts-style silencing under defectiveness.

The defective probe–goal approach to object drop allows the silent object of verbs such as *eat* to be specified as [edible], and that of *roll* as [spherical], as desired: a dropped object must meet the verb’s selectional restrictions. But more specific encyclopedic properties of the dropped object are not morphosyntactically recoverable. When such encyclopedic features are not retrievable from the surrounding discourse, they must be made explicit in the form of an overt object. In object pro-drop languages, that object must be located outside the probing domain of v , for otherwise it would be a morphosyntactically defective goal for v , destined to silence. The “DOM” position in (23) or some \bar{A} -position elsewhere in the tree will be the syntactic locus in languages sanctioning object pro-drop for overt objects whose formal features (i.e., $\{\alpha\text{FF}\}$ in 24) match those of v .

5 Definiteness agreement and person

For the so-called “definite/objective conjunction” of Hungarian, illustrated in (25), an analysis can be proposed along the lines of the approach to Romance-style object cliticisation taken above.¹⁹

(25) Hungarian

- a. lát-j-a (ő)t / *(ő)ket
see-J-DEF (s)he.ACC they.ACC
‘(s)he sees him/her/them’

¹⁹In den Dikken (2018), an extended argument is presented for the clitic status of “definite agreement” in Hungarian (as well as Proto-Uralic).

- b. lát-t-a (őt) / *(őket)
 see-PST-DEF (s)he.ACC they.ACC
 ‘(s)he saw him/her/them’

On such an approach, the “definiteness agreement” marker on the verb is a D attached to *v* (undergoing vowel harmony with the verb). When no overt object is present, the D+*v* complex is associated with a defective goal in VP and licenses its silence – this is what is usually referred to for Hungarian as “object pro-drop”, now actually assimilated to object cliticisation, with D attached to *v*.

It is interesting to note that number is not recoverable from D=*a*: the Hungarian definite article has no plural form (*az év* ‘the year’, *az évek* ‘the year.PL’; not **azok évek* ‘the.PL year.PL’). Only definiteness and (default) third person are retrievable from D. So the combination of D=*a* and *v* cannot take the third person plural pronoun as a defective goal because this goal has something that D=*a* does not have: number (*a* represents D and person, not number). As a consequence, third person plural objects cannot be dropped in Hungarian: *(*őket*) in (25). This falls out directly from the defective goal hypothesis.

Interestingly, first and second person object pronouns can be dropped both in the singular and in the plural, even though nothing about them is recoverable from verbal inflection (from the subjective/indefinite conjugation):

- | | |
|--|--|
| (26) Hungarian | (27) Hungarian |
| a. lát (<i>engem</i>) / (<i>minket</i>)
see.INDEF me us
‘(s)he sees me/us’ | a. lát (<i>téged</i>) / (<i>titeket</i>)
see.INDEF you _{SG} / you _{PL}
‘(s)he sees you _{SG/PL} ’ |
| b. látott (<i>engem</i>) / (<i>minket</i>)
saw.INDEF me us
‘(s)he saw me/us’ | b. látott (<i>téged</i>) / (<i>titeket</i>)
saw.INDEF you _{SG} / you _{PL}
‘(s)he saw you _{SG/PL} ’ |

In light of the preceding discussion, we are led to conclude that (26) and (27) do not involve a defective probe–goal relation. The dropping of first and second person object pronouns must be licensed discursively; it cannot be sanctioned morphosyntactically. More generally, Baker’s (2011: 877, fn. 3) conjecture that “agreement for first and second person can never take place under mere Agree”, but requires the Spec–Head relation (a conjecture that is confirmed and derived from a structural representation of the feature [person] in den Dikken 2014) leads us to draw the conclusion that the dropping of person-marked objects can never involve a Roberts-style defective probe–goal relation when the object is structurally represented inside *v*’s complement.

When a person-marked object is structurally represented in the specifier position of ν P (the “DOM” position in 23), the object’s silence can be morphosyntactically licensed by ν if ν ’s feature set includes [person] and if the Spec–Head relation is a probe–goal configuration (“upward Agree” or “downward valuation”; Bjorkman & Zeijlstra 2019, Preminger & Polinsky 2015). Whenever ν does not probe the person-marked object, it can remain unexpressed only if the discourse makes it recoverable, as in the Hungarian case illustrated above.

6 Agreement inside extended projections

In configurations involving an object that serves as a defective goal, the complex ν is a “super-probe” for the defective goal inside VP, sanctioning its silence and giving rise to the effect of head movement (cliticisation or noun incorporation). Inside the complex noun phrase in (28), D is also a featural superset of the functional projections below it: D has a specification for the feature [D(efinite)] as well as for the φ - and categorial features of the complex noun phrase (which are visible on DP).

(28) $[_{DP} D_{\{D, \varphi, [+N]\}} [_{\varphi P} \varphi_{\{\varphi, [+N]\}} [_{nP} n_{\{[+N]\}} [_{NP} N]]]]$

Similarly, in the clause, C has a specification for [force] as well as for the φ - and categorial features of the finite verb. But plainly, the fact that D and C are featural supersets of the functional projections in their complement does not force the latter to be silent. Why not?

Although D and C are featural supersets of the φ P and TP in their complement, they do not probe the feature bundles in the heads of their complements. D and φ are part of one and the same extended projection, and so are C and T. While functional heads in a continuous extended projection are arguably always a proper featural superset of the functional heads they immediately c-command,²⁰ they do not stand in a probe–goal or selectional relation with them. The various functional heads in the extended projection of a head all belong to the same family,

²⁰This will provide a very simple explanation for the fact that the complement of C/D is immobile (i.e., cannot engage in filler-gap dependencies: cf. *[*John is smart*], *I don’t think that*, and *[*book*], *I didn’t read the*). On the text approach, this becomes a specificity effect. The higher FP (i.e., CP or DP) has all the features of the lower FP (TP, φ P); therefore, if an external probe seeks to engage in an Agree relation for the features shared by the two FPs, it will pick the more inclusive and more directly accessible of the two phrases (i.e., the higher one) as its goal. (Cases like *books I have none* (Lord Mansfield in the House of Lords; 18th century) do not involve subextraction – the “stranded” portion of the DP in these cases can always constitute a noun phrase by itself: contrast *books I have none* with **books I have no*.)

and have matching genes because of this family relation. No functional head can establish a probe–goal relation with a lower functional head in the same extended projection because the feature content of the lower functional head could not have been disjoint from that of the higher functional head. By definition there is feature matching throughout the spine of an extended projection. Because feature matching is thus guaranteed, probing is generally futile.²¹

On the other hand, across different extended projections, feature matching is not guaranteed: it can arise only as a function of a probe–goal relation between the terms of these different extended projections. One can refer to both the feature matching within extended projection and the feature matching resulting from probing agreement by the cover term “Agree”.²² But because the former kind of feature matching does not involve a probe–goal relation, it does not lead to chain formation and concomitant chain reduction (i.e., silencing of the goal, in the case of a defective goal).

In the complex noun phrase *les filles* in (1a), repeated below (along with 1b) and analyzed as in (28), D and φ are part of a single extended projection, so feature sharing is guaranteed, and no probe–goal relations are established within this

²¹For VP topicalization (placement of an extended projection of V in the specifier position of a functional category in the clausal left periphery), no exception to this general statement needs to be made if, as is plausible, the clause is a combination of two extended projections, one of V (incl. v and presumably also a functional head for Aktionsart aspect) and one of T (incl. C and the information-structural F-cats familiar from cartographic work). The need to split the full clause into two separate extended projections becomes compelling once it turns out that elements in the functional sequence of the high left periphery (outside TP) rear their heads also in the low left periphery (between T and vP). Thus, if it is true that TopP occurs both outside TP and outside vP (see Belletti 2004 for relevant discussion of low topic positions), and if it is true (as the facts of Hungarian suggest) that within the functional sequence of a single extended projection TopP can never occur below FocP, then it must be the case that a low TopP outside vP and a high TopP outside TP and FocP (see the schematic structure in (i)) belong to different extended projections – the extended projections of V and T, respectively. Any functional head in the extended projection of T is then welcome to probe for some extended projection of V. VP topicalization thus does not involve probing within a single extended projection.

(i) [_{CP} C [_{TopP} Top [_{FocP} Foc ... [_{TP} T ... [_{TopP} Top ... [_{vP} v [_{VP} V ...]]]]]]]]

The kind of VP-raising at work in predicate-initial languages such as Niuean, for which Masam (2001a) argues that T is the probe and SpecTP the landing-site, is also unproblematic from this perspective: with T defining its own extended projection, such VP-raising does not involve a probe–goal relation within one single extended projection.

²²If one finds it confusing to apply the term “Agree” both to feature matching under probing and to the definitional feature matching found within extended projections, one could alternatively express the feature sharing found in functional sequences in terms of spans, a notion introduced in the nanosyntax literature and exploited in §2.4.

complex object. A functional head F_n in an extended projection of some lexical root cannot engage in a probe–goal relation with a functional head F_{n-1} in its immediate c-command domain, so the D-head in (28) cannot probe φ . Despite the fact that in the structure in (28) φ P is a proper featural subset of DP, we are not dealing with a defective goal because there is no probing among the members of a single extended projection. φ P is therefore not forced to be silent in (1a).

(1) French

- a. j'ai surpris les filles
I have surprised the girls
'I surprised the girls'
- b. je les ai surprises
I them have surprised.F.PL
'I surprised them' (said of feminine direct object)

For (1b), it might a priori seem attractive to represent *les* as the exponent of D inside a complex noun phrase in which the complement of D remains silent: (29) achieves a generalisation over definite common noun phrases and object clitics that accounts for the form-identity of the definite article and the clitic.

- (29) $[\text{DP D}=\textit{les} [\varphi\text{P } \varphi [\text{nP } n [\text{NP N}]]]$
 (1a): $\varphi\text{P} = \textit{filles}$
 (1b): $\varphi\text{P} = \emptyset$

But (29) raises the questions of why *les*, when unaccompanied by any overt material in φ P, must cliticize, how it goes about the business of cliticising to a verb, and, perhaps most fundamentally, how the φ P in (1b) can be silenced in the first place. Since this φ P is part of the same extended projection as D, and since Roberts' notion of "defective goal" is not applicable within the confines of an extended projection (because no probe–goal relations are established among the members of the functional sequence that constitutes the extended projection), it cannot be that φ P in (1b) is silenced due to its being a defective goal.

So the occurrence of *les* by itself, as an object clitic that is a portmanteau for D and φ , cannot be accounted for straightforwardly if the clitic is taken to originate in the object position. This emphasizes the need to approach clitics in a manner different from the one presented in (1b), and seems to make it inevitable to base-generate the clitic outside VP (on *v*, as in 21), where it can be the exponent of D+ φ and form a discontinuous object with a defective goal in the θ -position inside VP. This is the essence of Roberts' (2010) approach to object cliticisation,

which we have defended, refined and expanded in this paper to cover not just cliticisation but also the full range of noun incorporation constructions reported in the literature on polysynthetic languages.

Abbreviations

1	first person	INDEF	indefinite
3	third person	IPFV	imperfective
ABS	absolutive	LOC	locative
ACC	accusative	NI	noun incorporation
ADJ	adjective	OBJ	object
CL	clitic	PL	plural
DAT	dative	POSS	possessive
DEF	definite	PST	past
DOM	differential object marking	SBJ	subject
EPP	extended projection principle	SG	singular
F	feminine	STAT	stative
INCMPL	incompletive aspect	TR	transitive
IND	indicative		

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