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Form Copy and Markovian Gaps in Latin Syntax: The Control Case

Abstract: Recent minimalist framework reduces computational requirements of syntactic derivations by postulating that they proceed in a strictly Markovian fashion. This move opens a new way to analyze control structures of natural languages. Taking Latin control structures as a test case, the paper compares three alternative minimalist analyses of the phenomenon of control in order to assess their empirical adequacy and theoretical commitments. It is concluded that a Markovian account is superior to its alternatives on general conceptual grounds.

Keywords: minimalist syntax; Latin syntax; Form Copy; control; M-gaps

1. Introduction: Markovian merge

The division of factors entering into the language growth in an individual in Chomsky (2005) introduced a distinction between (i) aspects belonging to the genetic endowment, determining the content of UG; (ii) experience, required for language growth within the limits set by the poverty of the linguistic stimulus; (iii) principles not specific to the faculty of language (Chomsky 2005: 6), bringing into a sharp relief the necessity of grounding basic concepts and mechanisms postulated in the inquiry into the properties of the language faculty in the three factors delineated in the discussion in Chomsky (2005).

A growing emphasis on the considerations of evolvability, learnability and universality (Chomsky 2021b: 7) has shifted the focus from first and second factor considerations – given that both the evolutionary time of the emergence of language is hypothesized to be relatively short and that the linguistic experience is limited, as stressed since the early days of the generative grammar – to third factor considerations, covering "principles of structural architecture and developmental constraints [...] including principles of efficient computation" (Chomsky 2005: 5). A sophisticated architecture postulated for the UG in the Government and Binding period, with its modular architecture and module-specific principles, and a rich set of parameters, has proven untenable in view of the evolutionary considerations. The simplification of the UG, the gradual reduction of the number of operations postulated for the generative mechanism (including the unification of External and Internal Merge) and the elimination of parameters as envisaged in the earlier period, making them emergent properties of the externalization procedure (see Roberts (2019); Obata and Epstein (2016), Epstein, Obata, and Seely (2017) explore the idea of variation in meeting conditions on computation as a possible source of variation in the syntactic derivation) are all conceptually grounded in the need to answer the evolvability problem. With this shift of focus, third factor principles and conditions has gained more prominence.

The nature of the constraints imposed on the language faculty by the principles of efficient computation, the requirement of minimization of resources required for the derivational process to proceed in particular, has become a recurring theme in recent minimalist theorizing. The principle of minimal computation has been argued to underlie various aspects of the model of the language faculty, including the phasal nature of the derivation, restricting access to previously constructed parts of the structure (see Chomsky, Ott, and Gallego (2019) for a discussion of the nature of the Phase Impenetrability Condition), and the principle of minimal search, underlying the behaviour of the search procedure for the purpose of all syntactic operations – not only the structure-building operation Merge, but also for the purpose of Agree, establishing relationships between matching occurrences of valued and unvalued features of syntactic objects and for the purpose of the Labeling Algorithm, searching for labels of syntactic objects and ensuring that the structure will be interpretable in the external components, the conceptual component and the externalization-related one (see Epstein, Kitahara, and Seely (2021) and

Ke (2022) for explorations of the formal properties of the minimal search procedure).

It is against this conceptual background that recent changes in the understanding of the structure-building operation Merge have to be seen. The operation, itself already covering both so-called External Merge, wherein two distinct syntactic objects are combined, and Internal Merge, wherein one object is a term of another, has undergone further generalization in Chomsky (2019a, b, 2021a, b). Instead of being understood as a mere set forming operation, which takes two objects as its input and gives a set as its output, Merge (X, Y) = {X, Y}, it is understood as operating over a workspace WS (called MERGE to distinguish it from the mere set formation under Merge):

(1) a. WS_i = {X, Y, Z}
b. MERGE(X, Y, {X, Y, Z})
c. WS_{i+1} = {{X, Y}, Z}

The operation Merge taken to be essentially set formation was already a response to considerations of evolvability, learnability and third factor constraints: the simplest operation which might be the mechanism behind the Basic Property of language – the ability to generate an infinite array of hierarchically structured expressions, operating freely except for third factor constraints and language specific conditions (see Epstein, Kitahara, and Seely (2015, 2021) for a discussion of the freedom of the operation Merge). The operation MERGE in (1) operates over the workspace WS_i, a stage in a derivational process, taking a pair of any two accessible objects in the workspace and makes them a set (the two objects plus a lasso, as Lewis (1991: 42–45) once put it), and simultaneously mapping WS_i to WS_{i+1}, in which free occurrences of X and Y are no longer present.

The operation MERGE in (1) takes two object such that neither is a term of another so as to form a new syntactic object; it is also free to take an object which is a syntactic term of another object and combine both, as in (2):

(2) a. WS_i = {{X, {W, Z}}, Y}
b. MERGE(Z, {X, {W, Z}}, {{X, {W, Z}}, Y})
c. WS_{i+1} = {{Z, {X, {W, Z}}}, Y}

The variety of MERGE in (1) is known as External Merge, the one in (2) as Internal Merge, both unified under the assumption that MERGE operates freely with regard to the input it takes, provided that syntactic objects which it combines are both accessible at a given stage of syntactic derivation.

The way in which MERGE is proposed to operate in Chomsky (2021b) reflects the requirement that it yield the fewest possible new items accessible for further computational steps, the Minimal Yield Condition (Chomsky 2021b: 19), which is an answer to third factor requirement that resources required for derivation to be carried on be minimized, including the number of accessible objects and the domain of minimal search as performed for the purpose of various syntactic operations. In both (1) and (2) the stage WS_{i+1} contains exactly one new object accessible compared to the stage WS_i: {X, Y}, Z and the terms of {X, Y} at WS_{i+1} in (1) (whereas at WS_i there are X, Y and Z accessible); and {Z, {X, {W, Z}}} is the new object in (2) (the lower occurrence of Z becomes inaccessible to minimal search in virtue of the presence of a higher copy, see Chomsky (2021b: 19), Epstein, Kitahara, and Seely (2021) for further discussion). The mapping from WS_i to WS_{i+1}, leaving no record of the previous stage of the derivation at the next one, embodies the Markovian property of the derivational procedure: there is no access at a given stage of a derivation to earlier stages, the mapping obliterating the information present at an earlier stage. There is no device keeping record of operations performed during a derivation, the structure building operation MERGE eliminating earlier occurrences of objects undergoing the operation in the transition from WS_i to WS_{i+1} (as assumed essentially already in Chomsky (1995: 226)).[1] It is a direct consequence of the Markovian property of the derivational structure building that when the level of a phase has been reached, the computational system does not have information to distinguish occurrences introduced via Internal Merge and those which have entered the structure via an application

[1] The Markovian property had been already proposed to characterize other operations, as when Chomsky (2000) concludes that '*both label determination and operations are "first-order Markovian," requiring no information about earlier stages of derivation*' (Chomsky 2000: 135). It may be noted that labels that are mentioned here are crucially not the labels of the Labeling Algorithm of Chomsky (2013b, 2015), but rather heads. The Labeling Algorithm as currently conceived requires access to the information about which occurrences of valued and unvalued features have been linked by Agree for the option of labeling *via* shared prominent features, see Epstein, Obata, and Seely (2017: 500).

of External Merge. Chomsky (2021b) proposes that an operation Form Copy, operating at the level of a phase, assigns the relation 'copy' to nondistinct occurrences of syntactic objects which stand in an Internal Merge configuration, subject to further interpretation in the external components. Thus, in (2-c) Form Copy would form a pair consisting of both occurrences of Z in the object {Z, {X, {W, Z}}}, assigning to them the status of copies.

Whereas the operation Form Copy operates so as to assign expected relationships between occurrences actually related by Internal Merge and ensures that they receive appropriate interpretation (as e.g. in the case of raising of the external argument from its θ-position to an EPP position in a finite clause), it operates freely, subject only to the requirement of nondistinctness, the appropriate structural relationship and accessibility of syntactic objects (the search procedure should stop at the boundary set by the Phase Impenetrability Condition), so that it can link occurrences actually unrelated by Internal Merge – so-called Markovian gaps, M-gaps. In particular, it is possible for the operation Form Copy to link an occurrence of X in an argumental θ-position and a lower occurrence of X in a derived subject position of an embedded clause, which is the relationship analyzed on most standard accounts as the relationship of control between a controller and a PRO.

The present discussion takes as a test case the phenomenon of control in infinitival clauses in Latin, investigating empirical adequacy and theoretical consequences of the hypothesis that it is reducible to the M-gap phenomenon, by way of comparing an M-gap account of Latin control with its alternatives, viz. the classical PRO-based theory of control and the movement theory of control. If feasible, an explanation of control in terms of properties and operations otherwise required on the current minimalist approach would make a reduction of this phenomenon to more basic mechanisms possible, providing a case of a genuine explanation in the sense of Chomsky (2021a) and related work.

The paper is structured as follows: section 2 presents basic classes of infinitival structures in Latin, the class of so-called prolative infinitives in particular, and their syntactic properties. Section 3 compares three accounts of Latin control phenomena. Section 3.1 discusses the derivation within the classical PRO-based account; section 3.2 puts forward a general proposal about the place of case and ϕ-related properties in the architecture of grammar and analyzes morphological properties of control structures within the

PRO-based theory. Section 3.3 presents the major alternative to PRO-based analyses, the movement theory of control as it applies to the derivation of Latin control structures and their morphological properties. Section 3.4 develops an account of Latin control within the framework of Markovian derivations of Chomsky (2021b). Section 4 offers concluding remarks.

2. Latin control: basic properties

Latin is notorious for its richness of nonfinite structures, infinitival clauses appearing in argumental positions and as adjuncts. The most widely known class comprises infinitival clauses with a specified subject, the accusative and infinitive structures, as in (3)–(4):

(3) Cogitatio igitur diuturnal [**nihil** **esse**
reflection.NOM.SG PRT long.NOM.SG nothing.ACC.SG be.INF.PRS

in re mali] dolori medetur.
LOC thing.ABL.SG evil.GEN.SG pain.DAT.SG heal.IND.PRS.PASS.3.SG

'Continued reflection therefore **that there is no evil in the circumstances** has a healing effect upon pain.' (Cic. Tusc. 3.74)[2]

[2] The following editions are used as sources of translations: Cicero. Tusculan Disputations. Translated by J. E. King. Cambridge, MA: Harvard University Press, 1927; Cicero. Pro Quinctio. Pro Roscio Amerino. Pro Roscio Comoedo. On the Agrarian Law. Translated by J. H. Freese. Cambridge, MA: Harvard University Press, 1930; Seneca. Moral Essays, Volume II: De Consolatione ad Marciam. De Vita Beata. De Otio. De Tranquillitate Animi. De Brevitate Vitae. De Consolatione ad Polybium. De Consolatione ad Helviam. Translated by John W. Basore. Cambridge, MA: Harvard University Press, 1932; Cicero. On the Orator: Books 1–2. Translated by E. W. Sutton, H. Rackham. Cambridge, MA: Harvard University Press, 1942; Cicero. In Catilinam 1–4. Pro Murena. Pro Sulla. Pro Flacco. Translated by C. Macdonald. Cambridge, MA: Harvard University Press, 1976; Cicero. Letters to Atticus, Volume I. Edited and translated by D. R. Shackleton Bailey. Cambridge, MA: Harvard University Press, 1999.

(4) Non patiar **[istam manere**
not.NEG allow.IND.FUT.PASS.1.SG this.ACC.SG remain.INF.PRS.ACT

suspicionem] **[nos** **[rem** **iudicari]**
suspicion.ACC.SG we.ACC thing.ACC.SG judge.INF.PRS.PASS

nolle].
not.want.INF.PRS

'I will not allow **the suspicion to continue, that we do not want the matter to be decided**.' (Cic. Quinct.34)[3]

In (3), there is an accusative and infinitive structure *nihil esse in re mali* dependent upon a deverbal noun *cogitatio*; in (4) there are three such structures, the accusative and infinitive *istam suspicionem manere* dependent upon the matrix verb *patiar*, the structure *nos nolle* dependent upon the deverbal noun *suspicionem*, and finally the accusative and infinitive with a passive infinitive *rem iudicari* dependent upon the verb *nolle*. Such structures have overt nominal subjects (which can be elided under appropriate conditions) which get the accusative case. Given that nouns are unable to assign accusative in Latin, it stands to reason that subjects of such structures have their case assigned without entering into dependency with a matrix element, i.e. in a manner assumed for the English-type ECM structures (most recently analyzed as raising to the matrix clause in a manner reviving the raising to object analysis), but get their case otherwise, possibly internally to the infinitival structure (as argued already in Pillinger (1980); see further Jøhndal (2012), Danckaert (2016), Lasnik (2019); other hypotheses included case assignment by a null complementizer, as in Cecchetto and Oniga (2002), or by a null preposition, as in Melazzo (2005)). Accusative and infinitive structures admit different kinds of infinitives (i.e. so-called present, past and future ones) so as to convey distinct kinds of temporal relations with the time of the eventuality of the matrix clause (i.e. simultaneity, anteriority or posteriority).

[3] The verb *patiar* in (4) is a case of a deponent verb, i.e. one which appears on the surface with a passive morphology, yet has an active meaning, whence the translation as `I will (not) allow'.

The structures get a propositional interpretation in the interpretive component, which is consistent with the hypothesis that they have a full clausal structure and with the labeling of the structure at the TP level *via* the shared prominent feature option of the Labeling Algorithm as ⟨ϕ, ϕ⟩ under the hypothesis that it is this kind of labeling that is mapped in the interpretive component to a propositional interpretation (Cecchetto and Donati 2022). Given that the verbal form obligatorily appears without the Person feature, the set of ϕ-features present on the C^0 head, with which the overt subject NP undergoes Agree and which are inherited by T^0, should plausibly be taken to be defective (which does not entail that CPs of this kind are weak phases: as Richards (2012) argues, the mere presence of unvalued ϕ-features is constitutive of the phasehood, whether their set is full or defective). If the structure is embedded under a verb which appears in the passive voice, raising to matrix subject position with subsequent ϕ-feature agreement with the matrix verb becomes possible (for detailed descriptions of the accusative and infinitive structure, see further Pinkster (2021: 157–204, 448–449, 463–464), Kühner and Stegmann (1955: 687–721), Ernout and Thomas (1964: 320–331), Hofmann and Szantyr (1972: 353–363), Menge (2012: 674–704)).

A distinct major class of infinitival structures comprises so-called prolative infinitives, as exemplified in (5)–(8):

(5) Hoc quoque quaerentibus
this.ACC.SG also.ADV inquire.PTCP.PRS.ACT.DAT.PL

remittamus, quis Romanis primus
grant.SBJ.PRS.ACT.1.PL who.NOM.SG Roman.DAT.PL first.NOM.SG

persuaserit [navem **conscendere**].
induce.SBJ.PERF.ACT.3.SG ship.ACC.SG embark.INF.PRS

‘We may excuse also those who inquire into this – who first induced the Romans **to go on board ship**.’ (Sen. Dial. 10.13.4)

(6) Me (…) et hunc Sulpicium impedit
I.ACC and.CONJ this.ACC.SG Sulpicius.ACC hinder.IND.PRS.ACT.3.SG

pudor [ab homine omnium
modesty.NOM.SG from.PREP man.ABL.SG all.GEN.PL

gravissimo (…) haec (…) **exquirere**].
most.eminent.ABL.SG this.ACC.PL ask.INF.PRS.ACT

'Modesty hinders myself and Sulpicius here **from asking the most eminent of men (. . .) about things** (. . .).' (Cic. de Orat. 1.164)

(7) [Haec enim **scire**] desidero.
this.ACC.PL PRT know.INF.PRS.ACT want.IND.PRS.ACT.1.SG

'For these are **the things** which I want **to know**.' (Cic. N.D. 1.65)

(8) Pompeius quoque (…) suorum omnium hortatu
Pompey.NOM.SG PRT his.GEN.PL all.GEN.PL urging.ABL.SG

statuerat [proelio **decertare**].
decide.IND.PLQPERF.ACT.3.SG battle.ABL.SG fight.INF.PRS.ACT

'Pompey, too, (…) had decided **to settle matters with a battle**, on the urging of everyone on his side.' (Caes. Civ. 3.86.1)

Prolative infinitives appear with a plethora of verbs – expressing commanding, requesting, persuading, permitting, forcing, hindering, wishing, striving, deciding – with varying frequency across the whole history of the Latin language.[4] They differ from the class of the accusative and infinitive struc-

[4] We deliberately put aside modal verbs like *possum* 'to be able to' or *debeo* 'to be obliged to' and phasal verbs like *incipio* 'to begin'. Their status differs from typical lexical verbs exemplified above and thus they may be argued to constitute a separate class

tures on most counts. They do not admit overt subjects: although the agent of the eventuality conveyed by the infinitival structure is obligatorily coreferent with an argument of the matrix verb in (5)–(8) (the objects *Romanis* in (5) and *me et hunc Sulpicium* in (6), the subjects implicit first person pronoun in (7) and *Pompeius* in (8)), no overt NP is allowed as the subject of the infinitival structure. Obligatory nonovertness of the subject of the infinitival structure together with coreference with a matrix argument are hallmarks of control structures as posited by the generative grammar.

Infinitives in structures exemplified in (5)–(8) do not allow variation observed for the accusative and infinitive structures: in the latter case, the infinitive conveys a temporal relationship (simultaneity, anteriority, posteriority) with regard to the matrix eventuality and appears in an appropriate morphological shape; it is almost exclusively present infinitives that are allowed in the prolative infinitive case.[5] Together with the lack of overt subjects, this restriction on the infinitival forms may suggest that the featural content of the latter is even more defective than in the case of infinitives in the accusative and infinitive structure. The prolative infinitive, in contrast to the accusative and infinitive, does not receive a propositional interpretation in the conceptual-interpretive component of the faculty of language, being instead rather interpreted as a property of an individual (with the reference of the latter determined by the coreferent argument of the matrix clause), which most plausibly reflects also a difference in labeling (on the hypothesis of Cecchetto and Donati (2022), this would mean that prolative infinitive structures are not labeled $\langle\phi, \phi\rangle$).

Finally, concomitantly with the lack of overt subjects, predicative nominal and adjectival phrases in the infinitival structure follow in their morphological case the case of the controlling matrix argument:

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of auxiliary verbs (see Pinkster (2015: 210–251)) and to be analyzed as raising verbs, see Danckaert (2017: 156–162), as argued for root modal verbs already in Wurmbrand (1999).

[5] In rare cases, perfect infinitives do appear, but even then they do not express anteriority, as in the accusative and infinitive structures, see Danckaert (2017: 148–151) and the descriptive details in Kühner and Stegmann (1955: 133–135), Ernout and Thomas (1964: 259–260), Hofmann and Szantyr (1972: 351–353), Pinkster (2015: 538–541).

(9) Nonne te (…) Q. illa Claudia
PRT you.ACC Quinta.NOM that.NOM.SG Claudia.NOM.SG

[**aemulam** domesticae laudis in gloria
rival.ACC.SG domestic.GEN.SG glory.GEN.SG LOC glory.ABL.SG

muliebri **esse**] admonebat?
womanly.ABL.SG be.INF.PRS admonish.IND.IMPERF.ACT.3.SG

'Did not even the famous Quinta Claudia (…) rouse **thee to show thyself a rival** of those virtuous women who have brought glory upon our house?' (Cic. Cael. 34)

The matrix object of the verb *admonebat*, viz. *te*, receives the accusative case and controls the case of the predicative *aemulam* in the infinitival clause, which also appears in the accusative. This contrasts with cases in which the controlling argument is the subject of a finite clause and appears in the nominative:

(10) **Ille** autem non simulat, sed
that.NOM.SG PRT not.NEG pretend.IND.PRS.ACT.3.SG but.CONJ

plane [**tribunus** plebis **fieri**]
really.ADV tribune.NOM.SG plebs.GEN.SG become.INF.PRS

cupit.
desire.IND.PRS.ACT.3.SG

'As for Clodius, he is not pretending; **he** is really set upon **becoming Tribune**.' (Cic. Att. 2.1.5)

The controller in (10) is the subject of the matrix clause *ille*, agreeing with the verb *cupit* in ϕ-features and bearing the nominative case. The predicative NP in the infinitival clause *tribunus* similarly appears in the nominative case, agreeing with its controller. This behaviour of prolative infinitives with re-

gard to case, wherein the case of the controller is transmitted to the predicative NP or AP in the infinitival clause, is the predominant pattern in Latin.

The case transmission pattern found in (9)–(10) is also found with verbs which mark their object with the dative case, as in (11):

(11) Liceat **eis** qui haec salva
let.SBJ.PRS.ACT.3.SG this.DAT.PL REL this.ACC.PL.N safe.ACC.PL.N

esse voluerunt [**ipsis** esse
be.INF.PRS want.IND.PERF.ACT.3.PL oneself.DAT.PL be.INF.PRS

salvis].
safe.DAT.PL

'Let **those** who wished Rome to be safe be **safe themselves**.' (Cic. Flac. 104)

The verb *licet* requires that its object be in the dative case (*eis*), which appears as a consequence on *ipsis* and *salvis* in the embedded infinitival clause. The case transmission pattern is not the only one which is attested with the verb *licet* and some similar verbs. Consider (12):

(12) Cur **his** per te (…) [esse **liberos**]
why.PRT this.DAT.PL through.PREP you.ACC.SG be.INF.PRS free.ACC.PL

non licet?
not.NEG let.IND.PRS.ACT.3.SG

'Why do you not allow **them to be free** at all?' (Cic. Flac. 71)

Despite the dative case marking of the matrix clause controller *his*, the predicative adjective *liberos* in the embedded infinitival appears with accusative case marking. Both patterns, case transmission and case independence with regard to the controlling matrix clause argument, are crosslinguistically attested in the realm of control structures (see Landau (2008), Landau (2013: 106–108); on the behaviour of *licet* and cognate expression see Ernout and Thomas

(1964: 132–133), Kühner and Stegmann (1955: 679–680), Hofmann and Szantyr (1972: 349–350), Menge (2012: 695–696), Pinkster (2015: 94, 1270–1271)).

The class of prolative infinitives in Latin exhibits the hallmarks of control structures as they are postulated in the generative framework: the obligatory nonovertness of the subject of the infinitival clause, otherwise required for θ-theoretic reasons; the interpretive dependence of the subject of the infinitival on a matrix argument, whether subject, as in (7)–(8) (the subject control case), or object, as in (5)–(6) (the object control case); the transmission of ϕ-features of the controlling argument to the subject of the infinitival, with which predicative NPs or APs agree, as in (9)–(12); the transmission of case of the controlling argument, as in (9)–(11), or independence of case of the embedded subject, as in (12). They have indeed been analyzed as such, see Cecchetto and Oniga (2002, 2004), Oniga (2014: 296–298) (standard reference grammars of Latin, written within different theoretical frameworks, predictably do not analyze such structures in this way; for detailed descriptions of relevant structures, see Ernout and Thomas (1964: 321–331), Kühner and Stegmann (1955: 664–721), Hofmann and Szantyr (1972: 341–365), Menge (2012: 663–708), Pinkster (1990: 126–130), Pinkster (2021: 204–220)).

3. Deriving Latin control

3.1. The PRO-theory

The major current minimalist approaches to the phenomenon of control fall into two main classes, adopting either a designated lexical item as the subject of control infinitivals or taking the subject position to be occupied by a copy of the controller left under Internal Merge. The former strand continues the classical Government and Binding approach to the control, postulating the presence of an obligatorily nonovert lexical item PRO as the subject of the infinitival clause, subject to requirements that it enter into relationships with matrix controlling arguments so as to be appropriately licensed and ensure a nondeviant interpretation in the external components. The classical analysis has undergone various modifications in the minimalist framework with regard to the position of the subject PRO, its featural content and details of syntactic operations which establish its relationship with its controller. Consider how a simplified version of (8) given in (13) could be derived on the classical approach

appropriated to the MERGE-based framework of derivation by phases (analogous derivations would be assumed for the object control case, except that the position of the controller differs).[6]

(13) Pompeius statuerat [decertare].
Pompey.NOM.SG decide.IND.PLQPERF.ACT.3.SG fight.INF.PRS.ACT

'**Pompey** had decided **to settle matters with a battle**.'

Drawing freely from the lexicon, the derivational process proceeds so as to reach the stage in (14) (for simplicity, we omit the explicit reference to stages of the derivation which introduce new lexical items into the workspace):

(14) WS_i = {{PRO, {v, decertare}}}

Irrespectively of internal complexity of the verbal phrase in various cases, PRO remains at the edge of the vP phase and is accessible to all syntactic operations at later stages of the derivation. PRO as a lexical item has been given widely differing characterizations, depending upon details of a specific analysis of the phenomenon of control, in particular in terms of Case properties or ϕ-feature specification. The common core of all proposals is to make PRO a defective lexical item: incapable of appearing overtly and bound to enter into an interpretive dependency with a controller for the structure to receive a coherent interpretation in the interpretive component. For the sake of the current discussion let it be proposed that PRO be understood as a maximally underspecified nominal phrase, bearing merely the categorial feature [+N] (thus, deprived of ϕ-features which seem required in the interpretive component to get a referential interpretation). Proceeding further, the derivation reaches the stage in (15):

(15) WS_{i+1} = {{INFL, {PRO, {v, decertare}}}}

[6] We assume that a clausal structure consists of two phases: a vP phase {EA, {v, VP}} and a CP phase which, following Chomsky (2021b), we take to include an INFL head, the locus of agreement features, and a C head: {C{INFL, vP}}.

An application of Internal Merge, free to occur and voiding the labeling conflict at the level of the vP phase, takes place next, deriving (16):

(16) WS_{i+2} = {{PRO, {INFL, {PRO, {v, decertare}}}}}

Once WS_{i+2} has been derived, the derivation is free to proceed to merge a phasal head of the clausal level, i.e. a C^0 head. Given properties of control infinitivals, it stands to reason that C^0 heads have in such environments a featural specification even more defective than in the case of the other major class of nonfinite structures, i.e. the accusative and infinitive ones. While it seems plausible to assume for the latter a defective ϕ-feature specification (i.e. without the Person feature), which leads ultimately to the $\langle\phi, \phi\rangle$ labeling, the class of control infinitivals crucially does not receive a propositional interpretation, which would be consistent with a $\langle\phi, \phi\rangle$ label, as argued in Cecchetto and Donati (2022). Suppose that the C^0 head in control infinitivals is endowed merely with an unvalued occurrence of the categorial feature [N], which with Atlamaz (2019: 53) we take to be the most underspecified ϕ-feature (with such featural specification of C^0 restricted to contexts with nonfinite verbal forms which are highly defective in terms of tense–aspect specification, possibly for reasons of morphological well-formedness which in Latin requires that for forms bearing the tense-aspect specification, INFL become a bound morpheme with a ϕ-feature specification).

When the C^0 has been introduced, it initiates the cascade of phase-level operations as in the framework of Chomsky (2013b, 2015): Agree between C and PRO in (17-b), establishing a feature valuation relationship, followed by Feature Inheritance together with phasehood inheritance to INFL in (17-c), and an application of the Labeling Algorithm in (17-d):

(17) a. WS_{i+3} = {{C,{PRO, {INFL, {PRO, {v, decertare}}}}}}
b. {**C**,{**PRO**, {INFL, {PRO, {v, decertare}}}}}
c. {**C**,{PRO, {**INFL**, {PRO, {v, decertare}}}}}
d. {C,{$_{\langle[+N],[N]\rangle}$ PRO, {INFL, {PRO, {v, decertare}}}}}

While a $\langle\phi, \phi\rangle$ label is mapped to a propositional interpretation in the interpretive component, so a ⟨[+N], [N]⟩ label is mapped to a property-like interpretation, with PRO serving at this structural level mainly as a device to

induce appropriate labeling and coming close to being a property-creating abstractor.[7]

Subsequent stages of the derivation of (13) are unexceptional in drawing lexical items from the lexicon and performing applications of MERGE, until the matrix C-phase is built:

(18) WS_{i+j} = { {C, {Pompeius, {INFL, {Pompeius, {v, {statuerat, {C,{PRO, {INFL, {PRO, {v, decertare}}}}}}}}}}}}

While the canonical account would invoke a dedicated rule to ensure co-construal of the controller subject *Pompeius* and the controlled PRO, the minimalist strand attempts to reduce the peculiarity of the control phenomenon by invoking otherwise attested mechanisms to obtain empirically adequate results – in the case at hand, employing the operation Agree, which is independently part of the minimalist toolkit (see Landau (2004, 2006, 2008, 2015, 2021), Ussery (2008), Gallego (2011), a.o.).

Following broadly the proposal in Gallego (2011) consider the relationships which enters the head C^0 at the top of the structure in (18). The head itself arguably enters the derivation with a full set of unvalued ϕ-features, and once the phase level has been reached, the sequence of phase-level operations begins. The phasal head, bearing the set of unvalued ϕ-features, initiates the procedure of minimal search for the purpose of Agree, setting as the search target valued ϕ-features (the most underspecified ϕ-feature, i.e. the categorial [+N] feature, included; see Atlamaz and Baker (2018: 210–211), Atlamaz (2019: 53)). The search procedure finds its search goals in the search domain defined as the c-command domain of the C^0-head:

(18) **C**, {**Pompeius**, {INFL, {Pompeius, {v, {statuerat, {C,{**PRO**, {INFL, {PRO, {v, decertare}}}}}}}}}}

[7] In the system of Landau (2015, 2021), there are two kinds of control clauses, one interpreted as a property, the other one as a proposition. Latin obligatory control exemplified in the discussion above falls into the former class, which on Landau's implementation involves movement of the PRO subject from the canonical subject position to the Spec-FinP of the extended left periphery.

The search procedure finds its targets simultaneously under Multiple Agree (Hiraiwa 2001, 2005): the higher occurrence of *Pompeius*, bearing both ϕ-features and the categorial feature [+N] (the lower one being protected by minimal search) and the higher occurrence of PRO, bearing merely the [+N] feature (the lower occurrence again being protected by minimal search). Despite there being a phase boundary separating C^0 from the occurrence of PRO (viz. the matrix vP), the latter is accessible to minimal search for Agree under the understanding of the Phase Impenetrability Condition put forward in Chomsky, Ott, and Gallego (2019: 241) which allows the search procedure across phase boundaries provided that the domain of the phase head does not undergo changes as a consequence of the syntactic operation that minimal search is performed for. This proviso is met in cases in which the search procedure within the phase domain finds valued occurrences of features which enter into syntactic relations: the operation Agree does not affect valued occurrences of features in a way which would change their specification after the phase has been closed upon merging the phase head. This is the case in (19), where the categorial [+N] feature of the higher occurrence of PRO does not undergo any change despite being a target of minimal search. Subsequent Feature Inheritance lowers ϕ-features of the C^0 head to the matrix INFL, allowing labeling of the structure as $\langle\phi, \phi\rangle$, in accordance with the interpretive properties of the entire structure.

3.2. Syntax meets morphology

The account above does not postulate a process of ϕ-feature transmission as a part of syntactic derivation: the PRO subject does not bear any features beside the [+N] feature, nor does it seem to require ϕ-features for interpretation in the external components. The relationship established by Agree suffices for the semantic component to interpret the relationship as interpretive dependence of PRO on the matrix subject, and for the morphological one have a path to determine ϕ-feature specification in the infinitival clause, which happens in cases like (9) and (11)–(12), i.e. when there is a predicative AP or a predicative nominal which changes its morphological shape in accordance with ϕ-featural specification (otherwise a predicative NP bears whichever ϕ-features it has upon entering the derivation). The subject PRO most probably originates in such structures in a small clause with the predicative phrase

{PRO, AP/NP}, which establishes the predication link with PRO upon which the operation of morphological component is parasitic, satisfying morphological requirements of predicative phrases.

In contrast to recent minimalist approaches, the account above does not employ the abstract Case feature nor an operation of case assignment in the syntactic component. This move reflects the proposal of Chomsky (2021b: 23) to take case to belong to externalization and not to the syntax proper (a line of thinking going back to Marantz (1992) and much related work), thereby eliminating a purely syntax–internal unvalued formal feature from the set of features appearing on syntactic heads. A morphological operation of case assignment may be assumed to be parasitic on the relationship established by syntactic Agree with regard to so-called structural cases (nominative and accusative in Latin), which immediately accounts for the pattern found with 'case transmission' in (9)–(10). Following Marantz (1992), Bobaljik (2008) and much related work, the nominative case is assigned as the unmarked case in a finite CP domain. Consider the main skeleton of (10) in (20):

(20)	**Ille**	[PRO	**tribunus**	plebis	**fieri**]
	that.NOM.SG	PRO	tribune.NOM.SG	plebs.GEN.SG	become.INF.PRS

cupit.
desire.IND.PRS.ACT.3SG

'He is set upon becoming **Tribune**.'

The subject of the main clause is the controller of PRO and receives morphological case as the unmarked case in the domain of the finite clause, with a relationship in ϕ-features reflecting Agree between *ille* and INFL (ultimately realized on the verb *cupit*). When the morphological component gives to the predicative *tribunus* its morphological shape, it finds not only PRO in a small clause structure {PRO, tribunus}, but also the Agree-based network of dependencies between *ille*, the matrix INFL and the occurrence of PRO in the embedded clause subject position. By hypothesis, dependent and umarked cases of the case hierarchy of Marantz (1992) do not require a strictly local syntactic relationship with case assigners, hence the nominative case of *ille*

may determine the case marking of PRO and, as a consequence of morphological agreement, also of *tribunus*.

The pattern exhibited by the verb *licet* and its cognates is more convoluted. Recall that with such verbs, the controller bears the dative case and the case marking in the infinitival clause either exhibits case transmission or case independence:

(21)	Liceat	eis	[ipsis	esse	**salvis**].
	let.SBJ.PRS.ACT.3.SG	this.DAT.PL	oneself.DAT.PL	be.INF.PRS	safe.DAT.PL

'Let **those** be **safe themselves**.' (cp. (11))

(22)	Cur	his	[esse	liberos]	non	licet?
	why.PRT	this.DAT.PL	be.INF.PRS	free.ACC.PL	not.NEG	let.IND.PRS.ACT.3.SG

'Why are **they** not allowed **to be free**?' (cp. (12))

This duality of behaviour of the dative case is not typologically exceptional, as discussed in Anagnostopoulou and Sevdali (2015, 2020) with regard to Ancient Greek, who propose that it is indicative of a duality between a case as assigned by a null preposition and a dependent case as assigned purely in the morphological component. The hypothesis of case assignment by a null preposition has a long pedigree in generative analyses of case phenomena – already Emonds (1985) posited a null prepositional element in Latin datives – and was applied in different variants to various structures (see e.g. Kayne (1984), Pesetsky (1995), Dikken (1995), Baker (1997), Landau (2010)). Its possible drawback is positing a structural syntactic difference between different flavours of the dative case. Without deciding the issue, let it be tentatively supposed that we keep to the hypothesis that case assignment is determined entirely in the morphological component. The pattern in (21) suggests that the mechanism should be analogous to (20) and that therefore in structures exhibiting case transmission dative is assigned as a dependent case.

In Latin cases instantiating the pattern of case transmission we encounter therefore a dependent accusative (assigned in the presence of another c-commanding NP; see Baker (2015: 48–49) for a formulation of dependent case as-

signment rules) in the object control class of structures with most verbs, or a dependent dative with verbs belonging to the *licet* – class of verbs (the procedure might be implemented as including adding features [+lr], [+hr] corresponding to the presence of a lower or higher argument in the local domain; see Puškar and Müller (2018) for a syntactic version of this idea); and the nominative case marking as the unmarked case in the subject control class, unless the embedding clause is itself embedded in a manner affecting case assignment, i.e. unless it becomes an accusative and infinitive structure.

The pattern in (22), on the other hand, suggests that case is assigned exclusively in a local domain without possibility of its being shared with objects in other domains, a hallmark of the lexically governed case. According to the case realization hierarchy of Marantz (1992: 24), 'lexically governed case' takes precedence, if conditions on its assignment are met, with dependent case assignment being lower in the hierarchy, and unmarked case followed by default case being yet lower on the scale. Suppose then that in (22) the dative case is assigned as a lexical property of the verb *licet*, i.e. with the requirement that it be assigned in a strictly local domain. The effect of this behaviour of the case assignment procedure is that the controller-PRO chain as delivered by the syntactic component is effectively split into two for the purposes of case assignment. The occurrence of the PRO in the embedded subject position is however *not* a position to get the unmarked nominative case, which is in Latin (in a crosslinguistically familiar way) required to be a position in a local relationship with a fully specified set of ϕ-features, of which the INFL^0 head in this case has none. Nor is it a position to get case based on the relationships with objects in the higher clause, positions at the edge of a phase, even if only a weak one, being excluded from the set of positions to which case may be assigned 'from above' (in Latin at least).

This occurrence of PRO therefore may be supposed to obtain case in virtue of belonging to the unmarked class in the case hierarchy, but differing from the nominative with regard to the domain in which it is assigned – the nonfinite domain of the infinitival class, which is responsible for the accusative case marking. The predicative adjective *liberos* obtains accusative in virtue of the local predication relationship with PRO.

If the same unmarked case assignment mechanism is at work in accusative and infinitive structures, which is an open research question, but which

seems probable on the assumptions made in the present discussion,[8] there would be indeed a similarity between structures with a dative controller and no 'case transmission' on the one hand and accusative and infinitive structures on the other, although not a syntactic one, as suggested in Cecchetto and Oniga (2004: 144 n.2), since a comparable accusative and infinitive structure would have a silent *pro* and have different interpretive properties, but rather a shallow morphological one, concerning merely the mechanism of case assignment to the subject position and its value, i.e. accusative, which ultimately remains without an overt exponent due to its being PRO, not subject to overt externalization.

3.3. An alternative to PRO-based accounts: the movement theory of control

The analysis presented so far crucially employs a designated element of the lexicon, viz. PRO. The status of the latter has been controversial not only within the minimalist approach, but ever since the abandonment of the EQUI-deletion rule. On the one hand, dedicated rules of construal were devised to account for its distribution and properties (see Chomsky and Lasnik (1977), Chomsky (1980)); on the other hand, the PRO element was given a characterization in terms of a conflicting set of binding-theoretic properties as [+anaphoric, +pronominal]. All this led to a crystallization of a special module of grammar, viz. the control module, with PRO's appearance regulated by the PRO Theorem of Chomsky (1981) (requiring it to be ungoverned) and its Case-theoretic properties, and the interpretive side being taken care of by the rules of construal specifically handling control structures. When the binding-theoretic explanation of the distribution of PRO had been given up in Chomsky and Lasnik (1993), Case-theoretic properties begun to be considered responsible for the behaviour of this lexical item, distinguishing PRO from all lexical items otherwise belonging to the same grammatical category (be it

[8] Case properties of subjects of Latin accusative and infinitive structures remain debated without much consensus, the views diverging principally as to whether accusative is assigned by a local case assigner, be it a silent complementizer or the nonfinite INFL head—see Cecchetto and Oniga (2002), Melazzo (2005), Jøhndal (2012), Oniga (2014: 292)—or it is the unmarked case, misleadingly called 'default' in Calboli (1996), Calboli (2005). The accusative as the default case in Latin has been suggested e.g. in Smith (2011: 278), Cennamo (2009: 308–309).

under the guise of Null Case of Chomsky and Lasnik (1993: 560) and Martin (2001) or the lack of Case as in Bowers (2002: 207)). When Case-theoretic approaches had turned explanatorily unsatisfactory – partly for general conceptual reasons, the status of the Null Case being dubious and possibly merely restating the problem of PRO in more technical terms, partly for empirical reasons, PRO being apparently capable of bearing regular case in several languages – a characterization in terms of *φ*-featural specification entered the stage. PRO has been variously taken to be deprived of an inherent *φ*-featural specification (Bowers (2002: 207), giving a hybrid account of PRO which involves the lack of both Case and *φ*-features, an approach taken up in Reed (2014)). This *φ*-featural defectivity has been understood as possessing a minimal *φ*-feature specification (possibly merely underspecified [Person] feature as Gallego (2011: 333) proposes, building upon the ideas relating PRO and SE-type anaphors in Martin (1996)).

Even although several such approaches have it in common that they attempt to eliminate the rules of construal specific to the control module of grammar and replace them with independently needed mechanisms (as it is the case with Agree on the proposal of Gallego (2011)), they also retain the residue of the separate control mechanism in the form of a lexical item with a particular featural endowment. This line of approach thus only partly addresses issues central for 'genuine explanations' in the sense of Chomsky (2020, 2021a) in that PRO remains an irreducible lexical core of the whole account of control structures and their interpretive properties at both interfaces, which runs counter the desideratum to avoid construction-specific devices in order to address properly both the learnability and the evolvability considerations.

The major alternative to the standard theory of control in its various guises is the movement theory of control, initiated in Hornstein (1999) (see further Hornstein (2001), Boeckx, Hornstein, and Nunes (2010a), Hornstein and Polinsky (2010)). In an attempt to eliminate the module of control from grammar entirely, the movement theory of control proposes to remove both the special lexical item PRO and the need for special rules of construal, replacing the former with with the standard movement configuration and the latter with general interpretive principles governing the interpretation of structures derived in the syntax. Consider again a derivation of (13), repeated below as (23):

(23)	Pompeius	statuerat	[decertare].
	Pompey.NOM.SG	decide.IND.PLQPERF.ACT.3.SG	fight.INF.PRS.ACT

'**Pompey** had decided **to settle matters with a battle**.'

A derivation of such structures under the movement theory of control proceeds initially in a way analogous to the derivation under the PRO-based theory, except that the NP *Pompeius* is present already as the external argument of the verb *decertare*:

(24) a. WS_{i} = {{Pompeius, {v, decertare}}}
b. WS_{i+1} = {{INFL, {Pompeius, {v, decertare}}}}
c. WS_{i+2} = {{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}

When the C^0 head has been introduced, it similarly initiates the cascade of phase-level operations: Agree between C and *Pompeius* in (17-b), establishing a feature valuation relationship, followed by Feature Inheritance together with phasehood inheritance to INFL in (25-c), and an application of the Labeling Algorithm in (25-d):

(25) a. WS_{i+3} = {{C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}
b. {**C**,{**Pompeius**, {INFL, {Pompeius, {v, decertare}}}}}
c. {**C**,{Pompeius, {**INFL**, {Pompeius, {v, decertare}}}}}
d. {C,{$_{\langle [+N],[N] \rangle}$ Pompeius, {INFL, {Pompeius, {v, decertare}}}}}

Subsequent stages draw lexical items from the lexicon to arrive at the stage in (26-b):

(26) a. WS_{i+4} = {{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}}
b. WS_{i+5} = {{v,{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}}}

It is at this stage that the movement theory of control displays its peculiar properties: the next derivational step involves Internal Merge of the subject of the infinitival clause to the matrix external argument position:

(27) a. WS_{i+5} = {{v,{statuerat, {C,{Pompeius, {INFL, {Pompeius,{v, decertare}}}}}}}}
b. MERGE(Pompeius, {v,{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}})
c. WS_{i+6} = {{Pompeius, {v,{statuerat, {C,{Pompeius, {INFL,{Pompeius, {v, decertare}}}}}}}}}

Nothing in the pure mechanics of MERGE forbids the derivational step from (27) to (27-c): the object *Pompeius* is located at the edge of the embedded phase, therefore accessible for syntactic operations, MERGE included. Third factor conditions and the way in which MERGE combines syntactic objects thus do not prevent an application of MERGE to *Pompeius*, making it move into a θ-position in the matrix clause. What it does violate, however, is the principle of duality of semantics, a language specific condition which requires that External Merge be unequivocally associated with θ–roles and Internal Merge be associated with discourse related and scopal information (Chomsky 2021b: 18). This move is questionable within the whole framework of Chomsky (2021b) not because it abandons one of postulated principles, but because it postulates abandoning a principle otherwise shown to be correct only in order to account for control phenomena. Attributing to MERGE freedom from a constraint specific to the language faculty turns on the view of Chomsky (2021b) rather to be making an exception specifically tailored to make room for control phenomena. [9]Subsequent derivational steps are not subject to controversy: they introduce matrix INFL and C^0 head and raise *Pompeius* to the matrix subject position in (28-a)–(28-c), followed by the sequence of Agree between the C^0 head bearing a full set of ϕ-features and the subject NP in (28-d), Feature Inheritance in (28-e) and the labeling procedure of the whole structure in (28-f):

[9] The phenomenon of parasitic gaps might be argued to provide another case in which movement into a thematic position is required, thus constituting an argument for the viability of the movement theory of control (see Nunes (2001, 2004). An analysis of parasitic gaps as an instance of a Markovian gap seems however possible, see Chomsky (2021b: 35). Insofar as the latter line proves correct, the class of parasitic gaps does not provide an argument in favour of the movement theory of control. Obviously, the issue requires much more discussion, which lies beyond the scope of the present paper.

(28) a. WS_{i+7} = {{INFL, {Pompeius, {v,{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}}}}}
b. WS_{i+8} = {{Pompeius, {INFL, {Pompeius, {v,{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}}}}}}
c. WS_{i+9} = {{C, {Pompeius, {INFL, {Pompeius, {v,{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}}}}}}
d. WS_{i+9} = {{**C**, {**Pompeius**, {INFL, {Pompeius, {v,{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}}}}}}
e. WS_{i+9} = {{**C**, {Pompeius, {**INFL**, {Pompeius, {v,{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}}}}}}
f. WS_{i+9} = {{C, {$_{\langle\phi,\phi\rangle}$Pompeius, {INFL, {Pompeius, {v,{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}}}}}}

In the interpretive component the whole structure receives a propositional interpretation, in accordance with the label ⟨ϕ, ϕ⟩, whereas the embedded infinitival clause is interpreted in accordance with the label ⟨[+*N*], [*N*]⟩ as a property-denoting expression, much as it was the case under the PRO-based account and as it is empirically correct.

With regard to the relationship with the externalization component, the movement theory of control allows elimination of the mechanism of ϕ-transmission not only in syntax, but also in morphology – since the NP *Pompeius* is in the structure already at the initial stage of the derivation of the control infinitival, it may serve as the local source of ϕ-features for predicative phrases or secondary predicates if any are present in the structure. Similarly, transmission of morphological case in the pattern in (9)–(10) does not involve any special mechanism. Consider again (20), repeated as (29):

(29) **Ille** [PRO **tribunus** plebis **fieri**]
that.NOM.SG PRO tribune.NOM.SG plebs.GEN.SG become.INF.PRS

cupit.
desire.IND.PRS.ACT.3.SG

'He is set upon becoming **Tribune**.'

The occurrence of *ille* heading the whole movement chain gets unmarked case as occurring within a finite clause domain. It is the sole occurrence of *ille* that receives a case in the morphological component, copies being invisible for this purpose (as it used to be assumed in the minimalist framework under the assumption that there is an unvalued Case feature which undergoes valuation in the head position of an A-chain, making the nominal phrase inactive for A-related operations). When the predicative nominal phrase *tribunus* has its case established, the morphological component turns to its sister in a small clause structure, which turns to be a discontinuous syntactic object, a syntactic chain with a head bearing the nominative case, and assigns to the predicative nominal its case accordingly. A similar situation obtains for object control cases, be it with an accusative case controller or a dative case one, both marked with a dependent case along the lines of section 3.2.

The dative case, if assigned in the morphological component as a lexically governed case under the condition of a strictly local relationship with the case assigner, gives rise to a configuration in which the morphological component cannot 'transmit' the case assigned to the matrix argument position. Consider again (22), repeated as (30):

(30) Cur his [esse liberos] non
why.PRT this.DAT.PL be.INF.PRS free.ACC.PL not.NEG

licet?
let.IND.PRS.ACT.3.SG

'Why are **they** not allowed **to be free**?' (cp. (12))

The matrix occurrence of the demonstrative pronoun receives the dative case and surfaces as *his* as a matter of the lexical specification of *licet* (subject to variation), which can happen only in a strictly local relationship with the case assigning verb. The case of the predicative AP *liberos* cannot be therefore assigned due to its relationship with the chain headed by the matrix occurrence of *his*, the required locality not being satisfied; nor can the subject of the embedded infinitival be of any help, being a copy and thus remaining caseless. The predicative adjectival phrase thus receives the unmarked case of the non-

finite domain, i.e. the accusative case, by itself (similarly to Icelandic secondary predicates in cases discussed in Boeckx, Hornstein, and Nunes (2010b: 122), Boeckx, Hornstein, and Nunes (2010a: 163–164)).

Both theories of control posit structures which are very close. To take the case of subject control, instead of the structure in (31), as in the standard theory of control, the structure would be rather like (32) (with indices indicating movement relationships to improve legibility only):

(31) [**NP**$_i$ [INFL [NP$_i$ [v [V [C [**PRO**$_j$ [INFL . . . PRO$_j$. . .]]]]]]]]

(32) [**NP**$_i$ [INFL [NP$_i$ [v [V [C [NP$_i$ [INFL . . . NP$_i$. . .]]]]]]]]

Whereas in (31) there are two independent syntactic chains, each with the tail in a θ-position and the head in an A-position (Spec-INFLP), in (32) there is one A-chain only: the NP not only starts its movement in a θ-position in the embedded clause, but also goes through another θ-position on its way to the matrix Spec-INFLP.

The mechanism of raising underlying structures as posited in (32) fares well with respect to the cases of obligatory control in Latin and the distribution of case and ϕ-feature values, with ancillary assumptions which – like in the case of the PRO-based account – are independent of the mechanism of control as such and reflect the current stance on the syntax–morphology relationship in general, thus not being *ad hoc* solutions specifically devised to handle control phenomena. The class of control phenomena receives a unified account, covering both cases with the so-called case transmission and those which exhibit so-called case independence. It is in particular not sufficiently justified in the latter class of cases to posit a different derivational history, with the embedded infinitival clause understood as an accusative and infinitive structure with a silent pronominal *pro* as its subject, responsible for the behaviour of the embedded predicative elements with regard to case, as in Cecchetto and Oniga (2004: 144 n.2). This split – essentially, the split between obligatory control and nonobligatory control – would not be supported by interpretive properties of the structures in question, which do not display characteristics of nonobligato-

ry control in cases instantiating the schema of case independence (see Polinsky (2013: 593) for a summary of relevant differences).[10]

Despite its appealing properties, the movement theory of control allows the elimination of the proprietary module of control with its mechanisms (interpretive rules of construal) and the presence of PRO at a cost which casts a shadow on its theoretical virtues. As noted, it permits NPs to move through θ-positions – in current terms, it admits Internal Merge of an NP into a θ-position. Not only does it force abandonment of the θ-Criterion (see already Bošković (1994) for a proposal in this vein), but also requires a departure from an otherwise systematic correlation between External Merge of NPs and the argument structure on the one hand, and Internal Merge and other interpretive properties (discourse-related and/or scopal ones) on the other – the property of 'duality of semantics' (see Chomsky (2004: 165), Chomsky (2007: 10), Chomsky (2008: 140–141), Chomsky (2013a: 64), Chomsky (2019b: 43–44), Chomsky (2021c: 590), (Chomsky 2021b: 18)). The latter is considered a general property of language belonging to conditions imposed by language-external systems – the interpretive component in this case, set to observe one of possible options of treating copies (see Chomsky (2021b: 22 n. 32)). Its violation assumed by the movement theory of control may be argued to lead to a violation of conditions imposed by considerations of learnability and evolvability: seemingly lifting a constraint on the derivational process and making it thereby enjoy more freedom, it actually rather makes an exception to an otherwise robustly attested principle of the duality of semantics in order to account for the phenomenon of control.

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[10] It should be observed that the case independence pattern does not exhibit properties which would suggest that it is an instance of an ambiguous exhaustive/partial control structure, as argued for Russian, Icelandic and Portuguese in Sheehan (2018), who discusses analogous cases and proposes a division between a movement theoretical account of one class of structures and an Agree-based explanation of the other, justifying the difference not only with differences in case distribution, but also in the exhaustive vs. partial control effects, crucially absent in the Latin case. The behaviour of Latin structures thus suggests that the phenomenon of case transmission vs. case independence in control structures at least cannot be in all cases reduced to the difference underlying the distinction between the exhaustive and partial control. The analysis put forward in Sheehan (2018) is therefore a kind of a hybrid approach which does not seem desirable in the Latin case not only for general conceptual reasons, but also for empirical ones (see also Grano (2015), who also presents another variety of the hybrid approach to control, allowing exhaustive control to be derived with the movement theory of control and partial control with the PRO-based theory).

3.4. Markovian derivations and Form Copy

Beside violating the principle of the duality of semantics, the movement theory of control encounters another conceptual problem within the general framework of Chomsky (2021b). As discussed in section 1, the derivational process proceeding by stepwise applications of the operation MERGE exhibits a Markovian property of not having access to earlier stages of the derivation. Recall (1) and (2), repeated below for convenience:

(33) a. WS_i = {X, Y, Z}
b. MERGE(X, Y, {X, Y, Z})
c. WS_{i+1} = {{X, Y}, Z}

(34) a. WS_i = {{X, {W, Z}}, Y}
b. MERGE(Z, {X, {W, Z}}, {{X, {W, Z}}, Y})
c. WS_{i+1} = {{Z, {X, {W, Z}}}, Y}

Both External Merge option in (33) and Internal Merge in (34) are executed in a manner which obliterates the derivational memory of earlier steps: at a stage WS_{i+1} there is no information for the computational system as to how an object entered the structure under construction, whether by External Merge or by Internal Merge, because there is no longer access to the stage WS_i.

Consider in this light again (27), repeated as (35) below:

(35) a. WS_{i+5} = {{v,{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}}}
b. MERGE(Pompeius, {v,{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}})
c. WS_{i+6} = {{Pompeius, {v,{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}}}}

When the stage in (35-c) has been reached – which is the level of a vP phase of the matrix clause – the computational system does not have access to the information present in (35-a)–(35-b); in particular, the occurrence of *Pompeius* at the edge of the vP phase and the occurrence of *Pompeius* at the edge of the embedded INFL phase (after phasehood inheritance) are *not* connected by any dependency. The issue is general and is not restricted to purported cases

of movement into a θ-position. Thus, when the stage WS_{i+3} in (25), repeated as (36), is reached, the computational system similarly cannot so far determine whether both occurrences of *Pompeius* are related by MERGE or not – whether they are copies or repetitions:

(36) WS_{i+3} = {{C,{$Pompeius_1$, {INFL, {$Pompeius_2$, {v, decertare}}}}}}

A crucial point of the framework of Chomsky (2020, 2021a, b) therefore concerns the identification of copies and repetitions (occurrences of items introduced into the structure independently via External Merge). On earlier analyses, in structures with multiple occurrences of syntactic objects, the identification may proceed without obstacles. In particular, in control structures analyzed according to the PRO-based account, occurrences of PRO may be identified as constituting a chain separate from the chain headed by the NP in the Spec-INFL position, and on the movement theory of control, the NP-chain may be similarly identified as containing four occurrences of a single object solely on the basis of the variety of the operation Merge which introduced them into the complex syntactic object – Internal Merge or External Merge. The analyses of sections 3.1 and 3.3 implicitly rely on some mechanism which keeps track of how different occurrences of a syntactic object entered the structure, i.e. on some sort of phase-level memory as in Chomsky (2007, 2012), Chomsky, Ott, and Gallego (2019).

In a framework which relies on reducing the computational requirements of the derivational procedure in that the syntactic derivation proceeds in a Markovian fashion, without access to stages earlier or later than the current stage, an answer to the problem of identification of copies which arises as a general problem is to postulate a mechanism which is able to relate nondistinct occurrences of syntactic objects without referring to earlier stages of the computation. Chomsky (2020, 2021a, b) postulates therefore that at the phase level, an operation Form Copy searches the structure to identify objects ocurring in an Internal Merge configuration – nondistinct objects not separated by a phasal boundary induced by the Phase Impenetrability Condition – and identifies them as occurrences of a single syntactic object, i.e. as copies, provided that other principles, the duality of semantics principle in particular, do not forbid it; otherwise, such occurrences are taken to be repetitions (see also Kitahara (2021)). Applying at the phase level in (36), the operation Form Copy can iden-

tify both occurrences of *Pompeius* as nondistinct occurrences of an NP structure in an Internal Merge configuration (without referring to the stage at which Internal Merge actually occurred) and relate them as copies ⟨Pompeius$_1$, Pompeius$_2$⟩.

Consider again (13), repeated below as (37):

(37) Pompeius statuerat [decertare].
Pompey.NOM.SG decide.IND.PLQPERF.ACT.3.SG fight.INF.PRS.ACT

'**Pompey** had decided **to settle matters with a battle**.'

The initial stages of the derivation within a strictly Markovian framework of Chomsky (2021b) are counterparts of the derivation under the movement theory of control in that the NP *Pompeius* is present already as the external argument of the verb *decertare*:

(38) a. WS_i = {{Pompeius, {v, decertare}}}
b. WS_{i+1} = {{INFL, {Pompeius, {v, decertare}}}}
c. WS_{i+2} = {{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}

When the C^0 head enters the structure, it similarly initiates the cascade of phase-level operations: Agree between C and *Pompeius* in (39-c), establishing a feature valuation relationship, followed by Feature Inheritance together with phasehood inheritance to INFL in (39-d), and an application of the Labeling Algorithm in (39-e). It is also already at the level of this phase that the operation Form Copy applies, identifying both occurrences of *Pompeius* as copies for the purpose of the external components in (39-b):

(39) a. WS_{i+3} = {{C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}
b. {C,{**Pompeius**, {INFL, {**Pompeius**, {v, decertare}}}}}
c. {**C**,{**Pompeius**, {INFL, {Pompeius, {v, decertare}}}}}
d. {**C**,{Pompeius, {**INFL**, {Pompeius, {v, decertare}}}}}
e. {C,{$_{\langle [+N],[N] \rangle}$ Pompeius, {INFL, {Pompeius, {v, decertare}}}}}

Subsequent stages draw lexical items from the lexicon to arrive at the stage in (40-b):

(40) a. WS_{i+4} = {{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}}
b. WS_{i+5} = {{v,{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}}}

It is at this stage that there is a difference with the movement theory of control: instead of Internal Merge of the subject of the infinitival clause to the matrix external argument position there is External Merge of *Pompeius* built independently of the first one:

(41) a. WS_{i+5} = {{v,{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}}, Pompeius}
b. MERGE(Pompeius, {v,{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}})
c. WS_{i+6} = {{Pompeius, {v,{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}}}}

It is over the stage in WS_{i+6} that the operation Form Copy applies again, given that the next phase level is reached:

(42) WS_{i+6} = {{**Pompeius**, {v,{statuerat, {C,{**Pompeius**, {INFL, {Pompeius, {v, decertare}}}}}}}}}

Since the lower occurrence of *Pompeius* (in Spec-INFLP) is at the edge of its phase, phasehood having been inherited by INFL from C^0 at the earlier phase, it remains accessible for the Form Copy operation, and both occurrences are identified as being copies due to their nondistinctness and standing in an Internal Merge configuration, despite the fact that in the derivational procedure they were not related by Internal Merge – an instance of Markovian gaps, which arise in the framework of Chomsky (2021b) due to the lack of access to earlier stages of the derivation.[11] Despite being derivationally distinct, so that

[11] Saito (2022), who does not adopt the phasehood inheritance approach of Chomsky (2015), is forced to propose an alternative definition of the phase in order to ensure the accessibility of the subject occurrence in the Spec-INFLP at later phasal cycles; within an earlier minimalist setting, similar proposals to weaken the phasehood of the control CP, possibly by taking it to be rather a TP projection, have been proposed e.g. in Boeckx,

the derivation observes the External Merge – argument structure correlation, both occurrences of *Pompeius* end up as building a single chain. The effect of an application of Form Copy in (42) has its predecessors in operations joining or 'fusing' chains in earlier minimalist work: chains involving anaphoric SE-type pronouns and expletive argument chains were suggested to involve chain joining in Uriagereka (1997); and Martin and Uriagereka (2013), Martin and Uriagereka (2014: 178–182) come close to the current analysis of control structures in claiming that the interfaces are not able to distinguish occurrences of nondistinct NPs in configurations like (42).

Subsequent derivational steps are unexceptional: they introduce matrix INFL and C^0 heads and raise *Pompeius* to the matrix subject position in (43-a)–(43-c), followed by the sequence of Form Copy relating matrix occurrences of *Pompeius* in (43-d), Agree between the C^0 head bearing a full set of ϕ-features and the subject NP in (43-e), Feature Inheritance in (43-f) and the labeling procedure of the whole structure in (43-g):

(43) a. WS_{i+7} = {{INFL, {Pompeius, {v,{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}}}}}
b. WS_{i+8} = {{Pompeius, {INFL, {Pompeius, {v,{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}}}}}}
c. WS_{i+9} = {{C, {Pompeius, {INFL, {Pompeius, {v,{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}}}}}}
d. WS_{i+9} = {{C, {**Pompeius**, {INFL, {**Pompeius**, {v,{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}}}}}}
e. WS_{i+9} = {{**C**, {**Pompeius**, {INFL, {Pompeius, {v,{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}}}}}}
f. WS_{i+9} = {{**C**, {Pompeius, {**INFL**, {Pompeius, {v,{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}}}}}}
g. WS_{i+9} = {{C, {$_{\langle\phi,\phi\rangle}$Pompeius, {INFL, {Pompeius, {v,{statuerat, {C,{Pompeius, {INFL, {Pompeius, {v, decertare}}}}}}}}}}}

The whole structure is labeled $\langle\phi, \phi\rangle$ and receives a propositional interpretation, and the embedded infinitival receives a $\langle[+N], [N]\rangle$ label and is interpret-

Hornstein, and Nunes (2010b: 125 n.9), Martin and Uriagereka (2014: 178–182). No such devices are necessary if assumptions of Chomsky (2015) are adopted.

ed as property-denoting, in an empirically adequate way. The Form Copy-based theory of control makes the phenomenon but one aspect of the working of an operation which is quite general in nature, applying at the phase level, and thereby replaces construction-specific aspects of the theory of control with independently required mechanisms: applications of the operation MERGE in its internal and external varieties and Form Copy as an operation distinguishing copies from repetitions under the assumption that the derivation has a Markovian character. There is no need to invoke an exceptional lexical item, designed to serve as the subject of the infinitival structure, together with rules of construal specifically tailored to explain the phenomenon of control, as it is on the PRO-based account; nor is there any need to suspend a principle otherwise valid as a principle specific to the faculty of language, viz. the principle of the duality of semantics, as it is on the movement theory of control. The applications of MERGE proceed in an unexceptional way in the derivation of a control structure, much as phase-level operations do. The operation Form Copy itself, required generally to form dependencies among occurrences of syntactic objects accessible for interpretation in the external components, proceeds in an incremental way, in accordance with the phase-based nature of the derivational system, with the external components gradually receiving information relevant for the interpretation of the resulting chain of dependencies, in a way otherwise necessary in the realm of successive cyclic movement.

Since the operation Form Copy ultimately provides the externalization-related component with a relation equivalent to the movement-based chain obtained under the movement theory of control, the issues that the morphological side of the derivation faces and the solutions it comes to are on the Form Copy-based account the same as on the movement based theory. Both case assignment and agreement in predicative structures have been already severed from the syntactic component in section 3.3, hence no issues peculiar to the theory with Form Copy are expected to arise. Consider again the structures of (9)–(11), in a simplified form in (44)–(46) below:

(44)	Nonne	**te** (…) Q.	illa	Claudia	<te>
	PRT	you.ACC Quinta.NOM	that.NOM.SG	Claudia.NOM.SG	<TE>

[**aemulam**	**esse**]	admonebat?
rival.ACC.SG	be.INF.PRS	admonish.IND.IMPERF.ACT.3 SG

'Did not even the famous Quinta Claudia rouse **thee to show thyself a rival**?'

(45)

Ille	[<ille> **tribunus**	plebis	**fieri**]
that.NOM.SG THAT	tribune.NOM.SG	plebs.GEN.SG	become.INF.PRS

cupit.
desire.IND.PRS.ACT.3 SG

'He is set upon becoming **Tribune**.'

(46)

Liceat	**eis**	[<eis> **ipsis**	esse
let.SBJ.PRS.ACT.3.SG	this.DAT.PL	these oneself.DAT.PL	be.INF.PRS

salvis].
safe.DAT.PL

'Let **those** be **safe themselves**.'

The behaviour of predicative nominal phrases and adjectives follows if we maintain the assumption that they originate with their subjects (controlled elements) in a small clause configuration and they obtain their case and ϕ-specification as a matter of their purely morphological requirement via copying of the case and ϕ-features complex from the closest occurrence of the subject of their small clause which is fully specified with regard to these properties. The copying operation in question is needed to account for the behaviour of Latin adjectives anyway, since they follow their subjects in case and ϕ-features in all kinds of structures in Latin (it may be implemented as adjoining to the a head of the adjectival phrase an AGR and a CASE node, fusing them and copying the content of a fused AGR+CASE node from the closest occurrence of the subject NP which has one, see Kramer (2010: 229–230), Norris

(2014: 151), Harizanov (2018: 295–296), Hanink (2021: 546) for detailed discussions of this operation in the Distributed Morphology framework).

With regard to ϕ-features, there is no operation of feature transmission: just as there is no need to invoke Multiple Agree between the controller, the head in the matrix clause, and the controlled argument in the embedded infinitival, so there is no need on the Form Copy-based analysis to invoke any operation of transmission of features from the controller to the controlled element. Both share the same set of inherently specified ϕ-features as a matter of their being nondistinct, although constructed separately – a prerequisite for being subject to a successful identification by the Form Copy mechanism.

When the starting point is a structure with a nominative controller (with the unmarked case of the finite domain, as in (29)), an object accusative controller (with the dependent case, as in (44)) or with a dative object controller with the dependent case (as in (46)), further proceeding of the case assignment procedure will accept the relation determined by Form Copy as a proper chain of occurrences, capable of being headed by a unique case-marked head. In cases with 'case transmission' as in (44)–(46) it will be actually always the head of the entire 'composite' chain – more officially, of the chain of occurrences related by the operation Form Copy as being copies – which acts as the source of the case for a predicative phrase in the control clause.

The patterns allowed by the verb *licet* and its cognates include also cases in which the controller bears the dative case and the case marking in the infinitival clause exhibits case independence, as in (22), repeated as (47):

(47)	Cur	**his**	[<hi>	esse	**iberos**]	non
	why.PRT	this.DAT.PL	these	be.INF.PRS	free.ACC.PL	not.NEG

licet?
let.IND.PRS.ACT.3.SG

'Why are **they** not allowed **to be free**?' (cp. (12))

Explanation of this pattern within the Form Copy-based approach does not differ from the account under the movement theory of control in section 3.3: the dative case is assigned to the matrix occurrence of the demonstrative pronoun as a lexically governed case, subject to strict locality restrictions on its

realization, hence incapable of being assigned to the predicative phrase in the control clause. In this case, the morphological component assigns to the predicative adjective the unmarked case of the nonfinite domain, i.e. the accusative case, directly.

It is a common property of all accounts considered above – reconstructed within the framework of MERGE – that they propose as an ancillary assumption, following the line of Chomsky (2021b), to remove both case marking and feature-copying operations from the purview of syntactic operations, striving to reduce the complexity of syntactic operations and to eliminate language-specific properties from the syntactic component in an attempt to provide a unified analysis of all types of Latin control structures. The differences are therefore mainly to be found in the part of the analysis that is concerned with the syntactic derivation of control structures. The analysis relying on the Markovian derivation and the Form Copy operation eradicates all remains of the control module, simplifying the syntactic part of the derivation and reducing it to otherwise necessary operations – MERGE in its external and internal varieties, Agree and Form Copy.[12] Insofar as the latter analysis succeeds in providing an empirically adequate explanation of the properties of Latin control structures, it seems superior to the PRO-based analysis on general conceptual grounds, being more in line with current understanding of the role and nature of the syntactic component and the place and sources of cross-linguistic variation.

4. Conclusion

We have analyzed above three minimalist accounts of the phenomenon of control, taking as a test case so-called Latin prolative infinitives, which are

[12] It might be objected that an analysis in terms of Markovian gaps, stripping away syntactic relations specifically responsible for the interpretive identity of the controller and the controllee, runs the risk of involving some sort of a derivational look-ahead or letting derivations variously come to a dead end. It has to be noted, though, that the aim is to characterize the system of linguistic knowledge at Marr's computational level and not to describe the actual production of syntactic structures. The system thus provides various derivational options, some of which turn deviant at the interfaces and turn variously usable or unusable in the components external to the syntax proper, whereas some constitute the class of control structures enabled by the existence of Markovian gaps.

most plausibly analyzed as instances of control within the generative framework. To make them more easily comparable, we have streamlined the classical PRO-based theory of control and the movement theory of control to fit into the MERGE-based framework of Chomsky (2019a, b, 2021a, b), separating case assignment and agreement properties exhibited by predicative NPs and APs from the syntactic derivation proper and attributing their effects to the externalization component. The PRO-based account relies on the presence of a dedicated lexical item PRO, together with rules specific to control structures for both external components – rules of construal in the interpretive component, rules of feature transmission in the externalization component – which ensure that syntactic chains of the controller and of PRO are properly connected. Not surprisingly, the presence of PRO forces the theory to retain most properties of the control module of the Government and Binding period, an unwanted result in view of learnability and evolvability considerations.

The movement-based theory of control dispenses with PRO and with rules specifically designed to handle control phenomena, overcoming learnability and evolvability problems in this respect. It does so at the cost of incurring a problem of postulating an exception from the principle of the duality of semantics specifically in order to account for control phenomena, which seems to lead to learnability and evolvability issues mirroring the problems encountered by the PRO-based account. Both the PRO-based account and the movement-based one crucially imply that at least phase-level memory of derivational steps is available, increasing computational requirements of the system.

Yet another way to approach the phenomenon of control and Latin control structures in particular explores further the possibilities to dispense with remnants of the control module of yore, employing the framework of Markovian derivations, proceeding without memory access to earlier stages of a derivation. On this analysis, control structures cease to constitute a separate class of its own: a syntactic operation Form Copy, independently needed to distinguish copies from repetitions at the phase level, is responsible for identifying occurrences of two derivationally distinct NPs as belonging to the same chain, i.e. as being copies. Together with interpretive properties following from structural positions of links of the chain, this identifica-

tion provides a universal account of control structures and their syntactic nature, eliminating not only sources of linguistic variation from the syntactic part of the derivation, but also residues of the theory of control in its earlier forms. The same analysis, keeping to the assumption that case assignment and ϕ-feature copying processes belong to the morphological component, is able to derive the variety of Latin control structures at lesser theoretical cost than the PRO-based variant. Given the empirical adequacy of the account and its theoretical advantages, it seems the preferable alternative, coming closer to the ideal of genuine linguistic explanation as envisaged in Chomsky (2021a, b) and related work, answering better the considerations of learnability and evolvability.

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Tworzenie kopii i luki markowskie w składni łacińskiej: przypadek kontroli

(s t r e s z c z e n i e)

Najnowsze propozycje teoretyczne w ramach minimalizmu redukują wymagania zasobów obliczeniowych w procesie derywacji przez postulowanie ich markowskiego charakteru. W wyniku takiego posunięcia otwierają się nowe możliwości analizy zjawiska kontroli w językach naturalnych. Na podstawie zjawiska kontroli w języku łacińskim jako materiale empirycznym artykuł porównuje trzy minimalistyczne analizy takich struktur w celu oceny ich adekwatności empirycznej i zobowiązań teoretycznych. Porównanie prowadzi do wniosku, że choć wszystkie rozwiązania wykazują ten sam poziom adekwatności empirycznej, hipoteza markowskiego charakteru derywacji jest z teoretycznego punktu widzenia najtrafniejsza.

S ł o w a k l u c z e: składnia minimalistyczna; składnia łacińska; tworzenie kopii; kontrola; luki markowskie