Top-down derivation as flexible syntax

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Neeleman and Weerman's theory of *Flexible Syntax* (Neeleman and Weerman 1999, hence NW) proposed a novel definition of the relation between grammatical functions and thematic roles. This proposal, while still nonstandard, has lost none of its relevance today. Deviating from traditional Government and Binding thinking, NW argue that subject and objects are 'base-generated' in their grammatical function positions ('case positions'). The association between grammatical functions and thematic roles is established in a postsyntactic component dealing with meaning (traditionally called 'LF'). This entails a more flexible syntax and essentially eliminates A-movement.

As NW note (1999:3), this flexible approach to syntax is quite compatible with the minimalist program (which replaced the Government and Binding theory from 1991 on). Yet the 'rigid' theory continues to inform mainstream thinking about syntax today. In fact, the idea that subjects and objects are generated in theta positions is crucial to the version of minimalist theory espoused in Chomsky et al. (2023), where theta positions are created by 'external merge' alone (Chomsky et al. 2023:33).

In this paper we side with NW on this topic, and show how the basic tenets of flexible syntax fall out from the top-down derivational system introduced in Zwart (2009), in particular in the implementation to Theta Theory of Talsma (2025).

1. The idea of theta positions

Speakers interpret noun phrases (more exactly, argument noun phrases) as performing a particular grammatical function (subject, object) and as carrying a particular thematic role (agent, theme, etc.).

Grammatical function is often marked on the noun phrase by case, though certainly not universally. More generally, it appears that grammatical functions are distinguished by relative syntactic position, with subjects c-commanding objects, and not the other way around. This can be simply derived from the order in which the noun phrases are merged: in a top-down derivational system, the first noun phrase merged will be interpreted as the subject, the second will be interpreted as hierarchically ordered with respect to the first. If Jakobson (1935) is right, this hierarchical order determines the distribution of cases: null case for the subject and accusative case for the object.

Thematic roles, on the other hand, are typically not marked on the argument noun phrases. There is no general morphological device like case that flags the particular thematic role associated with an argument. Nor is syntactic position a reliable indicator of thematic interpretation, as both subjects and objects can be interpreted as carrying a range of thematic roles. Moreover, the association of grammatical functions and thematic roles can be affected by syntactic operations such as passivization.

It is therefore not necessary to think of argument noun phrases as 'carrying' a theta role. It is unquestionably the case that argument noun phrases are interpreted as having a thematic role. But, as NW already argued, this interpretation may be thought of as being determined at LF.

A guiding idea of minimalist syntactic theory is that operations of Narrow Syntax take place for no other purpose than to yield structures that may be interpreted at the interface components dealing with sound and meaning (the 'Strong Minimalist Thesis').

This means that *something* has to happen in syntax that allows language users to interpret argument noun phrases as 'carrying' a particular theta role. The question is what that something is. This question is made more interesting, we contend, by the observation that argument noun phrases cannot be shown to actually 'carry' a theta role.

In both the traditional Government and Binding theory (Chomsky 1981) and the most recent version of minimalism (Chomsky et al. 2023), noun phrases come to be associated with thematic roles by being generated in particular positions inside the verb phrase (VP). These positions are defined as positions to which particular thematic roles are assigned. Though details may vary, the general idea is that the 'internal' thematic roles (typically patient, theme) are assigned to the position of sister of V, while the 'external' thematic role (typically agent) is assigned to the position of specifier of 'little v', the verbal head that characterizes transitive and unergative predicates.

In Chomsky et al. (2023), argument noun phrases *must* be generated ('externally merged') in these theta positions. Very commonly, however, that is not where these noun phrases appear. In particular, subjects appear in a VP-external position (typically identified as specifier of TP), as can be shown by their position to the left of other VP-external elements, such as adverbs and negation markers:

(1) **John** *probably* does *not* [$_{VP}$ love Mary]

In English, objects remain VP-internal, but in other languages, like Dutch, objects also appear to the left of other VP-external elements:

(2)	... dat	**Jan**	**Marie**	*waarschijnlijk*	*niet*	[$_{VP}$	gezien	heeft]	
	that	John	Mary	probably	not		seen	has	
	'... that John probably did not see Mary.'								(Dutch)

In this approach, then, the device linking argument positions to thematic roles is movement (or 'internal merge').

NW argue that subjects need not be generated VP-internally: they can be base-generated in their grammatical function position and assigned a thematic role there (by the VP predicate). This is also true of subjects in passive constructions, such as (3), but here, the subject is assigned a different thematic role (one that would normally be assigned to the internal argument/object).

(3) Mary was loved by John

The way this works, NW propose, is that a passive VP (not normally a theta role assigner) is turned into a theta role assigner by the movement of a VP-internal empty operator from the internal argument position to the specifier position of VP, as illustrated in (4)(cf. Neeleman and Weerman 1999:10).

(4) Mary [OP$_i$ was loved t$_i$ by John]

Here, too, movement is instrumental, except that the empty operator movement is taken to be a case of A'-movement.

In the system proposed by NW, case is the device linking grammatical functions and thematic roles, in the sense that thematic roles are LF-interpretations of case features (Neeleman and Weerman 1999:2). As a result, arguments don't 'carry' a theta role in the syntax, and traditional views on argument licensing in terms of a combination of theta roles and cases no longer hold. We support this approach, and hope to show to what

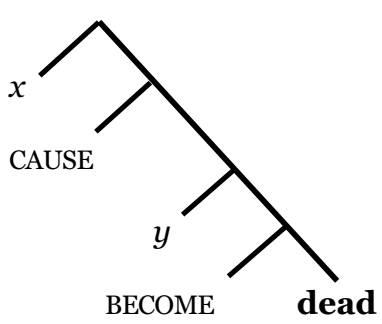
extent it follows from that which must minimally assumed to be the case in Narrow Syntax.

2. The Hale and Keyser paradox

The idea of verb phrase internal theta positions is closely linked to the analysis of the VP as containing various 'shells'. The shell structure of the VP arose out of work on ditransitives (Larson 1988), voice (Kratzer 1994), and lexical decomposition (Hale and Keyser 1993), and generally involves a layer named 'little vP' on top of the traditional VP structure. The specifier of little vP was then taken to be the position where the external argument is merged.

'Little v' refers to the element of agentivity or causation in transitive predicates, and was originally taken to be present in transitive and unergative verbs alone. It is now more commonly associated with any verbal predicate, albeit in a defective form with passives and unaccusatives. We take the underlying idea, that verbs are internally structured, to be well-established (based in particular on Hale and Keyser 1993, Harley 1995, and Ramchand 2008), and assume (for expository purposes) a structure for the vP as in (5).

(5)



In (5), CAUSE corresponds to the 'little v' of the vP-shell structure, and *dead* is an a-categorial head, that comes to be interpreted as a verb after conflation with BECOME and CAUSE.

In this connection, Hale and Keyser (1993:94f) note a paradox that they are unable to fully resolve. The paradox is that while the internal structure of a verb for all intents and purposes looks like a *syntactic* structure, the verb that is so composed still very much looks like a *lexical* item.

> "In reality, all verbs are to some extent phrasal idioms, that is, syntactic structures that must be learned as the conventional 'names' for various dynamic events." (Hale and Keyser 1993:96)

We can strengthen the paradox by juxtaposing two general theoretical desiderata.

(6) a. There is just one structure building device in the model of grammar

b. Idiomaticity is established at the interfaces

It follows from (6a) that if there is reason to consider verbs as being internally structured, then the device generating this 'lexical' structure must be the same as the device generating syntactic structure. It follows from (6b) that if any special

(noncompositional) meaning is attached to the structure so derived, this is the effect of a postsyntactic process.

Concretely, if a verb like *kill* has a structure like (5), then this structure must be created in Narrow Syntax (by Merge). But the meaning of *kill* must be established postsyntactically out of the various components in (5). Here it is important that the meaning of *kill* is not exactly the same as the meaning of 'cause to become dead', as is well known. (Thus, a mechanic's failure to adequately repair my car may cause me to die in a road accident, but we would not then say that the mechanic killed me; see Wierzbicka 1975 for discussion).

There is a parallel here with compounds (such as *foot-ball*). That compounds have a syntactic structure is undisputed (going back at least to Wundt 1900: 670). Yet the compound structure is often interpreted in a noncompositional way (e.g. *football* is not a ball, but a game). This information must arise at the interface component dealing with meaning.

Importantly, a compound like *football* can be merged as a single item in the derivation of larger constituents (such as a clause), without losing its idiomatic meaning. This is the effect of derivation layering in the sense of Zwart (2009): the output of one derivation (the one giving rise to the compound) can be part of the input for the next derivation (the one in which the compound is used as a constituent). It follows that the set of elements providing the input for any derivation (the 'Numeration') must be heterogeneous: some elements are unstructured, while others have a derivational history. This, we believe, underlies the many examples of phrasal embedding in morphology in Ackema and Neeleman (2004:124).

If this is all on the right track, verbal structures like (5) must also be assumed to obtain their idiomatic meaning at the interfaces, and must then be included as a single item in the Numeration for the next derivation. The layered derivation architecture, then, solves the Hale and Keyser paradox. Verbs are structured in the sense that they are the output of a regular derivation, consisting of a Numeration, Merge, and an interpretative component, illustrated in (7). This output can then be interpreted as a single lexical item, and used as such in the Numeration for another derivation (yielding a sentence like *video killed the radio star*), where it will act as a single verb, illustrated in (8) (where VERB is a verb that is the output of a previous derivation).

(7) a. Numeration = { CAUSE, BECOME, dead }

b. Narrow Syntax yielding (5)

c. Externalization: (5) is interpreted as the VERB *kill*

(8) Numeration = { video, [radio star], kill }

On this perspective, every derivation is a network of derivations, in which elements can be put together in separate subderivations, such as is the case in (8) for the elements *kill* and in fact *radio star* (a compound). There is nothing paradoxical, then, about items being structured and lexical (atomic) at the same time.

3. Locality as a function of derivation layering

The layered derivation approach discussed in the previous section has some nontrivial consequences. In particular, simplicity dictates that elements merged in one derivation

layer are not free to merge again in the next derivation layer. Thus:

(9) *Generalized Integrity*
For any derivation *x*, only members of the Numeration of *x* may be merged in *x*.

Any other regimen would open up the possibility of vastly more complicated derivations. Generalized integrity (9) accounts for the general opacity of words, but now also, and nontrivially, for the opacity of any category which must be thought of as being put together in a separate derivation layer.

Applied to the example of *kill* in (7)/(8), this implies that the subcomponents of *kill* in (7) (CAUSE, BECOME, and *dead*) do not play a role in the derivation built on the Numeration in (8). The only element playing a role in (8) is the lexical item *kill* that came out of the derivation in (7). And by and large this seems correct, in that we do not typically observe any of the verbal subcomponents CAUSE, BECOME, or *dead* undergoing individual movements, in the derivation of a sentence that involves the lexical item *kill*.

More seriously, this also completely eliminates the possibility of generating noun phrases inside vP (i.e. in the positions marked by *x* and *y* in (5)). Because if we did allow noun phrases to be generated in these positions, they would never be able to move out of the vP (now a single lexical item) in the context of the next, clausal derivation. And as (1)-(3) show, argument noun phrases do appear outside the VP.

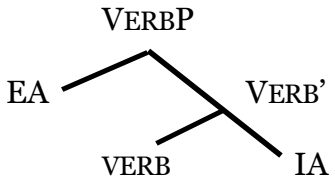
Therefore, the layered derivations approach, adopting (6) and (9), forces us into the direction of a more flexible syntax, as foreseen in Neeleman and Weerman (1999).

4. Theta role interpretation

We now have to ask the question how the interpretation that argument noun phrases 'carry' a particular thematic role comes about. We can no longer assume that argument noun phrases must be generated in positions like *x* and *y* in (5), where they would be assigned a theta role by the verb (i.e. by the verbal root, or a verbal subcomponent like CAUSE or BECOME, or by a projection of any of these elements). This is because a structure like (5) is used as a single lexical item in the next derivation, and nothing inside that structure can move out, by Generalized Integrity (9).

Perhaps a natural starting point would be to assume a structure like (10), where VERB is the lexical item that is the output of a separate derivation (like (7)), now reanalyzed as a single lexical item, and EA/IA are the external/internal arguments.

(10)



But this would entail two complications: (i) there would have to be a mechanism of 'theta role assignment' of which it is unclear how it works and which would probably not be uniform (needing different configurations for assignment to EA and IA); (ii) there would have to be a set of movements to derive facts like (1)-(3), where the argument noun phrases appear outside of the VP. These movements would be of the A-movement type that NW were hoping to eliminate.

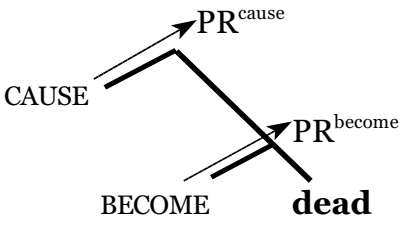
Perhaps we can do better. Ideally, the distribution of theta roles should be a function of the lexical semantics of the VERB—i.e., should make some reference to the structure of the VERB as determined in the previous derivation layer. And secondly, the association

between argument noun phrases and thematic roles should be a function of Merge.

A theory of how this could work is developed in Talsma (2025). Talsma proposes that the subcomponents of the VERB (CAUSE, BECOME, etc.) make certain features available (which she calls *participant requirement features*, or *PR-features*) that express the VERB's valency. The motivation for this is that the subcomponents express subevents in which a participant must play a role (although not necessarily a participant that is overtly expressed). So CAUSE makes a PR^{cause} feature available (comparable to what is traditionally called an agent feature), BECOME a PR^{become} feature (the traditional theme), etc.

These features are hierarchically ordered on the VERB as a function of the hierarchical structure in (5). That is, the hierarchical order is a function of the order in which the subcomponents are merged, as illustrated in (11).

(11) a. derivation of the complex verb b. resulting lexical item



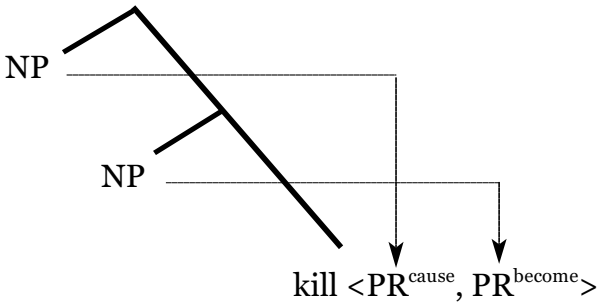
kill <PR^{cause}, PR^{become}>

At this point, the PR-features are unvalued: we know that a verb like *kill* has a CAUSE PR-feature and a BECOME PR-feature, and this knowledge is in large part what it means to know the meaning of a verb. What we don't know is which participant should be associated with which PR-feature, which is in large part what it means to know the meaning of a clause.

Given the layered derivation architecture, the association between argument noun phrases and PR-features should take place in the next derivation layer, in which the clause is derived. This is the derivation layer in which the argument noun phrases are merged, and ideally the association between argument noun phrases and PR-features should be a function of Merge.

Talsma (2025) proposes that this can be achieved if we assume a mechanism of PR-feature valuation via c-command, such that the highest Noun Phrase values the highest PR-feature:

(12)



This has the effect that we know which noun phrase acts as the agent and which as the theme/patient, etc. (or, more precisely, how the noun phrase referents are to be interpreted in relation to the meaning of the predicate).

It should be clear that the precise association of noun phrases with PR-features in Talsma's system is a function of the hierarchical relations among the elements involved, which is again a function of Merge. Thus the higher noun phrase in (12) will value the higher PR-feature in the VERB, etc. Any other alignment would be a deviation from simplicity.

Thus, instead of a system of theta role assignment, we have a system of PR-feature valuation, and instead of a principle that governs the way theta roles are assigned (such as UTAH of Baker 1988), we have a principle that governs the assocation of argument NPs and PR-features, such that the arguments' hierarchical order determines interpretation:

(13) *IDAHO*
Interpretation-determining arguments' hierarchical order

This system accounts for the interpretation that a noun phrase 'carries' a thematic role, without assuming any mechanism of theta role assignment. The similarity with the system of Neeleman and Weerman (1999) should be clear, in that there is a direct connection between grammatical function (subject/object) and thematic role. The difference is that in the NW-proposal thematic role interpretation is mediated by case, whereas in the system contemplated here, both (structural) case and thematic role interpretation are a function of c-command, and ultimately a function Merge (see Epstein 1999 for the relation between Merge and c-command).

Note that Talsma's proposal allows for a discrepancy between the number of noun phrases merged and the number of PR-features made available on the VERB. Here there are two cases to consider. First, there could be more PR-features than noun phrases. In that case, one of the PR-features remains unvalued. Talsma argues that this is what characterizes pseudotransitive verbs like *eat*.

(14) John was eating (pasta)

Without the noun phrase *pasta* being merged and valuing the theme PR-feature, we are left with an existential object interpretation: John was eating *something* but we don't know exactly what. This leads to the conclusion that unvalued PR-features do not cause uninterpretability.

The other case is where there are too many noun phrases for the number of PR-features available on the VERB. Here the judgment is dramatically different:

(15) *John was eating pasta lunch

The stark ungrammaticality of (15) reflects the circumstance that one of the noun phrases does not value a PR-feature. As a result, we have no way of interpreting that noun phrase in connection with the meaning of the VERB. We submit that this state of affairs is exactly what causes the ungrammaticality judgment: we simply don't know how to interpret *lunch*.

5. Passive and raising

We have argued that noun phrase arguments, rather than being assigned a theta role, in fact *license* theta roles, or, more correctly, value the PR-features of the VERB. These PR-features are generated by the subcomponents of the predicate (CAUSE, BECOME, etc.),

so that there is a direct connection between the lexical semantics of the verb and the argument status of the noun phrases. This connection is established under c-command, which is a function of Merge.

This now makes a simple account of the passive possible. Passivization is defined by the suppression of the external argument, which (somehow) results in the internal argument assuming the grammatical function of subject. This intricate mechanism, which is typologically very robust, is accounted for in Government and Binding theory as the result of the interplay of various modules of the grammar: Theta Theory, demanding that argument noun phrases carry a theta role (by the Theta Criterion), and Case Theory, demanding that argument noun phrases have a case (by the Case Filter). Passive results from suppression of the external argument, so that only the internal argument can raise to subject position. This assumes that clauses must have a subject (by the Extension of the Projection Principle, or EPP).

This interaction between thematic roles and cases is also expressed in Burzio's Generalization, stating that verbs with suppressed external arguments cannot assign accusative case (Burzio 1986:178f). The case filter then forces movement of the internal argument to subject position (specifier of TP) to be assigned nominative case there.

One of the key proposals in NW addresses this system and argues for an alternative, in which the passive subject is base-generated in the subject position, and is assigned the internal argument theta role by the VP. This is made possible by movement of an empty operator from the internal argument position to the specifier position of VP (cf. (4)), converting the VP into a theta role assigning predicate.

On the system contemplated here, the properties of passive verbs follow automatically once we adopt the traditional view that the external argument is suppressed. On our terms, this means that the PR-feature generated by the CAUSE subcomponent of the VERB is no longer active. This reduces the number of noun phrase arguments that can be associated with PR-features by one. In the case of a normal transitive verb, this means that there can be only one argument noun phrase, and that will value the internal argument PR-feature.

Burzio's Generalization now follows: if there is no external argument PR-feature to be valued, there can be only one argument noun phrase, and since we have assumed (in section 1) that accusative case is a feature marking the hierarchically second noun phrase among the argument noun phrases, no accusative case marking will be needed or even possible.

In comparison with the analysis of NW, this means that the empty operator movement proposed in that work need no longer be assumed to be present in passive constructions, simplifying the derivation, while adhering to the idea of base-generation of passive subjects underlying NW's work.

Note that we cannot understand passive verbs as outright lacking an external argument PR-feature. Our analysis must be that the external argument PR-feature is blocked from being valued by an argument noun phrase. That it must nevertheless be present is clear from impersonal passive verbs that exercize obligatory control:

(16)	Er	werd	geprobeerd	[	hulp	te	bieden	]	(Dutch)
	EXPL	AUX:PASS	tried		help	INF	offer:INF		
	'People tried to offer help.'								

In (16), the passive verb *geprobeerd* 'tried' is interpreted as having an existential external argument that controls the infinitive *hulp te bieden* 'to offer help'. This confirms that unvalued PR-features do not cause uninterpretability, but steer towards an existential argument interpretation.

In this respect, passive verbs differ from unaccusative verbs (like *arrive*, *die*) which lack an external argument PR-feature altogether (not having a CAUSE subcomponent). Other than that, the syntax works the same, with a single base-generated argument noun phrase valuing the only available PR-feature of the VERB.

For cross-clausal raising constructions like (17), we can simply continue to assume that the PR-features of the embedded VERB are valued by the two argument noun phrases present in the structure (*John* and *Mary*):

(17) John seems to love Mary

This assumes that raising predicates like *seem* lack any PR-features to be valued by argument noun phrases, perhaps a simplification, but one that will work for now.

6. Duality of semantics

The analysis sketched above appears to us to be in large part in the spirit of NW, though details of execution obviously vary. Like NW, though, we diverge quite sharply from the approach to Theta Theory advocated in Chomsky et al. (2023).

Chomsky et al. (2023) propose a binary split among syntactic positions, where some positions are generated by External Merge (EM)(base-generation) and others by Internal Merge (IM)(movement). The EM positions are the positions which 'yield argument structure', whereas the IM positions express discourse/information structure properties, and hence involve displacement. In this dichotomy, there seems to be no room for the traditional subject and object positions ('case positions') which are traditionally (i.e. in Government-Binding theory) considered to be A-positions not involved with argument structure but with grammatical function.

Like NW, we diverge from this in denying the existence of theta positions (the positions 'yielding argument structure' in Chomsky et al. 2023). Instead, the grammatical function positions are basic, albeit not rigidly tied to any position in the structure. What distinguishes grammatical functions (subject, object), is their *relative* position, a function of the order in which they were merged.

This ruins the conception of 'duality of semantics' advanced in Chomsky et al. (2023: 32), the idea that there are essentially only thematic positions and discourse/ information structure positions. Instead, the picture that emerges is that there are only grammatical function positions and discourse/information structure positions, with no room for thematic positions at all. This also jeopardizes the EM/IM-distinction, motivated by this particular conception of 'duality of semantics' that we now find to be untenable.

If all this is on the right track, the question becomes how the absence of theta positions and the presence of grammatical function positions can be explained in terms of the structure building processes assumed in the model of grammar. We believe that the special status of theta positions and their connectedness with EM reflects a deeply rooted but unmotivated commitment to a bottom-up orientation of the structure building process assumed in the model of grammar.

This is the familiar view that Merge (EM) takes two elements (from the Numeration) and puts them together in a set (with further operations such as labeling and projection turning the set into an ordered pair). If the two elements in question are a verb and a noun (phrase), it is natural to expect some significance to arise from the operation, and theta role assignment would then be a natural candidate. But the fact that noun phrases do not 'carry' theta roles puts this in question. And if we are correct in deducing that there cannot be any thematic positions as traditionally conceived, the bottom-up

structure building process loses much of its intuitive appeal.

Alternatively, if we consider the grammatical function positions to be more basic, we need a structure building process that derives the significance of these positions. A top-down structure building process of the type proposed in Zwart (2009, 2017) does exactly that.

Zwart (op. cit.) proposes that Merge is a process that turns an unordered set (the Numeration) into an ordered pair (or n-tuple), by extracting one member from the Numeration and merging it with what is left of the Numeration ('Split Merge'). The operation yields an ordered pair because the object resulting from the extraction operation, (18b), is the set-theoretical notation of an ordered pair (18c), as shown by Kuratowski (1921).

(18) a. { α, β } Numeration
b. { α, { α, β } } Result of Split Merge
c. ⟨ α, β ⟩ ordered pair

Note that Split Merge is formally identical to Internal Merge (extraction of a member of a set Σ and joining it to Σ) so that structure building no longer requires a distinction between the two types of Merge (EM and IM).

In (18), β may as well be a set instead of an element, which may be turned into an ordered n-tuple by a repetition of the same operation on the sister of α (see also Fortuny 2008). This turns a Numeration like (19a) into the ordered n-tuple in (19c), via the steps (all instances of Split Merge) in (19b).

(19) a. { α, β, γ, δ, ε }
b. { α, { α, β, γ, δ, ε }} = ⟨ α, { β, γ, δ, ε } ⟩
⟨ α, { β, { β, γ, δ, ε }} ⟩ = ⟨ α, ⟨ β, { γ, δ, ε } ⟩⟩
⟨ α, ⟨ β, { γ, { γ, δ, ε }} ⟩⟩ = ⟨ α, ⟨ β, ⟨γ, { δ, ε } ⟩⟩⟩
⟨ α, ⟨ β, ⟨γ, { δ, { δ, ε }} ⟩⟩⟩ = ⟨ α, ⟨ β, ⟨γ, ⟨ δ, { ε } ⟩⟩⟩⟩
⟨ α, ⟨ β, ⟨γ, ⟨ δ, { ε, { ε }} ⟩⟩⟩⟩ = ⟨ α, ⟨ β, ⟨γ, ⟨ δ, ⟨ ε, { ∅ } ⟩⟩⟩⟩⟩
c. ⟨ α, β, γ, δ, ε ⟩

We may now state that among the noun phrases merged in this way, the highest is interpreted as the subject and the next as the object. Thus, the primary status of the grammatical function positions is derived from the structure building process, assuming top-down derivation via Split Merge. (Note that 'subject' is a pure grammatical function, not tied to any particular thematic role. Thus, the subject is the most prominent argument, in terms of agreement control, (default) case marking, and other clause internal dependencies, and is that which the remainder of the clause may be thought as predicating of.)

Like NW, this system requires no recourse to an operation of A-movement linking grammatical function positions to theta positions. We therefore derive NW's intuition that A-movement cannot exist. This leaves the possibility open that A'-movement, however formalized, remains as a process yielding discourse-oriented or information-structure related material, but space prevents us from addressing this side of the duality of semantics dichotomy here.

7. Form Copy

In Chomsky et al. (2023), A-movement is reconceptualized as 'Form Copy' (FC). This

assumes that the structure building process does not manipulate lexical items but *inscriptions* of these lexical items. The lexical items reside in the Lexicon, and inscriptions can be taken from those lexical items as needed. This now yields the problem of distinguishing series of identical inscriptions in cases like (20) and (21).

(20) John saw John
(21) John was arrested John

The idea is that (20) contains two separate inscriptions of the same lexical item, whereas in (21) the leftmost inscription of *John* has been moved (i.e. identified as a subpart of the VP *was arrested John* and remerged to the structure as a whole).

In the discussion of Chomsky et al. (2023), the problem to be solved is that the derivational history is not relevant for the interpretation of (20)/(21). This is because each step in Narrow Syntax is blind to previous stages of the derivation. Still, it must be derived that the two inscriptions of *John* in (20) are interpreted as repetitions, whereas in an example like (21) the two instances of *John* are interpreted as copies.

Form Copy is the process that allows this. It essentially designates two identical inscriptions as copies of one another, which has the effect that the lower copy is not spelled out (for economy reasons). Form Copy is taken to apply freely, under condition of structural identity (Chomsky et al. 2023: 24), and subject to the usual locality conditions. In (20), the two inscriptions of *John* are not structurally identical, as they 'carry' different theta roles. In (21), where no external argument is assigned by the passive verb, the two inscriptions of *John* can be taken to be structurally identical (there is no positive evidence that they carry different theta roles), and FC can apply.

From the perspective contemplated here (or from the perspective of NW, in fact), none of this is necessary. In (20) we simply have two elements *John* in the Numeration, merged in different hierarchical positions, leading to the interpretation of one as the subject and the other as the object. Both elements will value different PR-features of the VERB *see*, informing interpretation at LF. In (21), there is only one element *John* which is merged and interpreted as the subject (by default), and values the 'internal argument' PR feature of the VERB *see* (the 'external argument' PR-feature being suppressed according to standard assumptions, see section 5). The issue of having to distinguish repetitions from copies simply does not arise.

Nevertheless, we need to address the Form Copy mechanism some more, as it is put to use by Chomsky et al. (2023) in their analysis of control, where they distance themselves from the traditional analysis in which the embedded infinitival clause contains an empty subject PRO:

(22) John tried [to win the race]

Instead, the authors capitalize on similarities between control and raising (A-movement) discussed in Koster (1987) and Hornstein (1999), suggesting that the embedded infinitive is not an opaque local domain. The proposal now involves generating one inscription of *John* via EM in the embedded clause, and generating another inscription of *John*, also via EM, in the matrix clause (in the specifier of the matrix vP, to be precise). The question then is whether FC can apply between the two inscriptions of *John*, and the proposal is that it does.

First, since the embedded infinitival clause is not an opaque local domain (not a 'phase'), there are no locality issues. Second, there is the question of whether the two inscriptions of *John* are 'structurally identical'. Clearly, both inscriptions are assigned a theta role, suggesting they should not be considered structurally identical. But this

condition is apparently lifted when the two inscriptions receive thematic roles from different theta role assigners (Chomsky et al. 2023: 43). Therefore FC can apply, the lower inscription becomes a copy and is not spelled out for reasons of economy.

This proposal has a number of suspect elements, most glaringly the proposal to consider the two inscriptions of *John* as structurally identical when they receive different theta roles from different theta role assigners. But from our perspective, where Form Copy is no longer independently motivated (as not needed for standard cases of A-movement), the analysis loses much of its force.

Still, the attempt to do away with a *sui generis* empty category like PRO must be applauded. From the perspective contemplated here, the issue of control revolves around the question how the relevant PR-feature (in (22), the 'external argument' PR-feature of the VERB *win*) is valued.

Here it is interesting to note that in cases of nonobligatory control the relevant PR-feature receives an arbitrary interpretation:

(23) [To win the race] will be difficult

This is reminiscent of what we observed with pseudotransitives like *eat* in (14), where the internal argument PR-feature remains unvalued and we obtain an existential object interpretation. The parallel suggests that in (23), too, the relevant PR-feature is left unvalued. Moreover, it suggests that valuing PR-features is what drives interpretation of control infinitives. The question, then, becomes how PR-feature valuation takes place in obligatory control constructions like (22), where the interpretation is not arbitrary but specific, in fact tied to a controller in the matrix clause.

This is a vast topic that we cannot nearly do appropriate justice here (see Landau 2013 for a survey of the issues involved). But it seems to us that the issue of *controller choice* is closely tied to the lexical semantics of the matrix predicate (see also Farkas 1988). Thus, verbs like *promise* determine the controller differently from verbs like *persuade*:

(24) a. John promised Bill to take care of the kids
b. John persuaded Bill to take care of the kids

In (24a), the controller must be the subject, in (24b) the object. Following Farkas (1988), we can relate this to the concept of *responsibility*: *promise* and *persuade* assign responsibility for the event in the embedded clause to different participants in the event of the matrix clause. With *promise*, *John* is responsible for taking care of the kids, with *persuade*, Bill is. Importantly, modality of the embedded clause may cause a controller shift:

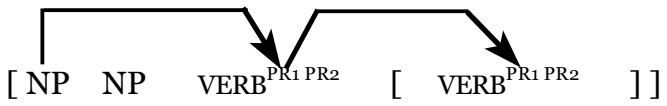
(25) a. John promised Bill to **be allowed to** take care of the kids
b. John persuaded Bill to **be allowed to** take care of the kids

The modal verb affects the allocation of responsibility for the event in the embedded clause, in the sense that there is a more responsible participant (the allower) than the participant carrying out the event. This then has the effect that the allocation of responsibility in the matrix clause shifts as well. So control, from this perspective, is about the alignment of responsibility among the participants of the two predicates.

These observations seem to us to indicate that obligatory control is to be described in terms of a relation between *predicates*, more exactly, between the PR-features of the predicates. In ordinary cases like (24a), subject of the matrix clause values the PR-

feature generated by the highest subcomponent of the VERB. We now propose that this PR-feature in turn values the higher PR-feature of the embedded VERB:

(26)



The interpretation of 'control' is a function of this VERB-VERB dependency, expressed through their PR-features. Likewise in (24b), the lower PR-feature of the matrix VERB controls the relevant PR-feature of the embedded VERB:

(27)

Controller shift, as exemplified in (25), merely affects the identification of the PR-feature of the matrix VERB whose value gets to control the embedded PR-feature.

As this analysis redefines control as a predicate dependency rather than as a noun phrase dependency, no empty noun phrase subject in the embedded clause (PRO) needs to be invoked. We are well aware that the presence of an empty subject in control infinitives is supported by a range of empirical observations. These will need to be addressed at a later stage.

Chomsky et al. (2023) argue that a number of familiar contrasts between control and raising fall out from the Form Copy analysis. We conclude this section by addressing this argument from the perspective of the analysis contemplated here.

(28) a. One interpreter each seemed to have been assigned to the diplomats
b. *One interpreter each tried to be assigned to the diplomats

This example shows that the distributive reading created by *each* is available in the raising construction (28a), but not in the control construction (28b). Let us say (simplifying quite a bit) that *one interpreter each* and *to the diplomats* need to be clause-mates for the required distributive reading to come about (see Safir and Stowell 1988 for more discussion).

On the analysis of Chomsky et al. (2023), *one interpreter each* in (28b) is a separate inscription, not a moved inscription like in (28a). Therefore you get reconstruction to a position in the embedded clause in (28a) but not in (28b), so that only in (28a) does *one interpreter each* end up being a clause-mate of *to the diplomats*. On our analysis, *one interpreter each* values the (internal argument) PR-feature of the embedded VERB *assign* in (28a), but not in (28b). In (28b), the embedded PR-feature is valued by the matrix VERB *try* (or by one of its PR-features, more exactly), but not by the matrix subject itself. In essence, then, this recaptures the generalization that the two relevant noun phrases are not clause-mates in (28b), as the relevant noun phrases do not value PR-features of a single VERB.

Chomsky et al. (2023: 45) also discuss the following classic example:

(29) a. John persuaded/expected the doctor to examine Bill
b. John persuaded/expected Bill to be examined by the doctor

The difference between *persuade* and *expect* here is that passivization affects the truth of the situation with *persuade*, but not with *expect*. (To see these as minimal pairs,

assume that *the doctor*/*Bill* is moved out of the embedded clause to the position of object of the matrix clause with verbs like *expect*, but generated as object of the matrix clause controlling a PRO subject of the embedded clause with verbs like *persuade*.)

Assuming Form Copy, the difference is again that the object of *persuade* is a separate inscription linked with the embedded subject via FC, while the object of *expect* has been moved into the matrix clause via IM. In other words, *the doctor*/*Bill* gets a theta role from *persuade* but not from *expect*. On our analysis, *the doctor*/*Bill* values a PR-feature of *persuade* but not of *expect*, yielding the same result.

8. A note on complex predicates

The approach to theta role assignment (now reanalyzed as PR-feature valuation) of Talsma (2025) raises the question of how to describe secondary predication in cases of resultatives like (30), and other similar cases.

(30) John hammered the metal flat

From a theta theoretic perspective, constructions like (30) yield a dilemma, in that *the metal* may be interpreted as an internal argument of *hammer* and equally well as an external argument of the nonverbal predicate *flat*. This dilemma has been resolved in diverging ways, adopting either a Small Clause analysis (Hoekstra 1988) or a complex predicate analysis (Neeleman 1994).

In a Small Clause analysis of (30), *the metal* is just the external argument of *flat*, and the combination *the metal flat* is the complement of *hammer*. In a complex predicate analysis, *the metal* is the internal argument of a complex predicate *hammer flat*, in which *flat* satisfies the internal argument role of *hammer* (Neeleman 1994:147). The question is what light our approach can shed on this controversy.

And here it seems that the Small Clause analysis inherits all the disadvantages associated with the 'rigid' approach to thematic role assignment. In particular, it assumes a base position for the Small Clause subject (*the metal* in (30)) that is motivated purely by considerations of theta role assignment. In addition, it needs to assume A-movement of the Small Clause subject to the object grammatical function position. On the more flexible approach suggested here, in the spirit of NW, *the metal* must be merged in its grammatical function position, and the interpretation must be the outcome of a process of PR-feature valuation.

This suggests that the secondary predicate (*flat* in (30)) has a PR-feature of its own (akin to its theme argument in Neeleman's analysis) which is valued by the object (*the metal*). Like Neeleman, we face the problem of what to do with the internal argument PR-feature of the VERB *hammer*. Here various options are available, ranging from leaving the PR-feature unvalued, to somehow fusing it with the PR-feature of the secondary predicate. We leave this question for further study, noting that our approach brings us surprisingly close to the complex predicate analysis of Neeleman (1994).

9. Conclusion

In this paper we have shown a convergence between the Flexible Syntax approach of Neeleman and Weerman (1999) and the top-down derivational approach of Zwart (2009). Both approaches assume base-generation of argument noun phrases in their grammatical function position, and move away from the 'rigid' approach underlying much current research, including Chomsky et al. (2023), in which noun phrase arguments are merged in vP-internal theta positions. Following Talsma (2025), we have

argued that thematic role assignment can be reconceptualized as the valuation of argument features (PR-features) generated by the subcomponents of verbs, as assumed in lexical decomposition analyses. In a layered derivation framework such as Zwart (2009), this approach is forced upon us by the notion that lexical decomposition reflects the construction of a verb in a separate derivation layer, which yields as its output a single verb (VERB) characterized by a set of PR-features, but without positions in which noun phrases could be merged. Various consequences were discussed for the analysis of passive, raising, and control, and the prospect of adopting a complex predicate type analysis for resultative constructions à la Neeleman (1994) was endorsed. While this article reflects work in progress, we hope we have been able to sketch certain lines of research that, while diverging from a number of common tenets, contribute to the minimalist goal of providing genuine explanations for the properties of language.

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