



## Chomsky's (2020) Links and linker phenomena

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### Abstract:

In Section 1, I present a recent formalisation of modification and conjunction structures by Chomsky (2020), in terms of sequences of Pair-Merge units, each including a Link element identified with the nominaliser/verbaliser *n/v*. In Sections 2-3, I argue that the Link element is overtly visible in many languages in the form of (adnominal) linkers. In Section 4, I suggest that Case stacking, and Concord may also be viewed as externalizations of Links.

Keywords: *Adjectives, Linkers, Pair-Merge, Possessives*

### 1. Introduction: coordination and modification according to Chomsky (2020)

Chomsky (2020: 49-52), addressing adjectival (adnominal) modification, considers examples like (1a). He remarks that “there’s an asymmetry between the two words, that’s clear. The element that’s formed is a noun phrase, not an adjective phrase. So *young* is an adjunct that’s not changing the category”. As for (1b), the issue is even worse, given that the Labeling Algorithm of Chomsky (2013) predicts that in X-YP mergers, it is the head X that provides the label. “*Portrait of John* is not a head, and could be arbitrarily complex, but it still provides the label of the whole unit. So there is a clear asymmetry”.

- (1) a. young man  
b. old portrait of John

For Chomsky, the way to a different analysis passes through “unbounded, unstructured coordinations” like (2). His idea is that “at some point in [the] generation of an interpretable structure, each of the adjective phrases in [2] will be predicated of *someone* with an asymmetric relation similar to *young man*,

presumably pair-formation”. To formalize this relation “it seems we need an operation Pair-Merge, which will also apply to the simple adjunct case like *young man*”. Importantly, for the purposes of labeling – or more generally of projecting the structure, “*young* will be adjoined to *man*, but you don’t see it in the labeling because it’s off in some other dimension [...] It’s not two dimensional like a blackboard, but there’s no reason to suppose that mental representations are restricted this way”.<sup>1</sup>

(2) I met someone young, happy, eager to go to college, tired of wasting his time, ...

The next step is acknowledging that the structure formed by the modifiers in (1) is “not just a set of paired elements, it’s a sequence of paired elements”. The argument is that the order of the unstructured unbounded elements matters because of reasons that were pointed out by Jim McCawley over half a century ago, namely, notions like *respectively*. So in (3a) the order in which the coordinated elements appear “affects the semantic interpretation”. The same is true of adjuncts, as in (3b).

- (3) a. John and Bill saw Tom and Mary, respectively  
 b. John and Bill are young and tall, respectively

Formally, “you generate syntactic objects in WS [Work Space], select a finite set of these, and from that set form a sequence  $S \dots$  and that sequence  $S$  is the syntactic object that you’re then going to merge into the construction”. As illustrated in (4), “we’re forming a sequence which begins with some conjunction, and then contains elements, each of which is predicated of something. So we have a sequence of elements that looks like [4], with links  $L_i$ ”. Of course, “when you get down to the limiting case, when  $n = 1$ , that’s just plain adjunction. So *the young man*”.

(4) < CONJ, <  $S_1, L_1$ >, ... , <  $S_n, L_n$ >>

A number of interesting consequences follow from this treatment of modification and conjunction. Specifically,

if you have the phrase *old man*, you can’t extract *man* and leave *old*; you can’t extract *old* and leave *man*. So the elements of the pairs are inaccessible [...]. You have the coordinate structure constraint because every term is inaccessible. You have the adjunct island constraint because you can’t pull the elements out of adjuncts.

What I am interested in is the question, “what is  $L$ ? What do things link to?” The suggestion is that “ $L$  for nominal sequences is just  $n$ , the categorizer of each of the coordinated phrases”. As Chomsky points out, the basic nature of  $n$  and  $v$  is that of nominal and verbal categorizers, assuming that roots are themselves deprived of a category (Marantz 1997). Therefore, “the sequence  $S$  is actually a Root Phrase (RP) sequence which is categorized by linking to  $n, v, a$ , in the basic cases”.

<sup>1</sup> In fact, according to Chomsky (*ibidem*) “the unbounded unstructured cases like [2] show you in effect that there are unboundedly many dimensions as adjective phrases are independently adjoined to the host”.

In a later passage, Chomsky (2020: 56) discusses a model of head raising by Pair-Merge attributed to H. Kitahara (see Epstein, Kitahara and Seely 2016). T-to-C is the instance of head raising being considered and the result of the derivation is the structure in (5). The derivational steps listed in (6) provide a useful sketch of how Set-Merge and Pair-Merge are interwoven in the derivation.

- (5) {<C, T> {T, VP}}
- (6) a. you generate {T, VP}.  
 b. Then you pair-merge C and T, yielding <C, T>.  
 c. The workspace now contains <C, T> and {T, VP}.  
 d. you now merge <C, T> to {T, VP}, yielding {<C, T> {T, VP}}.

My topic here is modification, especially adnominal modification (hence neither coordination, nor head raising *per se*). I will address a very narrow question, though one with potentially wide-ranging empirical consequences. In its general form, the question is whether one might see a morphological realization of the Link in modification structures like (4). More specifically, a possible candidate is what is known in the literature as a linker (whether the assonance is intended by Chomsky, I don't know). Linkers include the pre-adjectival and pre-genitive articles of Balkan languages (Greek, Albanian, Romanian, Aromanian), on which I base my discussion in sections 2-3, given the relatively familiar nature of the constructs and of the morphology involved. In section 4, I briefly turn to a number of descriptive and theoretical issues that are raised by the present discussion of linkers, which I leave largely open for future research.

## 2. Linkers

In many languages, belonging to diverse families, direct modification of an N by adjectives, PPs (oblique case NPs) or relative clauses is not possible. Rather it is necessary to introduce the modifier by means of a functional element which we may agree to generically call a linker. These languages are therefore different from English (1a) or (2) where *man* or *somebody* are directly merged with *young* (pre-nominally or post-nominally), and the same in fact holds of PP (oblique Case) modifiers, for instance the genitive PP *of John* in (1b).

In Albanian, modification by an adjective or genitive PP implies the presence of an extra element with which the adjective or PP is merged, namely the linker. The syntactic object so created is then merged with the noun it modifies. Some examples of adjectival modification in the nominative case are provided in (7) for the masculine and in (8) for the feminine. The inflections on 'boy' and 'girl' are sensitive not only to  $\Phi$  features and Case, but also to whether N is indefinite, as in the (a, b) examples, or definite, as in the (c, d) examples. This phenomenon (also found for example in Romanian) is traditionally analyzed as involving a post-nominal definite article, often derived by N to D head movement by generative scholars (Turano 2002 on Albanian). I follow Manzini and Savoia (2011, 2018) in assuming that definiteness is a feature of Albanian Ns, realized by Ninflections, like  $\Phi$  features and Case (see also Chomsky 2020: 51).

- (7) a. një dialë i bukur  
 a boy LKR.M.SG good-looking  
 'a good-looking boy'
- b. disa djem të bukur  
 some boy.PL LKR.PL good-looking  
 'some good-looking boys'

	c.	djali	i	bukur
		boy-M.SG.DEF	LKR.M.SG	good-looking
		‘the good-looking boy’		
	d.	djemtë	të	bukur
		boys-PL.DEF	LKR.PL	good-looking
		‘the good-looking boys’		
(8)	a.	një vajzë	e	bukura
		a girl	LKR.F.SG	good-looking-F
		‘a good-looking girl’		
	b.	disa vajza	të	bukura
		some girl.PL	LKR.PL	good-looking-F
		‘some good-looking girls’		
	c.	vajza	e	bukura
		girl-F.SG.DEF	LKR.F.SG	good-looking-F
		‘the good-looking girl’		
	d.	vajzat	të	bukura
		girl-PL.DEF	LKR.PL	good-looking-F
		‘the good-looking girls’		

(7)-(8) show that pre-adjectival linkers are sensitive to the  $\Phi$  features of N. The contrast between singular and plural is seen in (7a) vs. (7b) and (7c) vs. (7d) and similarly in (8). As for gender, compare (7a) to (8a), (7c) to (8c). Further data, illustrating sensitivity to definiteness and Case, are available in the formal literature (Campos 2009, Manzini and Savoia 2011, 2018, Franco, Manzini and Savoia 2015).

Linkers have nothing to do with adjectives *per se*, but rather are devices that enable adnominal modification. Thus, they are obligatorily merged with a genitive NP before the resulting syntactic object can modify N. The genitive NP can be definite or indefinite, as can be the head N. In (9) I exemplify the paradigm for nominative singular heads; all data here/and above are from Turano (2004).

(9)	a.	një mur	i	shtëpisë/	një shtëpje
		a wall.M.SG	LKR.M.SG	house-F.SG.OBL.DEF/	a house-F.SG.OBL
		‘a wall of the/a house’			
	b.	një dhomë	e	shtëpisë/	një shtëpje
		a room.F.SG	LKR.F.SG	house-F.SG.OBL.DEF/	a house-F.SG.OBL
		‘a room of the/a house’			
	c.	muri	i	shtëpisë/	një shtëpje
		wall-M.SG.DEF	LKR.M.SG	house-F.SG.OBL.DEF/	a house-F.SG.OBL
		‘the wall of the/a house’			
	d.	dhoma	e	shtëpisë/	një shtëpje
		room- M.F.DEF	LKR.F.SG	house-F.SG.OBL.DEF/	a house-F.SG.OBL
		‘the room of the/a house’			

The examples in (9) highlight a further important property of linkers in Albanian. The linker is sensitive to the  $\Phi$  features, definiteness and Case of the modified N but not of the modifier NP. Thus in (9a) vs. (9b) or (9c) vs. (9d) the linker varies according to the gender of

the head noun. In (9a) and (9c), where the genders of the head N and of the genitive NP are mismatched, the linker reflects the gender of the head N (masculine). Similar observations hold for all other relevant features, as again discussed by the literature (especially Franco, Manzini and Savoia 2015, Manzini and Savoia 2018).

So far, then, I have highlighted the fact that the Albanian linker, whatever its nature may be, co-varies with the inflection of the modified N. In fact, a stronger generalization emerges, namely that the linker has (roughly) the same morphological shape as the definite nominal inflection. See for instance the nominative masculine singular (-)i definite inflection and linker in (7c) or the plural (-)t(ë) definite inflection and linker in (7d), (8d). This generalization motivates the traditional label of linkers as articles; that they are not articles, or rather determiners, in the sense of referential operators is quite straightforwardly indicated by the fact that they combine with the indefinite article in various examples in (7)-(9) (see Manzini and Savoia 2011, 2018 for further examples).

Familiar languages like Romanian, Greek also have article-like linkers. In Greek the relevant phenomenon is restricted to definite head nouns and is mostly studied under the label of polydefiniteness (Campos and Stavrou 2004, Lekakou and Szendrői 2012, Guardiano and Stavrou 2014). In Eastern Romance the phenomenon is also limited to definite Ns and more robust in Aromanian (Campos 2005, Manzini and Savoia 2018) than in Romanian. In the Iranian languages, linkers have similar distribution to Balkan linkers, in front of adjectives and oblique modifiers, though the best known of them, namely the Persian *ezafe* is an invariable form (Larson and Yamakido 2008). Other Western Iranian languages display the familiar patterns of sensitivity of linkers to  $\Phi$  features, definiteness and Case of the modified N (e.g. Hawrami Kurdish, Holmberg and Odden 2008; Kurmanji Kurdish, Franco, Manzini and Savoia 2015). The continuity of these various phenomena, concealed by traditional labels is endorsed by typological studies, see especially Plank (1995), also for the discussion of different language families.

In short, Albanian provides a robust example of a phenomenon which is widespread in the Indo-European family, whereby nominal modification by direct merge of N(P) with an adjective or an oblique NP (Possessor) is impossible, unlike in English. Rather merger requires the presence of a linker, which is either an invariable element or an element with the same morphology as nominal (D) inflections. Given the co-occurrence of modification and coordination in Chomsky's (2020) discussion of Links, we may wonder how linkers behave under coordination. The linker can be repeated in every member of the coordination, and in Albanian it must, as in (10) (from Campos 2009: 1015, 1017).

- (10) a. Vajza e mire (dhe) e sjellshme studion shumë  
 girl-DEF LKR good and LKR well behaved studies much  
 'The good (and) well behaved girl studies a lot'
- b. Studentja më e urtë e klasës është Linda  
 student-DEF most LKR quiet LKR class-OBL.DEF is Linda  
 'The quietest student of the class is Linda'

Albanian linkers are also obligatory in post-copular position, as in (11), though in this respect, as for every other property discussed so far, a certain range of crosslinguistic variation is observed.

- (11) a. Vajza është e bukura  
 girl-F.SG.DEF is LKR.F.SG good-looking-F  
 'The girl is good-looking'

b.	Ky	është	i	djalit
	this.M.SG	is	LKR.M.SG	boy-M.SG.OBL.DEF
	‘This is of the boy’			

Before I consider the question that I set myself, namely whether linkers are exponents of the syntactic objects that Chomsky (2020) calls Links I will first review the main analyses of linkers available within formal approaches; further details can be found in Franco, Manzini and Savoia (2015). One approach, notably endorsed by Richards (2010), construes linkers (e.g. the Persian *ezafe*) as means for identity avoidance under adjacency. Thus occurrences of N-N and of N-A are avoided by inserting the linker between the two +N elements. This approach is called into question by the obligatoriness of linkers in post-copular (predicative) position, as in (11), where N/A is adjacent to V. Another approach rejected here is Larson and Yamakido’s (2008), treating the linker as a Case marker (also for adjectives). It is perhaps not unnatural to propose this role for the *ezafe* in Persian, a language lacking other Case morphology. Yet it is difficult to see how this could be extended to robustly Case inflected languages like Albanian, where the linker clearly reflects the case of the modified noun, not of the modifier.

Useful insights are contained in the approach of Den Dikken (2006), Den Dikken and Singhapreecha (2004), who propose that linkers are copulas (see Campos and Stavrou 2005 for an application to Balkan languages). This brings to the fore an important conceptual theme, namely the fact that linkers involve predication environments. Yet the predicate-like treatment of the linker is once again undermined by the fact that linkers are found in post-copular contexts like (11) where a predicate is independently present (though see the discussion of (19)). More generally, linkers do not at all have verbal-like morphology but are rather nominal-like. Philip (2012) indeed raises the issue of the connection between linkers and agreement. She concludes that they are essentially Agr heads. Some technical difficulties with this proposal arise because of Chomsky’s (1995, 2000) arguments against Agr(P). Leaving this aside, it seems to me that the real question is why an extra Agr element would be present, especially considering that adjectives already have an agreement inflection. For instance, *bukur* ‘good-looking-M’ in (7) contrasts with *bukura* ‘good-looking-F’ in (8).

Finally, some authors take at face value the fact that linkers, at least in Indo-European (I-E) languages, share the same morphology as determiners and/or pronominal clitics. Lekakou and Szendrői (2012) ultimately endorse a slightly different categorisation for D (the linker) and Def (the determiner), somewhat defeating the purpose of explaining one on the basis of the other. Franco, Manzini and Savoia (2015), Manzini and Savoia (2018) propose that linkers are Ds. As for the reason why such elements would be generated, they resort to an interface explanation, namely that in linker languages the subject of the predication needs to be represented within the maximal projection of the predicate. For instance, in (11a) the linker provides a partial saturation of the argument of ‘good’ within the AP projection, prior to saturation by ‘the girl’. The same is true in (11b), assuming that the genitive is a two-place relation (Manzini and Franco 2016) where the internal argument is satisfied by the genitive NP itself and the external argument is the modified NP. In (11b), then, the linker provides a local saturation of the external argument of the genitive relator prior to saturation by ‘this’. The problem is that it is not obvious why the relevant constraint (here local satisfaction of the valence) would hold.

In the next section, I will consider whether linkers, as illustrated in this section, can and should be analysed as exponents of Chomsky’s (2020) Links, as introduced in section 1. This means answering two questions. First, do Links provide an adequate model for the properties of linkers reviewed above? Second, does an analysis based on Links, hence on Pair-Merge sequences, improve our understanding with respect to the various analyses reviewed?

### 3. Linkers and Links

As already mentioned, Albanian has been chosen as a language of exemplification because of the richness and regularity of the linkers phenomenon. Not all of the properties of Albanian that I have listed occur in all linkers languages, but subsets of them typically do. The first important property is that linkers in adnominal modification are nominal; concretely, they are neither prepositions/Case markers nor copulas, but rather article- or clitic-like. From a theoretical point of view, if we want to identify linkers with Links in Pair-Merge sequences, the question is whether it is plausible to categorise them as  $n$ .

In order to answer this question, I need to take a detour into the nature of  $n$ . Chomsky simply identifies  $n$  with the nominal categoriser and phase head. In Distributed Morphology (DM),  $n$  is identified with the lowest of the features of the nominal root R, namely gender in IE languages, or more generally nominal class (see Kramer 2015 for an overview). I-E nouns have a tripartite morphological structure, consisting of a root followed by a thematic vowel which generally conveys nominal and inflectional class (and sometimes number) and a higher slot associated with number, Case, definiteness (Halle and Vaux 1998). In Albanian, the three constituents can be clearly seen for instance in the (regular) definite plural *vajzat* ‘the girls’ in (8d), associated with the structure in (12) (Manzini and Savoia 2011, 2018).

$$(12) \quad \begin{array}{lll} [[[\text{vaiz}_R] & \text{a}_{\text{Class}}] & \text{t}_{\text{D(Num)}}] \\ \text{girl} & \text{PL} & \text{DEF} \end{array} \quad \text{cf. (8d)}$$

As already mentioned, DM theorists consistently identify the lower Class node in a structure like (12) with  $n$ . Déchaine *et al.* (2014), working on Shona (Bantu), however take  $n$  to be separate from nominal class morphology, whose exponents they conceive of as Asp categories, with different flavours. I propose here that  $n$  is to be understood as distributed over the complex of inherent features of Ns that contribute its nominal character to the root, namely  $\phi$ , definiteness D as well as (inherent) Case (in practice oblique case). In other words, (12) is shorthand for (13).

$$(13) \quad \begin{array}{lll} [[[\text{vaiz}_R] & \text{a}_{n(\text{Class})}] & \text{t}_{n(\text{Def/Num})}] \\ & & \end{array} \quad \text{cf. (8d)}$$

We are now in a position to consider whether linkers can be identified with  $n$ , which is Chomsky's (2020) proposed categorisation for the Links in adjectival sequences. Since  $n$  is identified with the collection of the inherent properties of N, it is evident that the Albanian linker can be construed as an exponent of  $n$ . Categorisations of the linker as Agr (i.e.  $\phi$ , Philip 2012) or as Def (Lekakou and Szendrői 2012) or as D (Franco, Manzini and Savoia 2015) can be seen as approximations of the more general  $n$  categorisation, conceived as in (13). Formally, then, in Albanian the adjectival modifier, for instance *të bukura* ‘good looking-FPL’ in (8d) results from Pair-Merge of an (agreeing) adjective *bukura* and of a Link *të* of category  $n$ , as in (14).

$$(14) \quad \begin{array}{ll} < [{}_n \text{të}], [{}_A \text{bukura}] > \\ \text{LKR.PL} & \text{good-looking} \end{array} \quad \text{cf. (8d)}$$

The adjectival Pair-Merge structure in (14) is then merged with the N in (13) to form the A, N modification structure in (15). The structure of merger (Set-Merge and Pair-Merge) is the same as in Chomsky's English structures in section 1.<sup>2</sup>

- (15)  $[_{NP} [_N \text{vaizat}]]$  <  $[_n \text{të}]$ ,  $[_A \text{bukura}]$  > cf. (8d)  
 the girls LKR.PL good looking

Another property of linkers mentioned in section 2 is that they are found not only with adjectival modification, but also with modification by an oblique case NP or by a PP. Specifically, in Albanian, linkers are present when N is modified by a genitive NP, which is the only oblique in the language. Modification of N by PPs does not involve linkers (one of many points that are left for future research). The structure of genitive modification is exactly parallel to that proposed for adjective modification, as illustrated in structure (16) for example (9c).

- (16)  $[_{NP} [_N \text{muri}]]$  <  $[_n \text{i}]$ ,  $[_{NP} \text{shtëpisë}]$  > cf. (9c)  
 the wall.M.SG LKR.M.SG of the house

Next, recall that Chomsky (2020) treats coordinations of modifiers as sequences of Pair-Merge couples, each consisting of a Link and of a modifier. Given this, we expect that it should be possible (and perhaps necessary) to find linkers repeated in front of each modifier. This is clearly the case in Albanian, as illustrated in structure (17) for example (10a) above.

- (17)  $[_{NP} [_N \text{vaiza}]]$  <<  $e$ ,  $\text{mire}$  >, <  $e$ ,  $\text{sjellshme}$  >> cf. (10a)  
 the girl LKR good LKR well-behaved

As expected, when several modifiers are present, they receive a coordinated reading. The referent of the nominal expression is at the intersection of the various predicates involved, namely 'the x: x girl and x good and x well behaved' for (17). The content of the definite operator is provided by the definite feature of the head noun. The x variable in turn is restricted by the  $\Phi$  features of  $n$ , in this instance, plural and (redundantly) feminine. Recall that Franco, Manzini and Savoia (2015), Manzini and Savoia (2018) propose that the linker provides a local argument for each individual predicate. Yet the reason for this ultimately eludes them. Link structures like (17) provide the required explanation, since they connect linkers to the universal structure for modification (and/or coordination), namely Pair-Merge. In this sense linker languages like Albanian do not instantiate any special construct. If anything, it is languages like English, which do not have any element externalising linkers that represent a special case.

Various empirical challenges remain open. To begin with, linkers are not simply copies of the  $n$  inflection of the modified N. In Albanian the linker for a modified definite N, as in (15), (16) is in fact a copy of the inflection of N. But this is not true in examples where the modified N is indefinite for instance (7a, b) or (8a, b), while the linker still belongs to the definite morphological series. In order to discuss this point, one additional fact about Albanian morphosyntax needs to be introduced, namely that Ns with so called indefinite endings can

<sup>2</sup> I adopt ideas by Chomsky (2013) to the effect that precedence is not represented in syntax and is computed at the externalization interface (EXT) on the basis of dominance relations in syntax. Therefore, the adjective is shown to the right of the noun in (15), or to its left in English, without prejudice to the syntactic parallelism between the two languages.



be found in combination not only with (indefinite) quantifiers but also with demonstratives. Perhaps, it would be more appropriate to speak of a weak inflection, where an overt D is present, vs. a strong inflection, conveying definiteness in the absence of a definite article. In this perspective, the strong form of linkers could reflect some morphosyntactic property, for instance their autonomous (clitic) head status. Evidently, all of this remains to be worked out. In other languages, we know that linkers are invariable (e.g. the Persian *ezafe*), hence possibly a default *n*. A descriptively adequate theory must ultimately take this range of variation into account.

This is also true of the constraints that restrict the overt presence of linkers in some languages. For instance, in Greek, linkers only surface when a definite N is modified. In this case, we could assume that the modification of indefinite Ns also involves linkers, except that they are not externalised. The evidence comes in part from the comparison with languages like Albanian, where linkers have a less differentiated lexicalisation when a definite N is modified. Romanian also provides an example of missing linkers dictated by externalisation and not by the absence of linker structures. Thus, Romanian genitives are preceded by the linkers *al*, *a*, *ai*, *ali* which nevertheless do not surface when the modified N is definite and crucially is linearly adjacent to the modifying genitive, as shown in (18a) (no linker) vs. (18b-d) (obligatory linker, Dobrovie-Sorin, Giurgea and Nedelcu 2013).

- (18)
- |    |  |            |           |                        |                        |
|----|--|------------|-----------|------------------------|------------------------|
| a. | casa                                       |            |           | vecinului              |                        |
|    | house-F.SG.DEF                             |            |           | neighbour-M.SG.OBL.DEF |                        |
|    | 'the neighbour's house'                    |            |           |                        |                        |
| b. | o  | casă       | a         | vecinului              |                        |
|    | a  | house.F.SG | LKR.F.SG  | neighbour-M.SG.OBL.DEF |                        |
|    | 'a house of the neighbour's/a neighbour's' |            |           |                        |                        |
| c. | casa                                       |            | frumoasă  | a                      | vecinului              |
|    | house-F.SG.DEF                             |            | beautiful | LKR.F.SG               | neighbour-M.SG.OBL.DEF |
|    | 'the beautiful house of the neighbour'     |            |           |                        |                        |
| d. | Casa                                       |            | este      | a                      | vecinului              |
|    | house-F.SG.DEF                             |            | is        | LKR.F.SG               | neighbour-M.SG.OBL.DEF |
|    | 'The house is the neighbour's.'            |            |           |                        |                        |

The final potential difficulty I consider here has to do with predicative modifiers in post copular position, preceded by the linker in Albanian (11) and in Romanian (18d). The question is how this can be reconciled with the *n* nature of the linker. The simplest answer lies in the analysis of copular constructions proposed by Moro (1997). At first Merge, a predication is created between NP and an adjective, or a possessor, or a set of modifiers. In words, the underlying structure of (11a) contains the substructure in (19) which is just a normal nominal modification structure. Merger of the copula then forces *vajza* to raise, stranding the linker structure.

- (19) vajza [<sub>IP</sub> ɛshtë ... [<sub>NP</sub> [<sub>N</sub> vajza] < [<sub>n</sub> e], [<sub>A</sub> bukura] >] cf. (11a)
- 

In short, the identification of linkers in nominal modification with Chomsky's (2020) Links is consistent with empirical evidence and resolves the long-standing issue of the underlying motivation for linker structures. In the construal suggested here, linkers are an overt reflection of the ordinary structure of nominal modification, covertly present in languages like English

as well. Apart from its intrinsic interest, this conclusion opens the way for studying Pair-Merge structures on the basis of their overt linker manifestations. Several avenues of further research open up. I will briefly mention some of them in the next section.

#### 4. *Link(er)s: further prospects*

Work by Collins (2019) on Khoisan languages shows the existence of verbal linkers, introducing a variety of arguments and modifiers of the verb other than the direct object. Various questions arise: first of all, whether these are instantiations of the *v* Link, and next how this complies with the coordination semantics of Link sequences. In fact, in at least one I-E, Romance language, namely Aromanian, the same linker element that precedes genitives in adnominal modification also precedes datives in ditransitive or other environments (Manzini and Savoia 2018). Interestingly, the Aromanian linker agrees with the genitive or dative, unlike all genitives seen so far.

- (20) a.        i            o            am            datə    o            fitforu/        ali        feti  
               him/her it        have.1SG given    LKR.M.SG boy-DEF/    LKR.F.SG girl-DEF  
               ‘I gave it to the boy/the girl’  
       b.        libra                    o            fitforu/    ali        feti  
               book-F.SG.DEF    LKR.M.SG boy-DEF/        LKR.F.SG girl-DEF  
               ‘the boy’s/the girl’s book’

The matter of verbal linkers is left open here. Collins (2019) himself points to the possible connection with adnominal linkers dropping the issue afterwards. The Link analysis of linkers may lead to a profitable reopening of this question.

On a different track, typological work (Plank 1995) draws together linkers and other phenomena which like linkers, characterise adnominal modification and involve the surfacing of a partial copy of the modified N on the modifier (adjective, genitive). The most notable of such phenomena is Case stacking, instantiated for instance in Australian languages. In the Lardil (Pama-Nyungan) example in (21) (Richards 2013: 43) the modified N is in the instrumental Case ‘with the spear’. Its genitive modifier ‘the boy’s’ bears not only its own Case (genitive), but also a copy of the instrumental Case of the modified N.

- (21) Ngadalatha        karnjin-i            marun-ngan-ku            maarn-ku  
       I            spear    wallaby-acc        boy-gen-instr            spear-instr  
       ‘I speared the wallaby with the boy’s spear.’

Manzini and Savoia (2018), Manzini, Franco and Savoia (2019) argue that Case stacking responds to the same generalization that they propose for linkers, namely that the external argument of the elementary relator ‘of’/Gen must have an instantiation within the relator’s maximal projection, i.e. PP or (oblique) KP. As before, the issue arises why the grammar would enforce such a requirement. If the present discussion is correct, Case stacking could be conceptualised as a different realisation of the *n* linker considered in the previous section. Thus *marun-ngan-kumaarn-ku* ‘with the boy’s spear’ would have a structure like (22) with the head *maarn-ku* ‘with the spear’ modified by the genitive *marun-ngan* ‘the boy’s’ via Pair-Merge of the latter with a Link *n*, represented in this instance by a Case inflection, *ku*. This analysis however requires a more sustained discussion of Case than has been provided here, and again I leave this issue for future research.

(22)  $[_{NP} < [_{KP} \text{marun-ngan}], [_n \text{ku}] > [_{KP} \text{maarn-ku}]]$

As a final illustration I go back to the relation of linkers to agreement, a topic raised before, but not further explored. I will begin with some examples from Italian, a language which has direct modification of Ns by adjectives, differing from English only in that adjective agrees with the N they modify, as in (23):

(23)	a.	la	bella	casa
		the.FSG	nice.FSG	home.FSG
		'the nice home'		
	b.	le	belle	case
		the.FPL	nice.FPL	home.FPL
		'the nice homes'		

A considerable amount of discussion in generative work of the last two decades has been devoted to the question whether the agreement phenomenon in (23), often referred to as Concord, is or is not to be assimilated to subject-verb agreement, hence accounted for by (a suitable version of) the minimalist rule of Agree. There are *prima facie* overwhelming reasons to assimilate Concord and verbal agreement, see Baker (2008). At the same time, Agree, beginning with Chomsky (2001) is characterised as being fundamentally asymmetrical, namely a relation between an element needing to be checked (interpreted, evaluated, deleted, etc.) and an element able to check it. If this conception is imported into Concord, a number of difficulties arise, since an example like (23) seems entirely symmetrical: every member of the NP must agree with any other member, overtly. Ways have been suggested to avoid this difficulty. In one of the first approaches to the issue, Carstens (2000) proposes checking multiple categories (A, D) by means of N. Other theorists have preferred defining separate rules (Giusti 2008 for an early proposal) or simply ignore Concord when discussing Agree.

Here I would like to add linkers and/or Links to the Agree vs. Concord equation. The Romance languages have possessive (genitive) pronouns. These pronouns of course have their own inherent  $\phi$  features, including person and number as English *my, his, their* etc. In addition, however, they also bear an inflection agreeing with the N they modify, as shown in (24).

(24)	a.	la	mia	casa
		the.FSG	my.FSG	home.FSG
		'my home'		
	b.	le	mie	case
		the.FPL	my.FPL	home.FPL
		'my homes'		

Because of the discussion of Albanian, we know that in (23a) *bella casa* 'nice home' has the structure of embedding in (25a). We also know that genitive modifiers have a similar structure, so that *mia casa* 'my home' in (24a) corresponds roughly to (25b).

(25)	a.	$[_{NP} < n, [_A \text{bella}] > [_N \text{casa}]]$
	b.	$[_{NP} < n, [_{NP} \text{mia}] > [_N \text{casa}]]$

The problem with (24) is the stacking of  $\phi$  features on the possessive pronoun, namely its own intrinsic features, and on top of those a copy of the features of N. Now, recall from the discussion of Albanian that the  $n$  linker is a copy of the  $n$  nominalising category of N, in practice its inflection. The representation in (25b) suggests that the stacked agreement could be another externalisation yet of the  $n$  Link, this time via agreement, as in (26).

$$(26) \quad \begin{array}{c} [_{NP} \langle n, [_{NP} \text{mi-a}] \rangle > [_{N} \text{casa}]] \\ \hline \end{array}$$

What is especially interesting is that one could extend the same treatment to adjectival concord, along the lines of (27). If so, the dissimilarities between subject/verb Agree and Concord would not be a consequence of different rules applying, or of Agree applying in a different way. Rather I am suggesting that Concord may be construed as regular Agree between an  $n$  phase head probe and a goal, except that  $n$  is the Link in a modification pair merge structure.

$$(27) \quad \begin{array}{c} [_{NP} \langle n, [_{A} \text{bell-a}] \rangle > [_{N} \text{casa}]] \\ \hline \end{array}$$

In fact, the connection between linkers, case stacking and what we may call agreement stacking is clearly perceived by the typological literature (Plank 1995). In the theoretical literature, Manzini, Franco and Savoia (2019) discuss in detail Punjabi where genitive PPs bear agreement with the N they modify. If (27) is correct, then a further important consequence follows from the pair merge construct involving Links (and hence linkers).

### 5. Conclusion

In this note, I have first presented a recent formalisation of modification and conjunction structure by Chomsky (2020) in terms of sequences of pair merge units, each unit created by means of a Link element identified with the nominaliser/verbaliser  $n/v$ . I have argued that the Link element is overtly visible in languages with linkers, to be more precise nominal linkers, while for verbal linkers I have left the question open. I have suggested that typologists are rights in regarding case stacking and linkers as essentially the same phenomenon. I have further suggested that concord may be another manifestation of Link structures, solving the longstanding issue of Concord vs Agree.

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