

The curious case of the two-headed phrase: A generative approach to co-compounds

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Background. Co-compounds (CCs) are well-described in the typological literature and are usually analysed as a type of (asyndetic) coordination restricted to morphosyntactically parallel and semantically related pairs of elements (Wälchli 2005). CCs are amply attested in Hungarian:

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| (1) <i>János adta-vette a használt autókat.</i>
John sold-bought the used cars
'John was trading (lit. selling-buying) used cars.' | (2) <i>Anti fel-alá-sétált.</i>
Tony up-down-walked
'T. was walking around (lit. up-down).' |
| (3) <i>János megosztotta velem ügyét-baját.</i>
John shared me.with affair.3SG.ACC-problem.3SG.ACC
'John shared all his goings-on (lit. affair-problem) with me.' | (4) <i>Mari bús-komor arcot vágott.</i>
Mary sorrowful-gloomy face cut
'M made a sad (lit. sorrowful-gloomy) face.' |

CCs have only received sporadic attention from generative syntacticians, and have mostly been analysed as a subtype of exocentric compounds (Scalise, Fábregas & Forza 2019), a classification which we will challenge below. A notable exception is Borise & É. Kiss (2022), who argued that in Khanty (Uralic), “the members of a co-compound are juxtaposed lexical heads (nouns, adjectives, numerals, or verbs) rather than juxtaposed phrasal projections”. We follow up on this suggestion with a corpus-assisted exploration of CCs in Hungarian, combined with a study of elicited CCs in Khanty, and argue that co-compounding is an instance of two heads undergoing Merge and being dominated by a shared layer of functional projections. While never overtly spelled out (to our knowledge), an implicit assumption of endocentricity (Chomsky 1970) and the projection principle (Chomsky 1981) has been that it is *exactly* one head that heads and projects a phrase (cf. Lichte 2021 for a recent overview). Thus it might appear problematic that phrases can in fact be two-headed – however, we will argue that as long as a few sensible conditions (that CCs are subject to) are met, the existence of a two-headed phrase is unproblematic for the standard understanding of endocentricity and the projection principle.

Data. In both Hungarian and Khanty, CCs are made up of juxtaposed lexical elements with no overt coordinator (1-4). They are obligatorily adjacent and inseparable: when subject to movement, they move as a unit. Their elements are closely related semantically: they are synonyms (4), taxonomic sisters (3), antonyms (2), or reverses (1). ‘Accidental’ co-compounds, licensed by context, are possible in Khanty (and, to a lesser extent, Hungarian), but also limited to semantically related concepts (5). In both Hungarian (6) and Khanty (7), bound inflectional morphemes appear on both elements; strict morphological parallelism between the two is required. In the presence of possessive marking, the possessor must be the same for both elements (7a; /y/ in the possessive suffix is used for vowel hiatus resolution). An overt coordinator is prohibited, (7a).

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| (5) a. <i>v:ʃi-γən tje:ʃi-γən</i>
father-DU grandmother-DU
'father & grandmother' | (6) a. <i>ügy-é-t - baj-á-t</i>
affair-3SG-ACC – problem-3SG-ACC
'his goings-on (lit. affair-problem)' | (7) a. <i>i:mp-əl (*pə:nə) ke:ʃkə-γəl</i>
dog-3SG and cat-3SG
'his/her _i dog & his/her _{i/*j} cat' |
| b. <i>??kənjikə-γən sɔ:rt-γən</i>
book-DU pike-DU
'a book & a pike' | b. <i>*ügy-é-t - baj-a-i-t</i>
affair-3SG-ACC – problem-3SG-PL-ACC
'his goings-on (lit. affair-problems)' | b. <i>*i:mp-əm ke:ʃkə-γəl-əm</i>
dog-1SG cat-DU-1SG
'(my dog and my two cats)' |

Analysis. We propose that these morphological properties are a by-product of agreement of both members of a CC with a c-commanding head. Adopting Borise & É. Kiss's (2022) analysis of CCs, we assume that the parallel morphology result from post-syntactic operation M(orphological)-Merger (Halle & Marantz 1993), whereby the suffixes are lowered to the heads post-syntactically, prior to lexical insertion. In terms of their syntax, we propose that the two elements of a CC are combined via two syntactic heads undergoing Merge. We support this analysis by demonstrating that (i) in the presence of a complement, the two members of a CC necessarily share it and (ii) any higher functional projections necessarily apply to/modify both members of a CC. We also address the (iii) issue of labelling that emerges when two heads undergo Merge in a symmetric fashion. Finally, we provide arguments against treating CCs as (iv) exocentric compounds or (v) asyndetic coordination.

(i) Shared complements. In Hungarian, verbal particles are standardly analysed as phrasal complements to the verbal head (Piñón 1995, É. Kiss 2002, Den Dikken 2004, a.o.). A verbal CC selects for a single verbal particle, which shows that the elements of a CC cannot have independent complements:

- (8) *János el-tett-(*el-)vett a konyhában.*
 John PRT-put.down-PRT-pick.up the kitchen.in
 'John whiled away the time by moving (lit. putting down - picking up) stuff around in the kitchen.'

(ii) Shared functional projections. As the examples from Hungarian show, a nominal CC can only associate with a single determiner (9) and an adjectival CC can only be modified by a single adverbial (10). Similarly, a modifying adjective necessarily applies to both elements of a CC, as example (11) from Khanty shows. Combined, (8-11) show that the members of a CC share their complements as well as modifiers and higher functional projections.

- (9) *A szegényember korán munkára fogta a fiát - (*a) lányát.*
 The poor.man early work.to took the boy.3SG the girl.3SG
 'The poor man sent his children to work early.' (lit. 'sent his boy-girl to work early')
- (10) *Mari kicsit búss - (*kicsit)komor volt.*
 Mary slightly gloomy slightly sorrowful was.
 'Mary was a bit sad.' (lit. 'Mary was a bit gloomy-sorrowful.')
- (11) *Mv: ənəl sv:rt-γən v:γər-γən qv:tl-əm.*
 1SG big pike-DU ide-DU catch-PST.1SG
 'I caught a big pike and [a big] ide.' (NOT: 'I caught a big pike and an ide.')

(iii) Merge & labelling. We propose that the derivation of a phrase containing a CC (e.g., a verbal one) proceeds as follows. Both elements of the CC are part of the numeration as separate elements. They are combined in syntax via symmetric Head-Head Merge ($[_{\alpha} H_1 H_2]$). The two heads are equidistant from α , but since they contribute the same category, this unresolved competition does not constitute a problem: H_1 and H_2 together contribute the category V to α (e.g. $[_V \text{adv} + \text{ves} \text{xy}]$). This is in line with Chomsky (2013: 43), who shows that the labelling problem does not arise if the two heads are (non-accidentally) identical in a relevant respect, providing the same label. In case the two heads have identical subcategorization properties and theta-grids, they, together, project the (extended) VP (the elements of a CC indeed always do). Otherwise, the derivation crashes. Further on, the α functions as a single head for the purposes of e.g., movement, with the potential exception of post-syntactic suffixation via M-Merger, for which both heads are visible.

(iv) Not exocentric compounds. *Pave* (Scalise et al. 2009), we argue that CCs are not exocentric compounds as they are endocentric along all three dimensions identified by Scalise et al. (2009): they are categorically endocentric as the constituents in head position impose their categorial features on the whole construction; they are morphologically endocentric as the morphological features of the whole construction are identical to the morphological features of its internal constituents, and they are semantically endocentric as their meaning/semantic type can be compositionally derived from the type (and meaning) of their constituents. Scalise et al. (2009) consider (nominal) CCs morphologically exocentric as in many languages, the gender of the CC is neuter when the constituents have non-identical gender. Since Uralic languages have no grammatical gender, this switch is not attested in Hungarian; accordingly, there is no reason to assume that CCs are morphologically exocentric.

(v) Not coordination. Finally, we argue against approaching CCs as instances of asyndetic coordination. Overt coordinators are prohibited in CCs. Moreover, a disjoint reading (i.e., one that is predicted to be possible if the two elements of a CC are linked by a silent disjunctive coordinator) is impossible, e.g., in yes-no questions in Khanty, (12), which means that there is no possibility for a (disjunctive) coordinator in a CC.

- (12) *Mv:ʃv v:ləŋ kv:pə-ʃv:j ji:njʃ?*
 Masha morning coffee-tea drink.PST.3SG
 'Did Masha drink coffee or tea in the morning?' (= 'Did she drink something?', a yes/no-question)
 NOT: 'Which one did Masha drink – coffee or tea?' (a constituent question)

We argue that this is because a CC is not an instance of coordination: while a conjunctive coordination-like meaning is achieved via parallel morphosyntax, closeness in meaning of the elements, and parallel prosody (not shown here), a disjunctive meaning is impossible, due to the lack of a coordinating functional head that could act as a disjunctive operator.