Coordinative compounds are neither coordinative nor compounds: Evidence from Khanty and Hungarian

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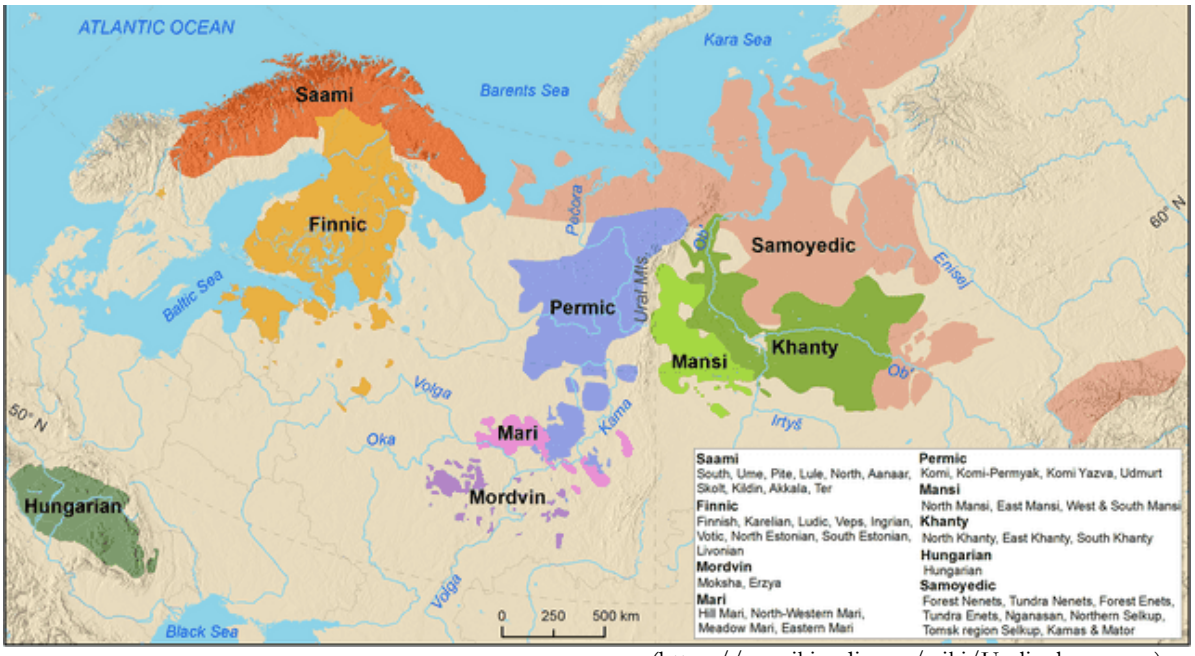
1. Introduction

1.1 Co-compounds: a first look

- A co-compound (**CC**) is a pair of morphosyntactically parallel and semantically related elements that constitute a single morphosyntactic and semantic unit.
- CCs are well-described in the typological literature and are usually analysed as a type of (asyndetic) **coordination** (Wälchli 2005).
- CCs are amply attested in e.g. **Hungarian** (1) and **Khanty** (2) (both: Ugric, Uralic):[1]



(https://en.wikipedia.org/wiki/Uralic_languages)

(1) a. *János adta-vette a használt autókat.* Hungarian
John sold-bought the used cars
'John was trading (lit. selling-buying) used cars.'

b. *Anti fel-alá-sétált.*
Tony up-down-walked
'Tony was walking around (lit. up-down).'

c. *János megosztotta velem ügyét-baját.*
John shared me.with affair.3SG.ACC-problem.3SG.ACC
'John shared all his goings-on (lit. affair-problem) with me.'

d. *A volt barátok jobbára a maguk rohanós-li életével vannak elfoglalva.*
the ex friends mostly the own running-hurrying life.with are busy
'Ex-friends are preoccupied with their own busy lifes.'

[1] The Hungarian data was collected from native speakers, either via elicitations or drawn from corpora or the internet. The Khanty data comes from elicitations with native speakers of Surgut Khanty, unless otherwise noted; examples from textual sources are accompanied by references.

(2) a. *je:ji-ɣən* *manʲi-ɣən* *ɬi:k-kən* *jinʲtʲ-ɣən.* Khanty
older_brother-DU younger_brother-DU eat-PST.3DU drink-PST.3DU
'Older brother and younger brother ate and drank.'

b. *nɯŋ-kən* *mi:n-ɣən*
2SG-DU 1SG-DU
'you and me'

1.2 Preview of the analysis

- CCs have only received sporadic attention from generative syntacticians, and have mostly been analysed as **a subtype of exocentric compounds** (Scalise, Fábregas & Forza 2009) – a classification which we would like to challenge.
- We argue that co-compounding is **a syntactic operation:** an instance of **two heads undergoing Merge** and being dominated by a **shared layer of functional projections** (building on Borise & É. Kiss (2022)).
- An implicit assumption of endocentricity (Chomsky 1970) and the projection principle (Chomsky 1993) has been that it **is *exactly* one head** that heads and projects a phrase (cf. Lichte 2021 for a recent overview).
- We argue that as long as a few 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**.
- We also address **the issue of labelling** that emerges when two heads undergo Merge in a symmetric fashion.
- We provide arguments **against**:
  - treating CCs as **exocentric compounds** and
  - treating CCs as instances of **asyndetic coordination**.
- We model the semantics of CCs in terms of substitution by a shared **superordinate term** plus universal or existential closure.
- We also address variation between Hungarian and Khanty in terms of (i) the required **degree of semantic relatedness** between the two elements (ii) the availability of **dual/plural marking** and of a **conjunctive interpretation;** and relate this variation to the very different functional load that co-compounding carries in the two languages.

2. Data

2.1 Similarities between Hungarian and Khanty

- CCs are made up of juxtaposed lexical elements with **no overt coordinator**:

(3) a. *ügy-é-t* (**és*) *baj-á-t* Hungarian
affair-3SG-ACC and problem-3SG-ACC
'his goings-on (lit. affair-problem)'

b. *xɐ:nti* *xo* (**pɐ:nə*) *xɐ:nti* *ne:* Khanty
Khanty man and Khanty woman
'(Khanty) people (lit. Khanty man-Khanty woman)'

- The two members of a CC are **obligatorily adjacent and inseparable**: when subject to movement (such as focus-induced movement of the verb), they move as a unit:

(4) *János fúrta-faragta szét ~~fúrta-faragta~~ a szekrényt, nem pedig András.* H.
John drilled-carved PRT the cupboard not although Andrew.
It was John who shred the cupboard into pieces, not Andrew.'

- The two members of a CC are **closely related semantically**: they are synonyms (1d), taxonomic sisters (1c), antonyms (1b), or reverses (1a).

- **Strict morphological parallelism** between the two members of a CC is required – e.g., inflectional morphemes appear on both elements and must be fully matching:[2]

(5) a. *ügy-é-t - baj-á-t* Hungarian
affair-3SG-ACC problem-3SG-ACC
'his goings-on (lit. affair-problem)'

b. **ügy-é-t - baj-a-**i**-t*
affair-3SG-ACC problem-3SG-**PL**-ACC
('his goings-on (lit. affair-problems)')

- In the presence of possessive marking, **strict parallelism in possessor identity** is required (i.e., morphological parallelism in the absence of indexing parallelism is not allowed).

(6) *i:mp-əł ke:ʃkɐ-ɣəł* Khanty
dog-3SG cat-3SG
'his/her$_i$ dog & his/her$_{i/*j}$ cat'

2.2 Differences between Hungarian and Khanty:

2.2.1 'Contextual' CCs

- **'Contextual'** CCs (e.g. the two protagonists of a story) are possible in Khanty -- but even then, they must have **a degree of semantic relatedness**, (7a). If it is absent, a CC is not felicitous even in the presence of a unifying context, (7b).

(7) a. *ɐ:tji-ɣən tje:tji-ɣən* Khanty
father-DU grandmother-DU
'father & grandmother'
(context: *Father and grandmother on father's side are relatives.*)

b. *???Kənjikɐ-ɣən sɒ:rt-ɣən pəsɐn aβtɯ-nə βoł-ɣən.*
book-DU pike-DU table top-LOC be-PST.3DU
'A book and a pike were on the table.'

- 'Contextual' CCs are **unavailable** in Hungarian:

(8) **Apá-d – nagyanyá-d hol van?* Hungarian
father-2SG grandmother-2SG where is?
intended: 'Where is your father and your grandmother?'

2.2.2 Number marking

- In Khanty, CCs that consist of **countable nouns** typically carry a **DU suffix** on each member.
  - This does *not* mean that each member refers to two items.
  - If used as a subject or topical object, a CC elicits **dual agreement on the verb:**

(9) *Mɐ: qɯt-əm-ɐ βoqi-**ɣən** ɐ:mp-**ɣən** jɒ:βət-**ɣən**.* Khanty
1SG house-1SG-LAT fox-DU dog-DU come-PST.3DU
'A fox and a dog came to my house.'

  - DU marking may be omitted in the presence of other parallel morphology (e.g., possessive suffixes):

[2] Some instances of inflectional morphology only on the second element of a CC were attested in earlier stages of both Hungarian and Khanty but this pattern is no longer productive in either language.

(10) a. *i:mp-əm* *ke:ʃk-ɐm* Khanty
dog-1SG cat-1SG
'my dog and my cat'

b. *ɐ:mp-ɣəɬ-ɐm* *ke:ʃkɐ-ɣəɬ-ɐm*[3]
dog-DU-1SG cat-DU-1SG
'my dog and my cat'

- Mass nouns, if forming a CC, do not carry DU suffixes:

(11) *ɬi:tot*(*-ɣən) *qu:ɬ*(*-ɣən) Khanty
food-DU fish-DU
'food'

- Plural marking is possible if each member of the CC refers to a plurality of objects:

(12) *ju:ɣ-ət* *pam-ət* Khanty
tree-PL grass-PL
'trees and grasses'

- In Hungarian, CCs do not allow for number marking:

(13) a. *ügy-é-t* - *baj-á-t* Hungarian
affair-3SG-ACC problem-3SG-ACC
'his goings-on (lit. affair-problem)'

b. **ügy-e-**i**-t* - *baj-a-**i**-t*
affair-3SG-**PL**-ACC problem-3SG-**PL**-ACC
('his goings-on (lit. affairs-problems)')

2.2.3 Superordinating vs. conjunctive CCs

- CCs in Hungarian are strictly 'superordinating' – i.e., the CC is a whole refers to a single, superordinate concept, as in (13a); cf. Bauer's (2023) notion of hyponym-superordinate expressions.
- CCs in Khanty may be either 'superordinating', as in (11), or 'conjunctive', as in (10), where the meaning of a CC is equivalent to that of coordination, and is close to the traditional meaning of *dvandva* (Bauer 2023).
    - Only 'conjunctive' CCs allow for number marking.

3. Against CCs as exocentric compounds

- **Exocentric compounds**: a compound that is not a hyponym of one of its elements (e.g., *redhead, killjoy, pickpocket,* etc.).
- Scalise et al. (2009) developed a three-dimensional model of exocentricity:
    - **categorically exocentric**: "the constituent in the head position does not impose its categorial features on the whole construction";
    - **morphologically exocentric**: "the morphological features of the compound are not identical to the morphological features of any of its constituents";
    - **semantically exocentric**: "a compound is semantically endocentric if it denotes a class that cannot be derived from the classes denoted by its constituents" (in other words, it violates any notion of semantic compositionality).

[3] The dual suffix *-ɣən* is realized as *-ɣəɬ-* in the context of the following possessive suffix.

- *Pace* Scalise et al. (2009), we argue that CCs are **not exocentric compounds** as they are endocentric along all three dimensions:
    - they are **categorically endocentric:** the constituents in head position impose their categorial features on the whole construction;
    - they are **morphologically endocentric:** the morphological features of the whole construction are identical to the morphological features of its internal constituents;
    - they are **semantically endocentric:** their meaning/semantic type can be compositionally derived from the type (and meaning) of their constituents.

4. Against CCs as (asyndetic) coordination

Evidence against approaching CCs as instances of **asyndetic coordination**:

- Overt **coordinators** are prohibited in CCs, (3);
- Postulating a silent coordinator between elements of a CC predicts **unavailable interpretations** and excludes **available interpretations**;
- The pattern of **dual marking** in Khanty is incompatible with coordination;
- CC-formation differs from coordination in requiring morphological parallelism and possessor identity.
- Members of a CC necessarily **share their complements and modifiers**, which would complicate the coordination analysis (e.g., by postulating ellipsis).

4.1 Interpretation without coordination

- In superordinating CCs, the meaning of the CC is a single concept.
- As we will argue below, this meaning is derived not via coordination (disjunction or conjunction), but rather, through **substitution** by a shared superordinate term:
- In Khanty, the concept of mankind/humanity/people in general can be expressed as *ruť-qăntəγ* 'Russian-Khanty':

(14) (Context: Khanty are at war with Selkups. The Khanty protagonist is surrounded by Selkup warriors and thinks to himself):

näm-a	*ruť-nə*	*qăntəγ-nə*	*wäl-taγə*	*ja*	*kič-əm*	*əntə*	*wăʌ-ʌ.*
in.vain	Russian-LOC	Khanty-LOC	kill-INF	PCL	desire-1SG	NEG	be-PRS.3SG

'It's of no use, being killed by other people.' (Lit.: 'My desire to be killed by other people in vain doesn't exist.') (Márta Csepregi, personal archive)

- It is clear that *ruť-qăntəγ* is not a coordination, either on a conjunctive or disjunctive reading, since, in (14), the most salient representatives of the humanity that are about to kill the protagonist are Selkups. This is schematized in (15):

(15) ✗ LF_1: RUSSIANS ∧ KHANTY
'It's of no use, being killed by Russians and Khanty.'

✗ LF_2: RUSSIANS ∨ KHANTY
'It's of no use, being killed by Russians or Khanty.'

✓ LF_3: HUMANITY/PEOPLE
'It's of no use, being killed by other people.'

→ This would be unexpected on the (asyndetic) coordination scenario.

4.2 The interpretation of dual marking in Khanty

- By default, dual number in Khanty marks a cardinality of two:

(16) a. *Ma* *qɯt-əm-ɐ* *(kɐ:t)* ***βoqi-ɣən*** *jɒ:βət-ɣən.* Khanty

1SG	house-1SG-LAT	two	fox-DU	come-PST.3DU

'Two foxes came to my house.'

b. *Ma* *qʉt-əm-ɐ* *(kɐ:t)* *βoqi-**ɣən*** *pɐ:nə* *(kɐ:t)* *ɐ:mp-**ɣən*** *jɒ:βət-ɣən.*
1SG house-1SG-LAT two fox-DU and two dog-DU come-PST.3DU
'Two foxes and two dogs came to my house.'

- **Dual marking** in CCs, in contrast, does not function as ordinary number marking: here, each of the dual-marked members of a CC typically refers to **one item**, as in (17) (=(9)):

(17) *Mɐ:* *qʉt-əm-ɐ* *βoqi-**ɣən*** *ɐ:mp-**ɣən*** *jɒ:βət-ɣən.* Khanty
1SG house-1SG-LAT fox-DU dog-DU come-PST.3DU
'A fox and a dog came to my house.'

→ This would also be unexpected on the (asyndetic) coordination scenario.

4.3 Morphological parallelism and possessor identity

- The **strict morphological parallelism** between the members of CC is also not easy to explain on a coordination analysis, since in the case of (overt) coordination, no such parallelism is required:

(18) a. ***i:mp-əm** *ke:ʃkɐ-**ɣəł**-ɐm* Khanty
dog-1SG cat-**DU**-1SG
intended: 'my dog and my two cats'

b. *i:mp-əm* *pɐ:nə* *ke:ʃkɐ-**ɣəł**-ɐm*
dog-1SG and cat-**DU**-1SG
'my dog and my two cats'

- Similarly, the requirement for **possessor identity** only holds in CCs but not in (overt) coordination:

(19) a. *i:mp-əł* *ke:ʃkɐ-ɣəł*[4] Khanty
dog-3SG cat-3SG
'his/her$_i$ dog and his/her$_{i/*j}$ cat'

b. *i:mp-əł* *pɐ:nə* *ke:ʃkɐ-ɣəł*
dog-3SG and cat-3SG
'his/her$_i$ dog & his/her$_{i/j}$ cat'

4.4 Shared complements & functional projections

- 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 verbal CC in Hungarian cannot have independent complements:

(20) *János* *el-tett* - *(*el-)vett* *a* *konyhában.* Hungarian
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.'

(21) *A* *bizottság* *tagjai* *meg-hányták* - *(*meg-)vetették* *a* *kérdést.* Hungarian
the committee members PRT-threw PRT-cast the problem
'The members of the committee thrashed out (lit. threw-cast) the problem.'

[4] /ɣ/ in the possessive suffix in *ke:ʃkɐ-**ɣəł*** is used for vowel hiatus resolution.

- A nominal CC can only associate with **a single possessor**, (22), and an adjectival CC can only be modified by **a single adverbial**, (23):

(22) a. *Összegyűlt a falu fiatal-ja-öreg-je.* Hungarian
assembled the village young-3SG-old-3SG
'The whole population of the village assembled.'

b. **Összegyűlt a falu fiatal-ja - a város öreg-je.*
assembled the village young-3SG the town old-3SG
intended: 'The young people from the village and the old people from the town assembled.'

(23) *Mari kicsit bús - (*kicsit) komor volt.* Hungarian
Mary slightly gloomy slightly sorrowful was.
'Mary was a bit sad.' (lit. 'Mary was a bit gloomy-sorrowful.')

- Similarly, a modifying **adjective** necessarily applies **to both elements of a CC**, (24):

(24) *Mɐ: ənəɬ sɒ:rt-ɣən ɐ:ɣər-ɣən qɒ:tɬ-əm.* Khanty
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.')

→ Combined, (20)-(24) show that the members of a CC share their complements as well as modifiers and higher functional projections, which would complicate the coordination analysis.

5. Analysis

5.1 Merge & labelling

We propose that the derivation of a CC proceeds as follows:

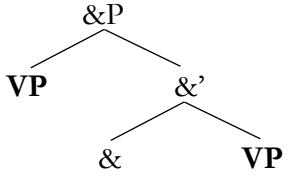
- The two elements of the CC enter the numeration as **separate elements**.
- They are combined via **symmetric Head-Head Merge** ($[_{\alpha}\ H_1\ H_2]$.
- The two heads are **equidistant from α**, but since they contribute the same category, this unresolved competition is not problematic: H_1 and H_2 contribute the same category to α.
- H_1 and H_2 have identical subcategorization properties and theta-grids, and, **together, project the (extended) XP**. Otherwise, the derivation crashes.
- Further in the derivation, **α functions as a single head** for the purposes of e.g. movement.
  - For the purposes of post-syntactic suffixation via M-Merger, both heads are visible.

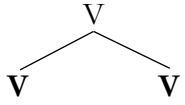
5.2 In favour of symmetry

We propose that the members of a **CC** form a **symmetric structure** (cf. Fábregas (2020) for a similar approach to Spanish *dvandvas*).

- **Coordinated expressions** are typically assumed to be **asymmetric** (e.g., Munn 1987; Johannessen 1996):

(25) a. regular coordination b. co-compounding





- However, for CCs, neither the empirical evidence of asymmetry, nor theoretical arguments in favour of asymmetry are valid:

- **Lack of overt conjunctions** means that there is no prosodic evidence for an asymmetric c-command relation between the members of the CC, which could be signalled by the formation of a closer prosodic unit between the conjunction and one of the of the CC-members.
- Theoretically, symmetric structures are claimed to be avoided by natural languages because the resulting constituent **cannot be labelled** (e.g., Kayne 1994; Di Sciullo 2002; 2005): the labelling algorithm is looking for a lexical head, but in a symmetric structure minimal search is ambiguous, locating two heads.
- However, as Chomsky (2013: 43) argues, this problem does not arise if **the two heads** are (non-accidentally) **identical** in a relevant respect, providing **the same label**. Members of a CC necessarily share the same category and are also strictly identical featurally, so that the labelling problem does not arise.[5]

5.3 Linearization

A further problem of **symmetric structures** is that they cannot be **linearized.**

- We tentatively assume that the linearization of a CC is **free in syntax**.
- It may be determined **semantically**, based on importance/primacy -- e.g., *eat-drink* in (2a).
- Alternatively, it can be determined **phonologically**:
  - In Hungarian CCs, **the front-vowel member precedes the back-vowel one:** *üt-vág* 'beat-chop', *tejbe-vajba fürdet* 'in milk – in butter bathe = to provide for luxuriously',
  - **the shorter member precedes the longer one**: *boldog-boldogtalan* 'happy-unhappy = everybody' (Sóskuthy 2012; Patay 2018)
  - But: this pattern is relatively **easy to override** (e.g., in poetry), which supports the idea of a syntactically free, phonologically conditioned linearization:

(26) *Fürödtünk* *vajba-**tejbe**,* *de* *én* *nem* *akartam,* *hogy* *én* *legyek* *az* / H.
bathed butter.in-milk.in but I not wanted that I be that
'We were having the time of our lives (bathing in butter-milk) but I did not want to be the one
Akit *a* *kalapácsos* *tegnap* *este* *először* *vág* ***fejbe***.
whom the person.with.hammer yesterday evening first hit head.in
whom the guy with the hammer would hit in the head first yesterday evening.'
(lyrics of the song *Ki csinál rendet?* [Who shall create order?] by the punk rock band Tankcsapda)

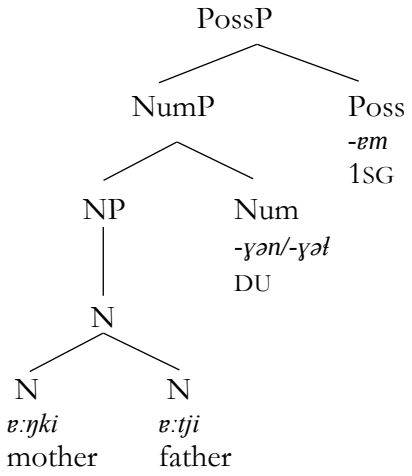
5.4 Morphology: in favour of post-syntactic lowering

We propose that the morphological properties of CCs (e.g., strict morphological parallelism) are a by-product of **agreement** of both members of a CC with a c-commanding head.

- We take the parallel morphology to result from **post-syntactic M(orphological)-Merger** (Halle & Marantz 1993), whereby the suffixes are lowered to the heads post-syntactically, prior to lexical insertion.
  - This explains (i) the requirement of strict morphological parallelism, (ii) possessor identity and (iii) the pattern of dual affixation in Khanty:

[5] Chomsky (2013) posits the requirement of *non-accidental* identity in order to explain why two DPs merged in an XP-YP structure (e.g. in a small clause with a predicate nominal) cannot be labelled as such (and as a consequence, there is need for movement to break up the symmetrical construction). A moot point here is what exactly counts as non-accidental identity. We contend that members of a CC do qualify as non-accidentally identical since they are strictly required to be categorially and featurally fully identical (even though this identity is not conditioned by agreement).

(27)



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ɐ:ŋki-ɣəł-ɐm mother-DU-1SG *ɐ:tji-ɣəł-ɐm* father- DU-1SG
'my mother and father'

- The post-syntactic character of affixation in CCs is supported by evidence from Hungarian CCs that consist of verbs falling into **two different conjugations** (2SG suffix *-asz* vs. *-ol*), such as *oszt-szoroz* (divide-multiply 'make calculations, consider one's options).
- In isolation, the 2SG forms for the two verbs are the following (Hungarian WebCorpus 2.0, Nemeskey 2020):

(28)	a. ***oszt-asz***	standard form	98%	(386 hits)	Hungarian
	b. †/%*oszt-ol*	dialectal	2%	(8 hits)	
(29)	a. **szorz-asz*	unattested	0%	(0 hits)	
	b. ***szorz-ol***	standard form	100%	(41 hits)	

- In a CCs, the following forms are attested:

(30)	a. ***osztasz-szorzol***	56%	(15 hits)	Hungarian
	b. ***osztol-szorzol***	33%	(9 hits)	
	c. ***osztasz-szorzasz***	11%	(3 hits)	
	d. *osztol-szorzasz*	0%	(0 hits)	

- Similar patterns are attested with *sütsz-főzöl* (fry.2SG-cook.2SG 'prepare a dish'), *húzol-halasztasz* (draw_out.2SG-postpone.2SG 'procrastinate') and *adsz-vesz-el* (sell.2SG-buy.2SG 'trade').
- This distribution suggests that there is a strong preference for the suffixation to be **identical** not only featurally (2SG) but also **in terms of phonological realization**.
- This preference is strong enough to lead to the production of forms that are otherwise ungrammatical: **szorzasz* and %*osztol* (ungrammatical for vast majority of speakers).

→ The preference for phonological identity suggests that affixation in CCs takes place post-syntactically.

5.5 Meaning: superordinating & conjunctive CCs

- We propose that the meaning of a superordinating CC is computed by way of a strictly local operation that searches for the common immediate **superordinate concept** of the two elements.
- In **hyponym-hypernym graph** terms: the operation checks whether there is a node that immediately dominates the two elements; if so, at LF, the two-word sequence is replaced with the semantic feature bundle associated with that node:
    - *süt-főz* 'fry-cook' [boil in fat/oil]-[boil in water] → [prepare dish]
- The strict locality of the search explains why only synonyms, antonyms, taxonomic sisters and reverses are allowed in superordinating CCs.

- Superordinating nominal CCs in Hungarian and Khanty obligatorily **lack number marking** (even when denoting a plurality). They are also strictly **incompatible with a definite or indefinite article**.
- We propose that they are **bare nominals** that lack the DP layer, which dovetails with their interpretation as **quantificational** rather than referential: superordinating CCs are obligatorily universal in Hungarian and universal or existential (depending on context) in Khanty.
- Accordingly, we propose that, in Hungarian, superordinating CCs are **Heimian indefinites** that obligatorily undergo **local universal closure** (cf. Postma 1995 and Corblin 2012):

(31) *ügy-baj* -superordination-> λx.CONCERN(x) -∀-closure-> λQ∀x.(CONCERN(x)->Q(x))
affair-trouble concern every concern

- In superordinating CCs in Khanty, **local universal closure is optional**; in its absence, sentence-level **existential closure** ensues (Heim 1982):

(32) *kɒ:pə-ʃɐ:j* -superordination-> λx.DRINK(x) -∃-closure-> ∃x.[… DRINK(x)…]
coffee-tea drink some drink

- How about **conjunctive CCs** (available only in Khanty)?
- The availability of conjunctive CCs in Khanty but not Hungarian seems to be correlated with two facts:
    - Syntactic coordination is a relatively **recent development** in Khanty, robustly attested only in mid 20th century (Borise & É. Kiss 2022) whereas it has been ~~robustly~~ established in Hungarian since at least the 12th century. This means that until recently, in lieu of phrasal coordination of two nominals (*father and grandmother left*), one had to either resort to clausal juxtaposition (father left, grandmother left) or to co-compounding (father-grandmother left)
    - Conjunctive CCs in Khanty contain **number marking** (DU or PL); whereas superordinating CCs (in both Khanty and Hungarian) lack number marking.
- We hypothesize that, given that syntactic phrasal coordination is still relatively new in Khanty, CCs can still carry **a vestigial function of coordination**, especially in informal/colloquial registers.
- This function is being taken over by syntactic coordination.
    - The title of a well-known Khanty folk tale is translated as *A little bird and his older sister*. The title of the version recorded in 1901 is a CC, (33a) but the title of the one recorded in 1993 is an instance of coordination (33b):

(33) a. *pi:tʃiŋɣəli-**ɣən*** *o:pi-sɐ:-**ɣən***
'little.bird-DU older.sister-PROX-DU
'a little bird and his older sister'

b. *pi:tʲəŋkəli* ***pɐ:nə*** *o:pi*
little.bird and older.sister
'a little bird and his older sister'

- The availability of **number marking** (DU or PL) is a property of conjunctive but not superodinating CCs in Khanty.
- We hypothesize that, during the syntactic derivation, the presence of number marking can **interfere** with the search for a superordinate concept, which leads to the CCs acquiring a meaning equivalent to that of coordination of two items (**conjunctive CC**).
- This dovetails with the evidence from Hungarian, where syntactic coordination has been available for a longer time, CCs do not allow for conjunctive readings and do not have number marking.

6. Conclusion

Based on evidence from Khanty and Hungarian, we conclude that:

- The term 'coordinative compounds' is something of a misnomer, as CCs, in fact, lack coordination and they are not compound words stored as such in the lexicon;
- Co-compounding is a syntactic operation involving the Merge of two syntactic heads which share functional projections;
- Co-compounding (the existence of two-headed phrases) is compatible with standard generative assumptions as long as the two heads meet certain requirements (identical category and thematic and selectional requirements, close semantic relationship): exactly the ones that CCs are, in fact, subject to;
- The matching morphology on the elements of a CC results from post-syntactic lowering;
- The meaning of superordinating CCs is derived via a search for an immediate superordinate concept at LF;
- Conjunctive CCs (available only in Khanty), the meaning of which is equivalent to that of coordination, are a vestige from old Khanty that lacked syntactic coordination. They are being replaced by syntactic coordination but are also likely protected from quick extinction by their distinct morphosyntactic properties (number marking).

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Appendix 1: Verbal CCs are not serial verb constructions

- Serial verb constructions (or at least one subtype of them, cf. Aikhenvald & Dixon 2005 and Lovestrand 2021 for recent overviews) have been analysed as two-headed verb phrases where the two verbs share an object (Baker 1989):[6]

(34) *Ikán jẹ ìwé Adio run* (Yoruba, Ekundayo & Akinnaso 1983)[7]
termite eat book Adio destroy
'Termites ate and thus destroyed Adio's book'

- However, serial verb constructions (SVCs) are fundamentally different from CCs.
- Syntactic differences:
  - Co-compounding is a cross-categorial phenomenon (N-N, V-V, Adj-Adj, Adv-Adv, P-P etc.); serial verb constructions are limited to verbs;
  - In CCs, the two verbs are strictly juxtaposed: nothing ever intervenes; in SVCs, the canonical position of the object is between the two verbs;
  - In CCs, the two verbs need to have identical theta-grids; but not so in SVCs, where it is possible to combine a transitive verb (agent+theme) with a three-argument verb (agent+theme+goal/location):

(35) *Bàbá mi ra ẹ̀wù bùn mi.* (Yoruba, Oyelaran 1982)
fathermy buy garment present(verb) me

[6] For alternative approaches to SVCs (which do not involve two-headed phrases) cf. Collins (1997) and Aboh (2009), a.o.
[7] All examples in this section are taken from Baker (1989), with the original sources provided in brackets.

'My father brought me a garment.'

- Semantic differences:
  - In CCs, elements typically share an immediate superordinate term;
  - Elements of SVCs do not need to share an immediate superordinate term:
  - with so-called symmetric SVCs, there is no semantic restriction whatsoever, and "the semantic interpretation is typically of two closely associated sequential activities, sometimes with a cause–effect interpretation" (Lovestrand 2021: 120):

(36) *Wọ́n bú omi mu.* (Yoruba, Carstens 1988a)
they pour water drink(trans)
'They poured water and drank it.'

  - in asymmetric SVCs: one of the verb slots is restricted to a particular verb class (e.g. directional verbs denoting path of motion)

(37) *Titi rìn lọ ni, kò sáré lọ.* (Yoruba, Ekundayo & Akinnaso 1983))
Titi walk go is, no run go
'Titi left walking, not running.'

- Theoretical differences:
  - Baker (1989) analyses SVCs as doubly-headed VPs: however, crucially, the two Vs stay distinct, as opposed to in CCs, where (in our analysis) the two Vs are head-merged and form a complex head:

(38) a. SVCs (Baker 1989) b. CCs (current proposal)

  - in SVCs, there are two distinct heads which share an object but are otherwise independent: they stay syntactically, semantically and indeed phonologically distinct all along the derivation;
  - in CCs, the heads are syntactically merged early on and act as complex head as far as syntax is concerned, also, in terms of their semantics, their individual denotations are not preserved: they are replaced by a superordinate term.

Appendix 2: CCs are not an instance of lexical/low coordination

- **Lexical coordination**: coordination of syntactic heads as opposed to syntactic phrases, available e.g., in French (Abeillé 2006):

(39) *mes père et mère*
my father and mother
'my father and mother'/ 'my parents'

[8] In this schematic rendering, we show the object as the complement to the right of V for simplicity (as opposed to, e.g., the specifier of VP; or complement to the left in a head-final language), but nothing in our proposal hinges on this choice.

- **Properties**:
    - Arguments and modifiers may be shared between the two coordinated components;
    - A degree of semantic relatedness is often required;
    - The number of components is typically limited to two.

- **Differences from CCs**:
    - Overt coordinator is typically required;
    - Low coordination can have a single referent; conjunctive CCs in Khanty always have two referents:

(40) *un collègue et ami*
a colleague and friend
'a colleague and friend' (=one person)

    - No requirement of strict morphological parallelism;
    - Dual marking in Khanty would be unexplained on the low coordination approach;
    - Low coordination does not produce superordinate meanings (unless indistinguishable from conjunctive meanings, as in (39)).