Synthetic, Parasynthetic and Exocentric Compounds

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1. Introduction

1.1 The terms *synthesis* and *parasynthesis*

The terms *synthesis* and *parasynthesis* were already present in the grammar of Ancient Greek.

Early in the 19th century, Philipp Buttmann adopted them into his Greek Grammar of (1811), where he defined *synthesis* as the combination of words to form a compound and *parasynthesis* as a further formation on the basis of a compound, cf. Lindner (2011).

In current Romance linguistics, the term *parasynthetic* deviates slightly from this classical definition. Today it refers mostly to the formation of complex verbs by means of the simultaneous addition of a prefix and suffix to a nominal or adjectival base (Melloni & Bisseto 2010).

(1) Parasynthetic verbs in Italian

a. im-bust-are 'to put in an envelope'

b. ad-dolc-ire 'to sweeten'

In Latin, the preverbal elements were prepositions or adverbs. Together with the verb root they formed a compound to which a verbalizing suffix was added, yielding a *parasynthetic* structure (Iacobini 2020).

(2) Latin: adcurro 'to run to' < [ad + curr] + ere

Parasynthetic configurations are found in other Indo-European languages.

Parasynthetic adjectives contain a compound made up of an adjective and a noun to which an adjectival suffix is added:

(2) Parasynthetic adjectives

a.	Engl:	strong-arm-ed	
b.	Germ:	breit-schult(e)r-ig	'having wide-shoulders'
c.	Latin:	aur-i-com-u-s	'having golden hair'
d.	Greek:	prasin-o-mat-i-s	'having green eyes'
e.	Rus:	strel-o-braz-n-yi	'having an arrow-shape'

Parasynthetic nouns are based on a combination of a noun and a verb to which a nominalizing suffix is added.

(3) Parasynthetic nouns

a.	Engl:	law-mak-er	
b.	Germ:	Gesetz-geb-er	'law-maker'
c.	Latin:	agr-i-col-a-m	'field worker'
d.	Greek:	thiri-o-damast-í-s	'lion tamer'

1.2 From parasynthetic to synthetic compounds

The parasynthetic adjectival and nominal formations are referred to today as *synthetic compounds*, a term that goes back to Schroeder's (1874) work on nominal compounding in the early Indo-European languages of Greek and Latin.

The term "synthetic compound" reflects Schroeder's view that these forms are compounds.

(4) Schroeder (1874: 206)

> Da nun hier eine doppelte Synthese sprachlicher Elemente vorliegt, indem nicht nur das 1. und 2. Glied der Composition zusammenzusetzen sind, sondern dies 2. Glied erst noch aus Verbalstamm + Suffix geschaffen wird, so schlagen wir für diese Composita die pleonastische Bezeichnung **synthetische Composita** vor.
>
> [my emphasis, S.O.]

The term *synthetic compound* was introduced into English by Bloomfield (1933) in *Language*, who termed the forms *blue-eyed* and *meat-eater* synthetic and semi-synthetic compounds.

Schroeder and Bloomfield's view that these forms are compounds differs from the earlier view that these forms are parasynthetic structures.

It also differs from the view of a number of traditional Germanic linguists from the 19th and 20th centuries who see them as derivations based on a word group for which they coined the term *Zusammenbildungen* (cf. Wilmanns 1899).

We find considerable discussion in the linguistic literature about the structure of these formations.

(5) Internal structure of *strong-armed*?

a.	Derivation:	[[strong arm] [-ed]]	(parasynthetic)
b.	Compound:	[[strong] [arm-ed]	(synthetic)

2. Early parasynthetic formations

Consideration of the origin of the original parasynthetic formations may help us to understand their properties.

These configurations were present in large numbers in the oldest stages of Indo-European.

2.1 Parasynthetic formations in Latin

The most numerous group of compounds were the complex agent and action nouns (Oniga 1992).

In *agricolam* the roots *ager* 'field' and *col-* 'to cultivate' (from *colere*) combine to a compound with the linking vowel *-i-*.

(6) Agentive Nouns

a.	-a]$_N$	agr-i-col-a-m	'farmer; lit. field-cultivate-THEME-INFL'
b.	-o/u]$_N$	fals-i-dic-u-m	'liar; lit. false-say-THEME-INFL'
c.	-Ø]$_N$	art-i-fic-Ø-em	'artist; lit. art-do-INFL'

The thematic vowels (<a, o, u >) and the zero element Ø are added to the combinations of roots as stem formatives that determine the morphosyntactic features of the nominal declensions.

Second largest group of compounds were the possessive compounds consisting of two roots combined with the typical interfix vowel *-i-*.

In (7a) the overt suffix *-i* is added to the compounded roots and in (6b) the zero suffix -Ø, which provide them with their adjectival category.

(7) Possessive compounds

a. - i]$_A$	taur-i-form-i-s	'having a bull form; lit. bull-form-Infl'
	cit-i-rem-i-s	'having fast oars; lit. fast-oar-Infl'
b. - Ø]$_A$	alb-i-capill-Ø-us	'having white-hair; lit. white hair'
	angu-i-pes-Ø	'having serpent's feet; lit. serpent foot'

As adjectives, they denote a property to be predicated of an external referent. Their adjectival function is the source of the semantic component of possession and the motivation for term *possessive compound*.

The derivational elements added to the initial compound function as the heads of the constructions in determining their semantic and morpho-syntactic features.

(8) Deverbal and denominal parasynthetic formations

a. $[[agr + i + col] + a]_N + m]$

b. $[[taur + i + form]_A + i]_A + s]$

The parasynthetic forms contrast with the synthetic structure of the nominal determinative compounds that are made up of just two nouns whose head is the rightmost lexeme:

(9) Determinative compounds: capr-i-ficus 'fig tree'

2.2 Parasynthetic formations in Sanskrit

Sanskrit also had a group of deverbal formations in which the combination of a nominal and verbal root is transformed into a gerund by means of an overt suffix (Whitney 1896).

(10) Deverbal compounds

a.	-a:	hast-a-grābh-á	'hand-grasping'
b.	-ana:	dev-a-héḍ-ana	'hatred of the gods'
c.	-ti:	havy-á-dā-ti	'presentation of offerings'
d.	-in:	saty-a-vād-ín	'truth-speaking'

The best known group of *compounds* in Sanskrit are the possessive compounds (or bahuvrihis).

Whitney treats them under the heading "secondary adjective compounds".

This terminology reveals his view that they are derived from the more basic determinative compounds that have undergone a categorial shift to yield secondary adjectives.

As adjectives they take on a semantic component of possession.

Whitney's analysis at first seems plausible because the possessive compounds appear to be made up of just two stems, an adjective and a noun, with the nominal stem in final (i.e. head) position.

(11) Possessive compounds

a. hiraṇya-hasta 'having gold hands' < *hasta* 'hand'

b. mahā-bāhu 'having strong arms' < *bāhu* 'arm'

However, denominal adjectives require an overt derivational suffix, which is lacking in these forms, cf. Whitney (1950).

(12)

a. hast-in

b. bāhu-mant

However, the Sanskrit grammarians assumed that the possessive compounds had originally contained an overt adjectival suffix that was later lost.

The term for the atrophied suffix is *luk*, cf. Lindner (2019), Lühr (2004) and Wackernagel (1905).

The possessive compounds differ from their determinative counterparts in the placement of their accent. The accent is found on the first stem of the possessive compounds, but on the final stem of their determinative counterparts:

(13)

a. *sű́rya-tejas* 'having the brightness of the sun'
vs. *sūrya-tejás* 'sun's brightness'

b. *rā́ja-putra* 'having a royal son'
vs. *rāja-putrá* 'royal son'

c. *mahā́-bāhu* 'having strong arms'
vs. *māha-bāhú* 'strong arm'

Furthermore, the combinations of lexemes forming the base of the possessive compounds are better designations of a property (function of adjectives) than they are labels of a concept (function of nouns).

dīrghá-çmaçru	'having a long beard'
mahā́-vadha	'bearing a great weapon'
hatá-mātṛ	'having a slain mother'
ásṛn̄-mukha	'with a blood face'

This is an odd situation if the adjectival compounds are supposed to have shifted from the nominal determinative compounds as their base, as Whitney suggests.

2.3 Parasynthetic formations in Greek

Andreou (1014), Andreou & Ralli (2015): in possessive adjectives of Greek compounding precedes derivation (making them parasynthetic structures).

(15)

a.	katsar-o-mál-**i**-s	'having curly hair'
b.	asxim-o-mur-**i**-s	'having an ugly face'
c.	prasin-o-mat-**i**-s	'having green-eyes'
d.	strav-o-lem-**i**-s	'having a crooked neck'

The overt adjectival suffix alternates with the zero suffix Ø.

(16)

a.	aspr-o-kéfal-Ø-o	'having white hair'
b.	avr-ó-xil-Ø-os	'having soft-lips'
c.	vrom-ó-stom-Ø-os	'having a filthy mouth'
d.	anikt-o-kard-Ø-os	'having an open-heart'

Evidence for a zero suffix Ø comes from minimal pairs with and without an overt suffix in certain dialects like Cypriot.

(17) a. katsar-o-mall-i-s 'having curly hair'

b. katsar-o-mall-Ø-os

(18) a. makr-o-nur-i-s 'having a long tail'

b. makr-o-nur-Ø-os

⇒ In Latin, Sanskrit and Greek many of the original vocalic suffixes on the parasynthetic adjectives had weakened in their final position of the word to the point of null, while the remaining compound base kept its original possessive meaning.

⇒ The bare compound bases ending in a noun function as an adjective.

3. Exocentric compounds

3.1. Origin of the term *exocentric compound*

The first attested use of the term *exocentric compound* was by Aleksander Aleksandrow (1888) in his dissertation on the nominal compounds of Lithuanian.

(19) **Exocentric** vs **esocentri**c compounds

a. kupranugaris	< kuprà + nugarà	'camel, lit. hump back'
b. dëv-stalis	< dëvas + stãlas	'altar, lit. god's table'

Kupranugaris is an **exocentric** compound, literally meaning 'hump back'. The actual referent of the word is not expressed by the lexemes.

Exocentric compounds are nominal compounds that denote a property that applies in the manner of an adjective to a word that accompanies the compound in a syntactic expression (but the head word can also be elliptical).

He contrasts **exocentric** compounds with **esocentric** compounds whose meaning is given by the literal semantics of the compound's elements.

(19) Exocentric vs esocentric compounds

a. kupranugaris	< kuprà + nugarà	'camel, lit. hump back'
b. dëv-stalis	< dëvas + stãlas	'altar, lit. god's table'

Alexandrow was a student of Baudouin de Courtenay. Karl Brugmann, also a well-known linguist, adopted Alexandrow's terminology in his works beginning in (1905). This helped to bring it to the awareness of the Indo-Europeanists (cf. Lindner 2011).

The term **esocentric** was soon replaced by the term **endocentric** to ensure a clearer phonetic distinction between the contrasting terms.

Possible sources for the new term "endocentric" were considered to be either Bloomfield (1933) or Kurylowicz (1935).

However, Thomas Lindner (2011) finds an earlier attestation of the term "endocentric" in a review of Brugmann’s work by Conway (1910).

Given the parasynthetic nature of the original Indo-European possessive structures, how did the exocentric compounds that Alexandrow defines develop from of them?

3.2. Possible origin of the exocentric compounds

The oldest Indo-European literary texts contained both possessive compounds and semantically equivalent rudimentary clause-like structures that could have been their source (Lindner 2019).

The early proto-clauses served as attributes and appositions to nouns and could take their place in elliptical constructions.

(20)

a. Odysseus:	polytropos	'many-way+ed'	= his wanderings
b. Eos:	rhododactylos	'rose-finger+ed'	= goddess of the dawn

The possessive forms were poetic devices for expressing the epithets and anthroponyms typical of early literary texts.

The 19th century discussion of the origin of compounds in Indo-European:

· Whitney (1897) … possessive compounds were secondary to determinative compounds,

· Schroeder (1874), Jacobi (1897) … recognized that the possessive compounds were present and in large numbers in the early stages.

Jacobi’s (1897) "predication theory":
Both the earliest possessive compounds and the synthetic compounds had their roots in a primitive relative clause-like structure that lacked many of the formal features of modern relative clauses such as relative pronouns and inflected verb forms.

· The early source of the deverbal synthetic compounds contained a "special participle" that was atemporal, carried generic meaning and served as the basis of the deverbal formations.

(21) Participial form of the verb with its direct object

OE *sweord-bora* 'sword bearing'

· The early possessive compounds arose from similar rudimentary proto-clauses, but with a non-lexical verb (*have* or *be*), that was often elliptical.

(22) Implicit non-lexical verbs *have* and *be*

a. Skr. *dirgha-bāhu* 'having long arms' < long [is] arm

b. Skr. *bāhú-ojas* 'having strong arms' < arm strong [have]

⇒ The choice of a non-lexical vs lexical predicate may have been the factor that resulted in the modern division of the formations into a group of denominal possessive compounds versus deverbal synthetic compounds.

How did the exocentric compounds develop out of the formal parasynthetic possessive structures of Indo-European?

3.3 Replacement of the atrophied head in Germanic

The parasynthetic adjectival formations of Old English were made up of adjective+noun combinations to which adjectival stem formatives *-a*, *-e* and *-ja* were attached.

(23)

a. -a: hyrned-nebb+a 'having a horn-beak'

b. -e: fealo-hilt+e 'having a yellow handle'

c. -ja: clifer-fet+e 'claw-footed'

As the unstressed vowels weakened in final position, they were subject to phonetic attrition and were lost, cf. Kastovsky (2002):

d. -Ø: gamol-faex 'grey-haired'

Many of the original possessive compounds were headless already in Old English, leaving a noun in the head position of words that functioned as adjectives.

The Old English suffixes that derived adjectives from nouns were extended to the new bare compound bases.

Kastovsky (2002) documents examples both with and without the overt suffixes:

(24)

a.	-ed/-od	lig-locc(ede) 'having red hair'
b.	-lic	mild-heort(lic) 'mild-hearted'
c.	-ig	el-reord(ig) 'having foreign speech'

English eventually settled on the suffix -*ed*; German on the suffixes -*ig* and -lic.

In cases where the bare compound stems remained without a suffix, doublets could arise that attest to this change:

(25) Bare and "extended possessives"

a. redhead	red-headed
b. hunchback	hunch-backed
c. flatfoot	flat-footed
d. dimwit	dimwitted
e. longhorn	longhorned

4. The content of the term exocentric compound

The original parasynthetic possessive compounds were adjectives with descriptive semantics.

Today, the term exocentric compound identifies the set of compounds that fall outside of the regular endocentric structures of the lexical system.

They have formal heads but are not compositional in meaning; the formal head is not the semantic head.

(26) Germ.: der Lockenkopf, das Milchgesicht, die Rotznase

These forms have established a (marginal) morphological pattern in Indo-European that has continued on down to the modern languages.

Like the earlier epithets, exocentric compounds serve a naming function.

(27)

a. halfwit, skinhead, babyface, tenderfoot, redskin, snotnose

b. loudmouth, longfinger, hothead, sourpuss, lazybones

c. blue-collar, green beret, blue-stocking, hard hat, skycap

d. diamondback (snake), cottontail (rabbit), longhorn (cattle), redbreast (bird); (bluebell (flower), redwood (tree)

When Bloomfield (1933) introduced the terms endocentric and exocentric into English, he recognized Alekandrow's original conception:

(28) blue bottle

a. endocentric: 'bottle that is blue'

b. exocentric: 'fly with the appearance of a blue bottle'

Bloomfield then added additional examples borrowed into Middle English from Romance:

(29) killjoy, pickpocket, scofflaw, scarecrow, lickspittle, turnkey

The VN compounds in Romance did not evolve directly from the original right-headed parasynthetic formations of Latin; they were a later innovation.

Similarity in the patterns:

· in both an implicit referent needs to be reconstructed,

· the literal description given by the constituents in the denominal case defines a property (*redhead*), or in the deverbal case an activity (Fr. *porte-parole*) that provides a basis for inferring the referent.

Dissimilarity …

Since Bloomfield, further extensions have been proposed from other language families besides Indo-European, e.g. the co-compounds of the South East Asian languages:

(29)

a. Chinese: cháng-duân 'length; lit. long+short'

b. Khmer: tok tuu 'furniture; lit. table+closet'

Other examples found in:

· Bauer (2008),

· Scalise and Guevara (2006),

· Panagiotidis and Nòbrega (2022), …

· Guillaume (Gizey)

In expanding the term "exocentric compound" from how it originally applied to Indo-European languages to other typological families, its use has broadened …

… to the point where attempts have arisen to dissect the term into different components (categorial, semantic and morphological) in order to accommodate the heterogeneity of the examples, cf. Scalise, Fábregas & Forza (2009).

Thank you for your attention!