# Rhematizers (RHEM), discourse connectives (PREC) and Conjunction Modifiers (CM)

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The English syntactic subclasses of adverbs-focusing subjuncts and adverbials-conjuncts (Quirk et al., 2004, 604-612) are roughly reflected by three functors in PEDT:

PREC RHEM CM and marginally by ATT.

Adverbials rendered by a prepositional phrase or a clause can, apart from the functors named above, become PAR and, marginally, COND. Many of these adverbials – and their combinations - act in paratactic structures (coordination and apposition). This chapter defines their position in the paratactic structure; i.e., it draws a line between which of these expressions are to be regarded as adverbials and which are to be regarded as complex coordinating conjunctions. The features observed in these expressions in paratactic structures are mainly:

- 1. Is the given expression the root node of a paratactic structure, its direct member, or a shared modifier?
- 2. If it is regarded as a multiword unit, what does its t-lemma look like and which word is lexrf?
- 3. Which functor should it get?
- 4. Is or isn't it parenthetical?

#### Discourse connectives (PREC)

Discourse connectives (PREC) refer to the preceding text. They basically correspond to conjuncts (Quirk et al., 2004). Sometimes they are functionally homonymous with adjuncts, most often with the temporal and spatial ones. When they assist in connecting paratactically conjoined words, phrases or clauses, they usually get the functor CM (for detail see...).

A complete list of PREC (Mladová, 2008) used in the Penn Treebank and information of their possible functional homonymy see below:

accordingly	
additionally	
afterward(s)	
also	PREC x RHEM

alternatively	We could drive all the way. <u>Alternatively</u> , we could fly.
and	
as a result	
as an alternative	
as well	ale nikoliv as well as!
besides	
but	
by comparison	
by contrast	
by then	PREC x TTILL <u>By then</u> [1991] TTILL, it also hopes to begin producing
consequently	
conversely	
finally	PREC x TWHEN
further	
furthermore	
hence	
however	
in addition	
in contrast	
in other words	
in short	(= briefly, in brief) PREC x MANN
in sum	(= briefly, in brief) PREC x MANN
in the end	
in turn	
instead	<i>The committee has rejected our proposal. <u>Instead.PREC</u>, they have brought forward an alternative plan.</i> - ale nikoli <i>instead of</i> !
later	PREC x TWHEN
likewise	
(in the) meantime	PREC x TPAR
meanwhile	PREC x TPAR
moreover	
next	

nonetheless	
nor	Nor is the group likely to come forward with a revised offer
on the contrary	PREC x REG
on the one hand on the other hand	PREC x REG
on the other hand	PREC x REG
or	
otherwise	
overall	
plus	pouze 1 výskyt jako PREC: Plus, one Exxon official said
previously	častěji TWHEN
rather	PREC x ATT? <i>His purpose was not so much to attack his rivals.</i> <u><i>Rather, it was to defend his own position.</i></u>
regardless	Pouze 2 výskyty: PREC x REG? "I think the Soviet peoples are more introverted than the Chinese." <u>Regardless</u> , he said, he still believes the Soviet Union, while falling far short of the efficiency of a Western economy, may well manage to improve considerably. After four years of no progress in this direction, it is doubtful any viable collaboration with Ms. Bartlett will suddenly now be possible. (Mr. Quennell has said he plans to go with the grid, <u>regardless</u> .)
separately	
similarly	PREC x MANN
simultaneously	
SO	
specifically	PREC x MANN
still	
then	
thereby	
therefore	
though	
thus	
ultimately	PREC x TWHEN, RHEM, ATT
yet	ve smyslu <i>přesto</i>

#### Discourse connectives in correlative pairs with subordinators:

Adverbials that are marked as PREC (conjuncts and non-focusing subjuncts) often correlate with subordinators when referring to the previous subordinate clause. They keep their tectogrammatical representation as t-nodes with the functor PREC although they just duplicate the meaning of the subordinator in this position. These are the most typical subordinator-conjunct combinations:

- *if... then*
- *although, even (though), while, whilst, even if, granted (that)... yet, still, however, nevertheless, nonetheless, notwithstanding, anyway, anyhow*
- because, seeing (that)... therefore, hence, accordingly, consequently
- while... meantime, meanwhile

### Conjunction modifiers (CM)

Conjunction modifiers combine with coordinating connectives (which can be conjunctions as well as punctuation) to modify their meaning. A range of adverbs and particles as well as a few multiword expressions can act as conjunction modifiers. They belong mostly to what the traditional English grammar calls either conjuncts or focusing subjuncts (Quirk et al., 2004, 604f., ###). Some of the focusing subjuncts are functionally homonymous with rhematizers (more below, ###). With these subjuncts the annotator has to decide among three options, each of which has a different annotation solution:

- The subjunct only focuses a part of a member of the paratactic construction. It is to be marked as a rhematizer in a lower position in the subtree of the member of the paratactic construction: a [just.RHEM borrowed] car and.CONJ a [not.RHEM very new] house
- 2. The subjunct focuses the entire paratactic construction. It is to be marked as a rhematizer and located as a left sister of the root node of the paratactic structure: *Under these deals, the RTC sells just*.RHEM [the deposits and.CONJ the healthy assets].
- 3. The subjunct focuses the entire paratactic construction and modifies or emphasizes the mutual semantic relation of the members of the paratactic construction. It is to be marked as CM and placed as a shared modifier, according to its position in the underlying word order. It cannot be marked as a rhematizer mainly because a rhematizer must not divide a paratactic construction into two parts, but it is marked as CM even if it takes the initial position in the paratactic construction, e.g. <u>not</u>.CM <u>only</u>.CM.... <u>but</u>.GRAD <u>also</u>.CM....

Many expressions listed above as PREC become CM when used in coordination (as long as they are not conjunctions by nature, like *but*). Some of them, however, are resolved as parenthetical subtrees. Note that discourse connectives represented as subtrees are not marked as CM but as PAR (parenthesis), since CM are not meant to be tectogrammatical subtrees. In a few cases, the subtree of the discourse connective gets a functor according to its position in the clause (see ##) or COND, when it is expressed by a participial clause (see ###). A list of common connectives that cannot be confused with rhematizers is

given below. Besides, subtrees that are not resolved in a completely straightforward way are described separately in more detail. Rhematizers are listed in Section ### Rhematizers.

expression	t-lemma	lexrf (of the root of the subtree)	functor	paratactic relation it (typically) effects
accordingly	accordingly	accordingly	СМ	CSQ
again	again	again	СМ	CONJ
alias	alias	alias	СМ	APPS
alike	alike	alike	СМ	CONJ
(all) in all	all in all	all(second)	PAR	
alternatively	alternatively	alternatively	СМ	DISJ
altogether	altogether	altogether	СМ	CONJ
anyway	anyway	anyway	СМ	ADVS
apiece	apiece	apiece	СМ	CONJ
as a consequence	as a consequence	consequence	СМ	CSQ
as a result	as a result	result	СМ	CSQ
at any rate	at any rate	rate	СМ	ADVS,
2	_ *_			CONJ
besides	besides	besides	СМ	GRAD
better	good	better	ATT	APPS
			[is_parenthesis =0]	
by and large	by and large	large	ATT	
consequently	consequently	consequently	СМ	CSQ
eg/e.g.	eg	eg, g.	СМ	APPS
else	else	else	СМ	CSQ
even less	even less	less	СМ	GRAD
even more so	subtree			GRAD
even so	subtree			GRAD
finally	finally	finally	СМ	CONJ
first	first	first	-	-
for another thing	for another thing	thing	СМ	CONJ
for example	for example	example	СМ	APPS
for instance	for instance	instance	СМ	APPS
for one thing	for one thing	thing	СМ	CONJ
further	further	further	СМ	CONJ
furthermore	furthermore	furthermore	СМ	CONJ
hence	hence	hence	СМ	CSQ
however	however	however	СМ	ADVS
in conclusion	in_conclusion	conclusion	PAR	CSQ
in consequence	in_consequence	consequence	СМ	CSQ
ie/i.e	ie	ie, e.	APPS	APPS
in other words	subtree	word	PAR	APPS
in someone's words	subtree	word	PAR	APPS
in the words of	subtree	word	PAR	
in sum	in sum	sum	PAR	1

#### Discourse connectives that never act as rhematizers

in the first/	subtree	place		
second place	subtree	place		
last	last	last	СМ	CONJ
last of all	subtree	last	PAR	CONJ
lastly	last	last	CM	0010
meanwhile	meanwhile	meanwhile	CM	
more	more	more	CM	
moreover	moreover	moreover	CM	
more accurately	accurate	accurately	PAR	APPS
more precisely	precise	precisely	PAR	APPS
much less	much less	less	CM	GRAD
next	next	next	CM	CONJ
not to mention	subtree	mention	PAR	CONJ
now	now	now	CM	PAR
nonetheless	nonetheless	nonetheless	CM	
of course	of course	course	ATT	ATT
on the contrary	on the contrary	contrary	CM	ADVS
on (the) one hand	subtree	hand	REG	CONJ,
	5404.00		1110	ADVS
on the other hand	subtree	hand	REG	CONJ,
				ADVS
oppositely	opposite	oppositely	СМ	ADVS
otherwise	otherwise	otherwise	СМ	APPS
respectively	respective	respectively	СМ	CONJ
second	two	second	СМ	CONJ
secondly	two	secondly	СМ	CONJ
so	SO	so	СМ	CSQ
still	still	still	СМ	ADVS
still less	still less	less	СМ	GRAD
strictly speaking,	subtree	speak	COND	APPS
such as	such as	as		APPS
technically	subtree	speak	COND	APPS
speaking,		1		
that is	subtree	be	PAR	APPS
that is to say	subtree	be	PAR	APPS
then	then	then	СМ	CONJ
therefore	therefore	therefore	СМ	CSQ
third	third	third	СМ	CONJ
thirdly	third	thirdly	СМ	CONJ
though	though	though	СМ	ADVS
thus	thus	thus	СМ	CSQ
to conclude,	subtree	conclude	PAR	CONJ
to begin with,	subtree	begin	PAR	
to start with,	subtree	start	PAR	
to sum up,	subtree	sum	PAR	
to summarize,	subtree	summarize	PAR	
what is more,	subtree	be	PAR	GRAD
yet	yet	yet	СМ	ADVS

#### Common combinations of coordinative connectives and CM

In the following table, the words typed in bold are rendered as roots of the paratactic structure. It is coordinating conjunctions as well as punctuation. The words typed in regular font are CM. They are ordered according to the semantic relation they typically effect.

connective	semantic relation the connective typically effects	
but nevertheless	ADVS	which I do not believe, but nevertheless should stay as a possible hypothesis
#Comma nevertheless	ADVS	A very striking illusion, but an illusion nevertheless.
#Comma though	ADVS	A 190-point drop isn't likely to make much of a dent; multiply that a few times over, though, and it will.
#Comma yet	ADVS	
#Neg <b>but</b>	ADVS	That Stevens himself is not grotesque or repellent, but funny and sad and enlightening, is entirely the author's triumph.
#Neg <b>but</b> #Neg either	ADVS	Investors aren't going to be throwing money at any of the proposed LBOs, but doing deals on the basis of ridiculous assumptions never made sense, either. For instance, Michael dislikes Jackie not because he's a shrewd Jewish businessman, but because he quits his well-paying job as a salesman in order to become a social worker.
<b>#Semicolon</b> instead	ADVS	Japanese managers can't expect Americans to behave as if they were Japanese; instead, they must manage Americans as Americans.
and instead	ADVS	Several years ago he gave up trying to persuade Miami to improve its city-owned Orange Bowl, and instead built his own \$ 100 million coliseum with private funds.
and #Neg	ADVS	<i>Mr. McGovern was widely seen as sales, and not profit, oriented.</i>
and still	ADVS	It's an activity she feels she can do for life, and by pulling a golf cart, she still gets a good workout.
and yet	ADVS	
but	ADVS	
but even so	ADVS	The evening is short 95 minutes without an

		intermission but even so, as the play
		progresses the thrust of Mr. Gelbart's satire loses its sharpness as his targets pop up ever more predictably.
<b>but</b> instead	ADVS	The group didn't make a formal offer, but instead told UAL's advisers before the most- recent board meeting that it was working on a bid valued at between \$ 225 and \$ 240 a share.
but likewise	ADVS	A further witness named F as the attacker but likewise said that he did not know F, though he had seen him.
<b>but</b> #Neg	ADVS	"You may come by the agency to read but not copy either manually or by photocopying," a Voice official explained when I asked. The vacation packages include hotel accommodations and, in some cases, tours or tickets to local attractions, but not meals.
but rather	ADVS	Often they have found that the relevant issue is not race, but rather housing, crime prevention or education. Through these investigations we do not focus on the street drug user, but rather we target and attack major drug-trafficking organizations that control a large segment of the drug market.
but too	ADVS	The network deals a lot with unknowns, including Scott Wentworth, but the network has some big names to contend with, too.
#Neg <b>#Comma</b> only	ADVS	Mr. Trump never said how much AMR stock he had bought, only that his holdings were "substantial."
<b>#Comma</b> meanwhile	CONFR	The range [of small items] will be extended in due course, meanwhile larger items (statues, missals, etc.) can be ordered on request.
and meanwhile	CONFR	You throw food away, and meanwhile children are starving all over the world.
<b>but</b> also	CONFR	Its cereal division realized higher operating profit on volume increases, but also spent more on promotion. The move significantly expanded Black & Decker's product line, but also significantly increased its debt load.
and also	CONJ	
first and/#Comma second	CONJ	
and alike	CONJ	<i>Elsewhere, leaderships and oppositions alike</i> <i>have bound their fragile democracies to</i>

		heritages with even darker pasts.
	CONJ	The scheme uses the magic of futures and zero coupon bonds to achieve that, meanwhile you collect a 3 per cent dividend.
and then	CONJ	But I love playing comedy and then I 'm not very tall.
#Neg either_or	CONJ	There wasn't a lot of panic selling, either domestically or internationally
and	CONJ	John and Mary
<b>and</b> as_well (lexrf <i>well</i> )	CONJ	These decisions deserve more attention than they have received from scholars and from journalists as well.
and likewise	CONJ	That is going to cost a great deal of money, and likewise the journey there and back will occupy much valuable time.
and meanwhile	CONJ	It took three quarters of an hour to get it out and meanwhile it did some damage.
and respectively	CONJ	<i>The rates were up from last week's auction, when they were 7.37 % and 7.42 %, respectively.</i>
#Neg either_or	CONJ	We didn't see either John or Mary.
neither_nor	CONJ	Naturally, neither General Dynamics nor Dassault could be expected to hamper its prospective future dealings by making disclosures of sums paid to various Greek officials for services rendered.
and besides	CONJ, GRAD	Sarah had been too ill to defend herself, and besides, in a way Elizabeth Bradford had been telling the truth.
<b>and</b> further (non-attributive)	CONJ, GRAD	I suspect there is a relationship of cause and effect between the state of opinion and the incidence of crime, and further, that the state of opinion and the penalties of the law are interrelated
#Neg.RHEM and not(CM)	CONJ:	There is a flight to quality, and the quality is not in equities and not in junk it's in Treasurys.
and so	CSQ	Calculating that excess polyethylene would soon be sloshing around the world, other buyers then bet that prices had peaked and so began to draw down inventories rather than order new product.
#Comma so	CSQ	All of their friends have children and they can't, so now they want a child more than anything perhaps even more than Michael wanted his fancy convertible or his deluxe stereo equipment
#Comma thus/hence/therefore	CSQ	This means that the opponent always has to step forwards in order to make an attack, thus warning you well in advance.

	000	
and consequently	CSQ	The spokesman said that the proposed guidelines
		caused Crossland to revise its business
		objectives and, consequently, to write down the
		asset value of some previous acquisitions.
and hence	CSQ	It is obviously true that managers are frequently
		competitive by nature and hence will exert
		themselves in their quest for personal
		advancement within the organisational
		hierarchy.
and so	CSQ	But GMAC approved the Buick program, he
		says, because the American Express green card
		requires payment in full upon billing, and so
		doesn't carry any finance rates
and	CSQ	Market sources said Reliance has already sold
thus/hence/therefore	CDQ	its entire UAL stake, and thus wouldn't have any
		reason to file the application simply to boost the
		value of its stock.
		A test using new "genetic probes" showed that
		little Will Quinlan had not inherited a damaged
		retinoblastoma suppressor gene and, therefore,
		faced no more risk than other children of
		developing the rare cancer.
#Comma	DISJ	During the coming weeks, President Bush must
alternatively		decide whether to veto the bills containing them -
		- or, alternatively, to sign these bills into law
		with a statement declaring their intrusions on
		executive power to be in violation of Article II,
		and thus void and severable.
either or	DISJ	His writings on art include several reviews of the
		Paris Salons, which were either published in
		booklets or in journals such as the Revue
		francaise.
or	DISJ	Is the market up or down?
#Comma #Neg just	GRAD	The machine is part of an effort by Mips to
"Comma $\pi_1 \log \int dd$	UND	establish itself as a supplier of computers, not
<b>but</b> in addition	GRAD	just of integrated-circuit technology.
<b>Dut</b> in addition	GRAD	Facial expressions may do all these, but in
		addition may indicate understanding,
		concentration and attention.
<b>#Comma</b> #Neg even	GRAD	He never stopped working, not even at
		Christmas.
#Comma even	GRAD	Some producers seem tentative about the
		technique, squeamish even.
#Neg <b>#Comma</b> even	GRAD	For weeks life was very difficult as they both
		tried not to upset each other, even slightly.
#Neg #Comma	GRAD	Jack Greenberg, executive vice president and
0	I	G,

much logg/		diaffic maint officer of MaDound's among the
much_less/		chief financial officer of McDonald's, says the
still_less/even_less		company doesn't compute, much less disclose,
		inflation-adjusted, same-store sales.
#Neg just <b>but</b>	GRAD	He says individuals should consider not just
		stocks, but other long-term investments, such as
		high-quality bonds.
#Neg only <b>but</b>	GRAD	Not only could the Wall Street gyrations damp
		Christmas sales if consumers lose confidence in
		the economy, but potential junk-bond buyers are
		sure to demand even stronger covenants and
		greater management equity participation.
		Not only do the actors stand outside their
		characters and make it clear they are at odds
		with them, but they often literally stand on their
		heads.
#Neg only <b>but</b> also	GRAD	Japan not only outstrips the U.S. in investment
	GIUID	flows but also outranks it in trade with most
		Southeast Asian countries -LRB- although the
		U.S. remains the leading trade partner for all of
		Asia -RRB
#Nag only but too	GRAD	
#Neg only <b>but</b> too	GRAD	Not only can they block Wellington from raising
		money in Japan, bankers here say, but as the
		largest underwriters in the Eurobond market,
		they might be able to scuttle borrowings there,
		too.
#Neg or even	GRAD	Because New Jersey does not have its own
		television station, or even a state newspaper, the
		candidates have bought expensive air time on the
		New York.
		Add the fact that any one of them, including Pa,
		could be her attacker, and you have a setting
		that doesn't resemble small-town America, or
		even Hollywood's nightmare of small-town
		America, so much as a paranoid feminist
		dystopia like Margaret Atwood's " The
		Handmaid's Tale," itself soon to be (you guessed
		it) a Hollywood movie.
and	GRAD	Instead, Mr. Nixon reminded his host, Chinese
		President Yang Shangkun, that Americans
		haven't forgiven China's leaders for the military
		assault of June 3-4 that killed hundreds, and
		#EmpVerb perhaps.MOD thousands, of
		demonstrators.
and #Neg even	GRAD	<i>His clothes are in rags, and do not even cover</i>
		his private parts.
and especially	GRAD	<i>Generally, imports appeal most to Americans</i>
and ospecially	UIU D	Serier arry, imports appear most to miller tealls

		who live in the West and are well-educated,
		affluent and, especially, young.
		They're frightened by what they see in New
		Jersey, and especially Virginia, where pro-life
		GOP candidates for governor are being
		pummeled on abortion. His products aren't exact copies of Sony's but
		strongly resemble them in size, shape and,
		especially, color.
and even	GRAD	<i>They concede that much of the government</i>
	01012	meddling that torments them is essential to the
		public good, and even to their own businesses.
and moreover	GRAD	<i>I have tried to argue that the principle does not</i>
		succeed in this task, and moreover that a great
		deal of philosophy would also be rejected by
		Ayer's approach.
and particularly	GRAD	She said there is "growing realization" around
		the world that denial of intellectual-property
		rights harms all trading nations, and
		particularly the "creativity and inventiveness of
		an (offending) country's own citizens."
		He added, "This has nothing to do with Marty
		Ackerman and it is not designed, particularly, to
<b>but</b> at least	GRAD	take the company private." Prices have averaged more than \$ 2 a barrel
but at icast	UKAD	higher than that not a windfall, but at least a
		pleasant bonus for them.
		There is doubt that the change would accomplish
		much but at least Congress, as in 1935, would be
		doing something.
		The Fed has been intervening in foreign
		currency markets, all right, but through August,
		at least, it appeared to be "sterilizing" the
		intervention.
but merely	GRAD	He wants the party to stop running the country,
		but merely to inspire and guide it.
even.RHEM and	GRAD	Even food products and automobiles, which have
		long depended on color, are making the switch.
in part <b>but</b> also	GRAD	Justice Stevens, 69, is probably the most
		philosophical of the dissenters about his role, in
		part because he may be the least liberal of the
		four, but also because he enjoys the intellectual
		challenge of arguing with the majority more than
(#Nag) lat alars		the others.
(#Neg) let_alone	GRAD	For one thing, it's unlikely that many people

the negation can		would receive federal death sentences, let alone
even be lexical.		be executed.
		Here was the state security appartus poised to
		pounce on any words or acts of provocation, let
		alone revolution.
		It was the kind of snubbing rarely seen within the
		Congress, let alone within the same party.
#Neg nor <b>but</b>	ADVS	We were disappointed to learn that not a
		thousand, nor a hundred, but a mere twenty-
		three had turned up for the inaugural meeting.
#Neg only <b>but</b>	GRAD	On a broader scale, the ruling could encourage
as_well		other states' courts to adopt the logic of the New
		York court, not only in DES cases but in other
		product-related lawsuits, as well.
or at least	GRAD	Some of the would-be reformers, however, want
_		to restore an arrangement we once had or, at
		least, part of it.
or even	GRAD	Indeed, Judge O'Brien ruled that it would be
		easy to conclude that the USIA's position is
		'inappropriate or even stupid' but it's the law.
		The resistance lacks not only air power, armor
		and expertise but often such essentials as maps,
		mine detectors, or even winter gloves.
and	OPER	Ŭ T
between	OPER	Analysts said profit for the dozen or so big drug
		makers, as a group, is estimated to have climbed
		between 11 % and 14 %.

#### **Connectives resolved as parenthetical subtrees**

The effective roots of connectives formed as infinitive phrases or finite clauses get the functor PAR[is\_member=0]. All nodes in the entire subtree have [is\_parenthesis=1]. The subtree is a sister of the members of the paratactic structure. The coordination node itself has also [is\_parenthesis=1].

Examples: to conclude to begin with, to start with, to sum up, to summarize, what is more, in other words, in the words of... etc. The effective root of connectives formed as a participial phrase gets the functor COND[is\_parenthesis=1]. All nodes in the entire subtree have [is\_parenthesis=1]. The subtree is a sister of the members of the paratactic structure.

### Examples: *strictly/technically speaking*

When these parenthetical subtrees occur between two members of a paratactic structure as a non-member ([is\_member=0]), the root of the paratactic structure has [is\_parenthesis=0]. When, however, one of the members of the paratactic structure has [is\_parenthesis=1], then the root of the paratactic structure has also [is\_parenthesis=1]. This applies to expressions *that is, that is to say*, etc., in which the latter direct member of the paratactic structure is a valency complementation of the finite verb of the parethetical expression.

#### **Quasicoordinators:**

Quasicoordinators stand on the border between coordination and subordination. The expressions *let alone, as well as* and *as much as* (when no other words come in between) have multi-word lemmas *as\_well\_as* and *as\_much\_as*. The expressions *rather than, not so much... as...* and *more than* are rendered as a regular comparison structure. The expressions *instead of...* and *along with* are rendered as subordinations. The expressions *if not more so* and *not to mention* are regarded as parenthetical members of a paratactic structure (see figures ### below the table).

quasicoordin	t-lemma	lexrf	auxrf	CM	functor	example
ator						-
as well as	as_well_as	as (the second)	as (the first), well		CONJ	me as well as you
as much as	as_much_as	as (the second)	as (the first), much		CONJ	John, as much as his brothers, was responsible for the loss.
not so much as	not, so, much ( <i>not</i> and <i>much</i> are sisters)	not, so, much			so.EXT governs a comparison structure. <i>as</i> is auxrf of the governing node of the dependent structure.	His latest play is not so much a farce as {it is.CPR {much.EXT, governed by so.EXT} a burlesque tragedy.
rather than	rather	rather			EXT governing a comparison structure. "than" is auxrf of the governing node of the	Another sticking point for advertisers was National Geographic's tradition of lumping its ads together, rather than spreading ads out among its articles {was another sticking point

					dependent structure	for advertizers}, as most magazines do.
more than along with	much		along, with (auxrf of the governing node of the dependent structure)		EXT governing a comparison structure. "than" is auxrf of the governing node of the dependent structure ACMP	On the receiving end of the message were officials from giants like Du Pont and Maytag, along with lesser knowns like Trojan Steel
instead of			,		SUDS	and the Valley Queen Cheese Factory.
	1.41	-1	instead, of	//NT	SUBS	
let alone	let_alone	alone	let	#Neg	GRAD	
if not	copied verb node	copied verb node			APPS, GRAD[is_p arenthesis=1	

The structure *if not* is somewhere between apposition and gradation. The final decision should be taken by the annotator according to the context. Fig. ### shows the annotation of this structure.

Gradation can also be expressed by the expressions *all the more so, even more so*, and *if not more so*. Their annotation is also captured by Figures ###. Note that the latter, parenthetical, direct member of the paratactic structure has the same functor as the other direct member.



But there was a degree of comprehension, if not agreement, from the professor.

Fig. If not



It is absolutely as effective as anti-depressant chugo. If not more so,

Fig. ## If not more so





Fig.### Not to mention

#### Rhematizers

Rhematizers correspond to focusing subjuncts (Quirk et al., 2004). They draw attention to a part of a clause or to an entire clause or sentence. Quirk et al. distinguish three classes of these subjuncts: exclusives, particularizers, and additive subjuncts. Exclusives restrict the application of the utterance exclusively to the part focused, whereas particularizers restrict the application of the utterance predominantly to the part focused. Additive

subjuncts indicate that the utterance concerned is additionally true in respect of the part focused.

Exclusives: alone (following a noun phrase) exactly exclusively just merely only (as adverb) precisely purely simply solely Particularizers: above all chiefly especially largely mainly mostly most notably most particularly notably particularly primarily principally specifically at least in particular to top it (all) on top of it all to cap it (all) Additive subjuncts: again also either equally even further likewise neither nor similarly

too as well in addition

#### Positions of exclusives and particularizers in the sentence

Focusing subjuncts (even the additive ones) are most frequently placed between the finite verb and the infinite verb in complex verb phrases and immediately before the finite verb in simple verb phrases unless the item focused is the subject, or a part of the subject, or an auxiliary verb. Their focus must be deduced from the context.

Exclusives and particularizers

Most exclusives and particularizers can either precede or follow the item, which they focus:

We invited only [two girls]. We invited [two girls] only.

*Just, merely, purely* and *simply* must normally precede the focused part and precede it immediately. Therefore, a sentence like

You can merely get a B grade for that answer.

unambiguously focuses [get a B grade for that answer], and not [for that answer],

whereas

You can only get a B grade for that answer.

is ambiguous without context.

The subjunct *alone* must follow the focused item:

[ten workers] alone

*Only* can also follow the focused element, but then an entire clause element must be focused. When only a part of a clause element is focused, only must precede it (at least in writing:

I saw only his [elder] brother. I only saw his [elder] brother. I saw [his elder brother] only.

*In particular* favors a position after the focused part. *Exactly* commonly focuses on wh-words.

#### Additive subjuncts

*Also, equally, even, again, in addition* and *similarly* normally precede the predication (between the finite verb and the infinite verb in complex verb phrases and immediately before the finite verb in simple verb phrases) when focusing it or its part. However, when the clause subject is focused, the subjunct must follow it – except for *even*. This means that the annotator must deduce the focus from the context since there are no syntactic clues.

Examples:

I noticed the fox in my garden and

John has also/even/similarly/in addition seen it [near his back door]. John has seen it also/even/similarly/in addition [near his back door].

John has seen it [near his back door] also/similarly/in addition. informal! John has seen it [near his back door] even.

[John] also/similarly/in addition has seen it. Even [John] has seen it. informal! [John] has seen it even.

#### Rhematizers (RHEM) vs. conjunction modifiers (CM)

There are cases of functional homonymy with subjuncts occurring in coordinated phrases or clauses. A subjunct can be a conjunction modifier as well as a rhematizer. For reasons that bottom in the theory of topic and focus articulation, a paratactic structure cannot combine rhematized and non-rhematized direct members. Either the entire paratactic structure is focused, or just subtrees within its direct members are focused. A subjunct that seems to focus just one direct member of the paratactic structure is regarded as focusing or modifying the relation between the two adjacent direct members of the paratactic structure, and it usually gets the functor CM. When the direct members of the paratactic structure are not verbs, no rhematizer can come in between them as their sister. An ambiguous case, however, is the coordination of two predicates. A focusing subjunct placed between them is usually a conjunction modifier, but sometimes the predicates can be regarded as two coordinated sentences, in which one has a rhematized predicate. Cf:

John does certainly not work much, <u>but</u>.CONFR Peter <u>only</u>.RHEM hangs around. John does certainly not work much <u>but</u>.ADVS (he) <u>only</u>.CM hangs around.

For more detail on discrimination between coordinated sentences and coordinated predicates see Section ### (Coordination of verbal clauses).

When an expression that normally acts as a rhematizer appears to rhematize just one member of the paratactic structure, it is labeled as conjunction modifier (CM). CM is governed by the root node of the paratactic structure and has [is\_member=0]. It modifies

the semantics of the relation between the direct members of the paratactic structure, which can be connected either by a coordinating conjunction *(and, but, or, neither-nor, either, or)*, an appositive connective (such as *e.g.*) or by punctuation (comma, colon, semicolon, dash, slash). Sometimes, especially when the connective is a punctuation mark, it is the conjunction modifier itself that determines the semantic relation; e.g., *therefore* or *so* effects the relation of consequence. Conjunctions modifiers can even combine.

Table ### (Common combinations of coordinative connectives and CM, above) shows the typical semantic effects the respective CM have on the relation between two paratactically adjoined clause elements. The items are ordered according to functors assigned to the root of the paratactic structure. The words typed in the bold font stand for t-lemmas of the roots of the paratactic structure.

#### Apposition:

Apposition is primarily expressed by punctuation (comma, colon, semicolon, dash) as well as with the coordinating conjunctions *and* and *or*, or with *as*, typically used together with *such* in attributive position in one of the members of the apposition. These are represented as roots of the paratactic structures and can combine with conjunction modifiers. The table below lists expressions used to indicate apposition and their annotation.

expression	t-lemma	lexrf	functor
0	#Bracket	(	APPS
:	#Colon	:	APPS
,	#Comma	,	APPS
•	#Semicolon	;	APPS
-	#Dash	-	APPS
alias	alias	alias	APPS
also	also	also	СМ
and	and	and	APPS
as	as	as	APPS
basically	basically	basically	СМ
<i>better</i> (in combination with <i>or</i> )	better	better	СМ
chiefly	chiefly	chiefly	СМ
<i>e</i> . <i>g</i> .	eg	eg	APPS
eg	eg	eg	APPS
especially	especially	especially	СМ
even	even	even	СМ
for example	for_example	example	СМ
for instance	for_instance	instance	СМ
<i>i.e.</i>	ie	ie	APPS
ie	ie	ie	APPS
in particular	in_particular	particular	СМ

included <sup>1</sup>	include	included	same as the other direct member
mainly	main	mainly	СМ
more accurately	accurate	accurately	PAR
more precisely	precise	precise	PAR
more notably	notably	notably	СМ
most notably	notably	notably	СМ
most particularly	particularly	particularly	СМ
mostly	mostly	mostly	СМ
namely	namely	namely	СМ
notably	notable	notably	СМ
or	or	or	APPS
particularly	particular	particularly	СМ
<i>rather</i> (in combination with <i>or</i> )	rather	rather	СМ
SO	SO	SO	СМ
<i>such</i> (in attributive position and in combination with <i>as</i> )	such	such	СМ
such as <sup>2</sup>	such_as	as	APPS
viz	viz		APPS

## Asyndetic apposition with the meaning of supplementary information<sup>3</sup>

Sometimes, additional information is added in form of an apposition member loosely attached by punctuation at the end of the clause and introduced by a rhematizer; e.g., *There were many people in the hall, mainly students*. In such cases it is appropriate to copy the governing predicate and let the two predicates become the direct members of the apposition:

*There* <u>were</u>.PRED[is\_member=1] *many* people <u>in the hall.</u>LOC[is\_member=0] <u>#Comma</u>.APPS mainly <u>{were}</u>.PRED[is\_member=1] students.

#### Asyndetic apposition with the meaning of reformulation

Reformulation (Quirk et al., 2004, p. 1311) is a rewording in the second (defining) appositive of the lexical content of the first (defined) appositive.

<sup>&</sup>lt;sup>1</sup> Unlike *including*, which is always regarded as a subordinator (ACMP), *included* is regarded as an adjective, when used in the sense of apposition. The apposition root node is *#Comma* or *#Separ* when comma is omitted. <u>Other people</u>.ACT[is\_member=1] <u>#Comma</u>.APPS <u>myself included</u>.ACT[is\_member=1], believe that it is reasonable to have a minimum wage. This solution conforms to the annotation of floating participles.

<sup>&</sup>lt;sup>2</sup> The reason is that the appositive use of such as extends just mentioning

<sup>&</sup>lt;sup>3</sup> corresponds to TR\_CZ (velky) Společnost spravuje.PRED [is\_member=1] 80 budov, převážně.RHEM {spravovat.PRED [is\_member=1]} v Tokiu.Obr. 2.106

When the expression introducing the second apposition member has the form of a finite clause (*that is, that is to say*), this finite clause becomes the second direct member of the apposition, with all its nodes having the attribute value [is\_parenthesis=1]. The root node of the paratactic structure will also have [is\_parenthesis=1]. **The second direct member must have the same functor as the first member**, while the terminal member of the apposition has a functor according to the valency frame of the verb by which it is governed:

*John*.ACT[is\_member=1] #Comma.APPS[is\_parenthesis=1] *that*.ACT *is*.ACT[is\_member=1] [is\_parenthesis=1] *to say*.PAT[is\_parenthesis=1], *my brother*.EFF [is\_parenthesis=1], *fell asleep*.

*John*.ACT[is\_member=1] #Comma.APPS[is\_parenthesis=1] *that*.ACT *is*.ACT[is\_member=1] [is\_parenthesis=1], *my brother*.PAT [is\_parenthesis=1], *fell asleep*.

Except participial clauses, such as *technically speaking*, all other syntactically more complex expressions that indicate reformulation are annotated as syntactically non-incorporated parenthesis (PAR); e.g., *to wit, say, in simpler words/terms, to put it more simply, in other words, in the words of...,* etc. The second appositive expression is **not** governed by them but becomes the second direct member of the apposition, and the parenthetical expression is a shared modifier of the two direct members of the apposition.

When parenthetical subtrees occur between two members of a paratactic structure as a shared modifier (PAR[is\_member=0]), the root of the paratactic structure has [is\_parenthesis=0]. When, however, one of the direct members of the paratactic structure has [is\_parenthesis=1], then the root node of the paratactic structure has also [is\_parenthesis=1].

Parenthetical expressions consisting of a participial clause (e.g., *technically/strictly speaking*) get the functor COND and [is member=0, is\_parenthesis=1]. The root node of the paratactic structure has [is\_parenthesis=0].

Quirk et al. (2004, p. 1307) list also *as follows* as an apposition indicator. This actually takes the position of an apposition member, and therefore it gets a functor according to the function it has in the clause:

The \$ 4 billion in bonds break down **<as> follows.MANN[is\_member=1] #Colon.APPS** <u>\$ 1 billion in five-year bonds with a coupon rate of 8.25.EXT % and a yield to maturity</u> <u>of 8.33 %.EXT; \$ 1 billion.EXT; \$ 1 billion in 10-year bonds with a coupon rate of 8.375</u> <u>%.EXT and a yield to maturity of 8.42 %.EXT #Semicolon.CONJ [is\_member=1] \$ 2</u> <u>billion in 30-year bonds with five-year call protection, a coupon rate of 8.75 % and a</u> <u>yield to maturity of 9.06 %.EXT</u>

Α	few	exampl	les of	annos	ition	see	below:	
11	10 %	слатр	105 01	uppos	nuon	SUU	0010 .	

A few examples of ap	APPS	The 25th Anniversary campaign had dramatic
		results: individual membership increased from 25,000 at the end of 1985 to 35,000 at the end of 1986
<b>#Colon</b> namely	APPS	There is no sign that you bothered to consider the inverse of your logic: <b>namely</b> , that mental illness and substance abuse might be to some degree consequences rather than causes of homelessness.
#Comma	APPS	Mr. Smith, a GM manager,
<b>#Comma</b> basically	APPS	Cash flow, <b>basically</b> earnings plus depreciation, is one common gauge of a company's financial health.
<b>#Comma</b> especially	APPS	That can pay off down the road as customers, especially the younger ones, change from borrowers to savers/investors. Concern about declines in other markets, especially New York, caused selling pressure.
#Comma even	APPS	But he dropped logical connection in language, even verbs when discussing Monet's spontaneous art.
#Comma even	APPS	Some of the newer wines, <b>even</b> {wines} at \$ 90 to \$ 100 a bottle or so, almost offer a bargain."
<b>#Comma</b> mainly	APPS	The administration's plan could cost utilities, mainly those that use coal, up to \$ 4 billion a year.
<b>#Comma</b> mostly	APPS	"All the positive figures on the economy are out already, and people are focusing more on the dangers for next year, <b>mostly</b> the wage talks and the (parliamentary) elections," the U.S. trader said.
<b>#Comma</b> namely	APPS	Mr. Neff says the stock market has lost some powerful driving forces, <b>namely</b> earnings growth and the "sweepstakes" buy-out fever that induced investors to bid up whole groups of stocks, such as media and airlines.
#Comma notably	APPS	<i>Except for a few spots, <b>notably</b> Georgia,</i> <i>Virginia and Michigan, failures declined almost</i> <i>across the board, according to the business</i> <i>information services company.</i>
#Comma particularly	APPS	Many banks, <b>particularly</b> smaller ones, were slow to computerize and couldn't target market niches that would have made the programs more profitable.
<b>#Comma</b> primarily	APPS	But any potential acquirer must attempt to reach

		some kind of accord with the company's employees, <b>primarily</b> its pilots and the powerful machinists' union, which has opposed a takeover.
and	APPS	Mr. Smith, the founder and current chairman
or simply	APPS	Scientists call the new class of genes tumor- suppressors, or <b>simply</b> anti-cancer genes.
such_as	APPS	He says individuals should consider not just stocks, but other long-term investments, such as high-quality bonds.

#### Coordination

#### expression t-lemma lexrf most typical functor APPS, CONJ and and and but but but ADVS DISJ or or or nor CONJ nor nor CONJ neither... nor neither nor nor either... or either or DISJ or CONJ both... and both and and let alone let alone GRAD alone so that so that that CSQ REAS for for for CONJ

#### **Coordinating conjunctions (Coordinators)**

plus

So that as a coordinator can never occur at the initial position in a clause. When it does, it is a subordinator with the meaning of purpose (functor AIM).

plus

#### Quasi-coordinators

see above

plus

#### Indicators of segregatory meaning in a coordination

Phrase coordinations may express either combinatory or segregatory meaning (Quirk et al., 2004, p. 953f.). Combinatory coordination is coordination for which it is inappropriate to provide a paraphrase in terms of coordinated clauses. When phrase coordination is segregatory, it can be paraphrased by clause coordination. Cf.:

John and Mary make a pleasant couple.  $\neq$  \*John makes a pleasant couple and Mary makes a pleasant couple.

John and Mary know the answer. = John knows the answer and Mary knows the answer.

The second example has a segregatory interpretation. Segregatory meaning may be expressed by explicit markers. These are the adverbs *apiece* and *respectively*, as well as the pronouns *both* and *each*. These markers can modify coordinations as well as plural phrases. *Both* and *each* get the functor COMPL. In coordinated phrases the arrow refers to the root node of the coordination:

John and Mary have each.COMPL won a prize. John and Mary have won a prize each.COMPL. John and Mary have both.COMPL won a prize.

NB: *both* in initial position is part of the coordinating conjunction both\_and!

Both John and Mary have won a prize.

When the sentence contains a coordination, the adverb *respectively* (cf adjective *respective*!) is attached to it as a conjunction modifier (CM). When it is related to more than one coordination, it should be attached to the coordination that stands syntactically closest.

Bill and John go to [Paris and Amsterdam <u>respectively</u>.CM] [Arnold and his son] were [respectively.CM] the greatest educator and the greatest critic of the Victorian age.

Nine stalls sell [<u>respectively</u>.CM coconut milk, bananas, rice and dried fish, steamed sweetcorn, fried chicken, lurid plastic toys, clothes, and household utensils] – nothing unnecessary.

When *respectively* occurs in a sentence that does not contain any coordination, it is to be governed by the predicate as COMPL, whose arrow points to the closest plural phrase:

?They <u>went</u> [to all these places] <u>respectively</u>.COMPL ?\*Prague, Berlin, Budapest... [The three of them] went everywhere respectively.COMPL

Apparently, the use of *respectively* requires at least one syntactic plural to refer to. Should a context such as below occur, *respectively* should refer to the phrase governed by a countable noun or at least to the one that suggests semantic plural:

?\* [The team/the police] went into the water respectively.COMPL

Note that *respectively* can in addition modify a modifier of a plural or a coordinative phrase. Then it gets the functor MANN:

... allotment of equity securities in connection with a rights issue in favour of the holders of ordinary shares where the equity securities <u>respectively</u>. MANN <u>attributable</u> to the interests of the ordinary shareholders are proportionate...

The adjective respective gets the functor RSTR and is placed as a restrictive attribute:

Jill and Ben visited their *respective*.RSTR *uncles*.

#### Coordination of verb phrases vs. verbal clauses

In coordination of verbs it is sometimes difficult to tell whether a focusing subjunct is a conjunction modifier or a rhematizer that focuses just the verb, depending on whether the coordination of verbal elements is to be regarded as clause coordination or phrase/word coordination. A focusing subjunct cannot focus just one direct member of the coordination. Either it focuses the entire coordination (RHEM as left sister of the root node of the coordination), or it modifies the semantic relation between the coordinated clauses (CM), or it only focuses a part of one direct member of the coordination. Hence, a focusing subjunct cannot focus one of several verbs in coordination as a rhematizer in coordinated verb phrases, but it can easily do it in coordinated verbal clauses. For a consistent and TFA-correct annotation of coordinated verbs it is crucial to hold these two cases apart. The following rules apply so far (and their feasibility has to be proven or revised by the massive annotation):

1. When each of the coordinated clauses has its own subject expressed, no matter if the subjects are coreferential or not, it is clause coordination, and the decision whether a focusing subjunct is a CM or a verb rhematizer is up to the annotator.

<u>Not only.</u>CM did he plan his own funeral <u>#Comma</u>.GRAD he <u>even</u>.CM made *Wim rehearse a funeral oration*.

She knew all the mothers, <u>and</u>.CONJ <u>particularly</u>.CM had she come to know a Mrs White.

2. When the second direct member of the coordination does not have its own subject expressed but the coordinated verb phrases contain a finite verb each, the coordination is to be regarded as clause coordination. Hence, focusing subjuncts can be conjunction modifiers as well as rhematizers and the decision is up to the annotator depending on the context. CM is preferred in clause coordinations when the focusing subjunct alone determines the semantic relation between the clauses (e.g., #*Comma-though* = ADVS, *not only but also* = GRAD) or does not add up any meaning to the coordinating conjunction (*and* = CONJ; *and also* = CONJ).

*I just can't tell you. Six sent me a summary of his career but even.* RHEM *refused me access to all his personal files.* (Interpretation: *Six sent me a summary of his* 

*career but*.CONFR *he [even*.RHEM *refused] me access to all his personal files*. Coordination of clauses, only the verb is rhematized. Their relation is kind of concessive, which does not fit any of the functors for paratactic relation: Sixt mi (sice) poslal svůj profesní životopis, ale (dokonce) mi odmítl i přístup do všech svých osobních složek.)

Six did not send me a summary of his career but.GRAD even.CM refused me access to all his personal files. (modified corpus sentence. Interpretation: Sixt mi neposlal svůj profesní životopis, a dokonce mi i odmítl přístup do všech svých osobních složek. Sixt mi nejen neposlal svůj profesní životopis, ale dokonce mi i odmítl přístup do všech svých osobních složek.)

*Recession or not, people still*.RHEM *[eat, smoke, and take medicine when they're sick]*. (Interpretation: this rhematizer focuses the entire coordination and is the left sister of the root node of the coordination.)

However, I adore the chance to see wildlife in Scotland and am <u>only</u>.RHEM [too acutely aware of how fragile its future is].

She was Manisha, a Muslim girl of twenty from Sylhet, and CONJ had just. RHEM [had her second child].

She was no giver-in, but sometimes she got very high temperatures and <u>just</u>.RHEM [had to stay in bed].

I was amazed at the answers and <u>simply</u>.CM had to reply.

...unknown number of people with various impairments who may have been disabled since the 1920s and have <u>simply</u>.CM been overlooked by researchers, policy-makers and service-providers alike.

<u>Not</u>.CM <u>only</u>.CM did they live rent free but <u>also</u>.CM received 3/-6 per week.

3. When not all verb phrases in the coordination contain a finite verb, the coordination is to be regarded as a coordination of phrases, unless the data convincingly prove the opposite during the annotation. The focusing subjuncts get automatically the functor CM in phrase coordination:

*John <is> sitting and even*.CM *{<is>} reading. John loves to sit and just*.CM *{<to>}read.* 

However, in a few cases the omitted verb is to be restored as an ellipsis, and the coordination is to be regarded as clause coordination. For the purpose of this distinction, difference is to be made between coordinated predicates and coordinated predications. Quirk et al. (2004) define the predicate as the entire verb phrase. In simple finite verb forms (present and past) the notion of predicate

denotes the same thing as the term predication. Complex verb phrases, on the other hand, are divided into **operator** (modal or auxiliary, cf. Quirk et al., 2004, p. 79, 949) and **predication. Predication** is the infinite parts (participles and base forms) in the complex predicate. E.g., *John can wrap the book and will pass it to you* is a coordination of two predicates since the predications have their respective operators attached, while *John can wrap the book and pass it to you* is a coordination of two predications as the operator is omitted in the second predicate.

A coordination of predications of the verbs *to have, to get* and *to be* is regarded as a predicate coordination when the operator has the auxiliary function in only one of them and acts as a lexical verb in another one, or when it has a different auxiliary function in each direct member of the coordination. Whenever the elided operator has a different function in each verb phrase, the ellipsis must be restored and the coordination becomes a coordination of predicates:

?\*<Is> John working and {is} busy, or {is} on holiday and {is} to be substituted?

?\* [Having my explicit permission,] she <may> enter the hall, but <{may}> not have appeared there at all that day.

Ellipsis is to be restored even when the coordinated phrases have different polarity:

#### *He did not go to school but {go} home.*

By any ellipsis restoration the coordination of predications becomes a coordination of **predicates**, and the focusing subjuncts can be rhematizers as well as conjunction modifiers. In unclear cases it is the annotator who decides about the ellipsis restoration.