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## **ON RUSSIAN APPROXIMATIVE INVERSION** FDSL 10, Leipzig, December 5-7, 2013

Billings 1995, Fowler 1987, Franks 1994, 1995, Isakadze 1998, Mel'čuk 1985, Pereltsvaig 2006a, b. Yadroff and Billings 1998, Zaroukian 2012: approximative inversion reverses the normal linear order between a cardinal and a noun with the semantic effect of speaker uncertainty as to the exact quantity:

- pjat' časov five hour-GEN.PL (1)a. five hours
  - b. časov pjat' hour-GEN.PL five about five hours

Two questions arise:

- what syntactic structure underlies approximative inversion?
- how is the **uncertainty effect** derived?

This talk: approximative inversion is derived by **NP** (remnant) movement conditioned by a number of concurrent information structure effects and crucially involves the novel feature [measure]

#### 1. **PRECONDITIONS ON APPROXIMATIVE INVERSION**

Billings 1995, Yadroff and Billings 1998: approximative inversion involves movement of the special functional head Meas<sup>o</sup> (where N<sup>o</sup> has moved)

Our proposal: approximative inversion is conditional on the numeral NP denoting a measure (degree), as proposed by Matushansky and Ruys 2012, 2013 for Russian numeral NP subjects that trigger the default agreement on the predicate:

- devušek (2)Pjat' krasivyx prišli. a five beautiful-GEN.PL girls-GEN.PL arrived-PL Five beautiful girls arrived.
  - b. Prišlo pjat' krasivyx devušek. arrived-NSG five beautiful-GEN.PL girls-GEN.PL There arrived five beautiful girls.

Evidence (beyond interpretation):

- approximative inversion in the subject position: obligatory default agreement
- $\triangleright$ animacy: in approximative inversion animate nouns behave as inanimates

When the numeral NP complement of an accusative-assigning preposition denotes a quantity, the numeral NP declines as if it were inanimate:

- siloi rovno v tri medvedia (3)a. strength-INS exactly in three-ACC=NOM bear-PAUC as strong as exactly three bears
  - bol'še na dva mal'čika b. more on two-ACC=NOM boy-PAUC two boys more

Mel'čuk 1980

Mel'čuk 1980 crucially demonstrates that the lexical noun retains its inherent (in)animacy Approximative inversion also requires inanimate case-marking (Franks 1995:167):

(4)	a.	Ja videl	soldata	cetyre.
Ì.		I saw	soldier-GEN.PL	four-ACC.PL=NOM.PL
		I saw abou	ut four soldiers.	
	1.	* To	a a l d a t	

b. \*Ja videl soldat cetyrëx. I saw soldier-ACC.PL=GEN.PL four-ACC.PL=GEN.PL

Approximative inversion disallows plural agreement (Pereltsvaig 2006a, Yadroff and Billings 1998):

Attested counterexamples are all conditional on the presupposition of the existence of a larger set and involve a preverbal subject, which also facilitates a performance error in number agreement (see Eberhard 1997, Franck et al. 2006, Franck et al. 2002, Gillespie and Pearlmutter 2013, Nicol 1995 for references and discussion)

(5) V ètom restorane obedalo /\*obedali celovek desjat'. Pereltsvaig 2006b in this restaurant dined-NSG dined-PL people ten *In this restaurant dined approximately ten people*.

Both facts are explained if approximative inversion NPs are not syntactically plural

# 2. THE STRUCTURE OF APPROXIMATIVE INVERSION

## 2.1. Movement or base generation?

Lower cardinals appear with the lexical NP in the paucal form (generally identical to genitive singular) rather than in the genitive plural form:

- (6) a. tri časA three hour-PAUC three hours
  - b. časA tri hour-PAUC three about three hours

The paucal form does not appear in the genitive-initial emphatic-thematic inversion (Mel'čuk 1985, House 1982), which does not have the same interpretation:

(7)	a.	My raz we dis <i>We dis</i>	zličaem r stinguish e <i>tinguish ex</i>	ovno tr exactly th <i>cactly thre</i>	i nree-ACC ee such oc	takix such <i>currenc</i>	slučaja occurre ces.	nce-PAUC=GEN.SG	Billings 1995
	b.	My raz we dis	zličaem ta stinguish s	akix <b>sluč</b> uch occu	ajev Irrence -GI	r E <b>N.PL</b> e	ovno exactly	tri. three-ACC	
	c.	Takix such	slučajev occurrenc	e-GEN.PL	my razli we disti	icaem inguish	rovno exactly	tri. three-ACC	
Ther 2012	efore, for a	genitivo similar	e-initial in argument i	version ca n a differ	annot arise ent paradi	e from gm)	moveme	ent (see Polinsky a	nd Potsdam

Further evidence: approximative inversion with complex cardinals, where base-generating the moved element in its surface position seems highly unlikely:

(8) a. Millionov pjat' rublej v god oborota u menja est'. million-GEN.PL five rubles-GEN.PL in year turnover-GEN at me is *I have the turnover of about 5 million rubles a year.* 

## b. tysjač sorok rabočix thousands-GEN.PL forty worker-GEN.PL *about 40,000 workers*

Further evidence: Fowler 1987 (which I haven't been able to obtain yet)

# 2.2. The structure of a numeral NP

Ionin and Matushansky 2004, 2006: complex cardinals are constructed in syntax



The radically different structures for multiplication and addition correctly account for their differing behavior with respect to approximative inversion:

(10)	a.	rabočix so worker-GEN.PL fo <i>about 45 workers</i>	orok pjat orty five	1
	b.	tysjač thousands-GEN.PL about 40.000 wor	sorok forty kers	rabočix worker-GEN.PL

More conventional theories, treating complex cardinals as either lexical heads or as specifiers cannot account for this distinction structurally

## 2.3. What moves?

Two structures: head-movement (Franks 1995, Pereltsvaig 2006a, Yadroff and Billings 1998) vs. NP-movement (Billings 1995, Zaroukian 2012)

Evidence for head-movement: the single-word constraint:

(11)	a.	knig desjat' starinnyx i očen' dorogix books-GEN ten antique-GEN and very expensive-GEN approximately ten antique and very expensive books	Mel'čuk 1985:96
	b.	* starinnyx knig desjat' antique-GEN books-GEN ten	
(12)	a.	izobraženij desjat' britanskogo flaga pictures-GEN ten British-GEN flag-GEN approximately ten pictures of the British flag	Pereltsvaig 2006b
	b.	* izobraženij britanskogo flaga desjat' pictures-GEN British-GEN flag-GEN ten	

- (13) a. tri čajnyx ložki three tea-ADJ-GEN-PL spoon-PAUC=GEN-SG *three teaspoons* 
  - b. \*čajnyx ložki tri tea-ADJ-GEN-PL spoon-PAUC=GEN-SG three

Problem for the NP movement analysis: the single-word constraint.

Solution: a prosodic constraint (Billings 1995)

## 2.3.1. The single-word constraint

Billings 1995: Russian has a syntactic constraint restricting certain positions (the complement of the approximative preposition *s* 'with, off', in particular) to a single "syntactic word". The single-word constraint on the approximative inversion is a special case (restricted to prosodic words)

Novel evidence: words with secondary stress and co-compounds:

- (14) a. otolagingologov (✓[ətələringóləgəv]/\*[òtələringóləgəv]) sorok otolaryngologist-PL.GEN forty some 40 otolaryngologists
  - b. \*divanov-krovatej desjat' sofa-GEN.PL-bed-GEN.PL ten some ten sofa beds

The neutralized realization of [0] shows that the absence of secondary stress is a precondition on approximative inversion

The prosodic constraint on approximative inversion also explains more complex cases:

(15) \*mal'čikov i devoček sorok boys-GEN and girls-GEN forty

Assuming that the coordination of heads is possible, a prosodic constraint is necessary

## 2.3.2. <u>Remnant NP movement in approximative inversion</u>

Problems for the head-movement analysis:

- light adjectives cannot be stranded
- multiple NP modifiers are impossible
- prosodically heavy nouns cannot be fronted

Franks 1995, Mel'čuk 1985, Pereltsvaig 2006a, Yadroff and Billings 1998: **APs stranded by approximative inversion must be complex, stressed or coordinated**:

- (16) a. <sup>??</sup>knig desjat' interesnyx books-GEN ten interesting-GEN
  - b. knig desjat' INTERESNYX books-GEN ten interesting-GEN approximately ten interesting books

# NP-movement explanation: they have to be extraposed prior to NP movement

(17) a. Knigi, starinnye i očen' dorogie, valjalis' po vsemu domu. books antique and very expensive were scattered over entire house Books, antique and very expensive, were scattered all over the house.

#### b. <sup>??</sup>Knigi, starinnye, valjalis' po vsemu domu. books antique were.scattered over entire house *Books, antique ones, were scattered all over the house.*

As NP-internal right-extraposition is much easier than for PPs than for APs, stranded PPs are (correctly) predicted to not be so constrained

Prediction: non-intersective APs cannot appear in approximative inversion:

(18) a. \*mil' desjat' morskix miles-GEN ten nautical-GEN
b. \*let sorok svetovyx years-GEN forty light.ADJ-GEN

Russian non-intersective/relational adjectives only appear postnominally under very specific conditions (see Trugman 2010), which are not met here

Multiple NP modifiers are correctly predicted to be impossible:

(19)	a.	*knig desjat' interesnyx po fizike books-GEN ten interesting-GEN about physics
	b.	*knig desjat' po fizike interesnyx books-GEN ten about physics interesting-GEN
(20)	a.	*izobraženij desjat' aljapovatyx britanskogo flaga pictures-GEN ten sloppy-GEN.PL British-GEN flag-GEN
	b.	*izobraženij desjat' britanskogo flaga aljapovatyx pictures-GEN ten British-GEN flag-GEN sloppy-GEN.PL
		<b>• • •</b> • • • • • • • • • • • • • • • •

NP-internal right-extraposition doesn't seem to be subject to reiteration:

(21) \*izobraženija, starinnye i očen' dorogie, britanskogo flaga pictures antique and very expensive British-GEN flag-GEN

Summary: NP dependents "stranded" by approximative inversion have been extraposed

## 2.4. Approximative inversion with complex cardinals

Roughly, in complex cardinals involving multiplication the first multiplicand is targeted:

(22) a. tysjač sorok mašin thousands-GEN forty cars-GEN

> b. \*mašin sorok tysjač cars-GEN forty thousands-GEN

If a complex cardinal is itself a head (Num° or Q°, cf. Pereltsvaig 2006a), excorporation out of it should be impossible.

If a complex cardinal is merged in [Spec, NumP] (cf. Yadroff and Billings 1998), both the lexical category and the structural position of the multiplicand differ from that of the lexical noun, and the two are not expected to be attracted to the same position by the same trigger.

If a complex cardinal is merged in a cascade structure (cf. Ionin and Matushansky 2006), the lexical NP is a complement of the cardinal. Complements can be stranded by approximative inversion:

(23)	a.	izobraženij	desjat'	britanskogo	flaga
		pictures-GEN	ten	<b>British-GEN</b>	flag-GEN
		approximately	y ten pic	tures of the Br	itish flag

## b. prezidentov vosem' raznyx gosudarstv presidents-GEN eight different-GEN.PL states-GEN about eight presidents of different states

...but they must be "heavy":

(24)	a.	*izobraženij pictures-GEN	desjat' ten	flagov flag-GEN-PL
	h	* prezidentov	vosem'	Francii

b. \*prezidentov vosem' Francii presidents-GEN eight France-GEN

So no syntactic approach to complex cardinals seems to allow for approximative inversion

Stipulation: **"heaviness" is relative rather than absolute**: the stranded/extraposed NP or PP must only be "heavier" than the head: a cardinal is both informationally and prosodically light

Confirmation: measure nouns can be inverted even when they have a "light" complement:

(25)	a.	litrov	vosem'	moloka
		liters-GEN	eight	milk-GEN
		about eigh	t liters og	f milk

- b. kilogramma tri muki kilogram-PAUC=GEN-SG three flour-GEN about three kilograms of flour
- c. funta dva ego [zolota] pound-PAUC=GEN-SG two it-GEN gold-GEN about two pounds of it (gold)

Possible alternative: cardinals and measure nouns combine with their sisters by adjunction rather than complementation -- still requires a stipulation

Summary: a prosodic constraint on the fronted element is independently motivated, and so a head-movement analysis has no advantage here. The head-movement view does not explain why stranding involves extraposition. The XP movement view needs further assumptions to account for the lack of evidence for extraposition in approximative inversion involving complex cardinals or measure nouns.



pseudo-partitive

What triggers approximative inversion?

Billings 1995: the relevant operator is null, and so must be licensed by a filled specifier

# 2.5. The information structure of approximative inversion

Further evidence for a remnant movement treatment of approximative inversion comes from the differing information structure status of different parts of the NP.

Stranded NPs and APs have to be contrastive or heavy.

While in a regular numeral NP the cardinal may be de-stressed, with approximative inversion it is impossible: it must be in (broad or narrow) focus.

The inverted noun must also be given/in the common ground/salient...:

(27) [When the kidnapper rushed into the study, to his utter surprise he discovered that...]

a.	bankira	okružalo	[pjat'	oxrannikov].
	banker-ACC	surround-PAST-NSG	five-NOM	bodyguard-GEN.PL
	The banker v	vas surrounded by fiv	ve bodyguar	rds.

- b. #bankira okružalo [oxrannikov pjat']. banker-ACC surround-PAST-NSG bodyguard-GEN.PL five-NOM
- c. bankira okružalo [čelovek pjat' oxrannikov]. banker-ACC surround-PAST-NSG person-GEN.PL five-NOM bodyguard-GEN.PL *The banker was surrounded by approximately five bodyguards.*

Assuming that bodyguards have not been made salient by the preceding context, (27b) cannot be used. Instead, the alternative approximative inversion construction, with a classifier-like element (*čelovek* 'people' for humans, *golov* 'heads' for cattle and *štuk* 'items' for inanimates, see Sussex 1976, Yadroff 1999), as in (27c), must be used.

Aikhenvald 2000 argues that these items are not real classifiers; see Kagan and Pereltsvaig 2012 for objections. Their behavior in approximative inversion strongly suggests that they are in fact measure nouns; strikingly, even the lexically animate *čelovek* is obligatorily inanimate.

Measure nouns, which are naturally part of Common Ground in the context of measuring the event, are naturally appropriate with approximative inversion: the vast majority of the many examples of approximative inversion in Mel'čuk 1985:148-155 involves measure nouns and "classifiers".

Conclusion: for the success of approximative inversion, everything but the cardinal is moved out of the scope of the approximative operator (which clearly associates with focus)

## 2.6. Ban on further extraction

Puzzle: the NP fronted by approximative inversion cannot be moved any further:

- (28) a. V gorode bylo cerkvej pjat'. in city was-NSG church-GEN.PL five There were maybe five churches in the city.
  - b. Cerkvej v gorode bylo pjat'. precise quantity only church-GEN.PL in city was-NSG five *There were five churches in the city.*

Polinsky and Potsdam 2012: Russian has two types of left-edge topicalization with numerals: hanging topic (no movement) and scrambling (A'-movement):

(29)	a.	Sobor-avgorodkebylotrisobor-a.cathedral-PAUCintownwasthree-PAUCAs for cathedrals, there were three in that town.				n.	Polinsky and Potsdam 2012
	b.	Sobor-ov cathedral-GEN.PL As for cathedrals,	v in ther	gorodke town e were thr	bylo was ee in th	tri three at town	pro. -PAUC n.

Hypothesis: further extraction out of approximative inversion structures is blocked by their information structure.

Measure NPs cannot be easily split:

(30)	a.	My kupili pjat' kilogrammov jablok. we bought five kilogram-GEN.PL apple-GEN.PL <i>We bought five kilograms of apples</i> .
	b.	*Kilogrammov my kupili pjat' jablok. kilogram-GEN.PL we bought five apple-GEN.PL
	c.	*Kilogrammov jablok my kupili pjat'. kilogram-GEN.PL apple-GEN.PL we bought five
(31)	a.	My ždali pjat' časov. we waited five hour-GEN.PL We waited for five hours.
	b.	ČASOV/*časov my ždali pjať. hour-GEN.PL we waited five

If you count in hours, then we waited for five hours.

Split measure NPs are only possible if the fronted measure NP is interpreted as a contrastive topic. The resulting interpretation, however, does not appear to be pragmatically compatible with speaker uncertainty, since the stranded cardinal has to function as a contrastive focus.

## 3. THE ROLE OF [MEASURE] AND PHI

Approximative inversion is constrained with respect to both the cardinals that can trigger it and the cardinals that can undergo it

## 3.1. Excluded triggers

The adjectival cardinal *odin* 'one' cannot trigger approximative inversion either by itself or as part of a complex cardinal:

(32) \*kilogramm/\*kilogrammov (dvadcat') odin kilogram.SG/kilogram-GEN.PL twenty one

Movement is blocked: an adjectival cardinal does not introduce an intervening head, and the complement of Meas<sup>o</sup> (*one kilogram*) cannot be attracted to [Spec, MeasP] (cf. Abels 2003).

The higher (more noun-like) cardinals starting with *million* also cannot trigger approximative inversion; nor can fractions with the exception of *polovina* 'half' (Mel'čuk 1985:150):

- (33) \*knig (èdak) (s) million book-GEN.PL so with/about million
- (34) a. litra tri s polovinoj liter-PAUC three with half *three and a half liters*

b.	*litra/*litrov liter-PAUC/GEN.PL	tri three	s with	tretju third	
c.	*litra/*litrov	tri	i	pjat'	vos'myx
	liter-PAUC/GEN.PL	three	and	five	eighths

Contrary to the first impression, this is not about *million* being nominal, as numerical nouns allow approximative inversion:

- (35) a. godov čerez desjatoček year-GEN.PL across ten.N-DIM-ACC *in about 10 years* 
  - b. Tak prošli oni šagov sotnju. so passed they step-GEN.PL hundred.N-ACC And so they walked for about 100 steps.

The cardinal *thousand* does not easily trigger approximative inversion in oblique cases, and names of hundreds are strongly dispreferred in dative and instrumental cases: nothing to say.

## **3.2.** Excluded targets

Although cardinals denoting tens and hundreds are written as a single word, it is easy to show that they are syntactically complex:

(36)	a.	statja pro pjať.sot akul article about five.hundred-GEN.PL sharks-GEN.PL an article about/on 500 sharks
	b.	opisaniepjati.sotakuldescriptionfive-GEN.hundred-GEN.PLsharks-GEN.PLa description of 500 sharkssharks-GEN.PL
	c.	pomošč' pjati.stam akulam aid five-DAT.hundred-DAT.PL sharks-DAT.PL <i>aid to 500 sharks</i>
	d.	s pjatju.stami akulami with five-INS.hundred-INS.PL sharks-INS.PL with 500 sharks
The c instea	cardin ad:	als ten and hundred cannot invert, the corresponding numerical noun must be used

(37)	a.	* stami hundred-INS.PL	s with	pjatju five-INS	akulami sharks-INS.PL
	b.	sotnjami hundred.N-INS.PL with some 500 sh	s with <i>arks</i>	pjatju 1 five-INS	akul sharks-GEN.PL

Intuition: the cardinal cline (cf. Hurford 2003)

## **3.3.** Cardinals and measures

Hurford 1975, 1987: cross-linguistically, the lowest cardinals are the most adjectival, whereas the highest cardinals are fully nominal

Assumption: Meas<sup>°</sup> bears not only a set of uninterpretable phi-features, but also the feature of [measure], attracting to its specifier a measure NP

All cardinals bear an interpretable [measure] feature, which they share with nouns denoting units of measure

The lower cardinals (2-100) do not have a complete set of phi-features and therefore cannot be attracted themselves, but as they project as heads, their NP complement can be attracted to [Spec, MeasP] (unless the head of their complement is itself a lower cardinal (tens, hundreds) and lacks some phi-features

To be more precise, the cardinal *dva/dve* 'two' agrees for gender with its sister and the paucal cardinals 2-4 agree for animacy, but it can be reasonably assumed that none of them are specified for [number]. All other cardinals can be reasonably hypothesized to lack both [gender] and [animacy]

The cardinals *million* and higher are all fully nominal (Mel'čuk 1985:295-304), thus bearing both [measure] and a full set of phi-features. However, they cannot check the uninterpretable [measure] and phi-features of Meas<sup>o</sup> if they head its complement (a complement cannot be attracted to the specifier, cf. Abels 2003) and also act as interveners blocking the attraction of their own (NP) complement:



The word *tysjača* 'thousand' is ambiguous between a cardinal and a measure noun (Mel'čuk 1985), meaning that it may be specified only for [measure] (as a non-intervener) or also for [gender] (as a possible target). The same treatment can be assumed for *polovina* 'half'. Mel'čuk 1985:289-294 demonstrates that *tysjača* 'thousand' only functions as a cardinal when not preceded by a multiplier; when functioning as a multiplicand, it is invariably nominal

# 4. FURTHER QUESTIONS

(38)

#### 4.1. The semantics of approximative inversion

Approximative inversion "expresses the speaker's uncertainty about (or non-committal to, or distancing from) the cardinality involved" (Pereltsvaig 2006a, cf. Mel'čuk 1985:157)

Mel'čuk's precision scenario: in the context of a birthday, approximation strategies other than approximative inversion cannot be used when discussing the age of the principal:

(39) a. Let tridcat'. b. #Priblizitel'no tridcat' (let). c. #30-35 let. years thirty approximately thirty years 30-35 years *Approximately thirty years*.

Reinterpretation: crucial in this situation is that one "is not rounding the number of years up or down, but rather expresses her uncertainty about the [colleague's] age (which is an integer in this situation, not a fraction)" (Pereltsvaig 2006a)

Scenario: speculating if a particular boy has already had his bar mitzvah (a Judaic coming-of-age ceremony, which takes place at thirteen): "well, he could have,...":

(40) a. #Emu uže let trinadcat'. he-DAT already years-GEN thirteen *He is already some thirteen years old.* 

b.	Emu	uže	okolo	trinadcati	(let).
	he-DAT	already	around	thirteen-GEN	years-GEN
	He is al				

Approximative inversion is compatible with other types of approximation:

(41)	a.	Provel ja tam dnej <b>primerno</b> pjat'. spent I there day-GEN.PL approximately five I spent some five days there.	Mel'čuk 1985:153
	b.	rublejokolopjatisotruble-GEN.PLaboutfive.hundred-GENsome 500 rublessome 500 rubles	Mel'čuk 1985:157
	c.	Da pudov èdak <b>pjat' ili šest'</b> . EMPH pood-GEN.PL so five or six Well, perhaps some five or six poods. (pood = 36lb avoirdupois)	

As the translations show, **approximative inversion behaves like approximation with** *some* (Anderson 2013, Duffley and Larrivée 2012; cf. Alonso-Ovalle and Menéndez-Benito 2010, Farkas 2002 for implementations of the epistemic non-specificity of *some*):

(42) a. Bill looked and saw a group of some fifteen people enter. Anderson 2013b. Some 30 to 40 people showed up.

Crucial: Russian does not allow *some* to be so used (different interpretation):

(43) kakix-to dvadcat' minut some twenty minutes *a meager 20 minutes* 

[This is a meaning that is also used with kind modification to yield a pejorative]

# 4.2. Approximative inversion with PPs

In a PP the inverted noun moves to position before the preposition if the preposition is "light" or primary (Billings 1995, Franks 1995, Mel'čuk 1985, etc.):

(44)	a.	za tri časA for three hour-PAUC in three hours	(45)	a.	čerez tri časA for three hour-PAUC in three hours
	b.	<sup>%</sup> za časA tri for hour-PAUC three <i>in about three hours</i>		b.	<sup>%</sup> čerez časA tri for hour-PAUC three <i>in about three hours</i>
	c.	časA za tri hour-PAUC for three in about three hours		c.	časA čerez tri hour-PAUC for three <i>in about three hours</i>
(46)	a.	otnositel'no tridcati očkov regarding thirty-GEN points-GEN regarding thirty points	(47) N	a.	spustja tri časA after three hour-PAUC after three hours
	b.	otnositel'no očkov tridcati regarding points-GEN thirty-GEN regarding approximately thirty point	5	b.	spustja časA tri after hour-PAUC three after about three hours
	c.	*očkov otnositel'no tridcati points-GEN regarding thirty-GEN regarding approximately thirty point	5	c.	*časA spustja tri hour-PAUC after three after about three hours

The preposition need not be mono- or disyllabic to trigger approximative inversion, but only one exception is known: *okolo* 'around' in its approximative meaning; it also forms a prosodic word and bears its own stress

The preposition itself can be preceded by a modifier (Mel'čuk 1985:153): The adverb *èdak/ètak* 'so' triggers obligatory approximative inversion

- (48) a. Produktov u nas ostalos' dnej tol'ko na pjat'. provisions-GEN with us remained-NSG day-GEN-PL only on five *We had provisions left for only about five days.* 
  - b. Da pudov èdak pjat' ili šest'. EMPH pood-GEN.PL so five or six Well, perhaps some five or six poods. (pood = 36lb avoirdupois)

Zaroukian 2012: the head-movement approach incorrectly rules out these structures, as the preposition, being itself a head, should act as an intervener

# 4.3. Alternative proposals

Franks 1995: N°-to-Q°, raising problems for his analysis (no solution proposed)

Yadroff and Billings 1998 and Pereltsvaig 2006a, b: a modal/evidential head in the extended NP bears a functional feature marking speaker uncertainty, which can be checked by the movement of the noun:



Zaroukian to appear: assuming the presence of a modal/evidential head in the extended NP (Yadroff and Billings 1998 and Pereltsvaig 2006a, b) gives rise to incorrect predictions with respect to the scope of speaker uncertainty. If speaker uncertainty is a formal feature that can be checked by the movement of the noun (Yadroff and Billings 1998 and Pereltsvaig 2006a, b), the noun rather than the cardinal is predicted to be interpreted as something that the speakers not sure about. Conversely, if it is interpreted as an operator, then NP modifiers in (11) and (12) should remain in its scope, contrary to fact -- an issue that can be avoided by hypothesizing extraposition of the NP modifier, as above.

Billings 1995: a single-word NP moves to a specifier position in the extended NP to license a null approximative operator

## 4.4. The myth of the direct-case constraint

Franks 1995, Isakadze 1998, Pereltsvaig 2006a, b, Yadroff 1999: approximative inversion is only possible in direct cases (nominative and accusative):

NB: Franks 1995:172 claims that oblique NPs not introduced by a preposition disallow approximative inversion if they are arguments, but not if they are adjuncts

(50) a. \*Direktor upravljaet fabrikami pjat'ju. director manages factories-INS five-INS *The director manages about five factories.*  Franks 1995:167

- b. \*On vladeet jazykami pjat'ju. he possesses languages-INS five-INS *He speaks about five languages*.
- c. \*Ivan boitsja čelovek pjati. Ivan fears people-GEN five-GEN *Ivan fears about five people.*
- d. \*On dal podarki devuškam pjati. he gave presents girls-DAT five-DAT *He gave presents to about five girls.*

Pereltsvaig 2006a, b links this to the fact that in direct-case positions the lexical NP appears in the case assigned by the cardinal.

For this heterogeneous pattern of case-marking the cardinal is assumed to be a maximal projection rather than a head (Bailyn 2004), while for the homogenous pattern arising in oblique cases the cardinal is assumed to be a head and therefore an intervener for approximative inversion.

This generalization is empirically wrong: though approximative inversion is predominantly used in NPs assigned nominative, accusative or genitive, other cases, though dispreferred, are not excluded:

(51)	a.	kilogrammam k pjati Me kilogram-DAT.PL towards five-DAT.PL <i>towards approximately five kilograms</i>	l'čuk 1985:154
	b.	nedel'okolodvuxMeweek-GEN.PLaroundtwo-GEN.PLaround approximately two weeks	l'čuk 1985:152
(52)	Ja ve I co <i>I will</i>	ernus' časam k pjati. Isa ome.back-PRF hours-DAT towards five-DAT <i>ll come back at around five o'clock</i> .	kadze 1998:78
(53)	a.	Cena takogo približaetsja tysjačam k četyrëm, nav Price such-GEN approaches thousands-DAT towards four-DAT may The price of something like this approaches some four thousand, perh	vernoe ybe <i>aps</i> .
	b.	A byl by po.skromn-ee, ograničilsja by tonnami de and was COND ATT.modest-COMP restricted.self COND tons-INS te And had he been more modest, restricted himself to some 10 tons	esjat'ju [] n-INS
	c.	Naprimer, tropičeskij ostrov, tysjačax v desjati mil' for.instance tropical island, thousands-LOC in ten-LOC miles-GEL For instance, a tropical island some 10,000 miles from here.	otsjuda. N from.here

Why are the approximative inversion examples from Franks' (1995) and Pereltsvaig's (2006b) ungrammatical?

Hypothesis: approximative inversion depends on a particular structure and/or the concurrent interpretation of the numeral NP (a bare QP rather than a DP, according to Pereltsvaig 2006a, b, measure or **degree**, according to Matushansky and Ruys 2012, 2013), which is unavailable in these contexts.

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