

Nominal Distribution of Prepositions and Adnumeral Operators in Polish

Introduction It is well known that some functional words in Polish are purely syntactically (not semantically) ‘ambiguous’ between a preposition (P; assigning a specific case) and a so-called adnumeral operator (AO; transparent to case assignment). A typical example is *około* ‘around’ (see, e.g., Grochowski 1997):¹

- (1) Część gastronomiczna obsługuje około stu osób.
part.NOM.SG.F gastronomic.NOM.SG.F serves.3SG around.P hundred.GEN people.GEN
‘The gastronomic part serves around one hundred people.’ (NKJP)
- (2) Dziennie obsługujemy około sto pięćdziesiąt osób...
daily serve.1PL around.AO hundred.ACC fifty.ACC people.GEN
‘Every day, we serve around one hundred fifty people.’ (NKJP)

In (1), the P *około* assigns genitive to the following numeral phrase (NumP) and the whole PP occupies the normally accusative position of the direct object of *obsługiwać* ‘serve’. In (2), this position is filled by an accusative NumP, with the numeral modified by the AO *około*.

Such constructions pose a number of problems for syntactic theories. First, it is not clear what syntactic mechanisms licence the systematic use of some PPs – not only those headed by *około* ‘around’, but also *między* ‘between’, *od... do...* ‘from... to...’,² and the distributive *po* ‘each’ – in (some) purely nominal positions. Second, it is not clear which syntactic positions allow for such PPs; for example, Franks 1995:161 characterises distributive *po*-phrases as being able to appear in subject and object positions, while Przepiórkowski 1999:119 claims they appear in structural case-marked positions (these claims are not equivalent, as some passivisable direct objects are in the lexically – not structurally – assigned instrumental case, etc.), but in neither case is a precise account of licensing of such PPs offered. Third, it is not clear which of such prepositions have corresponding adnominal operators, and what is the distribution of such AOs; for example, Grochowski 1997:73 assumes that the AO *około* ‘around’ occurs only in some case positions, and the distribution – or even the existence – of the AO *po* ‘each’, *od... do...* ‘from... to...’, and *między* ‘between’ is even much more controversial (Łojasiewicz 1979, Derwojedowa 2011, Przepiórkowski 2013, Klockmann 2017).

Experiments In order to provide a solid empirical basis for theoretical analyses of such prepositional and adnumeral constructions, a questionnaire was designed involving the four functional words mentioned above, testing their occurrences *qua* Ps and *qua* AOs in the six governed case positions (nominative, accusative, genitive, dative, instrumental, locative). The two prepositional variants of *po* – combining with a locative NP or an accusative NumP (Przepiórkowski 2006) – were examined separately, and also the AO *po* was examined separately with NPs and with NumPs. Given also the two prepositional variants of *między* (adlative with the accusative case or statically locative with the locative case), 11 items were tested: six Ps and five AOs. Six sentences were constructed for each ⟨item, case position⟩ combination. For example, one of the six sentences for the preposition *po* occurring in a genitive case position (here, required by *pilnować* ‘guard’) and combining with the locative case is (3).

- (3) Każdy pastuszek pilnował po jednej kozie.
every.NOM.M.SG shepherd.NOM.M.SG guarded.3SG.M each one.LOC goat.LOC.
‘Every little shepherd guarded one goat each.’

In the case of accusative, genitive, dative, and instrumental positions, three sentences involved non-post-prepositional positions (as in (3)), and another three – post-prepositional positions (as in the unacceptable (4), involving a genitive position required by *dla* ‘for’).³

¹Examples marked as NKJP come from the National Corpus of Polish (<http://nkjp.pl/>).

²We do not deal here with the internal structure of *od... do...* constructions.

³The locative is strictly post-prepositional in Polish, and we constrain nominative positions to subjects here.

- (4) Nasi graficy projektują dla po jednej firmie zewnętrzną rocznie.
 our designers design for each one.LOC company.LOC external.LOC yearly.
 ‘Our graphic designers design each for one outside company a year.’

Each sentence was rated by 15–17 subjects (mostly students of Cognitive Science or Psychology at a Polish university) on a scale from 1 (entirely unacceptable) to 8 (perfectly acceptable). Appropriate statistical significance tests were applied.

Results Here are the average ratings (‘P+’ marks post-prepositional positions):

(5)	<i>około</i>		<i>od... do...</i>		<i>po</i> + NumP		<i>po</i> + NP		<i>między</i>		
	P _{GEN}	AO	P _{GEN}	AO	P _{ACC}	AO	P _{LOC}	AO	P _{ACC}	AO	P _{INS}
NOM	5.62	6.69	7.24	3.97	2.63	6.03	5.17	2.73	3.04	3.50	2.03
ACC	5.58	6.58	7.73	4.04	7.09	6.69	7.58	4.29	4.24	3.96	2.80
P+ACC	2.20	6.75	4.58	4.19	2.53	3.71	1.49	2.38	2.64	3.59	1.98
GEN	6.13	6.73	7.38	6.94	3.27	3.22	5.51	2.47	2.78	2.96	2.40
P+GEN	6.27	6.17	5.47	5.27	1.20	2.18	1.13	2.44	1.58	2.90	1.56
DAT	1.89	7.06	2.40	5.63	1.13	3.87	1.64	3.56	1.40	3.71	1.93
P+DAT	2.53	6.13	2.84	4.56	1.20	2.82	1.20	2.18	1.71	2.75	2.31
INS	2.09	6.85	2.11	5.06	1.31	3.24	2.33	3.31	1.51	3.82	4.76
P+INS	1.64	6.94	2.89	4.02	1.22	2.71	1.31	2.53	2.00	3.61	2.60
LOC	2.79	6.86	3.83	5.85	1.19	3.11	1.83	3.08	1.69	3.18	1.87

Results in grey cells are ambiguous; for example, in post-prepositional genitive positions (cf. P+GEN above), *około* may be analysed as a P governing the genitive case, or as an AO transparent to the genitive case assigned by the higher preposition; the difference in the average ratings (here, 6.27 vs. 6.17) reflects different sets of raters (rating the same sentences).

Discussion Let us interpret averages $\gg 5.0$ as ‘acceptable’ (coded in green above) and $\ll 4.0$ as ‘unacceptable’ (coded in red). The simplest behaviour is exhibited by *między*: it is largely unacceptable in nominal positions, either as a P, or as an AO. The results for *około* show its acceptability as an AO in all case positions, contrary to earlier claims. As a P, *około* is acceptable in nominative and non-post-prepositional accusative (its status in the genitive is not clear because of the ambiguity); this is compatible with the claim that the P *około* occupies structurally cased positions. A similar pattern characterises *od... do...*, which however is more acceptable as a P and less acceptable as an AO than *około*. In fact, the systematically middle-range ratings of the AO *około* may be interpreted as one more argument for a non-binary nature of grammaticality (see, e.g., Lau *et al.* 2017). The most interesting behaviour is exhibited by *po*; in particular, and contrary to some claims in the literature, *po* is acceptable as an AO at least in nominative and – given the general ill-formedness of the P *po* with accusative NumPs – arguably in accusative positions. For lack of space, further discussion of the importance of these results for the delimitation of structural case in Polish is postponed to the full paper.

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