

A unified LFG analysis of two homonymous distributive elements in Polish

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The aim of this paper is to provide a novel unified analysis of Polish distributive constructions involving the two lexemes *po* 'each'. While one of these lexemes is an undisputed preposition, we argue that the other has a very unusual lexical entry.

Polish distributive constructions involving *po* have been known to be troublesome for some time now (Łojasiewicz 1979, Franks 1995). Morphosyntactically, *po* has been traditionally analysed as a preposition, apparently combining either with a locative NP (noun phrase) or with an accusative NumP (numeral phrase):

- (1) Dałem im *po* jabłku.
gave-I them.DAT *po* apple.LOC
'I gave them an apple each.'
- (2) Dałem im *po* dwa jabłka.
gave-I them.DAT *po* two.ACC apples.ACC
'I gave them two apples each.'

Przepiórkowski 2010 argues instead that there are two different functional lexemes *po* in Polish: a preposition, exemplified by (1), and an adnumeral modifier (in the sense of Grochowski 1997), exemplified by (2). The difference between them is clear: the distributive preposition *po* assigns the locative case (a strictly prepositional case in Polish), and the adnumeral modifier *po* is transparent to any case assignment mechanisms, i.e., the accusative case in (2) is assigned to the direct object of *dałem* 'gave' by the structural case assignment principles (Przepiórkowski 1999), rather than by *po*. The main reason for distinguishing such an adnumeral modifier *po* is that it may occur with numeral phrases in cases other than the previously noticed accusative, as shown by the marginal but attested dative example (3) below:

- (3) Broń została przekazana *po* dwóm osobom z każdego ugrupowania.
weapon AUX transferred.PASS *po* two.DAT person.DAT.PL from each group
'The weapon was handed in to two people from each group.'

More robustly, adnumeral *po*-phrases may also occur in the subject position, as already noted by Łojasiewicz 1979, where they agree with the verb, which strongly suggests that they bear the nominative case (in Polish, as in other European languages, the finite verb only agrees with nominative subjects).

In this paper, however, we use similar data to question this adnumeral modifier analysis. Compare (4a) with (4b):

- (4) a. W pokojach będą *po* dwa fotele.
in rooms be.FUT.PL *po* two armchair.ACC/NOM.PL
'There will be two armchairs in each room.'
- b. ??W restauracjach będą *po* dwaj ochroniarze.
in restaurants be.FUT.PL *po* two guards.NOM.PL
'There will be two guards in each restaurant.'
- (5) a. ?Nie dałem im *po* dwa jabłka.
not gave-I them.DAT *po* two.ACC apples.ACC
'I didn't give them two apples each.'
- b. *Nie dałem im *po* dwóch jabłek.
not gave-I them.DAT *po* two.GEN apples.GEN

In (4a), from Łojasiewicz 1979, p. 154, the postverbal subject¹ *po dwa fotele* agrees with the main verb, so it must be the nominative subject; the *NOM/ACC* marking reflects the case syncretism of *dwa fotele*. But if so, the degraded status of (4b), involving the unambiguously nominative *dwaj ochroniarze*, is surprising.²

Similarly, if *po* does not interfere with case assignment, the genitive (5b) should be grammatical and the accusative (5a) should be out, contrary to facts. This is because Polish is a genitive of negation language: the otherwise accusative objects bear the genitive case under the scope of negation. In other words, removing *po* from (5) would reverse the acceptability judgements: (5a) would be clearly acceptable and (5b) would be clearly unacceptable.

Considering examples (4)–(5), we seem to be coming back to the traditional position that the adnumeral *po* is an accusative-assigning preposition, after all. But if the numeral phrase in (4a) is accusative, and embedded in a prepositional phrase, then it remains mysterious how the verb may agree with such a non-nominative subject, contrary to the overwhelming generalisation. The facts seem to be contradictory, and we seem to be stuck.

In order to account for all the facts cited above, we propose an analysis of the adnumeral *po* based on the following assumptions and observations:

- the basic adnumeral *po* combines with accusative numeral phrases (but we will comment below on the dative (3));
- such *po*-phrases with the adnumeral *po* and the accusative numeral can easily fill the positions of the accusative object (as in (2)), the nominative subject (as in (4a)) and the genitive of negation object (as in (5a)), i.e., they may bear any structural case (Przepiórkowski 1999);
- in particular, subject–verb agreement in (4a) shows that the relevant *po*-phrase is in the nominative (despite the accusative numeral) and bears the gender and number features of the embedded numeral phrase.

In terms of *c*-structure rules, we propose the following rule for numeral phrases involving adnumeral elements; in fact, it is the adnumeral that is the head of the numeral phrase here, but – as we will see below – the adnumeral takes over all relevant features of the numeral, making the numeral almost a co-head of the construction:

- (6) NumP → AdNum Num NP
 ↓=↑ (↑ OBJ) = ↓ (↑ OBJ OBJ) = ↓

¹Nothing hinges on the fact that the subject is postverbal here: Polish is a relatively free word order language.

²On the other hand, attested examples may be found involving unambiguous nominative numeral phrases, including one cited by Przepiórkowski 2010 (his (5)); one way to deal with them would be to extend (11) below to cover nominative, apart from dative and perhaps other cases.

While there are various adnumeral elements in Polish, it is not clear that they can co-occur, so for the time being we assume only one adnumeral element in (6). This is not the only rule for numeral phrases; the other one makes it possible for NP-internal adjectives to precede the numeral, apart from the adjectives genuinely modifying the numeral:

$$(7) \text{ NumP} \rightarrow \text{ AdjP}^* \text{ Num NP} \\ \downarrow \in (\uparrow \text{OBJ}) \text{ ADJ} \quad \downarrow = \uparrow \quad (\uparrow \text{OBJ}) = \downarrow$$

These two rules account for the fact that pre-numeral adjectives and adnumeral elements cannot co-occur:

- | | |
|--|--|
| (8) a. Posłał go po 2 smaczne jabłka.
sent him for 2 tasty apples
'He sent him to fetch 2 tasty apples.' | (9) a. Dał każdemu po 2 smaczne jabłka.
gave each one po 2 tasty apples
'He gave each of them 2 tasty apples.' |
| b. Posłał go po smaczne 2 jabłka.
sent him for tasty 2 apples | b. *Dał każdemu po smaczne 2 jabłka.
gave each one po tasty 2 apples |
| | c. *Dał każdemu smaczne po 2 jabłka.
gave each one tasty po 2 apples |

The above contrast (from Przepiórkowski 2010) between a preposition in (8)³ and the adnumeral *po* in (9) justifies the formulation of two separate c-structure rules for NumP: the presence of adnumeral elements precludes the possibility of pre-numeral adjectival modification.

Note that while (7) states that it is the numeral that is the head of the numeral phrase, (6) curiously assumes that numeral phrases are headed by adnumeral elements. This way the adnumeral *po* – and the whole numeral phrase – may bear a different case than the accusative numeral. We assume the following lexical entries for the distributive *po*:

- | | |
|--|---|
| (10) <i>po</i> P @ <i>poDist</i> (...)
(↑ OBJ CASE) = LOC ... | (11) <i>po</i> (see (10) on the left for the first two entries)
ADNUM @ <i>poDist</i> (...)
(↑ CASE) = DAT
↑ \OBJ \PRED = (↓ OBJ) \OBJ \PRED ... |
| ADNUM @ <i>poDist</i> (...)
(↑ OBJ CASE) = ACC
(↑ CASE) = STR
↑ \OBJ \CASE \PRED = (↓ OBJ) \OBJ \CASE \PRED ... | (12) <i>poDist</i> (...) = (↑ PRED) = 'PO<OBJ>'
DISTRIBUTIVE-SEMANTICS(...) |

The effect of “↑ \OBJ \CASE \PRED = (↓ OBJ) \OBJ \CASE \PRED” in (10), using the mechanism of *restriction* (Kaplan and Wedekind 1993), is that the feature structures of the adnumeral *po* and its numeral object are the same, up to the values of OBJ, CASE and PRED: the numeral must be in the accusative, but the adnumeral and, hence, the whole numeral phrase it heads may bear any structural case (schematically marked here as STR), including the nominative (as in (4a)). The subject–verb agreement reflects the fact that the numeral’s gender and number are among the features which are copied to the adnumeral and, hence, to the whole nominative numeral phrase.

To the extent that marginal examples like (3) are grammatical, we assume the existence of another lexical entry, (11), specifically for dative, but perhaps expandable to any lexical case, if convincing examples involving instrumental, locative or non-structural genitive are found.

Finally, note also the use of the *poDist* template, (12), which encodes the distributive semantics shared by the two functional *po* elements. Distributive semantics is a difficult matter on which we do not have anything to say here.

In summary, we proposed an LFG improvement on the constructional analysis of Polish distributive constructions by Przepiórkowski 2010. The paper is of interest to the general LFG audience because of a new set of data and an analysis involving an almost complete feature structure identity of an adnumeral head and the numeral object, together forming a numeral phrase. The paper also contributes to the recent discussion of the possibility of using templates (Dalrymple *et al.* 2004) to model phenomena apparently calling for a constructional approach (Asudeh *et al.* 2008 and later work).

References

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³Note that this is *not* the distributive preposition *po*, but rather yet another homonymous preposition.