

Five Polish Numeral Puzzles and the Internal Delimitation of Case

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The aim of this paper is to present five persistent morphosyntactic and syntactic puzzles provided by (the vast majority of) Polish cardinal numerals, with no standard and uncontroversial solutions, and to show how a solution to these puzzles, couched within Head-driven Phrase Structure Grammar (HPSG; Pollard and Sag 1994), a generative non-transformational linguistic framework, bears on the question of the internal delimitation of cases (Comrie 1986).

1. The first puzzle concerns the internal agreement patterns within numeral phrases in the subject position. As (1) illustrates, adjectival forms may agree in case either with the numeral, or with the noun. But as (2) shows, it is not clear what the case of the adjectival form agreeing with the numeral is: if, as it is often assumed, it is nominative, then the unacceptability of the nominative form in the virile gender is puzzling. A similar pattern is observed in the case of external agreement of subject numeral phrases with predicative adjectival forms.

2. Examples (1)–(2) also illustrate the second puzzle: lack of agreement between the plural subject and the singular verb. It is uncontroversial that numeral phrases in (1)–(2) are subjects (cf., e.g., Dziwirek 1994, Przepiórkowski 1999 and references therein), and it is clear that the subject is plural because the adjectival and nominal forms are plural, and because it binds plural forms of anaphors, as evidenced by the emphatic modifiers of anaphors (in Polish, anaphors do not exhibit number overtly), e.g., *Te pięć kobiet widziało [siebie same]* ‘These five women saw [Anaphor Emphatic_{PL}].

3. The third puzzle concerns the existence of a class of indefinite numerals (e.g., *dużo* ‘a lot’, *trochę* ‘some, a few’) which, in contrast to indefinite numerals such as *wiele* ‘many’, do not overtly decline and may occur only in nominative, accusative and some genitive positions, cf. (3)–(6).

4. The fourth puzzle is diachronic: as has been repeatedly observed in the literature (e.g., Krasnowolski 1897; Schabowska 1970; Schenker 1971), it is almost always the accusative forms of nouns that become numerals in the process of numeralisation in Polish (e.g., *trochę* mentioned above). This might be a diachronic quirk, but a synchronic theory of numeral phrases which is consistent with this fact should be preferred to a theory which is not, other things being equal.

5. The fifth puzzle, widely discussed in Slavic linguistics, is the mixed agreement/government internal structure of numeral phrases in different case positions: in nominative and accusative positions, numerals govern the genitive noun, in the dative, instrumental and locative positions the numeral agrees in case with the noun; in genitive positions the two patterns cannot be distinguished empirically.

It turns out that puzzles 1, 2 and 4 can be explained away by a single stipulation, namely, that Polish numeral subjects are in the accusative case. This is compatible with the numeralisation facts, immediately explains the lack of subject-agreement (in Polish, as in other Indo-European languages, verbs agree only with nominative subjects), and accounts for the agreement the data in (1)–(2): in (1), *te* — syncretic between nominative and accusative — is actually in the accusative case, while in (2), the form *tych* — syncretic between accusative and genitive — may either agree with the accusative numeral, or with the genitive noun. An exhaustive HPSG analysis of syntactic case assignment in Polish, taking into account the accusative of numeral subjects, is put forward in Przepiórkowski 1999.

However, this proposal, repeatedly made, but rarely argued for, in the literature (e.g., Małecki 1863, Krasnowolski 1897, Szober 1928, 1953, Franks 1994, 1995, Przepiórkowski

1997, 1999, Rutkowski 2000, Rutkowski and Szczegot 2001), seems to run against the usual distributional approach to the internal delimitation of cases: it allows accusative forms in distributional nominative positions.

The other two puzzles, 3 and 5, become slightly less puzzling as soon as we adopt the distinction between lexical (or inherent) case assignment and structural (or syntactic) case assignment, as assumed in Principles and Parameters (Rouveret and Vergnaud, 1980; Chomsky, 1980; Babby, 1980b,a), Lexical-Functional Grammar (Neidle, 1982, 1988) and HPSG (Heinz and Matiassek, 1994; Przepiórkowski, 1999): it turns out that numeral phrases headed by *dużo*, *trochę*, etc., occur exactly in the ad-verbal structural case assignment positions, namely nominative (cf. (3) above), accusative and the genitive of negation (cf. (4)), but not in lexical case assignment positions, whether genitive (cf. (5)), instrumental, locative or dative (cf. (6)). It can be claimed that such indefinite numerals are defective and only have the structural case forms. This distinction is also compatible with the distribution of ‘governing’ numeral phrases (structural positions: nominative, accusative and genitive of negation) and ‘agreeing’ numeral phrases (lexical genitive and other lexical positions). A detailed HPSG formalisation of these ideas is proposed in Przepiórkowski 1999.

This case assignment dichotomy, although theoretically attractive, again runs against the standard implicitly distributional repertoire of Polish cases: it cuts across the genitive positions. Note that, unlike, e.g., in the case of Russian partitive and non-partitive genitive, there are no lexemes with different forms for the genitive of negation and the lexical genitive — the two genitive cases in Polish would have to be distinguished purely on the basis of the limited distribution of a certain class of indefinite numerals.

The main claim of this article is that the distributional approach to the internal delimitation of cases should not necessarily be applied to all case-bearing elements in a given language. In the particular case of Polish, we argue for a two-tiered approach as leading to a theoretically more satisfying account of case assignment and the structure of numeral phrases: first apply the distributional procedure to the clear cases of nominal and adjectival form and then extend the resulting repertoire of cases to other case-bearing forms, such as numerals, taking into account their agreement with adjectival and/or nominal forms, whose possible case values already are established.

This two-tiered approach can be used to establish the accusative of numeral subjects in the following way: 1) i) on the basis of the distribution of nominal and adjectival forms establish the repertoire of cases in Polish, ii) note in the process that the non-virile form *te* realises (in the sense of mapping of Comrie 1986) nominative and accusative cases, while the virile form *tych* is syncretic between genitive, accusative and locative, 2) i) the only way of licensing the adjectival form *te* in (1) is via agreement with the numeral — there are no other (covert or overt) candidates for nominative or accusative forms with which *te* could agree, so the case of the numeral must be nominative or accusative, ii) there is no reason to assume that the structure of the virile example (2) is different than the non-virile (1), so an adjectival form agreeing with the numeral is possible in (2), iii) but the only such form is *tych*, so the case of the numeral is either accusative, or genitive, or locative, iv) so the only case value consistent with both (1) and (2) is accusative.

Examples

- (1) Tych / te pięć kobiet stało.
these_{GEN/NOM?} five_{NOM?} women_{GEN} stood_{3.SG.NT}
'These five women stood (kept standing).'
- (2) Tych / *ci pięciu mężczyzn stało.
these_{GEN/*NOM} five_{NOM?} men_{GEN} stood_{3.SG.NT}
'These five men stood (kept standing).'
- (3) Wiele/Dużo jabłek leżało na stole.
many_{NOM?} apples_{GEN} lay_{3.SG.NT} on table
'Many apples were lying on the/a table.'
- (4) Wcale nie zjadłem wielu/dużo jabłek.
Emph not ate_{1.SG.MASC} many_{GEN} apples_{GEN}
'I didn't eat many apples at all.'
- (5) Domagam się wielu/?*dużo jabłek.
request_{1.SG.MASC} many_{GEN} apples_{GEN}
'I demand many apples.'
- (6) Przyglądam się wielu/*dużo jabłkom.
look at_{1.SG.MASC} many_{DAT} apples_{DAT}
'I am observing many apples.'

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