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Polish Personal Pronouns: $[_{\text{PersP}}$ Pers $[_{\text{NumP}}$ Num $[n]]]$ and $[_{\text{NumP}}$ Num $[n]]$[1]

Abstract
In this short contribution I suggest that Polish personal pronouns have two available representations: first and second person pronouns are PersPs, whereas third person pronouns are either PersPs or NumPs. This structural difference is responsible for the availability of not only definite, but also indefinite (including unspecific) readings of personal pronouns in Polish, regardless of their morphological complexity (i.e., both full and reduced forms can have different types of interpretations). This follows on the assumption that NumPs can be interpreted as property anaphora.

Keywords
pronouns, structure, interpretation, property anaphora

Abstrakt
W niniejszym krótkim artykule argumentuję za przyjęciem założenia, że zaimki osobowe w języku polskim mają do dyspozycji dwa warianty strukturalne: zaimki w pierwszej i drugiej osobie to PersP, a zaimki w trzeciej osobie to PersP lub NumP. Ta różnica strukturalna jest odpowiedzialna za dostępność nie tylko określonej, ale także nieokreślonej (w tym nieszczegółowej) interpretacji zaimków osobowych w języku polskim, bez względu na ich złożoność morfologiczną (tzn. zarówno formy pełne, jak i zredukowane mogą mieć różne interpretacje). Wyjaśnia to założenie, że fraza NumP może być interpretowana jako anafora własności.

Słowa kluczowe
zaimki, struktura, interpretacja, anafora własności

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Introduction

The internal structure of (different types of) personal pronouns has been a topic of vivid debates for decades now (see, a.o., Perlmutter 1971; Cardinaletti and Starke 1999; Déchaine and Wiltschko 2002; Harley and Ritter 2002; Neeleman and Szendrői 2007; Ghomeshi and Massam 2020, and references therein). The purpose of this modest contribution is to present some arguments for the hypothesis in (1), that is that Polish personal pronouns have two available representations: first and second person pronouns are PersPs, whereas third person pronouns are either PersPs or NumPs.[2]

(1) *The representation of Polish personal pronouns*
   a. *first, second, and third person pronouns*
      $[_{\text{PersP}}\ \text{Pers}_{\{1/2/3\}}\ [_{\text{NumP}}\ \text{Num}_{\{\text{Sg/Pl}\}}\ [n_{\{\text{G:F/M/N}\}}]]]$
   b. *third person pronouns*
      $[_{\text{NumP}}\ \text{Num}_{\{\text{Sg/Pl}\}}\ [n_{\{\text{G:F/M/N}\}}]]$

I begin the discussion with some general remarks about Polish personal pronouns in Section 2, explaining along the way why the frequently assumed system of pronominal representation developed in Cardinaletti and Starke (1999) makes incorrect predictions with respect to Polish and therefore cannot be taken to be universally generalizable, at least as far as its fine details are concerned. In Section 3, I then focus on the representation of Polish pronouns postulated in (1), suggesting that it can account for the interpretive properties of the pronouns, including their definite and indefinite readings. Section 4 concludes.

1. Some remarks about Polish personal pronouns

Focusing on accusative pronouns, Polish has in its inventory the full and reduced variants, though only the second person singular and the third person singular masculine show the distinction morphologically (see Witkoś 1998; Cetnarowska 2003, 2004 and references therein).[3] Accordingly, we have the opposition between *ciebie* 'you.ACC' and *cię* 'you.ACC' and *jego* 'him.ACC' and *go* 'him.ACC', but no alternative is available for *mnie* 'me.ACC', *ją* 'her.ACC',

[2] In this contribution, I abstract away from the representation of the case feature, the suggested analysis being consistent with different approaches to [Case], including the one on which [Case] is bundled together with [Gender] on *n*.

[3] I use the term 'reduced' here in a theoretically neutral sense, which may include both weak and clitic pronouns.

je 'it.ACC', *nas* 'us.ACC', *was* 'you.PL.ACC', *ich* 'them.M.ACC', and *je* 'them.ACC', as Table 1 shows.[4]

Table 1 Accusative pronouns in Polish

	singular		***plural***
	full	***reduced***	
1	mnie		nas
2	ciebie	cię	was
3	jego	go	ich
	ją		
	je		je

Unlike clitics in some other Slavic languages, in Polish the reduced pronouns show the behaviour of phrases rather than minimal/maximal projections (see Cetnarowska 2003, 2004, and the diachronic discussion in Jung and Migdalski 2015 and Migdalski 2016, and references therein). Hence, following Cetnarowska (2004), as well as Jung and Migdalski (2015) and Migdalski (2016), I assume here that the Polish pronominal paradigm lacks clitics.[5]

As one of the most influential approaches to differentiating between types of pronouns is Cardinaletti and Starke's (1999) system (though see Franks 2016 for a different proposal), it is important to note that some of its predictions are not fulfilled in Polish.[6] To point to some specific issues,

[4] First and second person pronouns in Polish do not distinguish between the genders morphologically. The first person singular has the variant *mię*, but it is archaic/rare/poetic and not used in everyday language, as far as I can tell (Pisarkowa 1969 does not even note its existence in the paradigm). It also has two forms in the dative, that is *mnie* 'me.ACC/DAT' and *mi* 'me.DAT', where the second person singular and the third person singular masculine also show two forms. The paradigm includes also variants starting with *n*-, which are used following a preposition (e.g. *na nią/niego/nie* 'on her/him/it').

[5] Operating within (and elaborating) Cardinaletti and Starke's (1999) system, Jung and Migdalski (2015) and Migdalski (2016) identify Polish reduced forms as weak pronouns.

[6] In short, Cardinaletti and Starke (1999) propose that there is a structural difference between strong, weak, and clitic pronouns in that the structure of the latter is truncated with respect to the former, and, as follows, different types of pronouns are of different categories ([C_L [Σ_L [I_L]]] vs. [Σ_L [I_L]] vs. [I_L]). Following Cetnarowska (2004: 41), the key distinguishing factors are provided here in (i).

(i) a. Clitic forms are morphologically deficient (cf. *jemu* 'him.DAT' and *mu* 'him.DAT.CL' in Slovak)
b. Deficient (i.e. weak or clitic) pronouns cannot be used in isolation.
c. Only strong pronouns can be topicalised, and can appear in extraposed positions.
d. Only strong pronouns carry focal stress.
e. Only strong pronouns can appear in coordinate structures.

within Cardinaletti and Starke's (1999) system, it would be natural to assume for the Polish forms which lack variants (e.g., *ją* 'her.ACC') that they can realise two syntactic structures nevertheless (i.e., the structure representing both the strong and weak pronouns, in parallel to the forms which manifest the difference morphologically (e.g., *ciebie* 'you.ACC' vs. *cię* 'you.ACC')). However, Cetnarowska (2004) argues against this solution based on the observations that (i) these pronouns can be topicalised both when stressed (i.e. as strong pronouns) and when unstressed (i.e. as weak pronouns), as (2) from Cetnarowska (2004: 45–46) illustrates; and that (ii) they can be coordinated when stressed and when unstressed, as in (3) from Cetnarowska (2004: 46). Both of these facts contrast with what is expected within Cardinaletti and Starke's (1999) system.

(2) a. WAS nie da się zapomnieć.
you.PL.GEN not manage.3SG SE forget
'It's YOU that one cannot forget.' [contrastive focus, stressed *was*]

b. Was NIE da się zapomnieć.
you.PL.GEN not manage.3SG SE forget
'One CANNOT forget you.' [topicalised unstressed *was*]

(3) a. Widziałem WAS i moją narzeczoną w
saw.1SG.M you.PL.ACC and my fiancée in
kinie.
cinema
'I saw you and my fiancée in the cinema.' [stressed *was*]

b. Widziałem was i moją narzeczoną w
saw.1SG.M you.PL.ACC and my fiancée in
kinie.
cinema
'I saw you and my fiancée in the cinema.' [unstressed *was*]

Adopting Müller's (2001) Personal Pronoun Scale, Cetnarowska (2004) concludes that these pronouns do not differ syntactically, but are rather stressed and unstressed versions of strong pronouns. Cetnarowska (2004) thus splits the system of Polish pronouns into strong stressed pronouns (e.g., *WAS* 'you PL.ACC'), strong unstressed pronouns (e.g, *was* 'you.PL.ACC') and a weak pronoun (only *go* 'him.ACC').[7]

f. Only strong pronouns undergo adverbial modification and constituent negation.
g. Deficient pronouns can freely refer to inanimate objects, while strong pronouns have fixed [+human] specification.

[7] Cetnarowska (2004) proposes a further division to accommodate the difference between *cię* 'you.ACC' and *się* 'SE' on the one hand and *go* 'him.ACC' on the other in the ability to host person/number auxiliary clitics, with the former being more deficient than the latter (i.e. clitics). However, this difference is not correlated with the expected additional ordering restrictions and may be independent of the division in terms of defectiveness (see also Jung

Another issue with following Cardinaletti and Starke (1999) in an analysis of Polish is that for them strong pronouns require [+human] reference, whereas in Polish even the morphologically full, stressed variants can refer to inanimates, if context favours this interpretation (see the genitive form in (4a) from Cetnarowska 2004: 51, as well as the accusative form in (4b)).

(4) a. [*Context*: 'Wrap up for me, please, this green blouse (fem), and put this white sweater (masc) back on the shelf.' (talking to a shop assistant)]
JEGO na pewno nie kupię, bo jest
him.STRONG on sure not will.buy because is
poplamiony.
stained
'Certainly I won't buy it, because it is stained.'

b. [*Context*: 'Wrap up for me, please, this white sweater (masc), and put this green blouse (fem) back on the shelf.' (talking to a shop assistant)]
JEGO na pewno kupię, ale JEJ
him.STRONG on sure will.buy but her.STRONG
raczej nie.
probably not
'Certainly I will buy it, but not this.'

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and Migdalski 2015). A different interpretation of these facts within Cetnarowska's set of assumptions could be that *go* 'him.ACC' can actually also be an unstressed strong pronoun, as suggested by the fact that it can appear in coordination (even if marginally), as attested by the following data from the National Corpus of Polish (NKJP; see Przepiórkowski, Bańko, Górski and Lewandowska-Tomaszczyk 2012).

(i) a. Co to było za szczęście mieć go i życie z
what this was for luck have him and life with
nim i dom. [NKJP]
him and house
'How fortunate it was to have him and life with him and a house.'
b. ostrzeliwując go i okolicę ogniem karabinów
shooting him and neighbourhood fire guns
maszynowych [NKJP]
machine
'shooting him and the neighbourhood with the fire of machine guns.'

However, the second person reduced form *cię* 'you.ACC' does not seem excluded from coordination in colloquial speech either, as in (ii), which is acceptable to me. This supports the suggestion that the ability to host the person/number auxiliary clitics is an independent issue.

(ii) Chciałabym zaprosić cię i Marka na obiad.
would.like.1SG.F invite you and Marek on dinner
'I would like to invite you and Marek to dinner.'

As Cetnarowska (2004) further points out, contrary to Cardinaletti and Starke's assumptions, in appropriate contexts these pronouns can also be modified and can appear in coordination even when referring to inanimate objects. All these observations indicate that a structural difference between pronouns along the lines proposed by Cardinaletti and Starke (1999) is inadequate to account for the Polish data. Indeed Cetnarowska (2004: 52) concludes that "[…] there is no need for a covert distinction in Polish between weak pronouns (which allow for inanimate reference) and homonymous strong (stressed or unstressed) pronouns with obligatory human reference." This shows that Cardinaletti and Starke's system does not generalize to all languages and should therefore not be assumed as an optimal perspective for viewing the properties of personal pronouns in natural language grammar. In what follows I thus do not assume this system for Polish pronouns and instead suggest the representation in (5) (see Ruda 2017) as a basis for further theoretical discussion.[8]

(5) $[_{\text{PersP}}\ \text{Pers}_{\{1/2/3\}}[_{\text{NumP}}\ \text{Num}_{\{\text{Sg/Pl}\}}\ [n_{\{\text{G:F/M/N}\}}]]]$

If the two reduced forms *cię* 'you.ACC' and *go* 'him.ACC' are thus represented as in (5), their morphologically larger variants, *ciebie* 'you.ACC' and *jego* 'him.ACC' can be taken to involve *n* taking a root complement contributing *-bie* and *je-* and updating Franks's (2013) suggestion to a system assuming the categorising heads, as (6) illustrates.

(6) $[_{\text{PersP}}\ \text{Pers}_{\{2/3\}}[_{\text{NumP}}\ \text{Num}_{\{\text{Sg}\}}\ [n_{\{\text{G:F/M/N}\}}\ \sqrt{bie/je}]]]$

Thus, while in Cardinaletti and Starkes's system these pronouns would have more structure above what the reduced forms have, under the current assumptions they have more structure in the lowest part of the nominal projection.

3. Representing Polish personal pronouns

Polish is a grammatical gender system. The gender feature can be taken to be encoded on the *n* head (see Lowenstamm 2008 and Willim 2012). In the structure of pronouns, the Pers head introduces the first, second, and third

[8] To be specific, in Ruda (2017) I assume the representation (i), where PersP is further dominated by KP, omitted here as irrelevant for the discussion and on the assumption that the [Case] feature (and perhaps also [Number]) could alternatively be encoded as part of the feature set introduced by *n*. The pronominal forms can be taken to realize a complex head arising as a result of a successive movement of the heads in the pronominal spine.

(i) $[_{\text{KP}}\ \text{K}\ [_{\text{PersP}}\ \text{Pers}\ [_{\text{NumP}}\ \text{Num}\ [\text{n}]]]]$

person feature. Just as the first person feature triggers the presupposition that the referent is the speaker participant in the relevant discourse context and the second person feature triggers the presupposition that the referent is the participant (i.e., addressee) in the relevant discourse context (see Heim and Kratzer 1998 and related work), the third person can be taken to trigger the presupposition that the referent is the non-participant in the relevant discourse context.[9] These assumptions account for the definite readings of personal pronouns. However, in Polish pronouns are compatible also with indefinite, including unspecific, readings, as in (7), where the pronoun *ich* 'them' denotes an unspecified amount of money.

(7) Nie byłam w stanie pożyczyć Tomkowi
not was.1SG.F in state lend Tomek.DAT
pieniędzy, pomimo że ich bardzo potrzebuje.
money even.though that them very needs
'I wasn't able to lend Tomek money, even though he needs money very much.'

In this connection, following Mihailović (1970), Runić (2013) points out that pronominal clitics in Bosnian/Croatian/Serbian (henceforth BCS), as well as in Slovenian, Czech and Slovak, languages without (definite) articles, but not in Macedonian, Bulgarian, Romanian, Greek, Brazilian Portuguese, Spanish, and French, languages with articles, are compatible with unspecific interpretation and she proposes the following generalisation (Runić 2013: 424).

(8) Only languages without articles allow clitics to be used in the non-specific context.

However, recently Migdalski (forthcoming) has shown with Italian and Bulgarian data that relating the availability of the unspecific interpretation of clitics to the presence of articles/D is not supported by a broader range of empirical facts, clitics in these two article languages being compatible with the relevant contexts originating from Mihailović (1970).[10]

Interestingly, while not clitics, Polish pronouns can also be associated with unspecific interpretation, sharing this property with clitic pronouns in other languages. The sentences in (9) and (10), featuring a human and an inanimate antecedent, provide further examples, parallel to the ones used by Runić (2013: 423).[11]

[9] What this implies is that third person pronouns with indefinite interpretations (cross-linguistically) lack the [Person] feature, bear uninterpretable [Person] or underspecified [Person].

[10] I thank an anonymous reviewer for drawing my attention to Migdalski (forthcoming).

[11] To me, the use of the pronoun with the unspecific reading in the original context from Mihailović (1970) is clearly degraded in Polish, but an anonymous reviewer finds the relevant example, provided here in (i), acceptable, indicating some degree of inter-speaker variation.

(9) A: Nie mam dziewczyny.
not have.1SG girl
'I do not have a girlfriend.'
B: Czemu sobie jej nie znajdziesz?
why self.DAT her.GEN not find.2SG
'Why won't you find one for yourself?'

(10) A: Nie mam samochodu.
not have.1SG car
'I do not have a car.'
B: Czemu sobie go nie kupisz?
why self.DAT him.GEN not buy.2SG
'Why won't you buy one for yourself?'

Besides these data, that the clitic status is actually not the major factor here is suggested by the fact that in Polish also the full form of the pronoun is compatible with unspecific reference, if the right context is provided, as in (11), where *jego* 'him' is interpreted as picking out any partner whatsoever.

(11) A: Nie mam partnera, ale przygarnęłam
not have.1SG partner.M but took.in.1SG
ostatnio kotkę ze schroniska.
recently cat.F from shelter
'I do not have a partner, but I have recently taken in a she-cat from a shelter.'
B: Cóż, ona ci raczej jego nie zastąpi.
well she you.DAT probably him not replace
'Well, she's unlikely to replace one for you.'

The situation is the same for inanimate antecedents, as the context of an exchange between a customer and a shop assistant in a furniture store in (12) indicates.

(12) A: Szukam krzesła bujanego.
look.for.1SG chair rocking
'I am looking for a rocking chair.'
B: Jego tu na pewno Pani nie znajdzie,
him here on sure Madam not find.3SG

As the reviewer further notices, switching to plural forms makes the unspecific reading more easily accessible.

(i) A: Ona chce wyjść za Szweda.
she wants marry for Swede
'She wants to marry a Swede.'
B: Niełatwo jest %go/ takiego/ jakiegoś znaleźć.
not.easy is him.ACC such.SG.M.ACC some.SG.M.ACC find
'It is not easy to find one.'

bo	sprzedajemy	tylko	krzesła	biurowe.
because	sell.2SG	only	chairs	office

'You will definitely not find one here, because we sell only office chairs.'

Rather than the clitic status, what may be important here is the availability of a structure truncated with respect to the full pronominal structure in (5) above, but still being spelled out as a pronoun at the SM interface. In particular, I suggest that in the case of indefinite reference the pronoun lacks the Pers head, taken above to be responsible for definite reference, and is instead represented as in (13a), which is a structure similar to what we have with lexical noun phrases, schematized in (13b).[12]

(13) a. [$_{NumP}$ Num$_{\{Sg/Pl\}}$ [$n_{\{G:F/M/N\}}$]]
b. [$_{NumP}$ Num$_{\{Sg/Pl\}}$ [$n_{\{G:F/M/N\}}$ √]]

On the assumption that bare nominal arguments in languages which lacks articles do not project the DP layer (see, a.o., Corver 1990; Chierchia 1998; Willim 2000; Bošković 2008, 2012 and the references therein; see Arsenijević 2018 for a recent dissecting view with reference to BCS and Rutkowski 2002 for Polish[13]), the structure in (13b) can be used both in indefinite contexts, as

[12] If this suggestion is on the right track, examples such as (11)–(12), where the full pronoun is a NumP on the current assumptions, provide support for an analysis on which the additional piece of morphology is introduced below rather than above NumP (i.e. in √; see (6) above). In effect then, full pronouns with indefinite interpretation are represented in the same way as lexical NPs in Polish.

[13] Rutkowski (2002) employs ordering restrictions to argue for the DP analysis of Polish NPs. However, these restrictions reported for Polish (e.g. (i) for *sam* 'alone', (ii) for *wszyscy* 'all', and (iii) for numerals, taken from Rutkowski 2002: 161, 164, 165) do not actually seem as strict as indicated, as confirmed by the National Corpus of Polish (NKJP; see Przepiórkowski, Bańko, Górski and Lewandowska-Tomaszczyk 2012) data in (iv)–(vi).

(i) a. [sam Chomsky] czytał mój artykuł
alone Chomsky read my article
'even Chomsky read my article'
b. [on sam] czytał mój artykuł
he alone read my article
'even he read my article'
c. *[sam on] czytał mój artykuł
alone he read my article

(ii) a. [wszyscy lingwiści] czytali mój artykuł
all linguists read my article
'all linguists read my article'
b. [wy wszyscy] czytaliście mój artykuł
you all read my article
'all of you read my article'
c. *[wszyscy wy] czytaliście mój artykuł
all you read my article

is the case with the NP *pieniędzy* 'money' in (7) above, and in definite contexts, as in (14).

(14) [*Context*: B is waiting for A to return PLN 500, which A has borrowed.]
A: Przyniosłam pieniądze.
brought.1SG.F money
'I've brought the money.'

If Heim (2011) is correct in suggesting that NPs in languages without definite articles (the formal definite-indefinite contrast) "are semantically equivalent to English indefinites, but have a wider range of felicitous uses because they do not compete with definites and therefore do not induce the same implicatures" (Heim 2011: 1006), that is if the denotation of a bare NP in articless languages is always the same, there is no need either for a null D or even the ι type-shifting operation.[14] Alternatively, a choice-

(iii) a. [siedmiu policjantów] czytało ten artykuł
seven policemen read this article
'seven policemen read this article'
b. [ich siedmiu] czytało ten artykuł
they seven read this article
'seven of them read this article'
c. *[siedmiu ich] czytało ten artykuł
seven they read this article

(iv) Strumienie poezji przepływają przez poetę, lecz [sam
streams poetry flow through poet but alone
on] nie jest poezją. [NKJP]
he not is poetry
'Streams of poetry flow through a poet but they themselves are not poetry.'

(v) Wystarczy spojżeć na tę mordę, [wszyscy wy]
enough glance.at on this muzzle all you
macie takie mordy jakby was kto brudnym pędzlem
have such muzzles as.if you someone dirty brush
robił. [NKJP]
make
'It's enough to glance at this muzzle; all of you have such muzzles as if you had been made with a dirty brush.'

(vi) I [siedmiu ich] nie zostawiło potomstwa. [NKJP]
and seven them not left offspring
'And seven of them have not left offspring.'

These ordering facts are probably best accounted for in semantic and information-structural terms. See also Despić (2014) and Jurczyk (2020) for some relevant discussion in this context.

[14] See Šimík and Demian (2020, submitted) for a discussion and experimental evidence compatible with this hypothesis and with the hypothesis that definiteness-related semantics may not be universal. See also Borik and Serés (2019), who follow Heim (2011) and argue that ι shifting does not apply in Russian, with definiteness being a pragmatic effect.

functional analysis along the lines proposed in Šimík (forthcoming) for Czech can be adopted within the approach not requiring the projection of D in the structure of bare nominal arguments in languages such as Polish. The lexical NPs *pieniędzy* 'money' in (7) and *pieniądze* 'money' in (14) can thus be represented syntactically in the same way and the pronominal structure in (11a), instantiated by *ich* 'them' in (7), can also follow this representational and interpretive path, with the difference being that rather than deriving its meaning from the lexical root, it operates as property anaphora (cf. Tomioka's 2003 assumptions concerning Japanese null arguments and Runić's 2013 assumptions about BCS clitics, both of whom assume ι type-shifting for definite interpretations, however).

Thus, in its spirit, the proposal put forward in this paper is in line with Déchaine and Wiltschko's (2002) approach, from which the hypothesis that pronouns can be of different sizes both cross-linguistically and intra-linguistically originates. Yet, while they distinguish between pro-DPs, pro-φPs, and pro-NPs, for example English having all of them, on the analysis suggested here, which splits φ into separate projections, Polish makes a distinction within the pro-φP type (PersP vs. NumP).

Importantly, the analysis on which Polish pronouns are types of pro-φPs is supported by Déchaine and Wiltschko's diagnostics: (i) only pro-φPs can function as arguments and as predicates (see (15)), which shows that Polish pronouns indeed can do both); (ii) pro-φPs fall under Binding Condition B and can introduce bound variables (see (16)–(17)).[15]

(15) a. *argumental use*
   i. Widzę cię.
   see.1SG you.ACC
   'I can see you.'
   ii. Widzę ją.
   see.1SG her.ACC
   'I can see her.'
b. *predicative use*
   i. Stałam się tobą.
   became.1SG.F SE you.INSTR
   'I became you.'
   ii. Stałam się nią.
   became.1SG.F SE her.INSTR
   'I became her.'

[15] On the bound variable reading of first and second person pronouns, see, e.g., Kratzer (2009).

Incidentally, the acceptability of the English translations of the predicative uses of pronouns in (15b), as well as their availability as bound variables (Kratzer 2009) indicate that also first and second person pronouns in English can be pro-φPs, contrary to their treatment as pro-DPs in Déchaine and Wiltschko (2002).

(16) a. (Ty$_i$) powiedziałeś, że cię$_i$ źle potraktowali.
you said.2SG.M that you.ACC badly treated.3PL.M
'You said that they treated you badly.'
b. (Ona$_i$) powiedziała, że ją$_{i/j}$ źle potraktowali.
she said.3SG.F that her.ACC badly treated.3PL.M
'She said that they treated her badly.'

(17) a. Tylko ty powiedziałeś, że cię źle potraktowali.
only you said.2SG.M that you.ACC badly treated.3PL.M
'Only you said that they treated you badly.' [i.e., on the bound variable reading, no one else said that they treated them badly]
b. Każda studentka powiedziała, że ją źle potraktowali.
every student.F said.3SG.F that her.ACC badly treated.3PL.M
'Every (female) student said that they treated her badly.'

All in all, a consequence of the current assumptions is thus that third person overt pronouns in Polish can either be PersPs or NumPs, where the morphological contribution of the Pers head in this case can be null, yielding the same outcome for a third person Pers-Num-*n* and a Num-*n* structure. In effect, the definite and indefinite readings of third person pronouns in Polish, as exemplified further in (18), arise as a result of the pronoun being represented either as a PersP (only definite reading) or as a NumP (potentially both types of readings, if pronominal NumPs can be interpreted in parallel to lexical NumPs, though principles such as Maximize Presupposition ("Präsupponiere in deinem Beitrag so viel wie möglich!" [Presuppose as much as possible in your contribution!]; Heim 1991: 515) may require PersP to be used in definite contexts rather than NumP).[16]

(18) a. *Definite* ich *'them'*
Nie mogę zajrzeć do swoich notatek, bo nie
not can consult to self's notes because not
mam ich ze sobą.
have them with self
'I cannot consult my notes, because I don't have them with me.'
b. *Indefinite* ich *'them'*
Nie mam notatek, bo nie lubię ich robić.
not have notes because not like them make
'I don't have notes, because I don't like taking them.'

[16] Since, as noted in Section 3 following Migdalski (forthcoming), (clitic) pronouns in languages with articles (i.e. languages projecting DP in their nominal structures on standard assumptions, though see, e.g., Bruening 2009, who argues that the head of the noun phrase universally is *n*, with articles, demonstratives, adjectives, etc. occupying Spec,*n*P positions) are also compatible with unspecific interpretation, on the current approach which ties this interpretation to a NumP, as opposed to PersP, structure, such clitics could be modelled accordingly as having the [Pers] feature missing from their representation (and potentially also [D], if [D] stands for 'definite'), an approach compatible with the analysis of pronouns put forward in Déchaine and Wiltschko (2002).

c. *ich*, only definite: [$_{PersP}$ Pers [$_{NumP}$ Num [*n*]]]
ich, indefinite, potentially also definite: [$_{NumP}$ Num [*n*]]

As the example in (19) shows, the number feature of the indefinite pronoun can be different than the number feature of the antecedent NP, which can be expected if the indefinite interpretation is achieved by property anaphora, the relevant property being introduced into the discourse model by the root in the structure of the antecedent NP.

(19) Nie kupiłam arbuza, bo nie mieli
not bought.1SG.F watermelon because not had.3PL
ich dziś w sklepie.
them today in store
'I haven't bought a watermelon, because they haven't had them at the store today.'

At first sight the representation of the third person pronouns as PersPs in addition to NumPs, both of which should be able to yield definite reference on the current assumptions, just as lexical NPs can, may seem redundant. However, there is some evidence that the PersP representation is needed independently. Here I would like to consider briefly a context where the interpretive properties of bare NPs and pronouns diverge. In particular, as (20) and (21) illustrate respectively, in information-structurally neutral contexts donkey and paycheck readings in Polish can be associated with pronouns and with NPs containing a demonstrative, but not with bare NPs (though, as Radek Šimík points out to me in personal communication, the availability of bare NPs in the paycheck and donkey contexts is affected by contrast[17]).[18]

[17] In particular, even though bare NPs do not give rise to the donkey-anaphoric reading in the information-structurally neutral environment, as I have indicated in (20) and (21) in the main text, (i) shows that contrast alters this judgment.

(i) Każda dziewczynka, która ma konia i psa,
every girl who has horse and dog
zawsze konia szczotkuje, a psa myje.
always horse combs and dog washes
'Every girl who has a horse and a dog always combs the horse and washes the dog.'

As Radek Šimík further notes, discourse anaphoric uses of bare NPs are likewise affected by contrast. This is illustrated in (ii) for Polish, where the introduction of contrast in (iib) licenses the use of the bare NPs, which are not felicitous in the neutral environment of (iia) (see also Arsenijević 2018 for a relevant discussion of BCS).

(ii) a. Wtedy chłopiec$_i$ wszedł. Chłopiec$_i$ #(ten)
then boy entered boy this
miał na sobie szary dres.
had on self gray sweatsuit
'Then a/the boy entered. The boy wore a gray sweatsuit.'

(20) a. Każda dziewczynka, która ma konia, go/
every girl who has horse him
tego konia kocha.
this horse loves
'Every girl who has a horse loves it/the horse.'

b. Każda dziewczynka, która ma konia,
every girl who has horse
konia kocha.
horse loves
'Every girl who has a horse loves a horse.'

(21) a. Dziewczynka, która nakarmiła swojego konia,
girl who fed self's horse
jest mądrzejsza niż dziewczynka, która go/
is wiser than girl who him
tego konia tylko napoiła.
this horse only watered
'The girl who fed her horse is wiser than the girl who only watered it/the horse.'

b. Dziewczynka, która nakarmiła swojego konia,
girl who fed self's horse
jest mądrzejsza niż dziewczynka, która konia
is wiser than girl who horse
tylko napoiła.
only watered
'The girl who fed her horse is wiser than the girl who only watered a horse.'

While a proper analysis of these facts is beyond the scope of this paper, they show that these types of readings require something that bare NPs in information-structurally neutral environments lack, but NPs with demonstratives and pronouns can have, which, I suggest, is contributed by the demonstrative

b. Wtedy chłopiec$_i$ i dziewczynka$_j$ weszli.
then boy and girl entered
Chłopiec$_i$ miał na sobie szary dres, a
boy had on self gray sweatsuit and
dziewczynka$_j$ zieloną sukienkę.
girl green dress
'Then a/the boy and girl entered. The boy wore a gray sweatsuit and the girl a green dress.'

[18] Elbourne (2005, 2013) argues with reference to English that pairs of sentences such as (i) have the same LF representation, that is the one expressed explicitly in the latter.

(i) a. If a man owns a donkey, he beats it.
b. If a man owns a donkey, he beats the donkey.

On Elbourne's account *it* in this case has semantics identical to the semantics of *the* and its NP complement, which undergoes NP ellipsis.

in the former case and the Pers head in the latter (see Elbourne 2005, 2013 and references therein for potential candidates). These facts are thus consistent with the current analysis on which third person pronouns can be represented either as NumPs or PersPs, whereas bare NPs are NumPs.

Conclusion

Recapitulating, I have adopted the analysis on which Polish pronouns are all phrase-level projections (i.e., Polish lacks pronominal clitics), which realise either NumPs (third person pronouns, indefinite reading available) or PersPs (first, second, and third person, only definite reading). This analysis sits comfortably with the assumption that Polish nominal projections lack the D head/feature and provides a way to account for the observed differences in the interpretive properties of pronouns and bare lexical NPs. As I show in Ruda (forthcoming), it can also be employed to derive the availability of strict and sloppy readings of personal pronouns in Polish.

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