

I. ARTICLES

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ON GRAMMATICAL AND LEXICAL EXPONENTS
OF NUMBER IN POLISH*

Abstract. This study is based on the assumption that human cognition and natural language are intertwined. This position leads the author to inquire into the conceptual content that has found its way into linguistic expression, the form of its expression and its motivation.

The study is concerned with the linguistic manifestation of number (one of the most important categories in human thinking), i.e. its grammatical (morphological, syntactic and lexical), highly conventionalised expression. Elementary numerical meanings encoded in Polish include ‘one’ and ‘more than one’ (in the former stages of the language also ‘two’), corresponding to the first numerical concepts comprehensible to humans (both in the historical and the individual sense). Those meanings are obligatorily expressed in Polish: their exponents are inflectional morphemes that play a role (in accordance with the norm) in all inflected parts of speech. This numerical opposition is also broadly expressed on the word-formational plane: there exist special morphemes that code the singularity vs. the collectivity of something (e.g. *grosz-ek* ‘a pea grain’ vs. *pierz-e* ‘feathers; plumage’). Similarly, specific morphemes accentuate the singularity of an event (e.g. *kaszl-ną-ć* ‘to cough once’) vs. the multiplicity (multiplication) of actions (e.g. *na-obierać* ‘to peel a lot of’, *po-wynosić* ‘to take out many/all’ the items).

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The importance of the category of number in Polish is also attested by the existence of numerals. The various degrees of precision that those express (cf. the so-called definite numerals such as *trzy* ‘three’, *piętnaście* ‘fifteen’ vs. the indefinite numerals such as *kilka* ‘a few’, *dużo* ‘many’, or *tylko* ‘that many’) correspond to the differences in the knowledge and needs of the persons engaged in communication. The different inflectional paradigms of numeral types and the syntactic functions coordinated with them result from the cognitive imperative to combine, in sentences, numbers with names of entities and events. The emergence of this imperative shows that a wide range of phenomena are perceived and conceptualised in numerical terms.

KEY WORDS: number; grammatical number; numeral; grammatical categories

Counting and measuring, assessing the size and magnitude of various objects and phenomena, belong to basic cognitive operations that humans use to mentally capture, systematise, and domesticate the world. The category of quantity is one of the fundamental categories superimposed by the human mind on the world being experienced.¹

If we assume, following cognitive linguists (Langacker 1987, 2008; Lakoff 1987) and anthropological-cultural linguists (Wierzbicka 1988, 1996; Bartmiński 2006, 2009), that human cognitive abilities are intertwined with natural language, our perspective on language broadens considerably: this assumption requires that we consider not only linguistic forms but both the concepts that those forms activate and the elements of reality that are being conceptualized in this way. Those essentially correspond to the three apexes of Ogden and Richards’ semiotic triangle (cf. Kardela 1990; Bartmiński 2006; Głaz and Prorok 2014). Above all, however, one must take into account the human conceptualising and speaking human subject.

In a conceptually oriented inquiry, one is concerned with *what* (what content) has been coded in language, *how* (in what forms) it has been coded, and what is the *basis* (motivation) for it. A search for answers to these questions is grounded in the assumption that (1) semantics is the most important level of language (cf. Rozwadowski 1960 [1924]), which integrates all its other levels (prosodic, morphological, lexical, syntactic, textual); and

¹ This idea goes back to Aristotle, who among his ten categories recognised quantity as the first “accidental” category that can be predicated of substances (cf. e.g. Aristotle 2014). Similarly, quantity plays an important role among Kant’s categories of the human mind (see his *Critique of Pure Reason* 1999 [1781]) that condition the way humans cognise the world: it is one of the four categories around which others assemble.

that (2) all linguistic forms (regardless of the degree of their complexity) carry meaning – linguistic symbolisation is not only a matter of lexis but also grammar (cf. Langacker 1987, 2008; Wierzbicka 1988). Additionally, a holistic description must be pursued so as to produce a coherent treatment of various linguistic categories, exponents of the same content (cf. Bartmiński 2006, 2009).

A close connection between numbers and language² is manifested both in the individual development of a person (in the process of acquiring mathematical knowledge and skills, cf. Gruszczyk-Kolczyńska and Zielińska 1997) and in the socio-historical dimension of human life, because “the origins and nature of the basic categories of human thinking are undoubtedly social” (Rzepa 1986: 36). The ability to count, to use numbers, is not innate: it is an anonymous invention of humankind, a “product of collective practice” (Ifrah 1990 [1985]: 10),³ one that has to be transmitted from one generation to the next.⁴ Language contains common, historically shaped shared concepts, as well as expressions of individual, social, and cultural experiences of speakers. It is also the most perfect means of communication.

In this study, attention will be paid to those number-related senses that have undergone grammaticalisation,⁵ i.e., they have grammatical exponents

² “Counting does not only require but must inevitably accompany speech” (Bogusławski 2010: 31).

³ The quotes from the work of Georges Ifrah have been translated into English from the Polish edition of his originally French *Les Chiffres ou l'histoire d'une grande invention*; see the References. [trans. comment]

⁴ In the words of Georges Ifrah, “the invention of numbers certainly had an experiential basis: it came as a response to people’s needs in their everyday activities. Those who herded sheep or goats, for example, had to make sure, after returning from the pasture, that all the animals are safely back. Those who stored tools and weapons or kept watch over the community food had to check whether the items are in the same numbers or amounts as when they had been left some time before. Those in conflict with neighbouring groups had to know before each campaign whether all their soldiers were in full strength. Those whose economy was based on barter had to know how to count and measure in order to exchange goods” (Ifrah 1990 [1985]: 20). The concept of number did not merely grow out of the purely utilitarian need to count. The sense of counting “is built on much deeper foundations, as it defines the ways of viewing the world. Numbers, which in many cultures and religions have a complex symbolism, not always transparent to contemporary people, are extremely important in building the *imago mundi*. It is through them that humans try to describe the Universe and its divisions, relations between its domains, as well as the distinct nature of each of them” (Kowalski 1998: 278).

⁵ I talk about grammaticalisation in a sense broader than usually accepted and succinctly summarised in an encyclopedia of the Polish language: “a transition of a lexical element from the lexical system to the grammatical system of a language” (Polański 1999: 117). For the purpose of my study, the transition takes place from a level higher than lexical, i.e. from the semantic level, where semantic content is expressed categorially.

and are thus characterised by a high degree of conventionalisation and categoriality. They constitute the very core of the methodology of linguistic worldview reconstruction (Bartmiński 2006: 13).

1. Inflectional exponents of number

In Polish, information as to the number of items being talked about is compulsory: the grammatical category of number inheres in all inflected parts of speech. In contemporary Polish, it has a binary value: singular vs. plural; in earlier stages of the language there was also a dual number.⁶ The names of these grammatical subcategories (Pol. *liczba pojedyncza*, singular, Lat. *singularis* vs. *liczba mnoga*, plural, Lat. *pluralis*) are telling as to the content they code: they reveal the grammaticalisation, in Polish, of the opposition between ‘one’ and ‘more than one’, formerly also ‘two, a pair’. These distinctions thus appear as crucial in linguistic (and more broadly: social) communication. Their grammaticalised status is by no means accidental;⁷ cf. the following comment from Georges Ifrah:

At earlier stages of development [...] people were intellectually incapable of understanding numbers as such, i.e., in isolation from matter. Their ability to count was limited to a global view of space filled with creatures and objects. Our distant ancestors could only perhaps perceive a clear difference between singularity, pair, and plurality. (Ifrah 1990 [1985]: 14)

According to Ifrah, the numbers “one” and “two” are the first numbers (and numerical concepts) discovered by and comprehensible to humans: they have developed from observation of the world and the need to define one’s place in that world. The author continues:

“One” is an active person participating in the act of creation, a person within a social group, with his or her own solitude in the face of life and death. It symbolises the only creature capable of assuming an erect posture; it also symbolises the erect phallus, which distinguishes males from females. “Two”, in turn, corresponds to the obvious duality of sexes and the symmetry of the human body. It is a symbol of opposition, complementarity,

⁶ This was expressed through an inflectional marker that meant ‘two’: *dwa kmicieca* ‘two serfs’ (now *dwaj kmicieci*), *dwie babie* ‘two women’ (now *dwie kobiety*), *dwie słowie* ‘two words’ (as in the proverb *Mądrej głowie dość dwie słowie* ‘A clever head only needs two words’ [to make sense of something]; now *dwa słowa*). The dual number has been gradually disappearing since the 15th c. but some nouns have optionally maintained it to this day, e.g. *rękoma* (also pl. *rękami*) or *oczyma* (also pl. *oczami*). Note also that Wierzbicka (1996) includes TWO in her set of semantic primes.

⁷ In the words of Zuzanna Topolińska, “grammaticalisation operates on ‘that which is crucial’ [...], which in the case of the category of number means the distinction between a set of elements and a single element of that set” (Topolińska 2017: 104).

division, competition, conflict, and antagonism. “Two” is a crucial aspect of the concepts of life and death, good and evil, truth and falsehood, etc. (Ifrah 1990 [1985]: 10).⁸

These most basic (archaic) quantitative senses of “one” and “many” (formerly also “two”) are marked in Polish, as well as in many other languages, by specific inflectional endings, e.g. *star-a kobiet-a płakał-a* ‘an old woman cried’ – *star-e kobiet-y płakał-y* ‘old women cried’; *czarn-y kot-∅ mruczał-∅* ‘a black cat purred’ – *czarn-e kot-y mruczał-y* ‘black cats purred’; *potężn-e drzew-o rośł-o* ‘an enormous tree grew’ – *potężn-e drzew-a rośł-y* ‘enormous trees grew’. In nouns and nominal pronouns number is independent syntactically: the use of the singular or plural form depends on the meaning that the speaker wants to express (i.e., the number of items being talked about);⁹ for adjectives and verbs it depends on the number of the noun with which they agree.

2. Word-formational markers of number

The meanings that play a role in the semantic opposition of ‘one’ – ‘more than one’ also have word-formational markers.

2.1. A common pattern is that of deriving the names of elements of a set from the name of that set:¹⁰ these are the so-called singulatives, e.g. *słoma* ‘straw’ → *słomka* ‘a straw’; *ziarno* ‘grain’ → *ziarnko* ‘a grain’; *pył* ‘dust’ → *pyłek* ‘a speck of dust’; *śnieg* ‘snow’ → *śnieżynka* ‘a flake of snow’; *krew* ‘blood’ → *krwinka* ‘a blood cell’. The most common suffixes in the process are the same ones that are used for diminutives: *-ek*, *-ka*, *-inka*. There is a deeper linguistic motivation to this pattern: from a large set whose elements are perceived as the same and impossible to count, the derivation singles out one small element.

2.2. A more frequent pattern in contemporary Polish, however, is to express a collection (a multitude of items treated as one). This includes names of people (*adwokatura* ‘the Bar’, *chłopstwo* ‘peasantry’, *dzieciarnia* ‘children’, *służba* ‘servants’, *studenteria* ‘students, a body of students’),

⁸ The symbolic senses that Ifrah points out do not only have a utilitarian dimension but also a prophetic one. (On the role of numbers in culture cf. Toporow 1974; Forstner 1977; Lurker 1990; Kowalski 1998.)

⁹ However, the numerical endings of the words inflected for number need not carry these quantitative meanings (cf. Topolińska 1977: 71 or Feleszko 1980).

¹⁰ More precisely, from uncountable nouns that are not subject to numerical quantification (GWJP-M 1998: 204).

objects (*igliwie* ‘conifer needles’, *grosiwo* ‘brass’,¹¹ *kwiecie* ‘flowers, blossom’, *pierze* ‘feathers, plumage’), plants (*brzezina* ‘birch grove’, *buczyna* ‘beechwood’, *dębina* ‘oak wood’), animals (*ptactwo* ‘birds’, *robactwo* ‘vermin’) that designate sets or collections.¹² They stand in opposition to both singular and plural forms (cf. *adwokat* ‘barrister’ – *adwokaci* ‘barristers’ – *adwokatura* ‘the Bar’; *chłop* ‘peasant’ – *chłopi* ‘peasants’ – *chłopstwo* ‘peasantry’; *dziecko* ‘child’ – *dzieci* ‘children’ – *dzieciarnia* ‘children’; *śługa/ służący*-SING ‘servant’ – *śludzy/ służacy*-PL ‘servants’ – *ślužba* ‘servants’; *student* ‘student’ – *studenci* ‘students’ – *studenteria* ‘a body of students’; *igła* ‘conifer needle’ – *igły* ‘conifer needles’ – *igliwie* ‘conifer needles’; *grosz* ‘penny, money’ – *grosze* ‘pennies’ – *grosiwo* ‘brass’;¹³ *kwiat* ‘flower’ – *kwiaty* ‘flowers’ – *kwiecie* ‘flowers, blossom’; *pióro* ‘feather’ – *pióra* ‘feathers’ – *pierze* ‘feathers, plumage’; *brzoza* ‘birch tree’ – *brzozy* ‘birch tress’ – *brzezina* ‘birch grove’; *buk* ‘beech tree’ – *buki* ‘beech trees’ – *buczyna* ‘beechwood’; *dąb* ‘oak tree’ – *dęby* ‘oak trees’ – *dębina* ‘oak wood’; *ptak* ‘bird’ – *ptaki* ‘birds’ – *ptactwo* ‘birds’; *robak* ‘worm’ – *robaki* ‘worms’ – *robactwo* ‘vermin’). Such forms are classified as “collectives in a narrow sense” (Bogusławski 1973: 20).

The base for collectives are above all nouns, including nominalised adjectives, such as *młodzież* ‘youth’ (← *młody* ‘young’), *starszyczna* ‘the elders’ (← *starszy* ‘elder, superior’), *duchowieństwo* ‘priesthood, clergy’ (← *duchowy* ‘spiritual’). A less numerous category is that of deadjectival collectives, such as *starzyczna* ‘junk, old stuff’, *surowizna* ‘raw food’, or deverbal collectives, e.g. *obstawa* ‘guard, bodyguard’ (← *obstawiać* ‘guard, surround’), *obrona* ‘defence’ (← *bronić* ‘defend’). In contemporary Polish, the most frequent morphemes used to derive collectives are: (i) *-stwo*, *-ctwo*, or *-ostwo* (e.g. *nauczycielstwo* ‘the body of teachers’, *ziemiaństwo* ‘landed gentry’, *Żydostwo/ żydostwo* ‘Jewry’); (ii) *-iwie* or *-owie* (*igliwie* ‘conifer needles’, *listowie* ‘foliage’); (iii) *-iwo* (*grosiwo* ‘brass’; cf. above); (iv) the rather exceptional *-arnia* (*dzieciarnia* ‘children’); and (v) the foreign *-eria* (*chuliganeria* ‘hooligans, rowdies’, *cyganeria* ‘bohemians’, *magnateria* ‘magnateship, nobility’), *-at* (*laikat* ‘laity’), *-acja* (*delegacja* ‘delegation, contingent’) or *-icja* (*generalicja* ‘the body of generals’).¹⁴

In the words of Renata Grzegorzczkova and Jadwiga Puzynina:

¹¹ In the sense of ‘money’, as in British slang.

¹² The Polish terms are all morphologically singular. [trans. note]

¹³ The singular and plural forms can also be used colloquially in the sense of ‘money’. [trans. note]

¹⁴ For the fullest account of this section of the lexicon see Habrajska (1995) (cf. also Zaron 2000).

This category in contemporary Polish is rather limited in comparison with other Slavic languages [...] and with Old Polish, which featured many more types of collectives, e.g. those ending in *-e* (*kwiecie* ‘flowers, blossom’, *liście* ‘foliage’, *pierze* ‘feathers, plumage’), now archaic, lexicalized, or functioning as plurals (*liście*). (1998: 443)¹⁵

What is the difference between collectives and plurals? An answer comes from Grażyna Habrajska: “Although neither collectives, nor plurals imply boundaries of sets, the former suggest the ‘totality’ of that which is talked about or point to an arrangement of the elements within the set” (Habrajska 1992: 203). A peculiar group of collectives are those that:

do not refer to a set of persons but to one person (the designation of the base) and his or her subordinates, e.g. *dyrekcja* ‘management: the manager/head of the company and his/her team’, *sekretariat* ‘the secretary and his/her co-workers’, *rektorat* ‘rectorate: the university Rector, Vice-Rectors, and their offices. (GWJP-M 1998: 443)

They include nearly regular names of married couples (with the suffix *-ostwo*), e.g. *ambasadorostwo*, *dyrektorostwo*, *ministrowstwo*, *profesorostwo* ‘the ambassador/manager/minister/professor and his/her spouse’. SJP Dor (1958-1969) records about sixty such items. One can also mention here items derived from kinship terms and first names, e.g. *dziadkowie* ‘grandpa and grandma’ (besides the rare plural ‘a certain number of grandfathers’), *teściowie* ‘parents-in-law’ (again, besides the rare plural ‘a certain number of fathers-in-law’), *wujostwo* ‘uncle with his wife’, *kuzynostwo* ‘cousin with his wife’, *Andrzejostwo/Andrzejowie* ‘Andrzej [Andrew] with his wife’.

2.3. Word-formational marking can also be functional in the contrast ‘one’ – ‘many’ imposed on events. The derivatives thus emerging help express the quantitative characterisation of an action. They include momentaneous verbs, such as *stuknąć* ‘hit (once)’, *skrzygnąć* ‘creak, squeak (once)’, *kopnąć* ‘kick (once)’, *syknąć* ‘hiss (once)’, *mignąć* ‘flash (once)’. These are derived from the names of actions by means of the affix *-ną-* (*-n*). Henryk Wróbel notes that the affix

also modifies the temporal characterisation of the action: it derives verbs denoting short duration from the bases neutral in this respect. If the meaning of the base verbs involves a series of repetitive elementary acts (as is the case with movements and visual phenomena), the derivative denotes a single act (by definition shorter than the series), cf. *mignąć* ‘flash once’ ← *migać* ‘flash repeatedly; flicker’, *mrugnąć* ‘blink once’ ← *mrugać* ‘blink repeatedly’; *tupnąć* ‘stamp one’s foot once’ ← *tupać* ‘stamp one’s foot repeatedly’. Such forms are called semelfactive. (Wróbel 1998: 548–549)

¹⁵ Lexicalisation is not understood here as a process whereby concepts (be it unexpressed in language or expressed at the phrasal level) acquire lexical expression, but as semantico-grammatical emancipation, most conspicuous in *liście*, which has changed its status from the collective sense ‘foliage’ to the plural sense ‘leaves’. [trans. note]

2.4. However, a quantitative characterisation of action denoted by the base comes from prefixes, which imply a multiplicity of objects and events that the action concerns. For example, the prefix *na-* is used to derive cumulative forms, whereby sections of a given action are summated.

Wróbel (1998: 549) points out that in the case of action-denoting intransitive verbs, component actions are summed up, as in *nadokuczać* ‘to pester, annoy someone a lot, to the fullest’ or *Jeśli ktoś nagrzeszył, to popełnił wiele grzechów* ‘For someone to fill up one’s measure of sins [*nagrzeszyć*] means to commit many sins’ (ISJP 2000). In transitive verbs, however, the prefix *na-* codes a multitude of the items concerned, e.g. *nałuskać orzechów* ‘to shell a lot of nuts’, *naobierać ziemniaków* ‘to peel a lot of potatoes’, *naprodukować towarów* ‘to produce a lot of goods’, *naopowiadać bzdur* ‘to tell (someone) a lot of nonsense’. Therefore, the verbs occur with nouns in Genitive plural: *nagotować jaj/ziemniaków* ‘to cook a lot of eggs/potatoes’ (USJP 2003), *nazbierać kwiatów* ‘to pick a lot of or a sufficient amount of flowers’ (SJP Sob 2011).

2.5. Very close to accumulative formations are distributive ones, which characterise actions as divisible into relatively distinct segments relating to many items:

They arise by incorporating the prefix *po-*, e.g. *pobrać książki* ‘collect (each of the many) books’, *pomordować ludzi* ‘murder (each of the many) people’, *pożenić synów* ‘marry (each of) one’s sons’, and especially from imperfective verbs with a prefix (as the last link in the chain of affixation), e.g. *powynosić stoly* ‘take out (each of the many) tables’ ← *wynosić* ‘take/carry out’-IMPERF ← *wynieść* ‘take/carry out’-PERF ← *nieść* ‘carry’...

The derivatives arising in this way require that the subjects and objects be used in the plural, e.g. *Powynosili śpiące dzieci z samochodu* ‘They carried out the sleeping children from the car’; *Powynosiła z domu wszystkie niepotrzebne rzeczy* ‘She took all the unnecessary stuff out of the house’; *Król powynosił dworzan na wysokie urzędy* ‘The king elevated his courtiers to high offices’; *powynosić osady do godności miast* ‘to grant city status to settlements’; *Wichura poprzewracała drzewa* ‘The wind upset (many of/all the) trees’; *poprzewracać stołki* ‘upset (all of) the stools’; *pozapalać wszystkie światła, lampy, kinkiety* ‘light up all the lamps and sconces’; *pozapalać świece* ‘to light up (all) the candles’ (USJP 2003).

A common semantic component of this type of derivatives is the sense of the multitude of the subjects or objects of the action being denoted – this in turn affects their valence.

2.6. Forms that express quantitative characterisation of action also include very frequent completive formations. The prefix *wy-* (more rarely *o(b)-*),

used for the purpose, expresses the sense of embracing, with a given action, all or many items within a set, e.g. *wyginąć* ‘die out’ (in USJP 2003: “of living creatures: lose life, die out, cease to exist, die one after another: *The whole family died* [wyginęła] *in the uprising*; *We haven’t yet solved the mystery of the extinction* [wyginięcie] of dinosaurs”), *wyłapać* ‘catch all of’ (USJP 2003: “catch all or many of the people or animals, one by one: *wyłapać złodziei* ‘catch all the thieves’”), *wygasić światła* ‘put out all the light’, *wytruć muchy* ‘wipe out the flies with a poison’, *obczęstować gości* ‘treat all the guests, one by one’. They occur with a plural subject and/or object (or, possibly, a collective noun).

Serial-completive formations, in turn, quantitatively characterise an action by subsequent reference to items of a given set; they are formed by adding the prefix *prze-*, e.g. *przebadać* ‘examine many people or things one by one’ (*The doctors have examined* [przebadali] *all the children in the village*; *A hundred subjects have been interviewed* [przebadano]); *przeliczyć zebranych* ‘count all the people gathered’, *przepytać uczniów* ‘examine all the students one by one’. The forms occur with a plural object.¹⁶

2.7. Finally, one should mention iterative forms derived through suffixation, such as *bywać* ‘frequent’ ← *być* ‘be (present)’, *pijać* ‘drink regularly’ ← *pić* ‘drink’, *chadzać* ‘walk, go (somewhere) regularly’ ← *chodzić* ‘walk, go’. They name multiple occurrences of actions. According to Wróbel (1998: 549–550), they are rare because the notion of a repetitive action can be expressed in Polish with any verb used in an appropriate context, cf. *Zazwyczaj jadam* [iterative]/*jem śniadanie o ósmej* ‘I usually have my breakfast at eight o’clock’.

The list can be supplemented with formations that Stawnicka (2009) singles out as coding diminutive-iterative actions, e.g. *pobłyskiwać* ‘glitter/shine/glow from time to time, appear as glittering with intervals’: *Duży brylant pobłyskiwał na jej palcu* ‘A big diamond could be seen on her finger, glittering from time to time’; *W światłach latarni pobłyskiwały katuże* ‘Puddles shone from time to time in the street light’; *W ciemności pobłyskiwały ogniki papierosów* ‘Cigarette ends glowed from time to time in the darkness’ (USJP 2003).

¹⁶ *Przebadać* ‘examine’, or *przepytać* ‘examine’ can also occur with a singular object: *przepytać ucznia* ‘examine the student’. However, also in this case it expresses multiplicity and sequentiality of action, divided into stages: to examine the student thoroughly by asking them many questions concerning various portions of their knowledge. [trans. note]

3. Lexical exponents of number

Counting is most precisely expressed with numbers, with the category of numerals as their counterpart in the language system.

3.1. The word for the numeral, the Polish *liczebnik*, is a word-formational derivation that belongs to the category of instruments, such as *powiększalnik* ‘enlarger’, *nadajnik* ‘transmitter’. Numerals as names of subsequent natural numbers of the arithmetical series play a crucial role in computation and in talking about computation. In the colourful analogy by Andrzej Bogusławski:

The system of counting can be compared to money: as every commodity can be exchanged for money and money for any other commodity, so the numerical equivalence of any set of items with a set of expressions within the system of counting gives us a tool for juxtaposing that set with any other. (Bogusławski 1966: 56)

The numeral as a part of speech (a special lexico-grammatical category) was only recognised in Polish (and more broadly: European) linguistic tradition in the 19th, i.e. relatively late, when the category of “name” split into three: noun, adjective, and numeral (Siuciak 2008: 11). Possibly because of the relatively short history of numerals in Polish linguistics, there is no consensus as to which items it embraces and which ones belong to numerical expressions. It is not possible to discuss in this study the various approaches to the numeral in Polish literature, especially as in the holistic model proposed here these are secondary issues.¹⁷ I use the term *liczebnik* in its colloquial sense that comes from *liczba* ‘number’: as a category of words that denote numbers (and are used in counting). This corresponds with the traditional semantic division of lexical items (i.e., the one found in dictionaries and grammars, especially older and popular ones, such as Szober (1962 [1923])).¹⁸

The Polish numerals reflect the cultural background of the language, i.e. the decimal system that prevails in its cultural sphere.¹⁹ The system has a clear anthropomorphic origin. Says Georges Ifrah:

¹⁷ The model by definition reaches beyond the boundaries of linguistic categories and focuses on the very grasp of quantity, rather than the formal means of expressing it (cf. Nowosad-Bakalarczyk 2018). A survey of the semantic, morphological, and syntactic approaches is offered in Derwojedowa (2011: 3–20).

¹⁸ Cf. also Milewski’s (1967: 75, 79–80) treatment of numerals as the words that form a series in the semantic system: a numeral does not exist outside the series that it invokes in the speaker.

¹⁹ Other known systems of counting use base 5 (in peoples who have learned to count using the fingers of only one hand), base 20 (when both fingers and toes are used), base 12 (according to Ifrah 1990 [1985]: 52, this is also a manually-based system; additionally, with four divisors, it is useful in trade and in measuring distance, area, volume, weight, and time), or base 60. Ifrah (1990 [1985]: 52–55) interprets the latter as a combination of base 12 and base 5.

People use the base 10 system of counting because of the ten fingers: this base enjoys a status that it will never yield. Had nature equipped the hand with six fingers, most counting systems would be duodecimal. Alternatively, if evolution had reduced the number of digits to four, as in frogs, our calculations and traditional counting systems would have base 8. (Ifrah 1990 [1985]: 46)

In the pre-Polish period, there were only twelve numerals: the names of numbers from 1 to 10, for 100 and 1,000. Other numerals were derived from that base. According to Mirosława Siuciak:

Higher numerical values were expressed by arithmetically combining the basic twelve lexemes with one another [...]. Within the 11–19 range, the relevant operation was addition: the number for units was added to the prepositional phrase *na desęte* ‘on the ten’ to produce three-element combinations such as **dōva na desęte* ‘to on the ten’, i.e. ‘twelve’. Within the 20–90 range, multiplication of the number of tens was performed, with some morphosyntactic variation: the lexemes for 2, 3, 4 were linked with *desętb* ‘ten’ through agreement (e.g. the dual **dōva desęt* ‘twenty’ or the plural **tri desęti* ‘thirty’), whereas the numerals *pętb* ‘five’, *šestb* ‘six’, *sedmb* ‘seven’, *osmb* ‘eight’, *devętb* ‘nine’ required the use of the Genitive plural form *desętb*, subordinate to them (e.g. **pętb desętb* ‘fifty’ **šestb desętb* ‘sixty’). The same principle was followed for hundreds: the forms within the 200–400 range were derived through agreement (**dōv[~]e sōt[~]e* ‘two hundred’, **tri sōta* ‘three hundred’), while those for 500–900 through case government (**pętb sōtb* ‘five hundreds’). This syntactic difference in Proto-Slavic formations was then reflected in the structure and morphology of the Polish compounds for units of higher order. (Siuciak 2008: 18)

In contemporary Polish, the word-formational processes for deriving numerals are no longer productive: the names of units higher than hundreds (*tysiąc* ‘thousand’, *milion* ‘million’, *miliard* ‘billion’ [a thousand million or 10^9], *billion* ‘trillion’ [a million million or 10^{12}], *trylion* ‘quadrillion’ [a thousand raised to the power of five, i.e. $1,000^5$ or 10^{15}], *tryliard* ‘quintillion’ [a thousand raised to the power of six, i.e. $1,000^6$ or 10^{18}])²⁰ are not used as the derivational bases for other cardinal numbers. This is because, among other reasons, we can combine the elements of the now closed set of numerical terms in order to derive an infinite number of other terms, e.g. *tysiąc dwieście dwadzieścia trzy* ‘a thousand, two hundred and twenty three’, *milion trzysta tysięcy* ‘a million and three hundred thousand’, etc. In colloquial Polish, where large numbers are used rarely, these means are sufficient, especially because as the numbers larger than 10 are usually expressed in writing via numerical notation. This also concerns scientific and technical contexts,

²⁰ The noticeable discrepancy between the Polish and English terms for these numbers stems from the fact that Polish terminology follows the Central European tradition, whereas the English counterparts provided here come from contemporary US, British, English Canadian, and Australian usage. [trans. note]

where very large numbers are written down as powers of ten, when necessary accompanied by multiplication, e.g. 6.5×10^{21} .

3.2. Dictionaries of contemporary Polish list numerals that designate cardinal numbers as separate lexical items. Being recognised as numerals by all researchers, they can be considered “prototypical” instances of the category: they express the cardinal aspect of numbers.²¹ The set includes lexemes that denote numbers from 1 to 10: *jeden* (*jedna, jedno*) ‘one’, *dwa* ‘two’, *trzy* ‘three’, *cztery* ‘four’, *pięć* ‘five’, *sześć* ‘six’, *siedem* ‘seven’, *osiem* ‘eight’, *dziewięć* ‘nine’, *dziesięć* ‘ten’; from 11 to 19: *jedenaście* ‘eleven’, *dwanaście* ‘twelve’, *trzynaście* ‘thirteen’, *czternaście* ‘fourteen’, *piętnaście* ‘fifteen’, *szesnaście* ‘sixteen’, *siedemnaście* ‘seventeen’, *osiemnaście* ‘eighteen’, *dziewiętnaście* ‘nineteen’; lexemes that denote the number of tens: *dwadzieścia* ‘twenty’, *trzydzieści* ‘thirty’, *czterdzieści* ‘forty’, *pięćdziesiąt* ‘fifty’, *sześćdziesiąt* ‘sixty’, *siedemdziesiąt* ‘seventy’, *osiemdziesiąt* ‘eighty’, *dziewięćdziesiąt* ‘ninety’; those that denote the number of hundreds: *sto* ‘a hundred’, *dwieście* ‘two hundred’, *trzysta* ‘three hundred’, *czteryście* ‘four hundred’, *pięćset* ‘five hundred’, *sześćset* ‘six hundred’, *siedemset* ‘seven hundred’, *osiemset* ‘eight hundred’, *dziewięćset* ‘nine hundred’; those that denote numbers larger than hundreds: *tysiąc* ‘thousand’, *million* ‘million’, *milliard* ‘billion’, *bilion* ‘trillion’, *trylion* ‘quadrillion’, *tryliard* ‘quintillion’. They can all be defined by means of the formula: “the word that designates number x”, where x is a number in the arithmetical series from 1 to infinity.

Names of numbers are rarely used on their own: they usually co-occur with the names of objects or phenomena being counted: *dwa jabłka* ‘two apples’, *pięć zegarków* ‘five watches’, *dwa wydarzenia* ‘two events’, *pięć spotkań* ‘five meetings’. This includes segmentation of substances: *dwa worki mąki* ‘two sacks of flour’, *pięć ząbków* ‘two cloves of garlic’; space: *dwa kilometry* ‘two kilometers’, *dwa dni drogi* ‘two days from here’, *pięć zagonów pola* ‘two field patches’; time: *dwie minuty/godziny* ‘two minutes/hours’, *pięć miesięcy/lat* ‘five months/years’, etc. As these expressions indicate, quantity and quality are interwoven: “there is no quantity without quality and vice versa: quality is always expressed in and through a certain quantity” (Doboszyńska-Markiewicz 2013: 32).

It is instructive to note at this juncture that with regard to their morphological and syntactic properties numerals divide into two groups: those that designate numbers from 1 to 4 and those that designate numbers from 5 up. This, along with the unique status of the numeral *jeden* ‘one’, is

²¹ This allows for the recognition of the “1 : 1” correspondence between elements of two equinumerous sets.

a Slavic characteristic.²² The units from the first set (except the masculine forms *dwóch* ‘two-MASC’, *trzech* ‘three-MASC’, and *czterech* ‘four-MASC’) connect with nouns and verbs through agreement, while the units from the second set connect through case government: they require a noun in the Genitive and a singular neuter verb from:

Dwaj/trzej/czterej sportowcy stosowali doping.
 ‘Two/three/four sportsmen-NOM PL MASC were-PL MASC on doping.’

Dwie/trzy/cztery kobiety rozmawiały.
 ‘Two/three/four women-NOM PL FEM talked-PL FEM.’

Dwa/trzy/cztery okna kwalifikowały się do wymiany.
 ‘Two/three/four windows-NOM PL NEUT had to be-PL NEUT replaced.’

But:

Pięciu/sześciu/siedmiu sportowców stosowało doping.
 ‘Five/six/seven sportsmen-GEN PL MASC were-PL NEUT on doping.’

Pięć/sześć/siedem kobiet rozmawiało.
 ‘Five/six/seven women-GEN PL FEM talked-PL NEUT.’

Pięć/sześć/siedem okien kwalifikowało się do wymiany.
 ‘Five/six/seven windows-GEN PL NEUT had to be-PL NEUT replaced.’²³

Is this linguistic convention motivated in any way? Some authors see contemporary linguistic facts as remnants of Proto-Slavic, where the lexemes for 1–4 were adjectives, while those from 5 up were nouns. This can be traced back to Proto-Indo-European, “where only names for numbers from 1 to 4 were fully inflected for case and gender, while those for 5 up were uninflected” (Siuciak 2008: 16). Others seek motivation for the division in human perception: in quick perception, a person is able to capture, visually and mentally, up to four elements of reality, so that in the case of sets with five and more elements their number can only be established by counting (Ifrah 1990 [1985]; Rutkowski 2003). This also correlates with the anatomy and motor activity of the human hand, the simplest and most natural counting machine, in which the four fingers are clearly opposed to the thumb (although all five also function as a unit in counting), cf. Ifrah (1990 [1985]: 40).

Cardinal numerals have a broad spectrum of usage: not only in expressing the number of objects (in nominal groups) but also the number of events (in verbal groups), in which case the word *raz* ‘once’ or *razy* ‘times’ must

²² Bogusławski (1966: 51) notes that *jeden*, in contrast to other numerals, stands in opposition to the quantifiers *wszystkie* ‘all’ and *niektóre* ‘some’: it is indeed a singular quantifier. Therefore, the author does not include it in the category of numerals. A different opinion is expressed in Frankowska (1983).

²³ More on this in prescriptively oriented accounts, e.g. Jadacka (2000 [1999]).

be used to properly frame that which “happens”, e.g. *Jeden raz czytał tę powieść* ‘He read the novel just once’; *Dwa razy był nad morzem* ‘He went to the seaside twice’; *Trzy razy ją odwiedził* ‘He visited her three times’, etc. Note that it only occurs in two forms, the singular *raz* and the plural *razy*, which reflects the basic opposition of ‘once’– ‘more than once’.

3.3. Each cardinal numeral can function as the base for the corresponding ordinal numeral: *pierwszy* ‘first’, *drugi* ‘second’, *trzeci* ‘third’, ...; *jedenasty* ‘eleventh’, *dwunasty* ‘twelfth’, *trzynasty* ‘thirteenth’, ...; *dwudziesty* ‘twentieth’, *trzydziesty* ‘thirtieth’, *czterdziesty* ‘fortieth’, ...; *dwusetny* ‘two hundredth’, ...; *tysięczny* ‘thousandth’, *dwutysięczny* ‘two thousandth’, ...; *milijonowy* ‘millionth’. The ordinal aspect of number is complementary to the cardinal aspect and embodies the ordering of elements in a set. Morphologically and syntactically, cardinal numerals behave like adjectives:²⁴ they are inflected for case, gender, and number (in contrast to cardinal numerals, which are not inflected for but denote number) and agree with nouns in those respects, e.g.

pierwsza rocznica ślubu ‘first-NOM SING FEM wedding anniversary-NOM SING FEM’

pierwsze piętro ‘first-NOM SING NEUT floor-NOM SING NEUT’

pierwszy rok studiów ‘first-NOM SING MASC year-NOM SING MASC in college’

drugi dzień wycieczki ‘second-NOM SING MASC day-NOM SING MASC of the trip’

drugie wydanie książki ‘second-NOM SING NEUT edition-NOM SING NEUT of the book’

mieszkać na czwartym piętrze ‘live on the fourth-LOC SING NEUT floor-LOC SING NEUT’, etc.

As the class of ordinal numerals is systemically open, examples can be multiplied. Similarly to cardinal numerals, they are used not only with names of objects but also events. In those cases they are accompanied by *raz*, which expresses the number of occurrences: *pierwszy raz coś robić* ‘do something for the first time’; *impreza zorganizowana po raz szósty* ‘an event organised for the sixth time’, etc.

3.4. A regular pattern is also used for the derivation of names that denote the multiplicity of events being talked about: these are the so-called “iterative numerals” or “multipliers” (*liczebniki wielokrotne*, cf. Laskowski 1999: 212). Among them, there is a subcategory of lexemes with adjectival inflectional and syntactic characteristics, e.g. *jednokrotny* ‘one-time, happening once’; *dwukrotny* ‘two-time, happening twice’ (*Rozległ się dwukrotny gwizd* ‘A whistle could be heard twice’) or ‘twofold, twice as big/small’ (*dwukrotny wzrost zaludnienia* ‘a twofold increase in population’); *trzykrotny*

²⁴ Therefore they are not classified as numerals in e.g. GWJP-M (1998).

‘happening three times’ (*trzykrotny okrzyk* ‘a triple cry’, *trzykrotny zwycięzca* ‘a triple medalist’) or ‘threefold, three times as big/small’ (SJP Sob 2011), etc. Polish has a regular pattern for deriving analogical forms from other cardinal numerals: those include both (i) one-word numerals denoting units, tens (*dwudziestokrotny* ‘happening twenty times’), hundreds (*dwustukrotny* ‘happening two hundred times’), a thousand (*tysiącrotny* ‘happening a thousand times’), and a million (*milionkrotny* ‘happening a million times’), and (ii) multi-word items, e.g. *dwudziestopięciokrotny* ‘happening twenty five times’, *dwustupięćdziesięciokrotny* ‘happening two hundred and fifty times’ (but only up to a thousand). All these units designate (i) repetition or occurrence of something a given number of times or (ii) an increase/decrease in size, scope, or magnitude by a given value.

Parallel to the adjectival forms mentioned above, Polish has adverbial forms (distributive numbers): *jednokrotnie* ‘once’, *dwukrotnie* ‘twice’, *trzykrotnie* ‘three times’, etc., e.g. *prosić o coś dwukrotnie* ‘ask for something twice’; *dwukrotnie zwiększone dochody* ‘income twice as big’. USJP (2003) notes that their usage is limited to literary contexts, probably as a result of another option for expressing the same content, i.e. by means of a cardinal numeral and the word *raz*: *jeden raz* ‘once’ (lit. ‘one time’), *dwa razy* ‘twice’, *trzy razy* ‘three times’, etc.²⁵

3.5. Polish also has collective numerals (*liczebniki zbiorowe*),²⁶ denoting numbers larger than 1 (e.g. *dwoje* ‘two’,²⁷ *troje* ‘three’, *czworo* ‘four’, ..., *dziesięcioro* ‘ten’, *jedenaścioro* ‘eleven’, *dwanaścioro* ‘twelve’, ..., *dwadzieścioro* ‘twenty’, *trzydzieścioro* ‘thirty’, etc. up to *dziewięćdziesięcioro* ‘ninety’; also their combinations, e.g. *sto dziewięćdziesięcioro dwoje* ‘a hundred and ninety two’), which code the sense of a numerically specific and closed set. They have a specific valence profile, limited to (1) the names of non-adult or not fully mature creatures (*troje cieląt* ‘three calves’, *czworo szczeniąt* ‘four puppies’, *pięcioro dzieci* ‘five children’, *sześcioro kociąt* ‘six kittens’),

²⁵ To a limited extent, the notion can also be expressed with forms like *dwakroć* ‘twice’, *trzykroć* ‘three times’, *pięciokroć* ‘five times’, now considered archaic (and mostly found in older literature or fixed expressions, e.g. *po dwakroć/trzykroć* ‘two/three times’). Archaic forms also include such items as *samowtór* (recorded only in PSWP 1994–2005 in the sense ‘accompanied by one person’), *samotrzeci* (recorded only in USJP 2003 in the sense ‘accompanied by two people; one of three’, now only in the religious usage *Święta Anna Samotrzecia* ‘a picture of St. Anne, the Virgin Mary, and Jesus’).

²⁶ According to some authors, only cardinal and collective numerals are numerals proper (cf. Laskowski 1998: 63–64; Mieczkowska 1996: 3–4).

²⁷ The variants of this numeral, *dwoje*, *oboje*, and *obydwoje*, differ semantically and syntactically (cf. Zieniukowa 1992: 86) and evidence the special status of the number 2 in Polish.

(2) collections of people of different genders (*dwoje staruszków* ‘two elderly people’, *troje lekarzy* ‘three doctors’), (3) countable *pluralia tantum* (*dwoje oczu/uszu* ‘two eyes/ears’, *czworo sań* ‘four sleighs’, *siedmioro drzwi* ‘seven doors’). The restrictive norms of the usage of collective numerals probably contribute to their gradual disappearance. According to Jadwiga Zieniukowa:

Collective numerals today [...] nearly exclusively denote groups of people heterogeneous with regard to gender and so serve to mark that heterogeneity within the group. However, this only concerns smaller numbers (up to 10). [...] With higher numbers, various constructions provide means of using numerals other than collective, cf. *troje ludzi* but also *trzydzieści ludzi* ‘thirty people’, the now rare and avoided *pięćdziesięcioro dzieci* vs. *pięćdziesiątka dzieci* ‘fifty children’, and the progressively more frequent *pięćdziesiąt dzieci*. (Zieniukowa 1992: 91–92)

3.6. Collective numerals (but only those denoting small numbers, from 2 to 7, and 10) serve as the basis for the derivation of the so-called “manifold numerals” (*liczebniki wielorakie*) and “multiplicative numerals” (*liczebniki mnożne*). The manifold numerals have adjectival forms, e.g. *dwojaki* ‘occurring in two forms or variants’: *dwojaki sposób postępowania* ‘two options for action’, *trudności dwojakiemu rodzaju* ‘difficulties of two kinds’; *trojaki* ‘occurring in three forms or variants’: *trojaki zastosowanie czegoś* ‘a three-sided use of something’ (SJP Sob 2011). Some of them (for numbers 2 to 4) also have adverbial forms: *dwojako* ‘in two ways’, *trojako* ‘in three ways’, *czworako* ‘in four ways’; e.g. *rozumieć coś dwojako* ‘understand something in two ways’, *rozwiązać zadanie trojako* ‘solve a problem in three ways’; *Zieliński served in the army in four capacities [czworako]: in infantry, artillery, and armoured forces, only to end up in aviation* (ISJP Bań 2000).

The so-called multiplicative numerals also denote smaller numbers, from 2 to 4, and also have adjectival and adverbial forms. The adjectival forms *podwójny* ‘double, dual, twofold’, *potrójny* ‘triple, threefold’, and *poczwórny* ‘quadruple, fourfold’ mean:

(1) ‘consisting of n identical or homogeneous elements’, e.g. *podwójna szyba* ‘a double pane’, *podwójne dno* ‘a hidden meaning’ (lit. ‘a double bottom’), *podwójne drzwi* ‘a double door’, *potrójny podbródek* ‘a triple chin’, *poczwórna nitka* ‘a three-strand thread’;

(2) ‘performed/repeated n times’, e.g. *podwójna opłata* ‘double payment’; *podwójne kliknięcie* ‘a double click’; *potrójne salto* ‘a triple somersault’; *poczwórne zwycięstwo* ‘a fourfold victory’;²⁸

²⁸ The last example can also mean ‘a victory in four senses of the word’ and so can also be included within the sense ‘concerning two areas or spheres of activity’, see the next point.

(3) 'bigger or more intense than something n times', e.g. *podwójna dawka* 'a double dose', *potrójna porcja* 'a triple portion', *poczwórne zarobki* 'a fourfold income'. *Podwójny* also means 'for two (people)' (e.g. *podwójny bilet* 'a ticket for two', *podwójne łóżko* 'a double bed') and 'concerning two areas, spheres of activity, or objects' (*podwójny jubileusz* 'double jubilee', *podwójna rocznica* 'double anniversary', *podwójne święto* 'double holiday').

Adverbial forms *podwójnie*, *potrójnie*, *poczwórnice*,²⁹ in turn, mean:

(1) 'in a manner composed of n identical or homogeneous elements/in a manner multiplied n times' e.g. *złożyć podwójnie* 'fold in two', *widzieć potrójnie* 'see triple';

(2) ' n times/ n times more', e.g. *ubezpieczyć podwójnie* 'to get a double insurance', *zyskać potrójnie* 'to benefit three times as much'. As one can see, adverbial forms code the same senses as adjectival forms.

The existence of different grammatical but semantically parallel forms reveals the need to use them in different syntactic functions: as nominal or verbal modifiers. Such is the linguistic response to the desire to quantify various aspects of reality, both objects and events.

3.7. The numerals presented above, called definite numerals (*liczebniki określone*), code exact numerical values that occupy specific points in the arithmetical series. Less precise quantification is coded by the so-called indefinite numerals (*liczebniki nieokreślone*), such as: *kilka* 'some, a few, from three to nine' (*mówić kilkoma językami* 'speak a few languages'), *kilkanaście* 'a dozen or so, from 11 to 19', *kilkadziesiąt* 'a few dozen, from twenty to ninety', *kilkaset* 'a few hundred, from two to nine hundred'. They provide a possibility of approximately estimating the value of a number, i.e. they point to the range of numerical values, which may be ascribed to a section of reality subjected to counting.

Let us note that the root morpheme that denotes a specific range in the arithmetical series, i.e. *kilka-* ('from three to nine'), is suffixed with the same morphemes as in the case of cardinal numerals: *-naście* (11 to 19), *-dziesiąt* (20 to 90), *-set* (200 to 900), which produces units from higher ranges in the series. This also concerns the morpheme *parę-*, nearly synonymous to *kilka-* and functioning also as a free morpheme: *Czekaliśmy parę godzin* 'We waited a few/several hours'; *paręnaście* 'a dozen or so, from eleven to nineteen'; *parędziesiąt* 'a few dozen, from twenty to ninety': *parędziesiąt kilogramów/kilometrów* 'a few dozen kilos/kilometres'; *paręset* 'a few hundred':

²⁹ A similar meaning is expressed by fixed expressions with the preposition *w*: *w dwójnasób* 'twice as intensely, doubly'; *w trójnasób* 'three times as intensely': *pomnożyć/powiększyć coś w trójnasób* 'multiply/enlarge something three times'. However, being stylistically marked and obsolete, they have a limited scope of application.

paręset osób ‘a few hundred people’, *paruset żołnierzy maszeruje drogą* ‘a few hundred soldiers are marching along the road’ (USJP 2003).

The units *kilka* and *kilkanaście* (whose inflectional and syntactic properties are those of cardinal numerals) give rise to units with properties of collective numerals, such as *kilkoro* ‘from three to nine’ or *kilkanaścioro* ‘from eleven to nineteen’ (SJP Sob 2011). Those express the meaning of a closed set with an approximately assessed number of elements, e.g. *kilkoro ludzi/dzieci/kurcząt/drzwi/sań* ‘a few people/children/chickens/doors/sleighs’, *Kilkoro ludzi/dzieci idzie/szło* ‘A few people/children are/were walking’, *matka z kilkorgiem dzieci* ‘a mother with a few children’; *kilkanaścioro dzieci/kurcząt/drzwi/sań* ‘a dozen or so children/chickens/doors/sleighs’, *Opowiadał bajkę kilkanaścioro dzieciom* ‘He told the story to a dozen children or so’, *kwoka z kilkanaścioro kurcząt* ‘a hen with a dozen or so chicks’ (USJP 2003).

The bases *kilka* and *parę* (i.e., those that denote values within the first ten) also give rise to iterative numeral forms that denote rough assessments of the number of repetitions or occurrences of actions or events, as well as a rough assessment of enlargement/reduction of phenomena. These include both adjectival forms (*kilkakrotne próby* ‘attempts made a few times’, *kilkakrotna przewaga sił wroga* ‘enemy forces a few times as big’, *kilkakrotny spadek wartości pieniądza* ‘a several-fold drop in currency value’; *parokrotne przesłuchania* ‘interrogation repeated a few times’, *parokrotny brązowy medalista* ‘a few-time bronze medallist’) and adverbial forms (*kilkakrotnie coś powtarzać* ‘repeat something a few times’, *kilkakrotnie wyższe honorarium* ‘an honorarium a few times higher’, *parokrotnie dzwonić do kogoś* ‘call someone a few times’). There is thus a clear need to quantify nouns,³⁰ verbs, and adjectives (in comparative degree).

The indefinite numerals also include those that express the sense of any unspecified number, e.g. *ile* ‘how many’, which introduces questions about the number of something: *Ile masz lat?* ‘How old are you?’ (lit. ‘How many years do you have?’), *Ilu jest lekarzy w tej przychodni?* ‘How many doctors are there in this health centre?’, *Na ilu stronach trzeba wprowadzić poprawki?* ‘How many pages should be corrected?’. It also helps express a relative numerical value, as equal to the number of something else, e.g. *ilu dyskutantów, tyle opinii* ‘as many opinions as there are discussants’. Numerical indefiniteness is even more pronounced in the case of its derivative *ileś*, used when the speaker does not want to or cannot establish the exact number: *Ma siedemdziesiąt ileś lat* ‘He is seventy something’, *Działo się*

³⁰ These are deverbal nouns, such as *próby* ‘attempts’ ← *próbować* ‘to attempt’, *spadek* ‘a fall’ ← *spadać* ‘to fall’, *przesłuchania* ‘interrogations’ ← *przesłuchiwać* ‘interrogate’.

to przed ilomaś wiekami ‘This happened a few/many centuries ago’. The notion of indefinite number or amount assessed to be irrelevant is coded by *ilekolwiek*, e.g. *Wpadnę do was, ilekolwiek będę miała czasu* ‘I’ll come around, no matter how much time I’ll have’, *Ilukolwiek chętnych się zgłosi na wycieczkę, wszystkich można zapisać* ‘Regardless of how many want to go for the trip, we can take them all’ (USJP 2003).

The meaning ‘a number or amount unexpressed but known to the participants’ is coded by the item *tyle* ‘that many/much’ in such contexts as: *Tyle przeczytałam – powiedziała Anna, trzymając w ręku rozłożoną książkę* ‘“I read that much”, Ann said, holding an open book in her hand’, *Wczoraj kupiłaś dwa kilo winogron, a dziś tylko tyle* ‘You bought two kilos of grapes yesterday and today only this much’. This item, similarly to *ile* (and usually in tandem with *ile*) expresses a relative number, e.g. *Premier ma tylu zwolenników, ilu przeciwników* ‘The Prime Minister has as many supporters as opponents’. They are both roots of adverbial conjunctions (*ilekroć*, *tylekroć*) that signal multiple occurrences of the events being talked about: *Zrywała się na równe nogi, ilekroć słyszała płacz małej* ‘Whenever she heard the baby cry, she would jump to her feet’, *Ilekroć lało, miał przemoczone buty* ‘Whenever it rained, his shoes soaked through’, *Ilekroć o niej myśli, ogarnia go złość* ‘Whenever he thinks of her, he gets angry’.

Finally, *ile* and *tyle* (especially in connection with the particle *-z* and appropriate intonation) code the meaning of an indefinite large number: *Ile tu śmieci!* ‘Look at all that rubbish!’, *Ileż ona ma książek!* ‘The lot of books that she has!’, *Ileż w to trzeba włożyć wysiłku* ‘Just think of the effort that you have to put in’, *Iluż tam było znajomych z dawnych lat!* ‘There were so many old friends there!’, *Zobaczył tylu niezadowolonych, że szybko schował się w swoim gabinecie* ‘He saw so many unhappy people that he hid in his office straightaway’, *Tyleż pism dostawał codziennie, że nie nadążał na nie odpisywać* ‘He would receive so many letters every day that he couldn’t keep up with replying to them’, *Tyluż zdolnych uczniów było w naszej klasie!* ‘There were so many good students in our class!’. This sense is also expressed by *dużo* ‘many’, classified as an indefinite numeral: *dużo pytań* ‘many questions’, *Miał dużo spraw do załatwienia* ‘He had a lot of things to do’. The opposite sense is expressed by its antonym *mało* ‘few’: *mało ludzi/ptaków/lat* ‘few people/birds/years’.

3.8. Numerical relationships in Polish are also expressed with the so called fractional numerals.³¹ Consider:

³¹ According to Laskowski (1999: 212), “fractional numerals can be treated as nouns of measure, similarly to such non-conventionalised measures as *garść prosa* ‘a handful of millet’, *beczka piwa* ‘a barrel/keg of beer’, or the conventionalised ones such as *litr mleka*

– *pół* ‘half’: *Daj mi pół jabłka* ‘Give me half the apple’, *Wypił pół szklanki herbaty* ‘He drank half a glass of water’, *To stare mieszkanie ma trzy i pół metra wysokości* ‘This old flat is three and a half metres tall’, *Wrócę za pół godziny* ‘I’ll be back in half an hour’, *Kupił trzy i pół kilo ziemniaków* ‘He bought three and a half kilos worth of potatoes’ (USJP 2003);

– *ćwierć* ‘a quarter’: *Wypił ćwierć szklanki mleka* ‘He drank a quarter of a glass of milk’, *Weź do ciasta ćwierć kilo cukru* ‘Take 250 grams [lit. ‘a quarter of a kilo’] of sugar’, *Przeszli ćwierć mili* ‘They covered a quarter of a mile’ (USJP 2003);

– *półtora* ‘one and a half’: *Bilet autobusowy kosztuje półtora euro* ‘The bus fare is one and a half euros’, *W półtora dnia zdążymy tam dojechać i wrócić* ‘We can make it there and back in one and a half days’, *Przed półtora rokiem wrócił z Berlina* ‘He came back from Berlin one and a half years ago’, *Do domu mam półtora kilometra* ‘It’s one and a half kilometres from here to my place’, *Będę u was półtorej godziny* ‘I can spend one and a half hours at your place’ (USJP 2003).

They are exponents of partitive quantification, i.e. express the meaning of ‘a part’ of a given whole. A similar sense is coded by constructions such as *trzy czwarte* ‘three quarters’, *jedna trzecia* ‘one third’, *jedna szesnasta* ‘one sixteenth’, *pięć dwunastych* ‘five twelfths’, etc., which precisely specify the size of a given portion.

4. Conclusions

The concept of number in Polish enjoys a high status: it is entrenched as an inflectional category and so obligatory for speakers of the language. The most stable, grammatical level, codes the meanings ‘one’ and ‘more than one’ (in former Polish also ‘two’). This juxtaposition is also broadly expressed on the word-formational plane.

Special morphemes aid the expression of singularity, on the one hand (e.g. *-ek* in *grosz-ek* ‘a pea grain’ or *pył-ek* ‘a speck of dust’), or collectivity of items, on the other (e.g. *-e* in *pierz-e* ‘feathers, plumage’ or *kwieci-e* ‘flowers, blossom’). Similarly, morphemes may express either the singularity of acts (e.g. *-nąć* in *kaszl-nąć* ‘cough once’, *blysł-nąć* ‘flash’) or their multitude (*na-* in *na-obierać* ‘to peel a lot of’, *na-dokuczać* ‘to pester, annoy a lot’; *po-* in *po-wynosić* ‘to take/carry out all of’, *po-rozrzucać* ‘to scatter around’).

Some names are formed in series (collective names for things, accumulative and distributive names for events): they form highly productive

‘a litre of milk’”.

word-formational categories and types. This, again, corroborates the importance of the ‘one’–‘more than one’ contrast in communication.

That the concept of number in Polish enjoys a high status is also visible in the very existence of the grammatical category of numerals, a group with diverse semantic and morphosyntactic properties. The variable degree of precision of definite vs. indefinite numerals in specifying numbers (very high for the definite numerals, approximate for such numerals as *kilka* ‘a few’, low for estimative *dużo* ‘many’ – *mало* ‘few’ or relativising *tyle... , ile* ‘as many... as’) reflects the differences in the knowledge and needs of the persons communicating. The diverse inflectional behaviour of various types of numerals, plus the correlated syntactic functions, responds to the need to apply numbers to a variety of entities (objects, events, or even to their characteristics), which shows that a broad spectrum of phenomena are perceived in quantitative (or even more precisely: numerical) terms. It is thus corroborated that the conceptual category of number has in Polish undergone profound grammaticalisation and enjoys a special status in communication and culture.

The role of numbers in the Polish language is not limited to the lexical and grammatical level in a sentence; indeed, the concept also permeates the textual level of linguistic organisation, in which one finds patterns based on the numbers from the first ten and the number twelve (cf. Niebrzegowska-Bartmińska 2007: 332–388). This is an issue worthy of a separate treatment.

Translated by Adam Głaz

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