

## Chapter 14

# Several quantifiers are different than others: Polish indefinite numerals

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In this paper, I examine properties of two Polish indefinite quantifiers, namely *ileś* ‘some, some number’ and *kilka* ‘several, a few’. I argue that they share morpho-syntactic properties with cardinal numerals rather than with vague quantifiers such as *malo* ‘little, few’ and *dużo* ‘much, many’ and propose that they should be modeled as involving a built-in classifier comprising both a measure function and choice function. The difference between the two indefinites boils down to the type of set the choice function selects a member from and the type of measure function that is employed.

**Keywords:** indefinites, numerals, quantifiers, choice functions, classifiers, Polish

## 1 Introduction

For some time, properties of different series of Slavic indefinites have been successfully explored (e.g., Błaszczak 2001, Testelets & Bylinina 2005, Yanovich 2005, Geist 2008, Pereltsvaig 2008, Eremina 2012, Dočekal & Strachonová 2015, Richtarcikova 2015, Šimík 2015, Strachonová 2016). However, one particular class of indefinite expressions seems to have been somewhat overlooked, namely indefinite quantifiers such as those exemplified in (1).

- (1) a. neskol’ko (Russian)
- b. několik (Czech)
- c. nyakolko (Bulgarian)
- d. nekoliko (Bosnian/Croatian/Serbian)  
        several/a few



Remarkably, a similar gap is discernible in a long and prolific research on quantifiers since certain characteristics of expressions corresponding to English *several* remain surprisingly understudied (with the notable exception of Kayne 2007). In this paper, I will examine an alternation involving two types of Polish indefinite quantifiers, such as those seen in (2). In terms of terminology, I will follow the Polish descriptive tradition and refer to such expressions as INDEFINITE NUMERALS, a term which I take to be legitimate in view of the data discussed in the subsequent sections.

- (2) a. *ileś* (tam)  
      some/some number  
      b. *kilka*  
      several/a few

Though the alternation does not hold in every Slavic language, it does not seem to be a Polish idiosyncrasy, as attested by the *prima facie* similar contrast between Russian *skol'ko-to* and *neskol'ko* 'several'. The approach developed here is intended to fit a broader research program dedicated to accounting for semantic properties of distinct types of Slavic numeral expressions (Dočekal 2012; 2013; Wałgiel 2014; 2015; to appear; Dočekal & Wałgiel 2018). Thus, the insights presented here might have wider applicability, at least within Slavic.

The paper is outlined as follows. In §2, I employ a battery of tests to determine morpho-syntactic and semantic properties of the Polish indefinite numerals *kilka* and *ileś*. In §3, I discuss additional data concerning the alternation in question including the evidence in favor of specificity. In §4, I introduce the basic machinery necessary for the analysis: i.e., choice functions, measure functions, and the intersective theory of cardinal numerals. In §5, I develop a morpho-semantic approach to account for the discussed data. Finally, §6 concludes the article.

## 2 Cardinals, indefinite numerals, and vague quantifiers

### 2.1 Polish indefinite series

Similar to other Slavic languages, there are several series of indefinite expressions in Polish and Table 1 gives the paradigm for the main ones. Based on morphological evidence, it seems straightforward to assume that Polish indefinites constitute derivationally complex expressions which can be decomposed into a *wh*-element and an indefinite suffix. In addition, the indefinites in the *-ś* series

can be followed by an optional pronoun *tam* ‘there’ which can express either a great level of ignorance, or depreciative attitude (cf. Bylinina 2010).

Table 1: Indefinite series in Polish

wh-word		-ś	-kolwiek	-bądź
kto	‘who’	ktoś (tam)	ktokolwiek	kto bądź
co	‘what’	coś (tam)	cokolwiek	co bądź
gdzie	‘where’	gdzieś (tam)	gdziekolwiek	gdzie bądź
kiedy	‘when’	kiedyś (tam)	kiedykolwiek	kiedy bądź
jak	‘how’	jakoś (tam)	jakkolwiek	jak bądź
jaki	‘what/which’	jakiś (tam)	jakikolwiek	jaki bądź
ile	‘how much/many’	ileś (tam)	ilekolwiek	ile bądź

As the last row in Table 1 shows, the Polish wh-word *ile* ‘how much/ many’ can take the indefinite morpheme *-ś* as well as the free choice item (FCI) markers *-kolwiek* and *bądź*. Unlike other wh-words, it is incompatible with the negative prefix *ni-* (\**nile* vs. *nikt* ‘no one’) and the depreciative FCI element *byle* (\**byle ile* vs. *byle kto* ‘anyone (someone considered unworthy)’) but it can occur within grammaticalized expressions such as *bóg wie ile* ‘God knows how much/many’ and *chuj wie ile* ‘who the fuck knows how much/many’. Despite the fact that the *ile* series is somewhat defective compared to other wh-words, *ileś* is a proper indefinite whose meaning could be probably best paraphrased in English as *some number* or *some amount*.

On the other hand, *kilka* seems to be semantically more restricted. According to the intuition of a majority of Polish native speakers it refers to a number between 3 and 9.<sup>1</sup> Unlike *ileś*, it does not seem to be derivationally complex. In terms of etymology, it emerged from the obsolete wh-word *koliko* ‘how much/many’ (compare, e.g., Czech *kolik* ‘how much/many’ ~ *několik* ‘some/several’) and the cluster *-il-* is arguably related to *ile* (see Bańkowski 2000). However, from a synchronic perspective this relationship is completely opaque and for simplicity I will assume that *kilka* is not a derived form and can only be decomposed into the stem *kilk-* and the following inflectional marker.

I will refrain here from discussing the FCIs *ilekolwiek* and *ile bądź* ‘any amount/ number’ and for the purposes of this paper I will assume that whatever approach

<sup>1</sup>Such an intuition is corroborated by the lexical entries in standard dictionaries of the contemporary Polish language though perhaps it might be subject to some extent to vagueness or interpersonal variation.

accounts for, e.g., the *kto* ‘who’ ~ *ktoś* ‘someone’ ~ *ktokolwiek* ‘anyone’ series (e.g., Kadmon & Landman 1993, Aloni 2007, Chierchia 2013), could also be applied to the *ile* ‘how much/many’ ~ *ileś* ‘some amount/number’ ~ *ilekolwiek* ‘any amount/number’ alternation. Therefore, in the following text I will focus exclusively on discussing novel data concerning the distribution as well as morpho-syntactic and semantic properties of *ileś* and *kilka*.

To begin with, I will assume that two justifiable hypotheses can be formulated with respect to the nature of the analyzed indefinites: (i) *ileś* and *kilka* are similar to other vague quantifiers or (ii) to cardinal numerals. I will confine my focus to testing properties of these expressions in comparison to *pięć* ‘five’ on the one hand and *mało* ‘few/little’ and *dużo* ‘much/many’ as two representatives of a wider class of vague quantifiers (including lexical items such as *sporo* ‘much/many’, *trochę* ‘some’, *niemało* ‘quite a lot’, *niedużo* ‘not much/many’, and *masę* ‘plenty’) on the other. Although due to some lexical idiosyncrasies not every representative of that class has all the discussed properties, e.g., *trochę*, *masę*, and *sporo* are not gradable, the general picture is roughly as presented below.

## 2.2 Inflection

I will start with the observation that in many respects Polish *kilka* and *ileś* pattern with higher cardinals (i.e., five and higher) rather than with vague quantifiers such as *mało* and *dużo*. Similar to *pięć*, both *kilka* and *ileś* (*tam*) agree in gender with a modified NP and display the well-documented virile vs. non-virile alternation (e.g., Miechowicz-Mathiasen 2011). On the other hand, *mało* and *dużo* display no reflex of gender agreement with a modified NP, and thus have virile forms, see (3)–(4).

- (3) a. {Mało dziewczyn / mało chłopców} przyszło.  
few girls.NV    few boys.v    came  
‘A few {girls / boys} came.’  
b. {Dużo dziewczyn / dużo chłopców} przyszło.  
many girls.NV    many boys.v    came  
‘Many {girls / boys} came.’
- (4) a. {Pięć dziewczyn / pięciu chłopców} przyszło.  
five.NV girls.NV    five.v boys.v    came  
‘Five {girls / boys} came.’  
b. {Kilka dziewczyn / kilku chłopców} przyszło.  
several.NV girls.NV    several.v boys.v    came  
‘Several {girls / boys} came.’

- c. {Ileś dziewczyn / Iluś chłopców} przyszło.  
 some.NV girls.NV some.v boys.v came  
 ‘Some {girls / boys} came.’

Another morpho-syntactic similarity between indefinite numerals and cardinals is that, unlike *mało* and *dużo*, the indefinites *ileś* and *kilka* do not take a comparative and superlative, see (5)–(6).

- (5) a. mało ~ mniej ~ najmniej  
 few fewer fewest  
 b. dużo ~ więcej ~ najwięcej  
 much more most
- (6) a. pięć ~ \*{pięć / bardziej pięć} ~ \*{najpięć / najbardziej pięć}  
 five five.CMPR more five five.SPRL most five  
 b. kilka ~ \*{kilka / bardziej kilka} ~ \*{najkilka /  
 several several.CMPR more several several.SPRL  
 najbardziej kilka}  
 most several  
 c. ileś ~ \*{ileś / bardziej ileś} ~ \*{najileś / najbardziej  
 some some.CMPR more some some.SPRL most  
 ileś}  
 some

In the following sections, I will test the grammaticality of *kilka* and *ileś* in multiple environments in comparison to cardinal numerals and the quantifiers *mało* and *dużo*. I will start with different types of modifiers.

### 2.3 Degree and numeral modifiers

One can distinguish between two types of modifiers that can combine with quantifiers: (i) degree modifiers such as *very* (*much*) and (ii) numeral modifiers such as *over* (*five*).<sup>2</sup> Degree modifiers are compatible with quantifiers such as *mało* and *dużo* but cannot combine with cardinal numerals. On the other hand, numeral modifiers can target cardinals but fail to modify gradable quantifiers. Interestingly, the indefinite numeral *kilka* behaves exactly like cardinals. The examples in (7)–(10) illustrate the pattern.

<sup>2</sup>Nouwen (2010) further distinguishes between class A and B numeral modifiers. However, for the purpose of this paper a simplified view is entirely sufficient.

- |   |  |
|---|--|
| <p>(7) a. bardzo mała<br/>very few</p> <p>b. dość mała<br/>rather few</p> <p>c. zbyt mała<br/>too few</p> <p>d. tak mała<br/>so few</p> <p>e. niemała<br/>not.few</p>   | <p>(9) a. *bardzo {pięć / kilka}<br/>very five several</p> <p>b. *dość {pięć / kilka}<br/>rather five several</p> <p>c. *zbyt {pięć / kilka}<br/>too five several</p> <p>d. *tak {pięć / kilka}<br/>so five several</p> <p>e. *niepięć / *niekilka<br/>not.five not.several</p>  |
| <p>(8) a. *ponad mała<br/>over few</p> <p>b. *najwyżej mała<br/>up.to few</p> <p>c. *około mała<br/>around few</p> <p>d. *co najmniej mała<br/>at least few</p> <p>e. *od mała do stu<br/>from few to 100</p> | <p>(10) a. ponad {pięć / kilka}<br/>over five several</p> <p>b. najwyżej {pięć / kilka}<br/>up.to five several</p> <p>c. około {pięciu /<br/>around five.GEN<br/>kilku}<br/>several.GEN</p> <p>d. co najmniej {pięć / kilka}<br/>at least five several</p> <p>e. od {pięciu / kilku}<br/>from five.GEN several.GEN<br/>do stu<br/>to 100</p> |

Similar to cardinals and *kilka*, the indefinite *ileś* is incompatible with degree modifiers, see (11). Nevertheless, unlike the expressions discussed above it seems to be degraded with most numeral modifiers. Notice, however, that despite this fact, the contrast between (12) and (8) is still detectable.

- |  |   |
|--|---|
| <p>(11) a. *bardzo ileś (tam)<br/>very some</p> <p>b. *dość ileś (tam)<br/>rather some</p> <p>c. *zbyt ileś (tam)<br/>too some</p> | <p>d. *tak ileś (tam)<br/>so some</p> <p>e. *nieileś (tam)<br/>not.some</p> |
|--|---|

- (12) a. ?ponad ileś (tam)  
           over some  
       b. ?najwyżej ileś (tam)  
           up.to some  
       c. ?około iluś (tam)  
           around some.GEN  
       d. ?co najmniej ileś (tam)  
           at least some  
       e. od iluś (tam) do stu  
           from some.GEN to 100

I speculate that the reason that the acceptability of *ileś* with numeral modifiers is reduced is its high level of indefiniteness. Since such modifiers compare more or less defined values, at least some approximation with respect to the targeted set of numbers is required. Out of the blue (12a) sounds odd, but if a proper context sets a plausible range of possible values, it becomes perfectly acceptable, as attested in an example from the National Corpus of Polish (NCP) provided in (13).

- (13) [...] jeśli stan załogi wynosi ponad ileś tam osób [...] powinien  
           if state crew equals over some.number people it.should  
       być zespół muzyczny [...]  
       be band musical  
       ‘[...] if a crew amounts to more than some number of people [...] there  
       should be a music band arranged [...]

All in all, the discussed data seem to indicate the distinction between quantifiers *mało* and *dużo* on the one hand and cardinals and the indefinites *kilka* and *ileś* on the other. The next test will involve the (un)grammaticality of quantificational NPs where the quantifier is modified by the adjective or possessive pronoun.

## 2.4 Adjectival and pronominal modification

It has been observed that Polish cardinals are compatible with agreeing adjectival modifiers such as *dobre* ‘good’ in preposition, see (14a), (cf. Babby 1987 and Miechowicz-Mathiasen 2011).<sup>3</sup> As indicated by the translations, if the preceding AP employs the agreement strategy, it is the referent of the numeral that is modified and not the quantified entities; e.g., in (14a) it is the number of cookies that is

<sup>3</sup>An anonymous reviewer wonders whether *dobre* in examples such as (14) is in fact an adjective and whether it could be analyzed as an adverbial element. The case, gender, and number agreement point to the contrary and, as far as I can tell, there is no evidence for the adverbial nature of *dobre* in such examples. Furthermore, swapping the standard adverb *dobrze* ‘well’ for *dobre* results in ungrammaticality.

good, not necessarily the cookies themselves. Again, *kilka* and *ileś* pattern with cardinal numerals in this respect, whereas *mało* and *dużo* do not allow for adjectival modification, as witnessed by the ungrammaticality of (15).<sup>4</sup>

- (14) a. dobre pięć ciasteczek  
good five cookies.GEN  
'a good five cookies'  
b. dobre kilka ciasteczek  
good several cookies.GEN  
'a good several cookies'  
c. dobre ileś (tam) ciasteczek  
good some cookies.GEN  
'a good number of cookies'
- (15) a. \*dobre mało ciasteczek  
good few cookies.GEN  
Intended: 'a good few cookies'  
b. \*dobre dużo ciasteczek  
good many cookies.GEN  
Intended: 'a good many cookies'

Similarly, both cardinals and indefinite numerals allow for pronominal modification employing the agreement strategy (cf. Miechowicz-Mathiasen 2011), while expressions such as *mało* and *dużo* do not, as witnessed by the contrast between (16) and (17).

- (16) a. {te / moje} pięć ciasteczek  
these my five cookies.GEN  
'these / my five cookies'  
b. {te / moje} kilka ciasteczek  
these my several cookies.GEN  
'these / my several cookies'  
c. {te / moje} ileś (tam) ciasteczek  
these my some cookies.GEN  
'these / my cookies some number worth'

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<sup>4</sup>It seems that there is a dialectal variation since some Polish speakers judge examples such as those in (14) as ungrammatical and accept only APs which agree with the noun to precede the quantificational NP. However, to my knowledge for such speakers the use of the genitive form *dobrych* 'good' in (15) is still impossible.



- (17) a. \* {te / moje} mało ciasteczek  
           these my few cookies.GEN  
           Intended: ‘these / my few cookies’
- b. \* {te / moje} dużo ciasteczek  
           these my many cookies.GEN  
           Intended: ‘these / my many cookies’

The (in)compatibility with different types of modifiers appears to be a reliable diagnostic for the classification of quantifiers and it suggests a distinction between cardinals and *kilka* and *ileś* on the one hand and *mało* and *dużo* on the other. Yet another test will explore the acceptability of the expressions in question in contexts involving universal quantification and markers forcing obligatory distributive readings.

## 2.5 Universal quantification and distributivity

It is a well-known fact that Slavic numerals can co-occur with the universal quantifier within one phrase (cf. Corbett 1978, Gvozdanović 1999, and Miechowicz-Mathiasen 2011). Examples such as those in (18) show that, similar to cardinals, the indefinites *kilka* and *ileś* are also licit in such an environment. However, expressions such as *mało* and *dużo* do not allow for modification by a universal quantifier, see (19).

- (18) a. wszystkie pięć ciasteczek  
           all five cookies.GEN  
           ‘all the five cookies’
- b. wszystkie kilka ciasteczek  
           all several cookies.GEN  
           ‘all the several cookies’
- c. wszystkie ileś (tam) ciasteczek  
           all some cookies.GEN  
           ‘all the cookies (where there are some cookies)’
- (19) a. \* wszystkie mało ciasteczek  
           all few cookies.GEN  
           Intended: ‘all the few cookies’
- b. \* wszystkie dużo ciasteczek  
           all many cookies.GEN  
           Intended: ‘all the many cookies’

Another contrast relates to distributivity. As observed by Safir & Stowell (1988) and discussed by Borer (2005), English binominal *each* does not allow the dis-

tributive share expressed by DPs involving the quantifier *some*. Similarly, there are a number of restrictions on arguments of the distributive preposition *po* in Polish which excludes a collective reading of a sentence in which it occurs (Przepiórkowski 2008). Interestingly, phrases headed by quantifiers such as *mało* and *dużo* are not acceptable as complements of *po*, see (21), unlike *kilka* and *ileś* which again pattern with cardinals, see (20).

- (20) a. Dałem im po pięć ciasteczek.  
I.gave them DISTR five cookies.GEN  
'I gave them five cookies each.'
- b. Dałem im po kilka ciasteczek.  
I.gave them DISTR several cookies.GEN  
'I gave them several cookies each.'
- c. Dałem im po ileś (tam) ciasteczek.  
I.gave them DISTR some cookies.GEN  
'I gave some cookies to each of them.'
- (21) a. \* Dałem im po mało ciasteczek.  
I.gave them DISTR few cookies.GEN  
Intended: 'I gave few cookies to each of them.'
- b. \* Dałem im po dużo ciasteczek.  
I.gave them DISTR many cookies.GEN  
Intended: 'I gave many cookies to each of them.'

It seems that the contrasts discussed here cannot simply stem from, e.g., distinct ranges of vagueness or other superficial differences between the indefinites *kilka* and *ileś* as compared to *mało* and *dużo*. Rather, the data suggest that a much more essential disparity is involved and the expressions in question should be treated as belonging to two distinct classes.

## 2.6 Uncountable NPs

So far, we have discussed environments in which cardinals pattern both with *kilka* and *ileś*. However, another division can be drawn based on the interaction with uncountable nominals such as mass nouns and pluralia tantum. While cardinals and *kilka* cannot combine directly with such expressions<sup>5</sup> and require either a measure word or a specialized classifier suffix, (22), *ileś* patterns in this

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<sup>5</sup>I put aside cases where the mass denotation is shifted to the count domain by means of the universal packager or the universal sorter.

respect with quantifiers such as *mało*.<sup>6</sup> In particular, it is compatible both with mass nouns and pluralia tantum as well as measure and classifier constructions involving such expressions and cannot take the classifier suffix, as presented in (23).

- (22) a. \*{pięć / kilka} wody  
           five several water.GEN  
 b. {pięć / kilka} butelek wody  
           five several bottles.GEN water.GEN  
 c. \*{pięć / kilka} nożyczek  
           five several scissors.GEN  
 d. {pięć / kilka} par nożyczek  
           five several pairs.GEN scissors.GEN  
 e. %{pięcioro / kilkoro} drzwi  
           five.CL several.CL door.GEN.PL
- (23) a. {mało / ileś (tam)} wody  
           little some water.GEN  
 b. {mało / ileś (tam)} butelek wody  
           few some bottles.GEN water.GEN  
 c. {mało / ileś (tam)} nożyczek  
           few some scissors.GEN  
 d. {mało / ileś (tam)} par nożyczek  
           few some pairs.GEN scissors.GEN  
 e. \*{małoro / ilesioro (tam)} drzwi  
           few.CL some.CL door.GEN.PL

Before we move on to discussing more contrasts regarding *kilka* and *ileś*, let us recapitulate the findings so far.

## 2.7 Data summary

Table 2 summarizes morpho-syntactic and distributional properties of Polish indefinite numerals as compared to cardinals.

<sup>6</sup>The use of forms such as *pięcioro* and *kilkoro* with pluralia tantum seems to be fading, especially in younger generations. Some speakers, however, still use such expressions and the plurale tantum noun *drzwi* ‘door’ ranks in 11th place as a collocation candidate for the lemma *kilkoro* in the NCP. For more details concerning different uses of suffixed numerals such as *pięcioro* see Wągiel (2014; 2015).

Table 2: Morpho-syntactic properties of cardinals and indefinite numerals

	<i>pięć</i> 'five'	<i>kilka</i> 'several'	<i>ileś (tam)</i> 'some'	<i>mało</i> 'few/little'
degree modifiers	*	*	*	✓
comparison	*	*	*	✓
mass nouns	*	*	✓	✓
pluralia tantum	*	*	✓	✓
virile vs. non-virile	✓	✓	✓	*
universal quantifier	✓	✓	✓	*
distributive <i>po</i>	✓	✓	✓	*
adjectival modifiers	✓	✓	✓	*
pronominal modifiers	✓	✓	✓	*
numeral modifiers	✓	✓	?	*

As Table 2 shows, three patterns can be distinguished within an axis extending over poles constituted by compatibility with numeral modifiers on the one hand and degree modifiers on the other. Based on the battery of tests applied in this section, cardinal numerals and the indefinite numeral *kilka* appear to form a logical class which contrasts with the class of vague quantifiers such as *mało* and *dużo*. On the other hand, the indefinite numeral *ileś* seems to somewhat fall in between the two categories. Although it shares a number of key properties with cardinals, it is not subject to the distributional constraints concerning direct modification of uncountable expressions.

I conclude that *kilka* is essentially a cardinal in disguise, whereas *ileś* seems to be a numeral augmented with some more general semantic features. In the next section, I will provide more data that shed new light on the core of the discussed alternation.

### 3 Some intriguing contrasts

#### 3.1 Predicate position

As illustrated in (24), Polish cardinals and indefinite numerals have yet another property in common, namely they both can appear in predicate position.

- (24) a. Tych dziewczyn było pięć.  
 these girls were five  
 ‘The girls were five in number.’
- b. Tych dziewczyn było kilka.  
 these girls were several  
 ‘The girls were several in number.’
- c. Tych dziewczyn było ileś (tam).  
 these girls were some  
 ‘The girls were in some number.’

At this point, it might be tempting to analyze *kilka* and *ileś* essentially on a par with *pięć*. However, this is not the whole story. In the following sections, I will focus on some non-trivial differences between cardinals and indefinite numerals on the one hand and *kilka* and *ileś* on the other. By examining this distinction more closely, we can provide a proper semantic account of Polish indefinite numerals.

### 3.2 Reference to number concepts

One could attempt to analyze indefinite expressions such as English *several* in terms of existential quantification over numbers of a certain size. However, it appears that there is a serious problem with the existential quantification approach (see Schwarzschild 2002). In particular, indefinite numerals differ from cardinal numerals in that they cannot be used to name number concepts and do not fit contexts calling for numerical arguments, see (25). Furthermore, consider the mathematical statement in (26a). A natural way to paraphrase it making use of the existential quantifier is given in (26b). Nonetheless, similar statements involving indefinites in (27a) and (28a) are not felicitous despite the fact that their intended meaning can be easily paraphrased in terms of existential quantification, as provided in (27b) and (28b) respectively.

- (25) a. liczba {pięć / \*kilka / \*ileś}  
 number five several some
- b. Jaś umie policzyć do {pięciu / \*kilku / \*iluś}.  
 Jaś can count.up to five.GEN several.GEN some.GEN  
 ‘Jaś can count up to five.’
- (26) a. Cztery plus pięć to mniej niż dziesięć.  
 four plus five this less than ten  
 ‘Four plus five is less than ten.’
- b. There is a number  $n = 5$  such that  $4 + n < 10$ .

- (27) a. # Cztery plus kilka to mniej niż dziesięć.  
four plus several this less than ten  
Intended: ‘Four plus several is less than ten.’  
b. There is a number  $n \geq 3 \wedge \leq 9$  such that  $4 + n < 10$ .
- (28) a. # Cztery plus ileś (tam) to mniej niż dziesięć.  
four plus some this less than ten  
Intended: ‘Four plus some number is less than ten.’  
b. There is a number  $n$  such that  $4 + n < 10$ .

The facts described above suggest that Polish indefinite numerals cannot be modeled in terms of existential quantification over numbers. The following section will provide additional evidence calling for an alternative treatment.

### 3.3 Specific reading

To my knowledge, it is a novel observation that Polish indefinite numerals can have a so-called specific reading, i.e., an interpretation corresponding to the widest scope in the sentence (cf. Fodor & Sag 1982 and Kratzer 1998).<sup>7</sup> For instance, (29) can be interpreted with *każdy* ‘each’ scoping over *kilka*: i.e., for each teacher there is some indefinite number of which they know that that many students were called before the dean. Such an interpretation is sometimes referred to as a quantificational reading. However, (29) can also mean that in a given context there is a certain number of my students, say five, and each teacher knows that the number of my students that were called before the dean is that number. The same applies to *ileś*, as illustrated in (30).

- (29) Każdy nauczyciel wie, że kilku moich studentów wezwano do  
each teacher knows that several my students were called to  
dziekana.  
dean  
‘Each teacher knows that several students of mine had been called before  
the dean.’
- |                 |                          |
|-----------------|--------------------------|
| a. each > kilka | quantificational reading |
| b. kilka > each | specific reading         |

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<sup>7</sup>Fodor & Sag (1982) call it a “referential interpretation”. I will stick to the term SPECIFIC though.

- (30) *Każdy nauczyciel wie, że iluś (tam) moich studentów wezwano do dziekana.*  
 each teacher knows that some my students were called to dean

dean

‘Each teacher knows that some students of mine had been called before the dean.’

- a. *each > ileś* quantificational reading  
 b. *ileś > each* specific reading

Alongside the ability to escape islands and insensitivity to various operators, the capability to take the widest scope is considered to be one of the diagnostics to detect specific indefinites such as *a certain word* in (31).

- (31) There is a certain word that I can never remember.

In a certain way the evidence seems to steer in the opposite directions. On the one hand, indefinite numerals appear to be ‘referential’ in the sense that they can indicate a specific, though indefinite, number. On the other hand, however, they are infelicitous in contexts calling clearly for numerical arguments such as terms in mathematical equations.

### 3.4 Referential restrictions

Another contrast concerns referential restrictions that apply to *kilka*. While *ileś* can be used to denote any real (or perhaps even complex) number, *kilka* seems to be restricted to a subset of integers, specifically the set {3, 4, 5, 6, 7, 8, 9}.<sup>8</sup> Notice that a constraint regarding natural numbers seems to apply also to cardinals. For instance, in a scenario where there are four and a half apples on the table and it is conspicuous that the half does not count as a whole apple, it is rather odd to utter (32a).<sup>9</sup> In such a context, it is also strange to use (32b). However, (32c) seems perfectly felicitous. A similar contrast is given in (33). Since  $\pi$  is an irrational number, it can be associated with the co-referential *ileś* in the main clause, however using *kilka* in such a sentence is impossible.

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<sup>8</sup>Some speakers may include 10 while others may restrict the set even further by excluding 3. I acknowledge that this issue might be subject to some degree to idiolectal variation but for the sake of simplicity I will ignore this fact in the following analysis.

<sup>9</sup>An example of such a scenario would be a cooking event in which one bakes stuffed apples. In such a context half an apple is useless and simply does not count.

- (32) a. # Na stole leży pięć jabłek.  
on table lies five apples  
Intended: ‘There are five apples on the table.’
- b. # Na stole leży kilka jabłek.  
on table lies several apples  
Intended: ‘There are several apples on the table.’
- c. Na stole leży ileś (tam) jabłek.  
on table lies some apples  
‘There are some apples on the table.’
- (33) a. # Pole koła to kilka razy  $r^2$ , a dokładnie  $\pi$  razy  $r^2$ .  
area circle this several times  $r^2$  and precisely  $\pi$  times  $r^2$   
Intended: ‘The area of a circle is several times  $r^2$ , precisely  $\pi$  times  $r^2$ .’
- b. Pole koła to ileś (tam) razy  $r^2$ , a dokładnie  $\pi$  razy  $r^2$ .  
area circle this some times  $r^2$  and precisely  $\pi$  times  $r^2$   
‘The area of a circle is some number times  $r^2$ , precisely  $\pi$  times  $r^2$ .’

The data suggest yet another distinction between indefinite numerals. Similar to cardinals, *kilka* makes reference to natural numbers whereas *ileś* is not restricted in such a way. Rather, it is apt to denote any number associated with a particular plurality or quantity.

### 3.5 Cardinal suffixes

The final data point to be discussed in this section concerns an interesting fact that unlike, e.g., English *several* (Kayne 2007), the Polish indefinite *kilka* can take cardinal suffixes, as illustrated in (34b). On the other hand, *ileś* is significantly degraded with cardinal suffixes, see (34c).<sup>10</sup>

- (34) a. pięć ~ piętnaście ~ pięćdziesiąt ~ pięćset  
five fifteen fifty five.hundred
- b. kilka ~ kilkanaście ~ kilkadziesiąt ~ kilkaset  
several several.teen several.ty several.hundred

<sup>10</sup> Although such forms are definitely not part of standard Polish and many speakers judge them as ungrammatical, for some speakers they are marginally acceptable. However, the balanced NCP subcorpus which contains more than 240 million tokens returns no hits for the forms *ileś-naście* and *ileśdziesiąt* and six hits for *ileśset*, two of which are from the prose of a linguistically very creative author. Therefore, I will assume that such forms are not well-formed expressions of Polish.



- c. *ileś* ~ \**ileśnaście* ~ \**ileśdziesiąt* ~ \**ileśset*  
 some some.teen some.ty some.hundred

Interestingly, the interpretation of the suffixed indefinite numerals seems to be derived from the meaning of *kilka*. For instance, at least for some speakers *kilka-naście* does not mean a number between 11 and 19 but rather it seems to exclude the values 11 and 12, hence {13,..., 19}. Similar, it would be awkward to refer to a plurality including approximately twenty members using *kilkadziesiąt*; for a collection of around thirty entities it would be felicitous though. In spite of the fact that such intuitions may not be shared by all native speakers and I suspect some interpersonal variation here, my judgments as well as the judgments of the informants I have consulted are quite clear with respect to this issue and I will assume them to hold in general.

### 3.6 Data summary

Although Polish indefinite numerals pattern with cardinals such as *pięć* ‘five’ rather than with vague quantifiers such as *malo* ‘few/little’ and *dużo* ‘much/many’, there are a number of respects in which they differ. In particular, though both cardinals and indefinite numerals can occur in predicate position and can have a specific reading, *kilka* and *ileś* cannot be used to name numbers, i.e., to refer to abstract concepts, and do not fit clearly numerical contexts. On the other hand, *ileś* differs from cardinals and *kilka* in that it cannot take cardinal suffixes and is not restricted to natural numbers: i.e., unlike *kilka* it can be used to talk about any real and possibly even complex number. Table 3 summarizes the similarities and contrasts discussed in this section.

Table 3: Semantic properties of cardinals and indefinite numerals

	<i>pięć</i> ‘five’	<i>kilka</i> ‘several’	<i>ileś (tam)</i> ‘some’
predicate position	✓	✓	✓
specific reading	✓	✓	✓
cardinal suffixes	✓	✓	*
restricted to integers	✓	✓	*
names of numbers	✓	*	*
numeric contexts	✓	*	*

I conclude that a neat classification developed here calls for a more elaborate analysis of numerical expressions than usually assumed. In particular, a proper treatment of numerical expressions should account for the semantic differences between the class of cardinals and two types of indefinite quantifiers, namely *kilka* and *ileś*.

Before we move on to spelling out the semantics for indefinite numerals that will capture the discussed patterns and contrasts, it will be useful to introduce several theoretical tools. In the next section I will sketch a framework within which the proposed analysis will be grounded.

## 4 Setting the stage

### 4.1 Choice functions

Following Reinhart (1997) and Kratzer (1998) as well as subsequent cross-linguistic research on specific indefinites (see Alonso-Ovalle & Menéndez-Benito 2003 for Spanish *algún*, Kratzer & Shimoyama 2002 for German *irgendein*, Yanovich 2005 for Russian indefinite series, and Matthewson 1998 for indefinites in St'át'imcets), I model *ileś* and *kilka* as choice functions (CF): i.e., operators selecting a member from a set. On the adopted view, CF indefinites are not existentially quantified. Instead, the CF variable remains free at LF and its value is provided by the context. In particular, I embrace the approach that CFs provide a null pronominal element of type  $\langle\langle\tau, t\rangle, \tau\rangle$ , where  $\tau$  is a generalized primitive type, see (35a) and (35b) for entities.

- (35) a. For any  $f_{\langle\langle\tau, t\rangle, \tau\rangle}$  and any  $P_{\langle\tau, t\rangle}$ ,  $f$  is a CF if  $P(f(P)) = 1$   
b. For any  $f_{\langle\langle e, t\rangle, e\rangle}$  and any  $P_{\langle e, t\rangle}$ ,  $f$  is a CF if  $P(f(P)) = 1$

If a CF  $f$  is applied to a set of, e.g., sleeping individuals, it will yield a specific sleeper relative to a particular context. Similar, when applied to a set of natural numbers, it will return a relevant integer. In this way, one can account for the referential flavor of specific indefinites without employing existential quantification.

### 4.2 Measure functions

Following Krifka (1989), I model quantification in numeral and measure constructions in terms of extensive measure functions (MF), i.e., operations that map a plurality of individuals or quantity of substance onto a real number corresponding to the number of individuals or units making up the plurality or quantity. Such MFs are additive, see (36a) and have the Archimedean property, see (36b).

In addition, assuming the remainder principle for  $\sqcup$  guarantees monotonicity, see (36c) (cf. Schwarzschild 2002).

- (36) a.  $\mu$  is an additive MF with respect to  $\sqcup$  iff for any  $x_e$  and any  $y_e$ ,  
 $\neg x \circ y \rightarrow [\mu(x \sqcup y) = \mu(x) + \mu(y)]$   
 b.  $\mu$  is an Archimedean MF iff for any  $x_e$  and any  $y_e$ ,  
 $[\mu(x) > 0 \wedge y \sqsubseteq x] \rightarrow \mu(y) > 0$   
 c.  $\mu$  is a monotonic MF with respect to  $\sqsubseteq$  iff for any  $x_e$  and any  $y_e$ ,  
 $x \sqsubset y \rightarrow \mu(x) < \mu(y)$

Counting is therefore modeled as a form of measuring. For instance, the MF LITER returns the integer 3 if there are three liters of an entity in question, see (37a). Similar, the MF # can be introduced which would yield 3 if a number of individual members of a plurality it is applied to equals 3, see (37b).<sup>11</sup> Let us assume that # is defined in such a way that it takes only a plurality of atomic individuals, i.e., entities that do not have proper parts, and returns a number of atoms making up that plurality. Such a restriction guarantees its incompatibility with mass nouns unless their denotation is shifted to the count domain, e.g., via the universal packager or the universal sorter.

- (37) a.  $[[\text{three liters of juice}]] = \lambda x [\text{JUICE}(x) \wedge \text{LITER}(x) = 3]$   
 b.  $[[\text{three apples}]] = \lambda x [\text{APPLE}(x) \wedge \#(x) = 3]$

Furthermore, to account for the compatibility of *ileś* with both countable and uncountable NPs I will follow Bale & Barner (2009) in assuming a generalized context-dependent MF  $\mu$ . Such an approach posits a mechanism of contextual conditioning along the lines defined in (38).

- (38)  $\mu$  is interpreted as one of the MFs  $m_z$  in the series  $\langle m_1, m_2, m_3 \dots m_n \rangle$   
 such that the argument for  $\mu$  is in the range of  $m_z$ ; furthermore,  
 contextually  $m_z$  is preferred to  $m_y$  if  $z < y$

A contextually conditioned MF can cover the meanings of both pure measure constructions such as (37a) and counting expressions like those in (37b). In particular,  $\mu$  is interpreted as an MF counting units of, e.g., volume, when combined with a mass term denoting a substance and as an MF counting atomic entities when combined with expressions denoting individuated semi-lattices such as count nouns and pluralia tantum.

<sup>11</sup>Here I depart from Krifka's (1989) original proposal. In his system, the *NU* operation (for 'natural unit') is postulated which when applied to a property returns a number of natural units associated with that property.

### 4.3 Cardinals

Rothstein (2013; 2017) distinguishes between several functions of numerals. In a non-classifier language such as English cardinals can be used as (i) nominal modifiers, (ii) predicates, and (iii) names of concept numbers. When used in attributive and predicate position numerals are cardinal predicates of the same type as adjectives (Landman 2003), see (39a), whereas when used as names of numbers, they refer to abstract objects of a primitive semantic type  $n$ , see (39b). On this view, cardinal predicates denote sets of plural entities with a specific cardinality, i.e.,  $\{x : \#(x) = n\}$ , and have standard intersective semantics.<sup>12</sup> For instance, *three apples* denotes a set of pluralities that are both in the denotation of *apples* and have the property *three*, i.e., a set of triples of apples. Rothstein assumes that cardinal properties are basic, whereas their individual correlates, i.e., names of number concepts, are derived and building on Fregean property theory (Chierchia 1985) postulates shifting operations  $\cup$  and  $\cap$  which allow for switching freely between the two.

- (39) a.  $\llbracket \text{three}_{\langle e,t \rangle} \rrbracket = \lambda x[\#(x) = 3]$   
 b.  $\llbracket \text{three}_n \rrbracket = 3$

In the system described above, complex numerals such as *twenty-three* are derived by means of a null + operator which works as illustrated in (40).

- (40) a.  $\llbracket + \rrbracket = \lambda m \lambda n[m + n]$   
 b.  $\llbracket \text{twenty-three} \rrbracket = \lambda m \lambda n[m + n](20)(3) = \lambda n[20 + n](3) = 20 + 3$

With all the ingredients in place, let us now see what they can account for and how they interact. In the following section, I will provide an analysis of the Polish indefinite numerals *kilka* and *ileś* which captures their similarities with cardinals as well as accounts for the discussed differences.

## 5 Putting the pieces together

### 5.1 Adaptations and extensions

Within the patch-work framework adopted here there are several adjustments and developments I will make. First of all, unlike Rothstein, I assume that the

<sup>12</sup>Both Landman and Rothstein use the symbol  $|\dots|$  instead of  $\#$ . I have replaced it for the sake of notational uniformity and clarity.

use of cardinals as names of numbers is the basic one. In particular, I posit that numerals are complex expressions involving the numeral root which is an expression of type  $n$ , the Numeral head which introduces gender, and optionally the classifier element *CARD* (for ‘cardinal property’) which takes a number and returns a set of atomic individuals whose cardinality equals that number, see (41). Proper counting is guaranteed by the # MF and presupposition of atomicity incorporated into the semantics of *CARD*. In other words, cardinals are born as names of numbers (cf. Scha 1981) and by adding additional structure can be converted to cardinal properties at type  $\langle e, t \rangle$ . I assume that in a language such as English or Polish *CARD* has no overt exponent. However, in classifier languages it is introduced by the classifier (see Sudo 2016 for a similar proposal).

$$(41) \quad \llbracket \text{CARD} \rrbracket = \lambda n \lambda x . \text{ATOM}(x) [\#(x) = n]$$

Furthermore, I posit yet another classifier element, namely *QUANT* (for ‘quantificational property’) which also shifts number concepts to sets of entities but unlike *CARD* it employs the contextually conditioned MF  $\mu$  which can either measure, e.g., volume or count individuals depending on a context. Such conditioning makes *QUANT* compatible with both countable and uncountable NPs.

$$(42) \quad \llbracket \text{QUANT} \rrbracket = \lambda n \lambda x [\mu(x) = n]$$

Finally, I propose that in Polish suffixed numerals there is no covert + operation but rather cardinal suffixes are number operators of type  $\langle n, n \rangle$  themselves. They take the denotation of the numeral root and yield a number enlarged via addition or multiplication, see (43), which can be then shifted by *CARD*. Notice, however, that the cardinal suffixes incorporate a special presupposition that makes them compatible only with natural numbers. Such a move will explain the behavior of *ileś*, but it is also independently motivated by the fact that cardinal suffixes are not compatible with expressions denoting fractions, as shown by the contrast in (44).

$$(43) \quad \begin{array}{l} \text{a. } \llbracket \text{-naście} \rrbracket = \lambda n . \text{INTEGER}(n) [n + 10] \\ \text{b. } \llbracket \text{-dziesiąt} \rrbracket = \lambda n . \text{INTEGER}(n) [n \times 10] \\ \text{c. } \llbracket \text{-set} \rrbracket = \lambda n . \text{INTEGER}(n) [n \times 100] \end{array}$$

$$(44) \quad \begin{array}{ll} \text{a.} & \text{dziesięć i} & \text{pół} & & \text{b.} & * \text{półnaście} \\ & \text{ten} & \text{and half} & & & \text{half.teen} \end{array}$$

Let us now examine how the proposed semantics accounts for Polish cardinals and indefinite numerals.

## 5.2 Composition of cardinals

I argue that Polish cardinal numerals are complex expressions. First, let us consider cardinals in numerical contexts such as (26b) where they are used as names of abstract mathematical concepts. In general, I take numeral roots to be category-free, as often claimed (e.g., Halle & Marantz 1993). Due to the fact that Polish cardinals can be used not only as modifiers and predicates, but also as names of numbers and can be modified by agreeing adjectives, I assume that in a sense they have some nominal-like properties. Therefore, I posit that a gender value is always associated with the Numeral head which forges the cardinal. Let us consider the derivation of the non-virile numeral *pięć* ‘five’, see Figure 1. The category-free root  $\sqrt{\text{pięć}}$  is a name of the natural number 5, i.e., an expression of a primitive type  $n$ . Though the Numeral head has a crucial structural role, i.e., it assigns the [NV] (for ‘non-virile’) gender value and forms the numeral, it lacks any particular semantic contribution, and the resulting expression is therefore simply the name of number 5.<sup>13</sup>

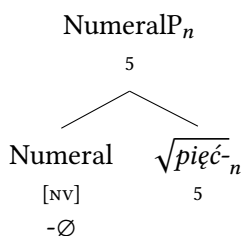


Figure 1: Derivation of the number name *pięć* ‘five’

However, the structure in Figure 1 can be further augmented with the silent node which introduces the CARD operation, see Figure 2. As a result, the number 5 is shifted to the set of atomic individuals whose cardinality equals 5. Such an expression can be used both as a nominal modifier and in predicate position.

Finally, a derivationally complex numeral such as *piętnaście* ‘fifteen’ can be obtained by incorporating the node associated with the cardinal suffix in the structure. Specifically, I posit that it is not until the cardinal suffix attaches to the root and yields an enlarged number that the Numeral head applies and forms the NumeralP which can serve as an argument for CARD. The tree in Figure 3 gives the structure for the non-virile cardinal *piętnaście*; the derivation of other suffixed cardinals is analogous.<sup>14</sup>

<sup>13</sup>In the case of the form *pięciu*, the Numeral head assigns the [V] (for “virile”) value.

<sup>14</sup>Notice that *pięć-* and *pięt-* are allomorphs, similar to the suffixes *-naści-* and *-nast-*, as in the virile form *piętnastu*. I take *-nast-* to be the basic form and assume that it alternates with *-naści-* in contexts preceding *-e*.

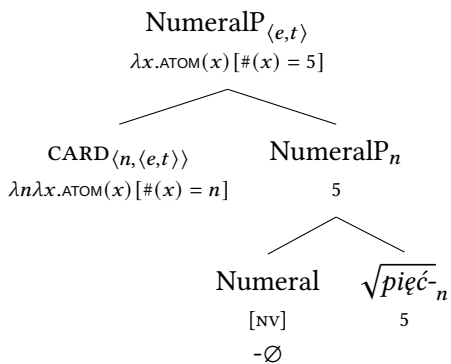


Figure 2: Derivation of the cardinal predicate *pięć* ‘five’

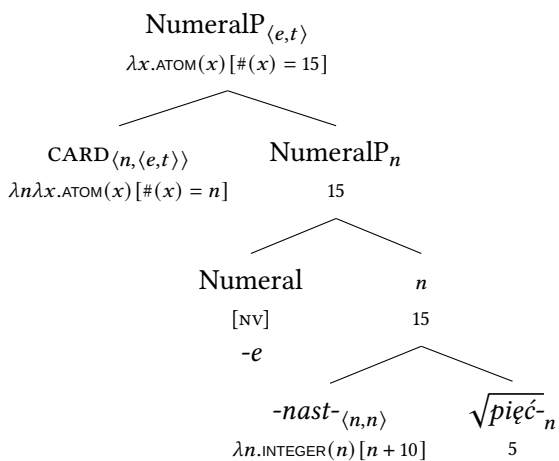


Figure 3: Derivation of the cardinal predicate *piętnaście* ‘fifteen’

With the proposed mechanism of deriving Polish cardinals in place, let us now move to the semantics of indefinite numerals. The next section is dedicated to explaining the composition of *kilka* and *ileś*.

### 5.3 Composition of indefinite numerals

#### 5.3.1 Deriving *kilka*

I will start with the structure for *kilka* ‘several’, see Figure 4. I presume that the root  $\sqrt{\textit{kilk}}$ - involves a built-in CF that applies to the restricted set of alternatives, namely the set of natural numbers  $\{3, 4, 5, 6, 7, 8, 9\}$ , and yields a specific value in a given context. The root then combines with the Numeral head which assigns the [NV] gender value. However, unlike in the case of cardinals, the Numeral head does not have a semantic contribution. In particular, it introduces the CARD operation which shifts the indefinite number to the cardinal property. The resulting expression is of type  $\langle e, t \rangle$ , and thus it is illicit in contexts calling for numeric arguments, as already illustrated in (27a). Furthermore, the fact that the MF # requires atomic denotations explains why *kilka* is incompatible with mass terms.

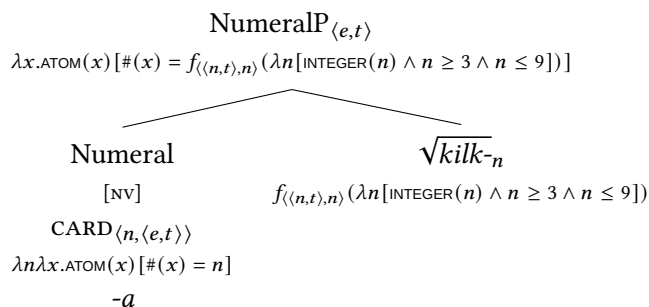


Figure 4: Derivation of *kilka* ‘several, a few’

The proposed semantics also accounts for the fact that *kilka* can combine with cardinal suffixes. Since the number selected by the CF  $f$  is a natural number, it can serve as an argument for the cardinal suffixes, as defined in (43).

#### 5.3.2 Deriving *ileś*

As discussed in §2.1, the indefinite *ileś* ‘some number’ is a complex expression involving a wh-word and the indefinite suffix *-ś*. In general, I assume that wh-elements denote properties. In this case, the wh-root  $\sqrt{\textit{il}}$ - denotes a property of



type  $\langle n, t \rangle$ , namely a property of being a real number.<sup>15</sup> Furthermore, I adopt the view that indefinite suffixes in Slavic introduce a generalized CF of type  $\langle \langle \tau, t \rangle, \tau \rangle$ , see (45), which can attach to any wh-element to yield an indefinite expression (Yanovich 2005).

$$(45) \quad \lambda P_{\langle \tau, t \rangle} [f_{\langle \langle \tau, t \rangle, \tau \rangle}(P)]$$

I propose that the composition of *ileś* proceeds as in Figure 5. The indefinite suffix *-ś* combines directly with the wh-root  $\sqrt{il-}$  so that the CF  $f$  yields a specific real number relative to a particular context.<sup>16</sup> Similar to *kilka*, the Numeral head not only assigns the gender value, but also introduces the classifier element. However, in this case it is not CARD but QUANT.

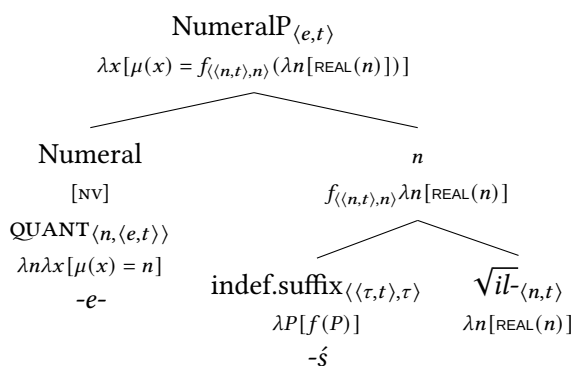


Figure 5: Derivation of *ileś* ‘some, some number’

The type of the NumeralP is again  $\langle e, t \rangle$  which does not allow *ileś* to refer to number concepts in clearly numeric environments. On the other hand, the contextually conditioned MF  $\mu$  accounts for the fact that *ileś* is compatible both with count and mass terms. In the first case, it simply returns the number of atomic

<sup>15</sup>Arguably, it might be even a complex number. However, since I remain agnostic with respect to the question whether the concept of complex numbers is part of the semantics of natural language, I will stick to reals.

<sup>16</sup>The surface order of morphemes in Figure 5 is derived by (phrasal) movement of the root  $\sqrt{il-}$  to the left of the two functional heads *-e-* and *-ś*, which remain in the base order. As pointed out by an anonymous reviewer, this is not a frequent phenomenon, and it goes against traditional accounts of morpheme order based on head movement (e.g., Baker 1988), which would lead to a mirror-image order such as *\*il-ś-e*. However, the type of movement needed for Figure 5 has been argued independently to be necessary for various morpheme orders within words as well (e.g., Koopman & Szabolcsi 2000, Julien 2002; see also Caha 2017 for discussion).

individuals making up a plurality whereas in the latter it yields the amount of substance. Finally, the fact that the indefinite number is not necessarily an integer makes *ileś* incompatible with cardinal suffixes.

The last issue concerns how to ensure that the Numeral head gets the correct semantics in combination with a particular root, i.e.,  $\sqrt{kilk-}$ ,  $\sqrt{il-}$ , and cardinal roots such as  $\sqrt{pięc-}$ . For this purpose, I postulate the interface instructions as provided in (46).

(46) *Interpretation of the Polish Numeral head at LF*

$$\begin{aligned} \text{Numeral} &\Leftrightarrow \text{CARD} / [ \_ [ \sqrt{kilk-} ] ] \\ &\Leftrightarrow \text{QUANT} / [ \_ [ \sqrt{il-} ] ] \\ &\Leftrightarrow \emptyset / \text{elsewhere} \end{aligned}$$

Given the standard elsewhere principle, the application of a specific operation overrides the application of a more general rule, and thus what happens at LF is as follows. The Numeral head is interpreted as CARD only in case it dominates the root  $\sqrt{kilk-}$  and as QUANT if and only if its complement is the root  $\sqrt{il-}$ . In all other cases, i.e., when Numeral combines with the cardinal root, it is semantically vacuous. The proposed mechanism guarantees adequate interpretations of the structures postulated for number-denoting cardinals and indefinite numerals in Figure 1, Figure 4, and Figure 5. Insertion of an additional null CARD node higher in the tree, see Figure 2, gives rise to a cardinal predicate which can be used as a nominal modifier and in predicate position.

## 6 Conclusion

In this paper, I presented novel data concerning the distribution as well as semantic properties of the Polish indefinite quantifiers *kilka* ‘several, a few’ and *ileś (tam)* ‘some, some number’. Based on a number of tests, I concluded that such indefinites pattern with cardinal numerals rather than with vague quantifiers such as *mało* ‘little, few’. Moreover, I posited that *kilka* and *ileś* should be treated as specific indefinites since they can have a ‘referential’ reading in an embedded clause, i.e., they can scope over a quantifier in a matrix clause. Therefore, I proposed that Polish indefinite numerals essentially share the core choice-functional semantics and argued that they should be analyzed as having a built-in classifier involving a measure function. The difference between the two results from the fact that *kilka* employs a cardinality function which is compatible only with atomic denotations and yields a value from the set of natural numbers  $\{3, \dots, 9\}$ , whereas *ileś*

introduces a contextually conditioned measure function which, depending on a context, returns a real number corresponding either to a cardinality of a plurality or to a measure calibrated in relevant units.

Further research should focus on cross-linguistic investigations related to indefinite numerals both within Slavic and beyond as well as the behavior of FCIs such as *ilekolwiek* ‘any number’ in Polish. An open issue concerns the exact nature of the mapping between semantics and morphology in the case of the discussed indefinites from a typological point of view.

## Abbreviations

BCS	Bosnian/Croatian/Serbian	v	virile
NCP	National Corpus of Polish	NV	non-virile
LF	Logical Form	CMPR	comparative
FCI	free choice item	SPRL	superlative
CF	choice function	GEN	genitive
MF	measure function	DISTR	distributivity marker
CARD	cardinal property	CL	classifier
QUANT	quantificational property	PL	plural

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