

The Syntax of Polish *jeden* ‘One’ as an Indefinite Determiner

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Abstract The current literature on Polish *jeden* ‘one’ focuses on its numeral status, though there is evidence that it is grammaticalizing into an indefinite determiner. This article provides a syntactic analysis of *jeden* in its different functions, trying to account for its grammaticalization process. Quantificational/adjectival *jeden* is hosted in the specifier of a DP-internal NumP projection. Indefinite specific *jeden* is inserted in SpecDP for referential reasons. Moreover, some occurrences of nonspecific *jeden* may suggest a reanalysis of SpecDP into the head D. These structural changes are in line with other processes of grammaticalization and follow the same Economy principles. This model also builds parallels with Italian and Italo-Romance indefinite determiners.

Keywords Determiner phrase. Indefinite determiner. Jeden. Numeral ‘one’. Polish.

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1 Introduction

1.1 The Numeral *jeden* 'One' in Polish

In the present literature, there is no satisfactory and complete account for the syntactic status of the Polish numeral *jeden* 'one'. Indeed, most of the attention was devoted to the puzzling behavior of Polish numerals, as the internal structure of quantified nominals seems to depend on the external syntactic environment they are surrounded by (cf. Rappaport 2003 and references therein). Traditionally, Polish numerals are divided into three different classes, based on their ability to assign case or agree with the noun they quantify (Rutkowski 2002a; 2002b; 2007a). In this analysis, the numerals up to 'four' (excluding 'zero') are labeled 'adjectival numerals', i.e., those which display agreement for case and gender with the head noun. Taking this fact as evidence for its adjectival nature, *jeden* has been analyzed as occupying the specifier of a dedicated Q[unatifier] P[hrase] projection which is internal to the extended nominal projection (cf. Rutkowski 2002b; 2002a; 2007a).

As already noticed by Givón (1981), the numeral 'one' seems to undergo a cross-linguistically consistent tendency to become a marker for indefinite singular nouns. Typical examples are Italian and Spanish *uno*, German *ein*, Swedish *en*, and Turkish *bir*. This tendency is found in Slavic as well: instances of indefinite marker 'one' are Bulgarian *edin* (Geist 2013), Upper Sorbian *jen* and Lower Sorbian *jan*, as well as Czech *jeden* (Heine, Kuteva 2006). Polish is not an exception to this common pattern: there is evidence that *jeden* has acquired some properties which are typical of indefinite determiners (cf. Hwaszcz, Kędzierska 2018). Therefore, a syntactic analysis of *jeden* occupying the specifier of the QP inside the extended nominal projection is not able to capture all the functions it can carry out. A richer analysis which would account for its indefinite determiner functions is needed.

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1.2 Aim and Structure of the Paper

Although the use of *jeden* as an indefinite determiner has been recognized, a syntactic analysis of this numeral as an indefinite marker is still lacking. Aim of this modest piece of work is to sketch a complete analysis of the syntax underlying *jeden* in its different functions.¹ The theoretical approach which accounts for the syntax of *jeden* hinges on Rutkowski's (2007a) analysis of Polish numerals, and on Cardinaletti and Giusti's (2018) model for the realization of indefinite determiners in Italian and Italo-Romance,² which is built along the line of inquiry of nominal expressions put forth by Giusti (1995 and subsequent works). The present paper sketches a first analysis which is far from being complete and that will be further explored and deepened by future research.

The paper is organized as follows: section 2 introduces the grammaticalization path the numeral 'one' undergoes cross-linguistically, individuating the stage of *jeden*. Section 3 provides a brief overview of the theoretical framework adopted here. Section 4 proposes a syntactic analysis for *jeden* in its different functions. Section 5 draws the conclusion and addresses further research questions.

2 Evaluating the Grammaticalization of Polish *jeden*

This section is divided as follows. Subsection 2.1 briefly introduces Heine's (1997) general model of grammaticalization of the numeral 'one'. Subsection 2.2 presents Hwaszcz and Kędzierska's (2018) evaluation of the stage of grammaticalization of Polish *jeden*.

2.1 The Path of Grammaticalization of the Numeral 'One'

The path of grammaticalization of the numeral 'one' is articulated in different stages which are consistent cross-linguistically. It is characterized by a process of semantic bleaching, through which it progressively loses its quantificational nature and assumes the functions of an indefiniteness marker, ultimately becoming an indefinite article

¹ Here only the singular forms of the numeral *jeden* will be considered (masculine *jeden*, feminine *jedna* and neuter *jedno*). Polish additionally displays the plural virile *jedni* and the plural non-virile *jedne*. The latter has a cardinal reading only with *pluralia tantum* nouns (e.g., *jedne okulary* 'a pair of glasses'). In occurrence with plural count nouns plural 'one' is instead used as an indefinite determiner in the meaning of *some* (Sadowska 2012, 492). Due to space limitations, these forms will not be discussed here.

² Cardinaletti and Giusti's (2018) proposal crucially makes no prediction about Slavic languages.

(cf. Givón 1981). Heine (1997, 72 ff.) offers a detailed picture of this diachronic change, subdividing it into five different stages, reported in (1):

- (1) Stages of grammaticalization of the numeral 'one':
 - I. The numeral: 'one' only has a quantitative function.
 - II. The presentative marker: the numeral is used to introduce in the discourse a new salient referent (i.e. expected to be taken as definite in subsequent discourse), assumed to be unknown to the hearer.
 - III. The specific marker: the determiner is used to denote referents which are known to the speaker, but presumed to be unknown to the hearer, independently of their saliency.
 - IV. The nonspecific marker: 'one' introduces a referent whose reference is not important. It does not mark specific reference anymore and is only used to introduce singular count nouns. An example is "Draw a dog!" (Heine 1997, 73).
 - V. The generalized article: the article can occur with almost all nominal classes and its insertion is justified by mere syntactic reasons.

Heine describes this process as monodirectional and implicational: it proceeds from stage I to stage V, and the more advanced stages imply the acquisition of the functions of the preceding ones.³ However, there is always a certain degree of overlap among adjacent stages. The monodirectionality and linearity of this process make it possible to evaluate the advancement on the scale of the numeral 'one' in a given language. Following Heine's model, Hwaszcz and Kędzierska (2018) (henceforth H&K) evaluate the stage of Polish *jeden* based on the functions this element can carry out.

2.2 The Stage of Polish *jeden*

H&K estimate the advancement of grammaticalization of Polish *jeden* on the basis of grammaticality judgments collected from 53 Polish native speakers through an online questionnaire.⁴

Jeden commonly has a cardinal reading, as in (2). It can be used as a presentative marker as well: considering the contrast between (3a) and (3b), H&K argue that in the former the use of the marker *jedną* 'one_{F.ACC}' is justified by the referent being picked up in subsequent discourse (H&K, 110).

³ Note however that there are counterexamples to the monodirectionality of grammaticalization in other domains (cf. Joseph 2011, who reports several examples).

⁴ All the examples in this subsection are taken from H&K, hence only page number will be indicated.

- (2) Na wykładzie było niewielu studentów.
at lecture was few students
Przyszła jedna dziewczyna i dwóch chłopaków. (108)
came one_{F,NOM} girl_{F,NOM} and two boys⁵
'There were few students at the lecture. One girl and two boys came.'
- (3) a. Byłam akurat w mieście, więc odwiedziłam jedną koleżankę.
[I]was exactly in city so [I]visited one_{F,ACC} friend_{F,ACC}
Okazało się, że przeżyła niedawno ciekawą przygodę...
[it]turned.out that [she]experienced recently interesting adventure
'I was in the city centre so I visited one friend. It turned out that she had recently had a very interesting adventure.'
- b. Byłam akurat w mieście, więc odwiedziłam ?jedną koleżankę,
[I]was exactly in city so [I]visited one_{F,ACC} friend_{F,ACC}
poszłam też na pocztę i do parku... (111)
[I]went also at post.office and to park
'I was in the city centre so I visited ?one friend, went to the post office and to the park.'

In stage III, 'one' functions as a specific marker: H&K report the sentence in (4), obtaining divergent results. In their pool, 18.9% of speakers accepted the interpretation in which the friend is known to the speaker. 3.8% interpreted the referent as being known to both the utterer and the interlocutor, while 88.7% accepted the interpretation in which the friend is unknown to both (H&K, 112).

- (4) Jedna przyjaciółka mnie odwiedziła. (111)
one_{F,NOM} friend_{F,NOM} me visited
'A friend visited me.'

As for stage IV, there is no strong agreement among the speakers as to whether *jeden* can be used as a nonspecific marker.⁶ H&K report that, for sentence (5), 69.8% of the subjects accepts the existential interpretation, which may be paraphrased as "there is a man who is getting married now". Similarly, (6) has two possible readings: in the first one, *jeden* quantifies over the pens that need to be given. In the second reading, *jeden* is an indefinite determiner, whose interpretation is 'a pen or other': this was accepted by 32.1% of speakers (H&K, 112).

⁵ The glosses of the examples taken from H&K are not the original ones. They have been modified to show only the features that are relevant to the present discussion.

⁶ The adjective 'nonspecific' here is used in Heine's terms, in contrast to the use of 'nonspecific' in H&K, which refers to the generic use of the indefinite article.

- (5) Jeden człowiek bierze teraz ślub. (113)
 one_{M,NOM} man_{M,NOM} takes now wedding
 'A/One man is getting married now.'
- (6) Podaj mi jeden długopis. (114)
 give me one_{M,INANIM,ACC} pen_{M,ACC}
 'Give me a/one pen.'

H&K point out that *jeden* seems to be commonly interpreted nonspecifically, while in production instances of nonspecific *jeden* are quite rare, as it is rather substituted by the indefinite pronoun *jakiś* 'some'. This indicates that the process of grammaticalization of *jeden* is still *in fieri*, and that there is some overlapping between stages III and IV.

In stage V 'one' should have ambiguous scope properties in intentional contexts, should be allowed in generic sentences and in predicative position. Polish *jeden* does not meet these requirements: in intentional contexts it always takes wide scope (7) and it cannot be interpreted as being kind-referring (8). It can occur in predicative position (see §4.2.2) triggering predicate intensification (H&K, 116).

- (7) Kasia pragnie poślubić jednego hydraulika. (115)
 Kate wants to.marry one_{M,ANIM,ACC} plumber_{M,ACC}
 'Kate wants to marry a (specific) plumber.'
- (8) (*Jedna) kobieta ma zawsze rację. (116)
 one_{F,NOM} woman_{F,NOM} has always right
 'A woman is always right.'

The authors conclude that *jeden* in Polish has reached at least stage III, with some functions typical of stage IV, mainly concerning its interpretation. The function of specific and nonspecific marker is however not fully developed, as there is a certain degree of overlap between stage III and IV.

3 The Theoretical Framework

This section introduces the theoretical framework which constitutes the base for the syntactic analysis of the numeral 'one' in Polish. Subsection 3.1 briefly illustrates the analysis of low numerals in Polish, while subsection 3.2 presents the proposal for the realization of indefinite determiners in Italian and Italo-Romance.

3.1 The Numeral *jeden* in Polish

According to Rutkowski's (2002a; 2002b; 2007a) classification, numerals in Polish are divided into three classes, according to their properties of case assignment and their ability to agree with the head noun. In this division, low numerals (which include *jeden* 'one', *dwa* 'two', *trzy* 'three', and *cztery* 'four') are labeled *A-numerals* (adjectival numerals). The attribute 'adjectival' is justified by the fact that they behave like adjectives: they never assign case (contrary to the other classes of numerals) but always agree for nominal features with the noun they quantify. Given their peculiar adjectival behavior, they are argued to be base generated in the specifier of a dedicated special projection, labeled QP, which is found between the NP and the DP.⁷ Their maximal projection status in the specifier of a functional projection guarantees that they agree with the head noun via spec-head agreement with the functional head.

3.2 The Realization of the Indefinite Determiners in Romance

Cardinaletti and Giusti's (2018) account for the realization of the indefinite determiners in Italian and Italo-Romance is grounded in the line of inquiry of nominal expressions put forth by Giusti (1995 and subsequent works). In this framework, the lexical noun reprojects as many times as necessary to satisfy its Selection and Modification requirements. For each reprojection, the functional features of the noun are copied onto the new head. The DP is the highest reprojected of the noun. Its specifier may host demonstratives, possessive adjectives, personal pronouns and proper names (cf. Giusti 2002), while the head D is the *locus* either of the definite article (taken to be the overt realization of nominal functional features, i.e. number, gender, and case) or, in languages lacking articles, of morphological case.

Cardinaletti and Giusti (2018) elegantly account for the realization of the four indefinite determiners that are found in Italian and Italo-Romance varieties by resorting to an interplay between the (non-) overt realization of both the head D and the specifier of the DP. The latter hosts either a silent (zero) determiner or the indefinite determiner *di* 'of', mainly found in Italo-Romance varieties. These may combine with the overt or covert realization of D, spelled out as definite article morphology, giving rise to the four different indefinite determiners found in Italian and Italo-Romance.

⁷ The fact that Polish nominal expressions project a D[eterminer]P[hrase] layer has been largely argued for in the literature (cf. Rappaport 2001; Rutkowski 2002a; 2006; 2007b among many others).

Adopting the basic assumptions and the theoretical framework presented above, the next section will turn to sketch the analysis of the syntax of *jeden* in Polish.

4 Towards the Syntax of *jeden*

This section will put forth the idea that the different functions that *jeden* carries out may be the superficial manifestation of possibly different syntactic positions this item can occupy in the structure. In detail, section 4.1 deals with the adjectival interpretation of *jeden*, argued to be an instance of the cardinal number. Section 4.2 argues that indefinite *jeden* occupies different positions in the DP-layer. Section 4.3 shows how the resulting analysis corresponds to a linguistic cycle, and the theoretical advantages of this model are exposed in section 4.4.

4.1 Cardinal/Adjectival *jeden*

As pointed out above, the numeral *jeden* is primarily a quantifier, as in (9), taken from the National Corpus of Polish Language.⁸

- (9) Dostawałam też pełen koszyk pomidorów do domu,
[I]took also full basket tomatoes to home
kilka ogórków i jeden lub dwa kalafioiry.
few cucumbers and one^{M.INANIM.ACC} or two cauliflowers
'I also got a full basket of tomatoes to take home, a few cucumbers and one
or two cauliflowers.'
(PWN_200200000130)⁹

This numeral, however, does not always seem to have a quantificational reading. H&K argue that in some instances *jeden* may be used as an adjective, meaning 'alone' (10), 'uniform' (11), or 'identical, the same' (12) (H&K, 109), always appearing in a high position and preceding the other adjectives. Following Rutkowski (2002a; 2002b; 2007a), I take this numeral to head a QP inserted in the specifier of a functional projection which I label Num[ber]P[hrase] following Cinque's (2010) hierarchy.¹⁰

⁸ The National Corpus of Polish Language (*Narodowy Korpus Języka Polskiego* - NKJP) is available at the address <http://nkjp.pl/>.

⁹ The code reported in brackets is a sentence identifier in the NKJP.

¹⁰ NumP here corresponds to Rutkowski's QP. I avoid this latter label not to create confusion between the QP headed by *jeden* and the functional nominal projection.

- (10) Nikt nie był przygotowany. Jedna Maria zrobiła
nobody neg was prepared one._{F.NOM} Mary did
zadanie domowe.
homework
'Nobody was prepared. Only Mary did her homework.'
- (11) Z kuchni dochodził jeden przeraźliwy harmider.
from kitchen came one._{M.NOM} appalling._{M.NOM} noise._{M.NOM}
'A uniform, appalling noise was audible in the kitchen.'
- (12) Mieszkaliśmy pod jednym dachem.
[we]lived under one._{M.INSTRUM} roof._{M.INSTRUM}
'We lived under the same roof.'

In (10)-(12), *jeden* seems not to be quantitative. H&K (108) argue for its adjectival semantics underlying the possibility of substituting it in the previous examples with adjectives such as *samotny* 'alone', *jednolity* 'uniform', and *identyczny* 'identical'. They notice (108 fn. 8), however, that these occurrences of *jeden* can be considered 'meta-predicative' in Danielewiczowa's (2007) terms, i.e., they cannot be stressed or modified by adverbials, and cannot be used predicatively.

What looks like an instance of non-quantificational *jeden* may in fact be an instance of the numeral. This is particularly evident in sentence (12), which further supports the maximal projection status of *jeden*. Indeed, in Polish this numeral may be used in constructions in which its semantics appears not to be quantificational but purely adjectival. These structures feature the numeral *jeden* linked by the conjunction *i* 'and' to a proximal demonstrative followed by the adjective *sam* 'same', resulting in a coordination of two maximal projections.¹¹ The peculiarity of this construction is that this second construal may be omitted, as in (13), which provides a schematic representation of the underlying structure.

¹¹ Crucially, this kind of coordination is impossible with higher numerals.

- (13) Albowiem - jak rzeki zmierzają do *jednego* oceanu, tak
 for as rivers flow into one_{M,GEN} ocean so
 religie są drogami do [_{NumP} [_{&P} [_{QP} *jednego*]] i [_{DP} tego
 religions are paths to one_{M,GEN} and this_{M,GEN}
 samego]]] Boga
 same_{M,GEN} God_{M,GEN}
 'For, as rivers flow into the same ocean, so religions are paths to one and the
 same God.'
 (Sketch Engine, "Polish Web 2019", 522239)¹²

As observable in the example (13), there are two instances of *jeden*, both with the same non-quantificational semantics. In the second occurrence the full structure is spelled out (*jeden i ten sam* 'one and the same'), while in the first instance only the numeral is overtly realized. This means that in these instances the semantics of the whole construction hinges on the presence of the adjective (either overtly or covertly realized).

The other cases of "adjectival *jeden*" (i.e., examples (10)-(11)) can be analyzed in a similar way, supposing the presence of silent elements which may provide a different semantics to the structure.¹³ Furthermore, when preceded by a demonstrative, its quantificational nature is interpreted as expressing the singularity of the referent rather than the cardinality of 'one' (14).

- (14) Nie wiadomo, co będzie z nami jutro – szeptał Wacław.
 not known what will.be with us tomorrow – whispered Wacław
 – Może została nam tylko ta jedna noc.
 maybe remained to.us only this_{F,NOM} one_{F,NOM} night_{F,NOM}
 '– What will happen to us tomorrow is unknowns – whispered Wacław. – Maybe we only have this (single) night left.'
 (PWN_2002000000159)

Assuming that *jeden* heads a maximal projection inserted in the specifier of a *Mittelfeld* projection NumP, its 'meta-predicative' behavior may be derived from its QP status, which is different in nature from the other classes of adjectives.

¹² Kilgarriff et al. 2004, 2014. Link to Sketch Engine: <http://www.sketchengine.eu>.

¹³ Interestingly, Kayne (2019) similarly proposes that the numeral *one* in English is accompanied by a silent adjective (indicated in capital letters) which distinguishes its quantificational reading (i) from other readings (ii):

- i. John has two brothers and one SINGLE sister.
 ii. Mary has just written one (*SINGLE) hell of a paper. (adapted from Kayne 2019, 343)

4.2 Indefinite *jeden*

H&K show that *jeden* can be used as a specific marker,¹⁴ with some attested occurrences as nonspecific marker (in the sense of Heine 1997) in the interpretation of the sentences. Heine (1997) uses the term 'specific' when the speaker has a particular referent in mind. Although this is an umbrella term for various semantic and pragmatic contrasts (cf. Von Heusinger 2019), here I will use it in Heine's terms.

The specificity of *jeden* seems to obey a *noteworthiness* condition (cf. Ionin 2006), i.e., the speaker does not need to be able to individuate the referent as in (15),¹⁵ but it must be familiar with some *noteworthy* property of the referent itself, as the example (16) shows.

- (15) Wczoraj wydarzyło się coś niesamowitego! Jaden lekarz
yesterday happened part something incredible one_M doctor_M
powiedział mi, że nie ma czegoś takiego jak
told to.me that not has something such as
koronawirus. Wiesz, kto mia to powiedział? Doktor Kowalski.¹⁶
coronavirus [you]know who to.me this said doctor Kowalski
'Yesterday something incredible happened! A doctor told me, that coronavirus
doesn't exist. Do you know who told me that? Doctor Kowalski.'

- (16) Podobno jeden lekarz w telewizji zaprzeczył istnieniu
apparently one_M doctor in TV denied existence
koronawirusa. Ciekawe, kto to był.¹⁷
of-coronavirus interesting who that was
'It seems that a doctor on TV denied the existence of the coronavirus. I wonder
who that was.'

A narrow scope interpretation of *jeden*NP, as in (17), is instead judged degraded but not completely agrammatical.

14 The function of 'presentative marker' is considered here as an instance of specific *jeden*.

15 The signaled examples are taken from a pilot questionnaire submitted to 13 anonymous students (native speakers of Polish) at the University of Warsaw. The sentences were rated with the Likert scale task ranging from 1 (totally ungrammatical) to 7 (perfectly grammatical). The sentences which scored below 4 are marked with '*', while those in the span 4-5 '?'. Sentences above 5 are considered grammatical. Since this is not the focus of the paper, and because of the space limit, the questionnaire won't be discussed in detail. However, the list of items and fillers and the sheet containing the results can be found at the following DOI: <https://doi.org/10.17605/OSF.IO/KDFGZ>.

16 The mean acceptability rating of (15) is 6.15.

17 The mean acceptability rating of (16) is 6.08.

- (17) ?Mąż Kasi ma COVID. Ona jest zaniepokojona i
 husband Kasia_{GEN} has COVID she is worried and
 chce porozmawiać z jednym lekarzem, ale jeszcze go
 wants to-talk with one_{INSTR} doctor_{INSTR} but still cl_{M,ACC}
 nie znalazła.¹⁸
 not found
 'Kasia's husband has COVID. She is worried and wants to talk to a doctor,
 but she hasn't found one yet.'

This supports the claim made by H&K, i.e., nonspecific *jeden* has not fully developed yet. Let us turn to the analysis of the position of indefinite *jeden*, which may have interesting implications for the theory.

4.2.1 Specific *jeden* in SpecDP

In line with Cardinaletti and Giusti's (2018) proposal, the account advanced here is that indefinite (specific and nonspecific) *jeden* occupies the DP-layer, just like some indefinite determiners found in Italian and Italo-Romance. Moreover, it results from an interplay of (non-)realization of the head and specifier of the DP. The analysis, apart from the parallelism with Romance languages, may be motivated by other theoretical and empirical reasons.

Let us first start considering specific *jeden* (corresponding to stage III in Heine's scale). As seen above, it introduces a referent which is either identifiable or to a certain extent known (because of some noteworthy property) by the speaker. Von Heusinger (2019) argues that *specificity* can indicate different semantic/pragmatic phenomena, whose underlying core concept is *referential anchoring*. This mechanism was already proposed by Geist (2010) to give a semantic analysis of the Russian indefinite marker *odin* 'one', which is used when the speaker can either identify the referent denoted by the NP or has a particular referent in mind (Ionin 2010).

Referential anchoring (cf. Onea, Geist unpublished) is a mechanism which narrows down the domain of the indefinite to a singleton. This function is carried out by the referential anchoring operator, which establishes a link between the discourse referent denoted by the indefinite and a discourse individual (in this case, the speaker) which is its anchor. Geist (2010) argues that the referential anchoring requirement is part of the lexical entry of Russian *odin*. This requirement is responsible for the referential reading associated with this marker. Following this line of reasoning, it could be argued

¹⁸ The mean acceptability rating of (17) is 4.69.

that the anchoring function is present in the lexical entry of specific *jeden* as well.

Given its semantics, specific *jeden* is referential, in that it links the referent to the speaker (i.e., the speaker 'has a particular referent in mind'). Consequently, it competes with other referential elements for the same position, i.e., SpecDP. Typical examples of occupants of the left edge of the nominal expression are demonstratives and pronouns (cf. Migdalski 2001; Brugé 2002; Giusti 2002), which check their referential features either overtly or covertly) in that position to be then interpreted at LF. It is actually the case that *jeden* can be substituted by another indefinite pronoun (18a),¹⁹ but the two cannot co-occur (18b), as pointed out by the informants.

- (18) a. Kasia przeczytała wszystkie książki, które polecił
 Kate [she]read all books that [he]recommended
 jej jeden / jakiś nauczyciel. (adapted from H&K, 116)
 to-her one some teacher
 'Kate read every book that a teacher has recommended to her.'
- b. Kasia przeczytała wszystkie książki, które polecił jej jakiś (*jeden) nauczyciel.
 'Kate read every book that some teacher (or other) has recommended to her.'

Moreover, if *jeden* co-occurs with a demonstrative (as in (14) above), it cannot get a specific reading, as SpecDP is already occupied by the demonstrative. The referential features are checked by the demonstrative, while *jeden* reinforces the uniqueness of the referent (carrying out the cardinal function and indicating a set composed by a single element) in contrast to other possible referents of the same kind. An example is reported in (19), as was pointed out by four informants.

19 An interesting piece of evidence for a higher position available to *jeden* in the nominal structure comes from the possible co-occurrence of the plural form for 'one' and another numeral, as in (i).

- (i) Twój syn złamał jeszcze jedno dwa zęby frontowe
 your son broke also one.PL two teeth front
 grając na hokeju z lodu
 playing at hockey from ice
 'Your son also broke two front teeth playing ice hockey.'
 (Sketch Engine, "Polish Web 2019", 669979330)

Since plural 'one' modifying plural count nouns is to be taken as an indefinite determiner, it is reasonable to think that in the case in (i) *jedne* occurs in SpecDP while the numeral appears in its base position in NumP. In this context *jedne* may be said to be anchored to the speaker, who displays some degree of knowledge of the referent. Given space limitations, this kind of evidence will be more deeply analyzed in future work.

- (19) Ten jeden student mnie denerwuje.
this_{M,NOM} one_{M,NOM} student_{M,NOM} me irritates
'This (particular) student irritates me.'

The native speakers who commented the sentence confirmed that one can dispense with *jeden* in this case, but its insertion gives more emphasis to the utterance, underlying the fact that “only this particular student” is irritating the speaker.

Adopting this notion of specificity as anchoring to the speaker, what H&K call “nonspecific *jeden*” in the interpretation of the sentences in (5)-(6) above actually are instances of specific *jeden*. In the existential interpretation of (5), even if the speaker cannot identify the person who is getting married, it infers his/her existence because of some external factor (e.g., there are a lot of people shouting cheerfully at the entrance of a church).²⁰ In such a way, the speaker displays knowledge of some noteworthy property of the referent. As for (6), H&K point out that some speakers admit a narrow scope interpretation of the *jeden*NP (i.e., ‘give me a pen of any kind’). Even in this case, the interpretation cannot be compared to Heine’s (1997, 73) example ‘Draw a dog!’ reported for stage IV of grammaticalization. In the Polish example, this narrow interpretation can only be triggered in a situation in which there is a set of pens known by the speaker (hence, involving anchoring to the speaker).²¹ In Heine’s example, instead, the referent is taken from the set of all the referents included in the denotation of the NP.

Basing on the analysis sketched so far it is possible to claim that *jeden* reached stage III of the grammaticalization scale, as some of the instances presented by H&K as nonspecific *jeden* have been analyzed as specific. Are there reasons to suppose that this marker has already entered stage IV? In the next subsection I will elaborate on some observations which may indicate that *jeden* has taken a small step into stage IV, however refraining from making any strong claim. These are to be taken as a tentative and preliminary analysis, mainly theory-driven, which may have some interesting theoretical implications.

4.2.2 Is There a Nonspecific *jeden*?

There may be some evidence supporting the claim that *jeden* may have taken a little step beyond stage III, appearing with nonspecific interpretation. H&K notice that *jeden* may appear in some contexts

²⁰ Thanks to Paweł Rutkowski (p.c.) for the remark.

²¹ Thanks to Paweł Rutkowski (p.c.) and other informants for the remark.

4.3 The Path of Linguistic Cycles

Grammaticalization processes follow a cyclic path mainly driven by Economy Principles (cf. van Gelderen 2011 for several examples of linguistic cycles). Let us consider those in (22)-(23) argued for by van Gelderen (2011, 13-14).

- (22) Late Merge Principle (LMP)
Merge as late as possible.
- (23) Head Preference Principle (HPP)
Be a head, rather than a phrase.

The path obtained from the application of these principles is represented in (24), from van Gelderen (2011, 20).

- (24) Adjunct > Specifier > Head > 0
semantic [iF] [uF] --

Let us start assuming that the movement of *jeden* from position of the numeral to SpecDP is motivated by its need to check its referential features. Moreover, assume (following Geist 2010) that *jeden* is endowed with the referential anchoring operator (cf. § 4.2.1), which is responsible for its specific interpretation. I further propose that this anchoring operator is activated under a specific condition, stated in (25).

- (25) Referential anchoring is active only if the item specified for the anchoring function is found in the left edge of the nominal expression, i.e. SpecDP, the position in which it can be bound by its (local) anchor.

Jeden starts out as a QP in SpecNumP, endowed with an interpretable [Quant(ificational)] feature and with the referential anchoring operator.²⁴ The principle in (25) causes the numeral to move to SpecDP, in order for its anchoring operator to be 'activated', i.e., to be bound by the speaker. This shift, corresponding to the passage from stage I to stage II/III of the grammaticalization path, is driven by the application of LMP, as *jeden* starts being merged directly higher in the structure.²⁵ The process complies with economy principles which

²⁴ Givón (1981, 51) in fact argues that quantifying expressions imply referentiality, although they do not require prior familiarity with the referent.

²⁵ I am proposing that this movement is the result of a diachronic process, thus I do not assume a synchronic movement of *jeden* in syntax.

aim at reducing the number of interpretable features in favor of the (more economical) uninterpretable ones: in fact, at this point of the process the quantificational feature [iQuant] of the numeral is lost.

The prototypical path in (24) continues with the application of the HPP, through which “semantic features are reanalyzed in the specifier position as interpretable and in the head as uninterpretable features” (van Gelderen 2013, 246). Applying this reasoning to the alleged ‘stage IV’ of *jeden*, one should assume that the lack of specificity is a consequence of the fact that *jeden* is not in a configuration which allows the anchoring to the speaker (according to (25)), as it has been reanalyzed as sitting in D.²⁶ A hypothetical development is displayed in (26).

(26) QP in SpecNumP > SpecDP > ?(D°)
 [iQuant], [uRef]²⁷ [iRef]? ([uRef])

This supposition is tentative and only theory-driven. It is thus necessary to dig deeper into this issue to find data which may support this last stage or prove this intuition wrong. However, if this were the state of affairs, this model could lead to some theoretical advantages that are exposed in the next section.

4.4 Possible Theoretical Advantages

A first advantage is the parallel with Cardinaletti and Giusti’s (2018) model for Italian and Italo-Romance. In comparative perspective, this analysis argues for a mapping of the positions inside the DP which is consistent cross-linguistically. In Italian and Italo-Romance the indefinite determiner in SpecDP combines with the overt or covert realization of the head D, which spells out the definite article morphology. Polish cannot be straightforwardly treated like Italian and Italo-Romance, in that the realization of the two positions inside the DP cannot be simultaneous. This can be easily reconducted to parametric variation concerning the *Doubly Filled XP Filter* (Dimitrova-Vulchanova, Giusti 1998, 158) reported in (27).

²⁶ Assuming Giusti’s (2002) proposal that D realizes the functional features of the head noun, *jeden* would be a good candidate for this position. In fact, in cases like (21), it is just a dummy not adding any semantic import but just spelling out gender, number, and case of the head noun.

²⁷ With [uRef] I refer to the fact that the referential anchoring function is present, but it is not active due to the syntactic position of the item.

- (27) A functional projection must be visible at all levels of representation by either
- a. making the specifier visible, and/or
 - b. making the head visible.

In Italian and Italo-Romance the application of the filter is conjunct, i.e., both SpecDP and D can be filled simultaneously. Polish instead applies the filter disjointly: this means that when specific *jeden* occupies SpecDP, the head cannot be overtly realized. If the occurrence of nonspecific *jeden* in D would be supported by future research, then it would not be possible to have elements in the specifier. The coexistence of *jeden* potentially occupying the specifier and the head of DP would also parallel the coexistence of the same form of the reduced Latin demonstrative [IL]LE during its grammaticalization into an indefinite article. The demonstrative in SpecDP started being analyzed as the head of the DP (cf. Giusti 2001). However, since the two positions are adjacent and there is no lexical material intervening, the two constructions may have coexisted for several generations (Giusti 2001, 197).

A second advantage of this is the parallel between the role of the DP layer in nominal expressions and that of the Complementizer Phrase (CP) in clauses (corroborating the correspondence already noticed by Abney 1987 *inter alia*). The function of checking the referential anchoring to the speaker, which is assumed to be carried out in SpecDP, finds an interesting parallel with Giorgi's (2012) theory on the representation of the speaker's coordinates in the left periphery of the clause. Giorgi (2012, *inter alia*) argues that the speaker's space-temporal coordinates are represented in syntax as a deictic element pointing at the utterer, realized in the highest layer above Rizzi's (1997) ForceP. Thus, the highest projection of the left periphery of the clause is the locus where the tense of the utterance is "anchored" to the speaker. By analogy, since nominal expressions lack tense (cf. Giusti 2006), their left edge checks those features which have to do with the speaker in the nominal domain, i.e. referentiality (and spatial deixis). This analysis also corroborates Longobardi's (1994) assumption that the DP layer is needed for referentiality requirements.

5 Conclusions

Capitalizing on Cardinaletti and Giusti's (2018) proposal on the analysis of nominal expressions, and on Rutkowski's (2007a) analysis of Polish numerals, this article has tried to sketch a complete analysis of *jeden* in Polish, keeping into account its different positions relative to its grammaticalization process.

The claim supported here is that an analysis of *jeden* as only occupying the specifier of a QP position found between DP and NP is

reductive and cannot account for the functions it is acquiring in its grammaticalization path. *Jeden* may function as a quantifier – with some instances in which it is interpreted as a non-quantificational adjective – and as an indefinite determiner.

The numeral *jeden* heads a QP and is indeed merged in the specifier of a functional projection NumP (corresponding to Rutkowski's (2007a) QP), between DP and NP. It is endowed with an interpretable quantificational feature and an anchoring operator, which is however not active in its base position. The 'non-quantificational' adjectival semantics can be reconducted to instances of the numeral, whose interpretation may be due to some covert material (as in the case of *jeden [i ten sam]* 'one [and the same]').

Indefinite specific *jeden* is argued to occupy the specifier of the DP. The movement to SpecDP is necessary to activate the referential operator, making it possible to anchor the indefinite introduced by *jeden* to the speaker. This instance corresponds to a diachronically more advanced stage of grammaticalization of the numeral, due to the application of the Late Merge Principle (causing the item to be directly merged higher in the structure), which goes hand in hand with the loss of the quantificational feature. In SpecDP specific *jeden* is in complementary distribution with demonstratives and other pronouns.

As grammaticalization processes are driven by Economy principles and follow similar stages (cf. van Gelderen 2011), the prediction is that SpecDP may be reanalyzed as D in further stages.²⁸ Some instances of *jeden*, which is interpreted nonspecifically, may suggest that the grammaticalization process is proceeding and that it has just entered stage IV. If this turns out to be the case, *jeden* may have been reanalyzed (according to the Head Preference Principle) as D, 'escaping' the anchoring (which takes place only in SpecDP).

If the analysis is on the right track, it would contribute to the understanding of the process of grammaticalization of the numeral 'one' into an indefinite determiner. Moreover, this approach would further argue in support of (i) a cross-linguistic consistency in the realization and mapping of the positions inside the DP (in relation with Italian and Italo-Romance varieties) and (ii) a one-to-one mapping between syntax and semantics.

28 I acknowledge that the grammaticalization of *jeden* (and of the numeral 'one' in general) cannot be straightforwardly assimilated to other grammaticalization processes such as the negative cycle (cf. Jespersen 1917). In fact, in the latter case the grammaticalized element substitutes the original one. In the case of 'one' the numeral is not lost, and the process ends up creating new items in the lexicon (this is particularly evident in those languages which developed an indefinite article whose form is different from that of the numeral, e.g. *one* vs. *a(n)* in English). Nevertheless, a model which individuates similarities between these two processes is a welcome result.

The presented model opens up new paths for future research. The first one is a detailed study aimed at collecting empirical evidence which may support or discard the idea of a possible instance of non-specific *jeden* in D. If this intuition is corroborated by the data, it may be relevant for the understanding of the process of grammaticalization of 'one' which may be extended to other languages. A second path consists in a thorough description of the contexts *jeden* specializes for (in competition with other indefinite markers like *jakis/pewien* 'some'). Furthermore, the presented model would benefit from a fine-grained investigation of the syntax of the plural forms *jedni/jedne* 'one_{PL}', whose functions does not exactly overlap with those of its single counterpart. This model of grammaticalization also raises an issue regarding the representation of *jeden* in the lexicon. Whether there is only one lexical representation of *jeden* or whether there are several homophonous copies for each function is an issue that will be left for future investigation.

This modest piece of work attempted to cast some light on syntax underlying the grammaticalization of the peculiar numeral 'one' in Polish. The issues left open here will hopefully be taken up and disentangled by future research.

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