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## DEGREES OF PROPOSITIONALITY IN CONSTRUALS OF TIME QUANTITIES<sup>1</sup>

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### **Abstract**

The paper investigates the possible conceptual bases of differences between seemingly synonymous and easily definable temporal expressions. Looking at the usage patterns of nominal temporal phrases in reference corpora of English and Polish we attempt to relate these subtleties to the different granularity of the cognitive scales on which construals of time quantities in general are based. More specifically, we focus on a subset of nominal temporal expressions which adhere to the “number + time unit” pattern, matching what Haspelmath (1997: 26) describes as “culture-bound artificial time units”. Using the British National Corpus (BNC) and the National Corpus of Polish (NCP), we first analyse both the variation and the regularity found in naturally-occurring samples of Polish and English. Finally, we compare the patterns of use emerging from the two corpora and arrive at cross-linguistic generalisations about the conceptualisation of time quantities.

**Keywords:** time, temporal expressions, cognitive linguistics, Polish, corpus linguistics, conceptualisation, English

### **1. Introduction**

Quantification is an important aspect of time conceptualisation. Linguistic as well as psychological research shows that to think about abstract notions we rely on metaphorical mappings (cf. Gruber 1965, Clark 1973, Lakoff and Johnson 1980, Alverson 1994, Casasanto and Boroditsky 2008, Evans 2013). Reasoning about duration, then, activates the domains of distance and amount, both of which can be considered as subdomains of space. Along those lines, Haspelmath (1997: 23) lists quantifiability of time – the fact that stretches or spans can be “evaluated quantitatively” and measured – as one of its major properties.

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<sup>1</sup> Research carried out within COST Action TD0904 TIMELY, supported by the National Science Centre (NCN), grant No. 2011/01/M/H 2/03042, *Percepcja czasu jako kategorii językowej* [Perception of Time as a Linguistic Category].

Western languages have developed a variety of lexical devices for denoting discrete quantities of time. In strictly technical contexts, expressions such as *an hour* or *one minute* have well-established, unambiguous meanings. They can be redefined compositionally as integer multiples of *the second*, the base unit of time, which has astronomical and physical interpretations as a fraction of a mean solar day and a certain number of periods of radiation respectively. In non-technical communication, however, the meaning of expressions such as *10 hours*, *7 minutes* or *60 seconds* depends on a considerable number of factors, which may be both static and context-dependent in nature. For example, in actual usage the meaning of the English expression *half an hour* is often only an approximation of *exactly 1800 seconds*. Similarly, the meaning of *half an hour* is more often different from than (practically) identical with that of the technically synonymous expression *30 minutes* which seems to be more likely to be interpreted literally.

## 2. Meaning as conceptualisation

It is an important premise of this study that meaning can be understood in terms of conceptualisation (Langacker 1987, 2008), and depends on how conceptual content is mentally structured, and then linguistically represented. To refer to the different ways of portraying a scene we will use the term “construal” proposed by Langacker in Cognitive Grammar, an approach viewed as part of Cognitive Linguistics (cf. Evans and Green 2006, Geeraerts 2006, Geeraerts and Cuyckens 2007). Also, we will utilise the construct of “granularity”, one of the parameters of construal – interchangeably referred to as “specificity”/“schematicity” and “resolution” – to describe two strata of time categorisation examined in the paper – the more fine-grained stratum of seconds/minute, and the more coarse-grained stratum of minutes/hour.

In line with the Cognitive Linguistics proposal to see meaning construction as conceptualisation, truth criteria (cf. e.g. Davidson 1967) cannot fully account for an expression’s meaning. For example, while (a) and (b) below are equivalent as far as their truth-conditions go, we would argue that there is a systematic difference in their meanings:

(a) She had to spend half an hour marking just one short paragraph.

(b) She had to spend thirty minutes marking just one short paragraph.

By investigating a subset of temporal-quantificational expressions in English and Polish data, this study attempts to contribute to the integration of research into temporal cognition and numerical cognition. It should be noted that the domains of time and number build up the most fundamental types of human experience and are critical in categorisation and making sense of the world. To start with, there are vital points of convergence between language and numerical cognition. Numbers are among the very first vocabulary items one learns when trying to master a language, and language has been demonstrated to play an important role in the development of numerical skills (cf. Pica et al. 2004). There is, moreover, some compelling evidence suggesting that to perform exact quantification of sets larger than 3 one needs to have language terms corresponding to those numerical concepts (Everett and Madora 2012, cf. Everett 2013). Time, in turn, is crucial in our understanding of general conceptions like change, and

some more specific ones like motion. Simultaneously, time is intangible in the sense that we only sense its physical representations – digits changing on a screen, a rotating hand of the clock, a timeline in a history book, or the steady ticking sound – which could be an argument against the view that time is “objectively real” (Evans 2004 : 4). One vital, and relatively direct, manifestation of how time is conceptualised is how it gets expressed linguistically, since – in line the Cognitive Linguistics tenets – “language offers a window into cognitive function, providing insights into the nature, structure and organisation of thoughts and ideas” (Evans and Green 2006 : 5). Therefore, looking into the language of time, and incorporating the variable of number as is the case in this study, will be a major way to uncover conceptual structure in those domains. To that end, our investigation combines quantitative and qualitative methods. We first investigate the distributional evidence found in reference corpora to go beyond mere introspection in identifying language use tendencies. This quantitative survey is then supplemented with a microscopic analysis of corpus data, which makes it possible to come up with an empirically-grounded account of language user behaviour patterns.

### 3. Construals and representations of time

This investigation is concerned with a distinction between two types of time-quantifying construals found in Polish and English data. One of those types is referred to as “cumulative” whereby time is organised as a set of units (e.g. 30 seconds) and the other one is termed “fractional” with time magnitudes being conceptualised as fractions – or profiles – of superordinate structures (e.g. half a minute). Both types of construals are illustrated in the following concordances extracted from the British National Corpus:

Type	Concordance	Source
CUMULATIVE	Give him <i>thirty seconds</i> and you will have knitting.	BNC A6T
FRACTIONAL	<i>Half a minute</i> later Benny’s father came in full of anxiety.	BNC CCM

We start from the observation that the distribution of cumulative vs. fractional construals is clearly asymmetric. That is to say, the distribution of these forms in reference corpora of Polish and English suggests that speakers evidently tend to favour one type of construal over the other. For instance, speakers of English show a preference for the cumulative construal of “thirty seconds” over the fractional one of “half a minute”. This tendency is reversed in conceptualisations of the period of thirty minutes, where the fractional construal dominates over the cumulative one. To gain insight into the asymmetry we pose the following questions:

1. Are those construal selection asymmetries analogous at different levels of temporal quantification granularity?
2. Are potential differences across levels of temporal granularity (seconds/minute vs. minutes/hour) analogous cross-linguistically?

3. What motivates language users to opt substantially more often for one of the construals?

## 4. Analysis

### 4.1 Quantitative analysis: Cumulative vs. fractional construals of time quantities in English and Polish

In order to find out how the instantiations of these two types of construals are distributed in samples of naturally-occurring Polish and English, we designed a set of corpus queries matching the different variants of the four adverbial expressions in question: *30 minutes/30 minut* [30 minutes-GEN.PL], *30 seconds/30 sekund* [30 second-GEN.PL], *half a minute/pół minuty* [half minute-GEN] and *half an hour/pół godziny* [half hour-GEN]. The queries were run against the full text indexes of the ca. 100 million word British National Corpus (BNC) and the 250 million word balanced component of the National Corpus of Polish (NCP) (Pęzik 2012). As shown below, the results returned contain different variants of the same numeral and, in the case of the Polish data, variable inflections of both the cardinal number and the nominal head of the phrase.

#	Concordance	Source
1	Podróże turystycznymi statkami między wyspami trwają od <b>30 minut</b> do sześciu godzin. [Tourist ship journeys between islands take from <b>30 minutes</b> <30-GEN minute-GEN.PL> to six hours.]	Życie Warszawy, NCP
2	Po około <b>30 minutach</b> nadmiar kosmetyku zbierz chusteczką higieniczną. [After approximately <b>30 minutes</b> <30-LOC minute-LOC.PL> wipe excess cosmetic with a tissue.]	Naj, NCP
3	<b>Trzydzieści minut</b> przed rozpoczęciem ocen... [ <b>Thirty minutes</b> <thirty-NOM minute-GEN.PL> before the beginning of the evaluation...]	Odory, NCP
4	- Umarł przed <b>trzydziestoma minutami</b> – powiedział Kowalski. [He died <b>thirty minutes</b> <thirty-INS minute-INS.PL> ago – Kowalski said.]	Stawka większa niż Życie, NCP

The results of these queries are summarised in the table below. Generally, we see some variation in the frequencies of these seemingly synonymous expressions. In the BNC the expression *half (a) minute* (what we call fractional construal) occurs 84 times, whereas

*30/thirty seconds* (cumulative construal) has 310 occurrences. The phrase *half (an) hour* occurs 1912 times, with only 653 instances of *30/thirty minutes*.

		English		Polish	
granularity level	linguistic representation	fractional construal	cumulative construal	fractional construal	cumulative construal
seconds/minute	half a minute/30 seconds	84	310	379	466
minutes/hour	half an hour/30 minutes	1912	653	5202	1329

The corresponding NCP data suggest a preference for the cumulative construal of the period of 30 minutes in Polish, too, but it is relatively less prominent (379:466) than in the BNC data. We then see an interesting shift at the minute/hour level, where the fractional construal is more frequent in both the Polish and English data.

If we assume that the sampling of the data in the two corpora is sufficiently random and representative, then a non-parametric test could be performed to assess the statistical significance of these discrepancies. Applying the Fisher's exact test on the contingency table with the BNC counts confirms the high significance of these disproportions ( $p < 0.0001$ ).

granularity level	fractional	cumulative
seconds/minute	84	310
minutes/hour	1912	653

BNC contingency table for the fractional/cumulative construal counts

In other words, in purely statistical terms, the fractional expressions are significantly more frequent when used to refer to the period of 30 minutes (as in *half an hour*, *pół godziny*) than when they are used to denote 30 second periods (*half a minute*, *pół minuty*) in both the Polish and British English data analysed.

granularity level	fractional	cumulative
seconds/minute	379	466
minutes/hour	5202	1329

NCP contingency table for the fractional/cumulative construal counts

The quantitative results presented here should be taken with caution. One example of a possible source of statistical bias in the NCP is the overrepresentation of the transcripts of the proceedings of the Polish Sejm, in which Members of the Parliament are regularly reminded about the 30 second limit for follow-up questions asked during parliamentary debates. However, the manual inspection of the retrieved concordances did not reveal any sampling bias which could substantially change the significance of these results.

We can therefore proceed to hypothesize about the possible cognitive basis of these distributions. In general, the preference for the fractional construal type at the minutes/hour level of granularity can be explained with reference to the differences in the conceptualisation of small and larger numerosities. Small numerosities can be conceptualised by drawing on the one-one correspondence principle (cf. Gelman and Gallistel 1978), which would be the case with 2-based quantifications like “half + time unit”. For a number like “30”, the cardinality principle (cf. e.g. Sarnecka and Carey 2008) is activated, whereby the size of a set is determined by the last number mentioned in the counting sequence. The comparatively large amount of mental effort required for even rapid mental scanning of a numerosity such as “30” could account for the fractional bias in temporal quantification which has been observed for the minutes/hour level in the two reference corpora.

This explanation, however, does not seem to apply to the differences between the frequencies of *half a minute* and *30 seconds* observed in the corpus data. At this level, the cumulative construal is more frequently chosen by speakers of Polish and English, which suggests that the difference in span – and therefore in the type of experience as well as in the amount of mental computation necessary for conceptualisation – between *30 seconds* and *30 minutes* is one of the decisive factors. In other words, it may be hypothesized that with the durative shortness of *30 seconds* – relative to *30 minutes* – we experience the passage of time more directly and this is expressed in language.

Another possible explanation for these quantitative discrepancies is environmental in nature (cf. Dahan and Mehler 1992). The cumulative construal is more suitable for finer-grained quantification. It is therefore natural that once we reason and talk about temporal quantities at the very fine-grained level of 1-60 seconds, the context is likely to require special precision of expression. The more coarse-grained level, between 1 and 60 minutes, is generally more relevant to our basic and most common experience expressed in language, like the daily schedule, meetings, meals, travel or sleep. As we are biologically conditioned to seek balance between precision and cognitive effort, in such contexts the “rounded” formulaic uses often suffice, and those uses – as we demonstrate in this paper – are conducive to fractional construals.

The objective of the qualitative analysis that follows is to examine in greater detail the construal selection pattern uncovered in the distributional study and to propose explanations.

## 4.2 Qualitative analysis

Given the evident preference for either cumulative or fractional construal in English and in Polish, the question is what motivates that choice. We posit that one explanation is that speakers draw on the differentiation to modulate between two poles –

propositionality and formulaicity – when they construct time in language. As speakers intend to reach a particular communicative goal, they choose the construal that will serve their purposes optimally, vitally considering the parameter of precision.

Based on that, our argument is that the cumulative construal is used more typically to signal a near-precise/propositional meaning while the fractional construal is better-fitted to prompt an approximate interpretation of a temporal-numerical value.

#### 4.2.1 Propositionality and formulaicity of temporal expressions

The distinction between “propositional” or “compositional” and “formulaic” or “automatic” use of semantic and syntactic linguistic constituents reflects one of the basic dichotomies of language use. According to the Principle of Compositionality, which is described as “a widely acknowledged cornerstone for any theory of meaning” (Werning 2012: 633), the meaning of complex expressions is fully determined by the meaning and structure of their constituents (Szabó 2013) and their syntactic arrangement. Therefore, compositionally, the expression *30 minutes* would seem to be equivalent to the expression *half an hour*, as long as we assume that the meanings of both of these expressions can be derived from the meanings of their syntactically arranged lexical constituents. However, as studies of formulaic language have shown, the loss of compositionality is a widely-spread linguistic phenomenon and a direct derivation of compositional meaning from frequently used expressions can rarely be justified in non-technical contexts of language use. Contrary to the traditional view that non-compositionality is limited to a narrow set of semantically opaque idioms, it is now increasingly accepted that the frequent reuse of multiword or multimorphemic linguistic structures regularly leads to their loss of compositionality (i.e. idiomatisation), cognitive entrenchment (Langacker 1987, 2008) and institutionalisation (the development of a stereotyped meaning of a composite phrase). Therefore, in the discussion below, we consider the distinction between the formulaic and propositional (literal) use of recurrent temporal expressions such as *half an hour* as an important factor behind their distribution<sup>2</sup>.

Propositionality and formulaicity need not be statically assigned to an expression, since even the most fossilised idioms may undergo decomposition in phraseological puns. Rather than being a binary feature, the formulaicity of various expressions can be placed on a continuum. Also, the propositional meaning of quantifying expressions, including time-quantifying expressions, can be explicitly restored by means of dedicated lexical devices. In the following example, the adverb *exactly* is used as an explicit marker of propositionality, which partly inhibits the activation of the formulaic status of *half (an) hour* as a technically non-obliging approximation of the period of 1800 seconds:

- *Almost exactly half an hour later, Rory was sitting cross-legged on Candy's floor...* [BNC JY5].

<sup>2</sup> The formulaic status of *half an hour* is additionally confirmed by the 14 occurrences of the phrase *half hour* found in the BNC data, which can be considered as a reduced derivative of *half an hour*. Form reduction is a strong diagnostic feature of idiomacity.

In the following microscopic analysis of the corpus material, we make a systematic distinction between the formulaic and propositional use of time expressions as an important factor explaining their choice.

#### 4.2.2 Construal type and propositionality

##### English

##### half+minute – fractional as near-formulaic

The analysed BNC samples instantiating fractional construal at the seconds/minute resolution level are indicative of a tendency towards approximation. In the sample below, for instance, the quantification statement need not be taken literally. One could easily imagine the speaker in actuality intends to report that it takes her 36 or 41 seconds to wake up. To put it differently, even if the speaker's "waking-up" time was systematically measured and the mean values were to equal a number different from the exact equivalent of "half a minute" reported in the utterance, the addressee would still be unlikely to take the utterance to be flawed or infelicitous. In that sense, the numerosity can be treated as closer to the formulaic than the literal pole whereby "half a minute" will be taken to mean "a short while" rather than the exact equivalent of "30 seconds" or 1/120 of an hour.

- If I'm in bed, it might take me half a minute to wake up. [BNC H8M]

A similar case can be observed in the sample below where the addressee could well survive for longer than literally stated by the fireman:

- You'd choke to death in half a minute, said the fireman. [BNC H9D]

Likewise, in the following instances the fractional construal is more about giving the receptor a general idea about the scale of the speaker's estimations or impressions than an exact numerical value:

- She had thought he was asleep, realising that he wasn't only when she felt him tense under the light touch of her fingers, but as he neither moved away nor said a word, she let them remain there, resting lightly against him, the contact lax and undemanding. After half a minute, however, the tenderness still engulfing her compelled her to move closer. [BNC H9L]
- He eagle-eyed the cross bunkers, waggled a few times, opened his shoulders and — wham! The ball seemed to be in the air for half a minute. From behind the tee had come a cheer which changed into a gasp. [BNC HTJ]

The cognitive mechanism whereby the fractional construal is conducive to approximation can be corroborated by co-textual evidence. In the example that follows, the positioning of the utterance on the literal-formulaic cline can be ascertained through

reference to a preceding fragment of the text and it becomes clear that “half a minute” here stands for what technically amounts to 32 seconds.

- Your last pattern was 4 mins 28 secs, so you need an increase on the outbound timing of approximately 15 seconds. That is, you were half a minute short of 5 minutes on your last pattern so divide that time between your out and inbound legs. Similarly if the previous pattern was longer than required, reduce the outbound time by half the error. [BNC G3K]

### 30 seconds – cumulative as near-propositional

In turn, the cumulative construal will often be used to represent a precise quantification:

- Neary won on the referee's intervention after two minutes 30 seconds of the third round with Barker slumped, defenceless, in a neutral corner. [BNC K97]
- At the world's main airports a plane arrives or departs every 30 seconds. [BNC AJU]
- Fakrid shouted. Order all stations to open fire in thirty seconds. We'll blast the wretched parasites half way across the universe! [BNC FR0]

The interpretation we retrieve here will be very close to the literal pole even though there is little *stricte* linguistic evidence that guides us to do so. If we take the last example above, it is the broadly understood situational context – in this case warfare – and our background assumptions, about how similar scenarios develop, how their participants act and what consequences certain actions can be expected to bring, that make us take “thirty seconds” at face value. We know, for instance, that even a minor lack of synchrony between shooters will be consequential and therefore precision is a priority. In other words, we are in a way able to read the mind of the speaker – viz. make assumptions about the speaker’s mental state given the communicative goal we believe he wishes to achieve.

## Polish

### pół minuty – fractional as near-formulaic

Consistently with the pattern identified for English data, in Polish the fractional construal is commonly employed to construct temporal magnitudes as non-literal:

- Pensja jest za pracę non stop. Bez pół minuty przerwy na dobę. Bez żadnego urlopu. [NCP Polityka]  
[The salary is for working non-stop. With no half a minute break in 24h. With no holiday.]
- Mock zaczął analizować informacje o Knüferze pod innym kątem. Pół minuty rozmowy wystarczyło, nie musiał o nic więcej pytać. [NCP Koniec świata w Breslau]  
[Mock started analysing the information on Knüfer from another angle. Half a minute of conversation was enough, he didn't need to ask about anything else.]

- Kto mnie okradł? Widziałaś? (...) Widziałam, jak trzech mężczyzn i jakaś kobieta kręcili się koło pana. (...) A potem tamci pana szturchali z lewej, a ona z prawej włożyła rękę do kieszeni i w mig wszyscy się rozbiegli. Nie ma pół minuty, oni niedaleko być muszą!" Czyż trzeba dodawać, że pościg okazał się bezowocny? [NCP Szemrane towarzystwo niegdysiejszej Warszawy]  
[Who robbed me? Did you see? (...) I saw three men and some woman around you. (...) And then those men nudged you from the left, and from the right she put her hand in your pocket and they scattered in a twinkling. There is no half a minute (to waste), they cannot be far!" Do I have to add that the pursuit was fruitless?]

### 30 sekund – cumulative as near-propositional

As was the case in English, time is constructed cumulatively when precision is critical<sup>3</sup>:

- EOS 300D ma szeroki zakres czasów otwarcia migawki od 1/4000 do 30 sekund, czasy dowolnie długie oraz bardzo dobry czas synchronizacji błysku 1/200 s. [NCP Enter nr 2] [1]  
[EOS 300D has a wide range of shutter speed options from 1/4000 to 30 seconds, the speed can be as low as needed and (there is) very good flash synchronisation speed (of) 1/200 s.]

In the Polish data an interesting subset of examples comes from parliamentary debates. In the samples below the cumulative construal is used to designate literal values, for example when regulations are quoted, or when used as admonitions directed at speakers who exceed allotted time. The postulated stress on precision in the uses of cumulative construals is again confirmed – if in a somewhat jocular remark – by an MP in the final excerpt.

- Poszczególne dodatkowe pytania nie mogą trwać dłużej niż 30 sekund, a łączna uzupełniająca odpowiedź nie może trwać dłużej niż 5 minut. [NCP Sprawozdanie stenograficzne z obrad Sejmu RP]  
[Individual additional questions cannot exceed 30 seconds and the additional answer cannot exceed 5 minutes in total.]
- Proszę państwa, mam prośbę do posłów zadających pytania. Zadanie pytania nie powinno trwać dłużej niż 30 sekund. Będę zmuszona przerywać. [NCP Sprawozdanie stenograficzne z obrad Sejmu RP]  
[Ladies and gentleman, I have a request for the MPs who ask questions. A question should not exceed 30 seconds. I will be forced to interrupt.]
- Pan senator Kruszewski w jakim trybie? Panie Marszałku, ja zająłem tylko trzydzieści sekund, a więc mam jeszcze trzydzieści. Ja mam szwajcarski stoper. [NCP Biuro Administracyjne Kancelarii Senatu Rzeczypospolitej Polskiej]  
[Senator Kruszewski in what capacity? Mr. Speaker, I took up only thirty seconds, so I still have thirty. I have a Swiss stopwatch.]

<sup>3</sup> We also see co-text as a conditioning factor. In the sample below “30 sekund” is congruous with other values given in the camera specification. In fact, the interconnectedness of units is visible with no unit being provided for “1/4000” and “sekund” after “30” referring to both numerical values.

## English

As can be seen in the samples below, fractional construals of time at a more schematic level of discretisation tend to be employed to give a rough indication of the temporal scale rather than an accuracy-centred account:

### half+hour – fractional as near-formulaic

- But, after half an hour prowling round the kitchen, the dog — Rudy — came over to me. [BNC A17]
- He lunched with the police commissioner at a fish restaurant in Torch Bay. After lunch he spent half an hour with McGowan in an outdoor café by the river. [BNC C86]
- She hates parks; it takes half an hour to get there from the flats and then the kids are put inside one lot of railings like some kind of animals and you walk up and down inside another lot and watch them. [BNC BP8]

Analogously to the more fine-grained stratum of temporal quantification, cumulative construals are employed in contexts where precision is paramount:

### 30 minutes – cumulative as near-propositional

- Cook for 30 minutes, then turn ribs and coat in the sauce again. [BNC A70]
- Cover with foil and bake for 30 minutes in a preheated oven, Gas Mark 6 200C/400F. [BNC BPG]
- I eat around 2000 to 2500 calories per day, have a sedentary job and my weekly exercise schedule is as follows two x 30 minutes, one x 6 miles, two x 30 minutes weight training. [BNC AR7]

## Polish

The function of the fractional-cumulative alternation in the Polish data at the minutes/hour resolution level is consistent with what we observe at the more fine-grained level of temporal categorisation (seconds/minute) in Polish as well as cross-linguistically.

### pół godziny – fractional as near-formulaic

- Telefony z Warszawy. Do mnie. A ten to się nadziwić nie potrafił, bo mówi, że to drogie i on by sobie na to nie mógł pozwolić. Tak codziennie wydzwaniać za granicę i pół godziny trajkotać. To, on powiada, to przecież majątek. [NCP Wolna Trybuna]  
[A phone call from Warsaw. For me. And he couldn't stop wondering at this because he said it was expensive and he wouldn't be able to afford it. To keep making international calls every day and to chatter for half an hour. It is a fortune, as he puts it.]

- Ona siedziała na podłodze i popisując się wymyślnymi minami paliła papierosa. Lubił, kiedy usiłowała zrobić na nim wrażenie. Pół godziny później pożegnali się i zeszła do samochodu. Frik został sam. [NCP Pierwszy milion...]  
[She was sitting on the floor and smoked a cigarette while making fanciful faces. He liked it when she made an effort to impress him. Half an hour later they said goodbye to each other and she went down to her car. Frik was alone.]

### 30 minut – cumulative as near-propositional

- Obie drużyny zagrały bardzo słabo w obronie. Po 30 minutach było już 93:87 dla Śląska. [NCP Gazeta Wyborcza]  
[Both the teams played very badly in defence. After 30 minutes Śląsk already led 93:87.]
- abonament trzeba zapłacić aż 49,40 zł, ale operator oferuje za to 30 minut darmowych rozmów [NCP Express Ilustrowany]  
[the subscription is as high as 49,40 zł but the service provider gives you 30 minutes of free calls for this]

## 5. Conclusions

In this paper we have drawn a distinction between two construals of time found in naturally-occurring English and Polish data: fractional and cumulative. Through corpus analysis we identified distribution patterns of those construals across granularity levels and languages. A crucial observation we arrived at in the course of quantitative analysis is that there is a clear preference for either of the two construal types. We have outlined and exemplified one of the viable explanatory hypotheses, which is that as the user chooses to construe temporal magnitudes fractionally or cumulatively, he or she adjusts the default degree of propositionality in the meanings that the addressee is prompted to arrive at. We have also noted that the propositionality of time-quantifying expressions can be explicitly marked by special lexical devices as in *exactly half an hour*. Vitaly, the category of propositionality is radial, with some instances of temporal construals being more decidedly propositional, and others taking a position farther from propositionality, nearing the formulaic end of the continuum.

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