On an Analogy between English Nominal and Polish Aspectual Manifestations of Genericity*

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Abstract

The main goal of this study is to prove that two modal mechanisms Greenberg (2003) postulated for English indefinite singular (IS) and bare plural (BP) generics in the nominal domain are mirrored in Polish perfective and imperfective generics in the event domain. On the basis of Oosterhof's (2006) argumentation, I justify the distinction between the GEN and the HAB intensional operators. With this distinction in mind, I associate the combination of HAB+perfective aspect as exemplifying the same kind of an 'in virtue of' modality as Greenberg postulates for the combination of GEN+IS. In the same manner, I claim that both the combination of GEN+BP and the combination of HAB+imperfective aspect exemplify either 'descriptive' or 'in virtue of' modality.

1   Introduction

The main focus of the existing theories on genericity has been on the variation in the expression of generic meaning in the nominal domain in Germanic and Romance languages (Cohen 2001, Greenberg 2003, Oosterhof 2006, Farkas & De Swart 2007). It turns out that there is also a variation in the morpho-syntactic expression of genericity in the verbal domain in Polish in which there exist both perfective[1] and imperfective habituals, exemplified in (1)-(3) and (4)-(6) respectively.

[1]Perfective habituals are particularly interesting since they constitute a problem for most theories which associate habituality with the inherent semantics of the imperfective aspect (cf. Bonomi 1995, Bhatt 1999, Lenci and Bertinetto 2000, Menéndez-Benito 2002, a.o.).

(1)   Janek   pocieszy   w   potrzebie.
        Janek   PERF-comfort-3SG   in   need.
        'John will comfort you in need.'

(2)   Julia   nie   wypije   taniego   wina.
        Julia   not   PERF-drink-3SG   cheap   wine.
        'Julia will not drink cheap wine.'

(3)   Ortodoksyjna   muzułmanka   nie   odsłoni   twarzy   przy   posiłkach.
        Orthodox   muslim woman   not   PERF-uncover-3SG   face   during   meals.
        'An orthodox muslim woman will not uncover her face during meals.'

(4)   Xiu   pije   mleko   sojowe   na   śniadanie.
        Xiu   drinks-IMP-3SG   milk   soya   for   breakfast.
        'Xiu drinks soya milk for breakfast.'

(5)   Julia   ubiera   się   na   czerwono.
        Julia   wears- IMP-3SG   REFL   on   red.
        'John wears red clothes.'

(6)   Wiewiórki   jedzą   orzechy.
        Squirrels   eat-IMP-3PL   nuts.
        'Squirrels eat nuts.'

Since everything in a language happens for a reason, a relevant question that arises is what semantic and pragmatic mechanisms underlie the observed surface aspectual variation in the expression of habituality in Polish. My understanding of this question has been significantly influenced by Greenberg's (2003) theory of English indefinite singular generics (IS-generics), presented in (7) and bare plural generics (BP-generics), shown in (8).

(7)   a.   A man does not cry.
        b.   A dog has four legs.
        c.   A friend helps in need.
        d.   A whale eats krill.

(8)   a.   Grizzly bears sleep in winter.
        b.   Squirrels eat nuts.
        c.   Norwegian fishermen use the best fishing equipment.
        d.   Women in this city care about their gardens.

Greenberg (2003) argues that IS and BP generics express different types of modal meanings. BP generics can express either 'descriptive' or 'in virtue of' modal meaning while IS generics can express only an 'in virtue of' modal meaning. A crucial hypothesis advocated in this study is that the two types of modal mechanisms Greenberg postulated in the nominal domain for English IS/BP generics are mirrored in

Polish perfective/imperfective generics in the event domain. There are several major aspects which need to be established in the subsequent sections of this article to create a necessary background for a clear justification of this hypothesis. In section 2, I discuss Greenberg's 'in virtue of' and descriptive modal mechanisms underlying IS/BP generics in English. In section 3, on the basis of Oosterhof's (2006) argumentation, I justify a distinction between generalizations over individuals and generalizations over eventualities headed by the respective GEN and HAB intensional operators and I incorporate this distinction into Greenberg's formulas which enables me to treat descriptive and 'in virtue of' modal mechanisms as underlying both the Gen and/or the Hab operator. In section 4, I provide arguments for my main hypothesis that 'in virtue of' and descriptive modal mechanisms Greenberg postulated for IS and BP generics in English in the nominal domain also underlie imperfective/perfective generalizations in Polish in the event domain and I develop the semantics of perfective and imperfective habituals with referential subjects.

2   Greenberg's (2003) theory of IS and BP generics in English

It is traditionally assumed that IS generics and BP generics are synonymous and that their semantics can be represented in a uniform fashion as a tripartite structure headed by the modal Gen operator. As for the semantics of the Gen, it is a common claim in e.g. Dahl (1975), Wilkinson (1991), Chierchia (1995), Krifka (1995) that it is universal and modalized i.e. that it universally quantifies not only over individuals and situations, but also over possible worlds, restricted by some sort of an accessibility relation. The common underlying representation Greenberg adopts for IS and BP generics is given in (9):

(9) $\forall$ w' [[<u>w' is appropriately accessible from w</u>] $\rightarrow$ $\forall$ x,s [[grizzly bear (x,w') and C (s,x,w')] $\rightarrow$ [snore loudly (s,x,w')]]]

        Paraphrase: in all w' appropriately accessible from the world of evaluation w, every grizzly bear, in any contextually relevant situation (e.g. every sleeping situation) is snoring loudly.

Greenberg claims that the uniform representation accounts for the fact that both types of sentences express nonaccidental genericity but it cannot account for a number of differences between them. She highlights a number of semantic, pragmatic and distributional differences between IS and BP generics in order to motivate the need for a non-uniform semantic treatment of these two surface manifestations of genericity and she proposes such an alternative account. She adopts the same underlying semantic representation for IS and BP generics but she claims that they differ in the type of modality involved, or in other words the type of accessibility relation restricting the Gen. The difference between IS and BP generics lies in the underlined part of the formula in (9), namely in determining which worlds (w') are appropriately accessible

from the evaluation world. Greenberg advances the hypothesis that BP generics involve the descriptive or the 'in virtue of' accessibility relation while IS generics involve only the 'in virtue of' accessibility relation. The difference between descriptive and 'in virtue of' generics is discussed in sections 2.1 and 2.2 respectively.

2.1   Descriptive modality in English BP generics

Descriptive generalizations are made on the basis of a number of actual instances which allow us to conclude that there is some pattern or more specifically that the generalization is not limited to the actual instances of individuals only (cf. Carlson 1995). Greenberg gives a suggestive illustration of the circumstances in which descriptive generalizations like *Boys don't cry* can be asserted. Let us imagine a scenario in which an alien from Mars visits our planet and watches the behavior of children and after observing many boys in several 'tear inducing situations', the alien decides there is some pattern about boys namely boys do not cry. In other words, the alien concludes that what he observes about boys is not accidental i.e. not limited to the actual instances of boys. Kratzer (1981) and Krifka et al. (1995) suggest that generic statements are modalized that is they hold in a set of accessible worlds. Greenberg (2003) suggests that descriptive generalizations hold in the set of worlds which are maximally similar to the actual world. Which worlds are these accessible worlds? Specifically, which aspects of the actual world are copied into them? Let us focus on Greenberg's formal analysis of the accessibility relation involved in descriptive generalizations. Greenberg assumes that a present tense descriptive BP sentence entails that the universal statement holds in all the inertia worlds to <w,I> at a larger time interval containing both the past and the future intervals, as formally represented in (10), and in all worlds which are inertia worlds to Lewisian worlds at the present at some interval surrounding the present interval I, as presented in (11):

(10)   All inertia worlds to <w,I> at I' where $I \subset I'$ (i.e. where I is the present interval, and a proper subinterval of I')

(11)   All inertia worlds to <$w_{Lewisian}$,I> at I', where $I \subset I'$ (i.e. where I is a proper subinterval of I')

Inertia worlds are defined in (12) as in Dowty (1979:149):

(12)   w' $\in$ inr (<I,w>) iff w is a member of the set of worlds which are exactly like w until I (including I) and in which the course of events in I', the interval continuing I, develops in ways most compatible with normal course of events until I.

In other words, inertia worlds are those worlds where things take their normal course of events and nothing unexpected happens w.r.t. the actual world in the present. On the other hand, $w_{Lewisian}$ is a world maximally similar to w except from what is needed to allow for the fact that the P set of individuals and the set of relevant situations are not

identical to the set of P individuals and relevant situations existing in w, respectively. In order to combine the two requirements introduced in (10) and (11), Greenberg postulates a function Inrmax, presented in (13):

(13)   Inrmax ($\langle w,I \rangle$): {v: v $\in$ inr $\langle w,I \rangle$ $\cup$ v $\in$ inr $\langle w_{Lewisian},I \rangle$

        Paraphrase: Inrmax is a function which takes world interval pairs and gives a set of worlds as a value. This set is a union of the worlds which are inertia worlds to $\langle w,I \rangle$ and those which are inertia worlds to $\langle w_{Lewisian}, I \rangle$ (i.e. inertia worlds to the worlds which are maximally similar to w, except for what is needed to allow for the fact that P set of individuals and the set of relevant situations are not identical to the set of P individuals and relevant situations existing in w, respectively.)

Apart from the semantic analysis of descriptive generalizations summarized above, Greenberg points out their two important pragmatic characteristics. Descriptive generalizations give rise to the presupposition of existence of individuals and relevant situations involving them of which the generalization is made. As a consequence, generalizations in (14)-(15) cannot be uttered if there are no existing relevant situations, or existing relevant individuals to support the generalization.

(14)   #Tall members of this club have names ending with 't'.
        (where this club was founded a week ago and no members are registered yet.)

(15)   #Members of this club pay their taxes on time.
        (where nobody has had to pay taxes yet)   Greenberg (2003:162)

Additionally, Greenberg postulates the *enough*-presupposition of descriptive generalizations (triggered by Grice's maxim of quality). For instance descriptive generalizations in (16) and (17) are odd in scenarios (a) in which there are not enough relevant P individuals in relevant situations involving them.

(16)   Green-covered books about the semantics of genericity contain no typos.
        a. Only three such books have ever been published.
        b. More than 100 such books have already been published.

(17)   Jews in Nevada are tall.
        a. There are only three Jews living in Nevada (and this is the average number of Jews before the present time as well)
        b. There are 3000 Jews living in Nevada.   Greenberg (2003:184)

2.2   'In virtue of' modality in English IS generics

Greenberg develops an intuition that IS sentences necessarily express what she calls 'in virtue of' generalizations. This means that an integral part of the meaning of these

sentences is having in mind some appropriately chosen property or aspect of our world, in virtue of which the generalization they express is true. The choice of this 'in virtue' of property is contextually constrained. Greenberg explains the nature of the 'in virtue of' accessibility relation in the following passage:

> 'The generic reading of IS sentences can only be obtained if the speaker has in mind, and the listener can accommodate, some relatively specific property associated with the property denoted by the IS subject, in virtue of which, or because of which, every member of the corresponding set has the predicated property. IS generics which express "in virtue of" generalizations are non-accidentally true in virtue of some property, associated with the subject property.' (Greenberg 2003:44)

For example *A boy does not cry* is intuitively evaluated in all worlds which are accessible from our world w.r.t. the property of *being a boy*. The set of these worlds is further restricted by the associated property ^S of boys in virtue of which they do no cry. Greenberg claims that a property ^S is associated with a property ^P in our world, iff we can find some modal base f, e.g. epistemic (what is known in w), deontic (what is required in w), legal (what the law provides), stereotypical (what the stereotypes in w say) such that in all the worlds accessible w.r.t. such a modal base f, it is true that $\forall x[P(x)] \rightarrow [S(x)]$. In this case the property which is associated with the set of boys is *being tough* which is clearly not true of all the boys in the actual world but rather of all the boys in all the worlds in which the western customs and stereotypes hold. Greenberg's definition of association is given in (18):

(18)   ^S is associated with ^P in w iff there is a Kratzerian accessibility function *f* from worlds to sets of propositions (epistemic, deontic, stereotypical, legal, etc.) such that $\forall w'$ [w' R_f w] $\rightarrow \forall x$ [^P (x,w')] $\rightarrow$ [^S (x,w') and ^S $\in$ C]

Where ^S stands for an 'in virtue of' property, the IS subject denotes ^P, the VP denotes ^Q and C is a contextually determined set of properties of the subject set, w' R_f w stands for the worlds appropriately accessible from the evaluation world

Paraphrase: ^S is associated with ^P in w iff $\forall x$ P(x)$\rightarrow$S(x) holds in all worlds epistemically accessible from w (where the facts known in w hold), or deontically accessible from w (where what is commanded in w holds), or stereotypically accessible from w - (where the stereotypes in w hold), etc. and ^S is a member of a certain contextually constrained set of properties C.

The truth conditions of IS sentences with the definition of association integrated is presented in (19):

(19)   An IS sentence is true in w iff:

∃ ^S ∀w' ∀x [^P(x,w')] → [^S(x,w') and ^S is a member of a certain set of contextually determined properties C₁] → ∀ x,s [^P(x,w') and C₂(s,x,w')] → [Q(s,x,w')]

Paraphrase: An IS sentence is true in a world w iff there is a property ^S, s.t. in all worlds w', where every member of the subject set ^P has ^S, and furthermore, ^S is associated in w with the ^P property (given (18)), then every member of the subject set, in all relevant situations, is a member of the VP set ^Q as well.

3   A distinction between generalizations over individuals and generalizations over evntualities

As mentioned earlier in section 2, Greenberg (2003) assumes following Carlson (1989), Schubert and Pelletier (1989), Wilkinson (1991, 1995), Diesing (1992), Chierchia (1995), Kratzer (1995), Krifka et al. (1995) that generic contexts have the same underlying representation headed by the Gen operator which is a non-overt unselective universal quantifier over individuals, situations and worlds. I depart from this view and I assume instead that a distinction should be made between the Gen operator which intensionally binds individuals and the Hab operator which intensionally binds eventualities (cf. Oosterhof 2006 and Farkas & De Swart 2007). Hence, the representations of generic statements in (20 a,b,c) are given in (21 a,b,c).

(20)   a. Children love Santa Claus.   (generalization over individuals)
        b. John smokes Camels.   (generalization over eventualities)
        c. Kangaroos jump high.   (generalization over individuals
                                            and eventualities)

(21)   a. ∀w' [(w' is appropriately accessible from w) → ∀x [child (x,w') → love SC (x,w')]]
        b. ∀w' [(w' is appropriately accessible from w)→ ∀e [smoke (e,j,w') → smoke Camels (e,j,w')]
        c. ∀w' [(w' is appropriately accessible from w) → ∀ x [kangaroo (x,w') → ∀e [jump (e,x,w') → jump high (e,x,w')]]]

Let me now justify the distinction between the Gen and the Hab by resorting to Oosterhof's (2006) two important arguments. The first argument is related to an asymmetry in aspect-sensitivity of generalizations over individuals and generalizations over eventualities. Only the latter ban the use of the progressive aspect under a generic interpretation, as shown in (22) and (23):

(22)   a.   Rotterdammers are watching TV (because Feyenoord is playing the
            Champions League final.)
       b.   In this season, hedgehogs are building up a reserve of fat.

(23)   a.   Luigi is drinking wine with his dinner. (implausible as generic)
       b.   Squirrels are eating nuts. (implausible as generic)

(Oosterhof 2006:10)

As observed by Oosterhof (2006), sentences in (22) receive a generic reading in the domain of individuals, even though they are expressed by means of the progressive aspect. In turn, generic sentences in (23) which express generalizations about eventualities cannot be expressed by means of the progressive aspect. The discussed contrast in aspect sensitivity of generalizations over individuals and generalizations over eventualities is a clear indication that they are distinct. Another argument in favor of the distinction between the GEN acting in the domain of individuals and the HAB acting in the domain of eventualities is related to the fact that in characterizing generic sentences two frequency adverbs can be used, as shown in a Dutch corpus example in (24):

(24)   Amsterdammers gaan doorgaans meestal op de fiets naar hun werk.
       Amsterdammers go   generally mostly on the bike to   their work
       'Generally, Amsterdammers mostly go to work by bike.'

Oosterhof (2006:17)

Oosterhof suggests that in the most natural interpretations of these sentences, the first adverb corresponds to generalizations about objects, while the second expresses a generalization over eventualities. The two facts justify the distinction between the Gen intensionally binding individuals and the Hab intensionally binding eventualities. This distinction enables me to treat descriptive and 'in virtue of' modal accessibility relations as underlying both generalizations over individuals and/or generalizations over eventualities.

4   Descriptive and 'in virtue of' modality in IS/BP generics and in perfective/imperfective generics

In this section I intend to provide arguments for the core hypothesis advocated in this study which is that the two types of modal mechanisms Greenberg postulated in the nominal domain for English IS/BP generics are mirrored in Polish perfective/imperfective generics in the event domain. Let me first focus on an analogy between BP and imperfective generics which both involve descriptive modality.

4.1   Imperfective habituals as descriptive generalizations over eventualities

Descriptive generalizations are made on the basis of a number of actual instances which allow us to conclude that there is some pattern or more specifically that the generalization is not limited to the actual instances only. Greenberg focuses on descriptive generalizations over individuals. I intend to show that in a majority of cases imperfective habituals express descriptive generalizations over eventualities. Let us consider Scenario 1 which proves this assumption.

(25)   a.   *Scenario 1:* This summer I spent two months at my friend's house in Sichuan province in China. My friend's name is Xiu. There were so many cultural differences between my eating habits and the eating habits of Xiu. For instance, *Xiu eats meatballs and drinks soya milk for breakfast and she eats rice and seafood for dinner.*

b.	Xiu	je	kotleciki mięsne	i	pije	mleko sojowe
	Xiu	eat-3SG-IMP	meatballs	and	drinks-3SG-IMP	milk soya
	na śniadanie	a	na obiad	je	ryż	i owoce morza
	for breakfast	and	for dinner	eat-3SG-IMP	rice	and seafood

'Xiu eats meatballs and drinks soya milk for breakfast and she eats rice and seafood for dinner.'

In this scenario we observe several actual instances of eventualities of Xiu's drinking soya milk and eating meatballs for breakfast and we generalize descriptively that what we observed is not limited to the actual instances of eventualities only. It follows straightforwardly from this that the descriptive accessibility relation underlies not only generalizations over individuals but also generalizations over eventualities. The truth conditions of the imperfective descriptive habitual sentence in (25b) are given in (26):

(26) $[\![$Xiu pije mleko sojowe (Xiu drinks-imp soya milk)$]\!]^{w,g}$ = 1 iff
$\forall w'$ [(w' $\subseteq$ Inrmax (<w,I>) $\wedge$ C(w')) $\rightarrow$ $\forall e$ [drink sth for breakfast (e,Xiu,w') $\rightarrow$ drink soya milk for breakfast (e,Xiu,w')]]

Paraphrase: *Xiu drinks soya milk for breakfast* is true in w iff in all the worlds w' which are inertia worlds to <w,I> and those which are inertia worlds to $<w_{Lewisian}, I>$, all eventualities of Xiu's sth for breakfast in w' are eventualities of Xiu's drinking soya milk for breakfast in w'.

Descriptive generalizations over individuals and descriptive generalizations over eventualities are not only semantically but also pragmatically analogous. Descriptive generalizations over eventualities also trigger the presupposition of existence of relevant

eventualities. For instance, generalizations in (27) and (28) cannot be uttered if there are no actual eventualities which support the generalization.

(27)   #Janek płaci   podatek dochodowy na czas.
          John   pays-3SG-IMP tax income   on time.
          'John pays income tax on time.'
          (where John has never paid any taxes on time)

(28)   #Julia pije   wino do obiadu.
          Julia   drinks-3SG-IMP wine for dinner.
          'Julia drinks wine for dinner.'
          (where Julia has never drank wine for dinner)

Additionally, not only descriptive generalizations over individuals, but also descriptive generalizations over eventualities give rise to the *enough*-presupposition (triggered by Grice's maxim of quality). Descriptive generalizations in (29) and (30) are unsuitable in scenarios (a) in which there are not enough relevant eventualities.

(29)   Jan pali   papierosy na balkonie.
          Jan smoke-3SG-IMP cigarettes on balcony.
          'John smokes on the balcony.'
          a. John has smoked on the balcony only once in his life.
          b. I've seen my neighbour John smoking on the balcony several times

(30)   Maria nosi   czerwone rzeczy.
          Mary   wear-3SG-IMP red   clothes.
          'Mary wears red clothes.'
          a. I have seen Mary wearing red clothes only once so far.
          b. I have seen Mary wearing red clothes several times on different occasions.

To sum up, it turns out that descriptive modality underlies not only generalizations over individuals but generalizations over eventualities as well. Apart from the analogy in the modality involved in descriptive generalizations over individuals and eventualities they share pragmatic chcracteristics. Both trigger the presupposition of existance and the 'enough' presupposition which together require that there exists a sufficient number of relevant actual instances of individuals or eventualities on which descriptive generalizations are based.

4.2   Perfective habituals as 'in virtue of' generalizations over eventualities

In this section, I intend to demonstrate that like English IS sentences in the nominal domain, perfective habituals express Greenberg-style 'in virtue of' generalizations in the event domain. In uttering a perfective generalization a speaker has in mind and a hearer needs to accommodate some background law-like evidence in virtue of which the

generalization is true. Let us consider the following perfective habituals in (31), (32) and (33):

(31)   Janek   pocieszy   w   potrzebie.
            Janek   PERF-comfort-3SG   in   need.
         'John will comfort you in need.'

(32)   Jarek   podniesie   nawet   czołg.
            Jarek   PERF-lift-3SG   even   tank.
         'Julia will not drink cheap wine.'

(33)   Julia   nie   wypije   taniego   wina.
            Julia   not   PERF-drink-3SG   cheap   wine.
         'Julia will not drink cheap wine.'

The speaker of (31) most probably means that John will comfort you in need because he is very considerate of other people's problems. In uttering (32), the speaker means that Jarek will lift even a tank because he is so strong, in (33), the speaker may mean that Julia will not drink cheap wine because she has high culinary standards or because she is a lady and drinking cheap wine does not suit her nobel and courtly manners. Thus, there is a pragmatic/contextual factor which plays a systematic role in the interpretation of perfective habituals. Before I attempt to explain the pragmatic mechanism involved in the interpretation of perfective habituals along the lines of Greenberg's theory of 'in virtue of' modality, let me show several diagnostics which indicate that there are strong similarities between IS generics in English and perfective habituals in Polish. First of all like IS generics, perfective habituals seem to express a sort of 'in-principle' generalizations, with a strong level of law-likeness. They contrast with imperfective habituals which are ambiguous between the 'in-principle' reading and a reading expressing some 'in-reality' pattern. Greenberg observes that IS generics express 'normative' statements, as shown in (34). The same strong normative flavor can be observed in perfective habituals like the one in (35):

(34)   A gentleman opens the door to a lady.

(35)   Janek   nie   uderzy   swojej   żony   kwiatkiem.
            John   not   PERF-hit-3SG   his   wife   flower-INSTR.
         'John will not hit his wife with a flower.'

Second, Greenberg observes that IS generics with subjects expressing 'extremely unnatural properties' or with VPs denoting 'extremely unconnected properties' get an unexpected prominent existential reading as shown in (36). Similarly, a prominent episodic reading arises with perfective habituals in absurdous contexts, as shown in (37):

(36)   a.   A Norwegian student whose name ends with 's' or 'g' wears thick green socks (a salient existential reading of the subject)

        b.   A carpenter in Amherst gives all his sons names ending with 'a' or 'g.' (a salient existential reading of the subject)

        c.   A famous semanticist sings German arias in the shower. (a salient existential reading of the subject)   (Greenberg 2003:30-33)

(37)   a.   Dalan   nie   naprawi   żonie   samochodu.
           Dalan   not   PERF-repair-3SG   wife   car.
           'Dalan will not repair his wife's car.'
           (a salient episodic reading)

        b.   Madonna   posprząta   w domu,   ugotuje   obiad
           Madonna   PERF-clean-3SG   in house   PERF-cook-3SG   dinner
           i zajmie się   dziećmi.
           and PERF-care-3SG REFL   children.
           'Madonna will clean her house, cook dinner and look after children.'
           (a salient episodic reading)

Greenberg claims that IS statements in (36) are infelicitous under a generic interpretation since it is impossible to find any 'in virtue of' property which could be non-trivially associated with an IS subject. Similarly in perfective habituals in (37) context does not provide any background evidence from which the prejacent perfective proposition could be indirectly inferred. Interestingly, Greenberg observes that discourse can facilitate the generic interpretation of IS sentences, as presented in (38):

(38)   a.   There are very interesting traditions in Norway concerning clothing, professions and last names. For example, *a Norwegian student whose name ends with 's' or 'j' wears thick green socks.*

        b.   The new health minister has bizarre salary criteria, for example, from now on, *a tall, left-handed, brown-haired neurologist from Canada earns $150,000 a year.*

        c.   Joshua Greenberg was a famous and admired carpenter in Amherst a hundred years ago. From that time until now *a carpenter in Amherst gives all his sons names ending with 'a' or 'g.'*
                                       (Greenberg 2003: 35)

Similarly, a proper context can rescue the habitual reading of perfective statements in (37), as shown in (39):

(39)   a.   Dalan ma dwie lewe ręce. *On nie naprawi swojej żonie samochodu. (glosses in 37a)*
           'Dalan is all thumbs. He will not repair his wife's car.'

    b. Jako dziennikarz, prowadziłem ostatnio wywiad z najlepszym przyjacielem. Madonny. Ujawnił kilka zaskakujących faktów o jej przyzwyczajeniach. Wszystkim nam się wydaje, że gwiazdy nie mają żadnych obowiązków domowych.
Okazuje się, że Madonna jest wyjątkiem. Jest bardzo samowystarczalna. *Sama posprząta w domu, ugotuje obiad i zajmie się dziećmi. (glosses in 37b)*
'As a journalist, I interviewed Madonna's best friend last week. He revealed some surprising facts about Madonna's habits. We all think that celebrities do not do any house chores. It turns out that Madonna is an exception. She is very self-reliant. She will clean her house, cook dinner and look after children.'

All italicized IS sentences in (38) are interpreted generically because context states explicitly that they follow from some local traditions or local payment regulations. In (39) all italicized perfective statements obtain a habitual reading, since context provides a background law-like proposition from which they can be indirectly inferred. These facts indicate that IS generics in English and perfective habituals in Polish are very similar. Both express 'in principle' rather than 'in reality' generalizations which are true 'in virtue of' some background evidence. Greenberg observes additionally that all IS sentences in (36) in which an IS subject gets a salient existential reading when uttered out of the blue become felicitous as generic with BP subjects, as shown in (40):

(40)   a. Norwegian students whose name end with 's' or 'g' wear thick green socks
          b. Carpenters in Amherst give all their sons names ending with 'a' or 'g.'
          c. Famous semanticists sing German arias in the shower.

                                            (Greenberg 2003: 30-33)

Similarly, all perfective statements in (37) in which perfective verbs get a prominent episodic reading become felicitous as generic when the verb has an imperfective aspectual form, as shown in (41):

(41)   a. Dalan   nie   naprawia   żonie   samochodu.
             Dalan   not   repair-3SG-IMP   wife   car.
             'Dalan will not repair his wife's car.'
             (a salient habitual reading)
          b. Madonna   sprząta   w domu,   gotuje   obiad
             Madonna   clean-3SG-IMP   in house   cook-3SG-IMP   dinner
             i zajmuje się   dziećmi.
             and look after-3SG-IMP REFL   children.
             'Madonna cleans her house, cooks dinner and looks after children.'
             (a salient habitual reading)

These facts indicate that there is a clear contrast between BP and IS generic sentences in that BP sentences can felicitously express bizarre generalizations, the felicity of IS sentences heavily depends on real world knowledge about norms, regulations, norms, traditions. The same holds for the contrast between imperfective and perfective habituals. Only imperfective habituals are felicitous under a generic interpretation in absurdous contexts while perfective ones express only those generalizations which follow from some background law-like evidence and which express what is generally considered reasonable in the actual world. These facts indicate that the 'in virtue of' modal mechanism does not only underlie generalizations over individuals taking the form of English IS generics or Polish count singular generics but it also underlies generalizations over eventualities taking the form of perfective habituals in Polish. This means that the 'in virtue of' accessibility relation restricts the set of worlds restricting the Hab operator in generalizations over eventualities. The truth conditions of 'in virtue of' habituals like for instance *Jan pocieszy cię w potrzebie* 'John will comfort you in need' are presented in (42):

(42) $[\![$ *Jan pocieszy cię w potrzebie (John perf-comfort you in need)* $]\!]^{w,g} = 1$ iff
        $\forall w'$ [(John has a high empathy in w') $\rightarrow \forall e$ [do sth when you are in need (e, John,w') $\rightarrow$ comfort you when you are in need (e, John,w')]]

        Paraphrase: *Jan pocieszy cię w potrzebie (John perf-comfort you in need)* is true in a world w iff a speaker has in mind and a hearer accommodates a law-like proposition *John has a high empathy* s.t. in all worlds w' in which the law-like proposition *John has a high empathy* is true, all eventualities of John's doing sth when you are in need in w' are eventualities of John's comforting you in need in w'.

In other words, in order for perfective statements to be interpret as generic, a speaker needs to have in mind and a hearer needs to accommodate (tacitly add to the common ground) a law-like proposition which expresses an inherent property of the subject or some law-like aspect of the world in virtue of which the asserted perfective habitual statement is true. The accommodated law-like proposition updates the common ground by removing the worlds in which this proposition is false and by keeping the worlds in which this proposition is true and the worlds in which the accommodated proposition is true are also the worlds in which the asserted perfective statement is true (cf. Stalnaker 1968, 2002, Von Fintel 2006).

4.2.1   Perfective habituals as markers of an evidential mechanism of indirect inference

I this section I explain why there exist some habitual contexts for which it is possible to accommodate a background law-like evidence but which nevertheless can be expressed by means of the imperfective aspect only, as exemplified in (43).

(43)   a.   Krowa   Mary   daje   mleko.   (=felicitous as generic)
            Cow-SG   Mary   give-3SG-IMP   milk.
            'Cow Mary gives milk.'

       b.   #Krowa   Mary   da   mleko.   (=infelicitous as generic)
            Cow-SG   Mary   PERF-give-3SG   milk.
            'Cow Mary will give milk.'

       c.   Nasza   kura   Balbina   znosi   jajka.   (=felicitous as generic)
            Our   hen   Balbina   lays   eggs.
            'Our hen lays eggs.'

       d.   #Nasza   kura   Balbina   zniesie   jajka (=infelicitous as generic)
            Our   hen   Balbina   PERF-lay-3SG eggs.
            'Our hen lays eggs.'

In (43b) and (43d) one could potentially accommodate respective law-like propositions *Cow Mary has a milk-giving physionomy* and *Our hen Balbina has an egg-laying physionomy* and in principle the perfective forms in (43b) and (43d) should be felicitous as habitual. I suggest that there is an additional restriction on the use of perfective habituals. My claim is that perfective habituals serve as markers of an evidential mechanism of indirect inference. Habitual statements in (43a) and (43c) are statements of facts. They express propositions whose truth follows straightforwardly from the definition of the subjects, hence they do not need to be indirectly inferred from the law-like evidence. The contrast between habituals expressing statements of facts, of the type presented in (43) and habituals whose content is indirectly inferred from some background law-like evidence, of the type presented in (31-33) is reminiscent of the contrast between assertotic judgements and epistemic modal statements illustrated in (44) and (45):

(44)   Looking out the window during our Arizona trip, I see pouring rain.
       (DIRECT EVIDENCE)
       a.   It's raining.
       b.   #It must be raining.

(45)   In a windowless conference room, I see people coming in folding up their
       wet umbrellas.
       (INDIRECT EVIDENCE)
       a.   #It's raining.
       b.   It must be raining.
                              Von Fintel and Gillies (2007:1)

In (44) a speaker bases his statement on the direct evidence. He can see that it is raining and he asserts it. In spite of the fact that the truth conditions of an epistemic necessity modal *must* are satisifed, namely it is true that in all the worlds in which the evidence

holds (rain pouring behind the window) the prejacent proposition *It's raining* holds as well, it is impossible to use an epistemic modal in this scenario. In order to account for the contrast between assertions and epistemic modal statements in (44) and (45) Von Fintel and Gillies (2007) arrive at the generalization that epistemic modals are evidential markers i.e. they signal that the prejacent was reached through an indirect inference rather than on the basis of direct observation or trustworthy reports. They illustrate the process of indirect inference which underlies epistemic modal statements in (46):

(46)   The ball is in A or in B or in C.
         It is not in A. It is not in B.
         So, it must be in C.

In (46) the conclusion is certainly correct and in principle the fact that the ball is in C could be expressed by means of an assertion but a speaker chooses the modal form since he wants to signal that he arrived at his conclusion through indirect inference. My explanation of the facts in (43) is that perfective habituals cannot be used to state obvious facts which follow directly from the definition of a subject, in the same way as epistemic necessity modals cannot be used to state facts which follow from some direct evidence, as in (44). In (43) we express a known fact which does not need to be inferred, hence the use of the perfective aspect would not serve its purposes of marking the evidential mechanisms of indirect inference.

5   Conclusions

In Greenberg's (2003) study of the semantics of IS and BP generics, the main claim is that they both express law-like generalizations over individuals but they differ in the accessibility relation restricting the Gen operator. Greenberg argues that BP generics involve the descriptive or the 'in virtue of' accessibility relation while IS generics involve only the 'in virtue of' accessibility relation. In this study I provided arguments showing that the two types of modal mechanisms Greenberg postulated in the nominal domain for English IS/BP generics also underlie Polish perfective/imperfective generics in the event domain. I first justified a distinction between generalizations over individuals headed by the Gen and generalizations over eventualities headed by the Hab and then I provided arguments showing that descriptive and 'in virtue of' modal mechanisms underlie not only generalizations over individuals but also generalizations over eventualities. One conclusion is that it is possible to make descriptive generalizations not only over individuals but also over eventualities i.e. after observing several actual instances of eventualities forming a certain pattern we can conclude that the series of recursive eventualities we observed is non-accidental. Apart from the analogy in the modality involved in descriptive generalizations over individuals and eventualities they share pragmatic characteristics. Both trigger the presupposition of existance and the 'enough' presupposition which together require that there exists a sufficient number of relevant actual instances of individuals or eventualities on which

descriptive generalizations are based. This means that the descriptive accessibility relation restricts not only the set of worlds bound by the Gen in generalizations over individuals but it also restricts the set of worlds bound by the Hab operator in generalizations over eventualities. In a similar manner, I concluded that not only in uttering an IS generalization but also in uttering a perfective generalization a speaker has in mind and a hearer needs to accommodate some background evidence in virtue of which the generalization is true. Like IS generics, perfective habituals seem to express a sort of 'in-principle' generalizations, with a strong level of law-likeness. Moreover, both IS generics and perfective habituals get a prominent existential/episodic reading in 'out of the blue' contexts in which no inherent or associated property of a subject and no norm, tradition or stereotype can be accommodated. However when we state explicitly that they follow from some norm, stereotype or law their generic or habitual reading becomes prominent. These facts indicate that the 'in virtue of' modal mechanism does not only underlie generalizations over individuals taking the form of English IS generics or Polish count singular generics but it also underlies generalizations over eventualities taking the form of perfective habituals in Polish. This means that the 'in virtue of' accessibility relation restricts the set of worlds bound by the Hab operator in generalizations over eventualities. Finally, I suggested that there is an additional restriction on the use of perfective habituals, namely they are used as markers of an evidential mechanism of indirect inference which makes them similar to epistemic necessity modals (cf. Von Fintel and Gillies 2007). Like epistemic modals, perfective habituals cannot be used as assertions or statements of obvious facts which do not need to be inferred from some indirect evidence.

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