Generics and Grammar

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In these notes we will: (i) examine the rich empirical landscape of generic statements so as to gain an understanding of why exactly their correct truth-conditional characterization has proven so elusive; (ii) look into two major semantic theories of generics: genericity as kind-predication and genericity as quantification; and discuss the cognitive footprint of generic statements and how inductive vs. regulative generalizations may be realized in language.

Sections 1 through 3 are based mostly on Krifka et al. (1995), Mari et al. (2013), Lerner and Leslie (2016), so much of the data and many observations are taken directly from there. Data and observations in Section 4 are from my joint work with Hana Filip.

1 A primer on generic statements

- Generic statements provide "non-accidental", "principled" characteristics of some (type of) individuals/situations. They are essential to express the ways in which we view the world and how we reason about it, and a fundamental part of how we transmit our knowledge to others.
- We will distinguish two main kinds of generic statements.

Kind reference Generalizations about kinds which their individual members cannot have.

Different languages may impose different requirements on the form of a kind denoting NPs. We will ignore such matters here.

(1) a. Silk was discovered in China.

b. Alligators are common in Florida.

c. The dodo became extinct in the 17th century.

d. The bronze was invented as early as 3000 B.C.

- Kind reference is tied to an argument of a verb. It is an NP that directly refers to a kind, called a "kind denoting NP".
- Natural languages have predicates like *extinct* and *invent* that directly select for kind referring terms in one of their argument positions.

(2) $[\lambda x_k \,.\, extinct(x_k)](^{\uparrow}dodo)$

For a expression like "dodo", assume that $\uparrow$ *dodo* stands for its kind-level referent (as opposed to simply *dodo*). When helpful, we'll also distinguish between variables ranging over individuals, x_o, and kinds, x_k.

Characterizing generics Generalizations over a set of entities and/or situations; they may or not apply to the kind as a whole.

(3) a. Milk contains protein.

b. Dogs bark.

c. The dog barks.

d. A bishop moves diagonally.

e. John smokes after dinner.

We will not consider Indefinite Singular generics like (3d). The locus classicus here is Heim (1982), the modern classic is Greenberg (2003).

Habituals such as (3e) are sometimes treated separately from characterizing generics (e.g. Doron and Boneh 2013).

- Note that kind reference and characterizing genericity occur independently of each other:
  - Not all the characterizing generic sentences have a kind referring NP (e.g., *John smokes*, *the sun raises in the East*).
  - Generic kind reference may arise in sentences that are episodic (i.e., make reference to specific situations), as in *Marconi invented the radio*.
- Note that overtly quantified statements such as *Bishops always move diagonally* and *All bishops move diagonally* also provide generalizations, but unlike generics they carry information about **how many** individuals/situations have the property in question.

✺ Today we focus on Characterizing Genericity (CGs).

① While the truth-conditions of overtly quantified statements are more or less well-understood, CGs continue to resist analysis. Our first stop is an exploration of the difficulties in determining the truth-conditions of CGs.

② We then discuss two major types of approaches to the semantics of CGs: *reductionist* analyses that advocate reducing CGs to kind predication, and *quantificational* analyses, where CGs involve a covert vague quantifier GEN.

In contrast kind predication is simply assumed to obtain through a predicate–argument relation (duh!).

③ The tension between the two types of analyses raises the question: can–and if so should–we provide a unified semantics for all generic characterizing statements? We will see some evidence that the answer is negative: there are two notionally distinct types of CGs, inductive and normative, and we will see some initial linguistic evidence in its favor.

We could consider the following as a null hypothesis: CGs constitute a single class of sentence types for which a unified semantic analysis is possible and desirable.

2 What makes a generic statement true?

- The following are a number of well-known properties of CGs that are responsible for the resistance they pose to formal semantic analysis.

Exceptions The aspect of the semantics of CGs that is perhaps more difficult to model is their relationships to *exceptions* to the predicated property. Some CGs allow exceptions, others do not, and some even are exceptional.

(4) a. Birds fly. $\rightsquigarrow$ *in the general case...*

b. Triangles have three sides. $\rightsquigarrow$ #*in the general case...*

c. Mosquitoes carry malaria. $\not\rightsquigarrow$ *in the general case...*

⇒ Being a minority does not preempt CGs.

Not about majorities Not any property that is true of a majority of a population guarantees the truthfulness of its corresponding generic statement.

(5) a. Germans are right-handed. FALSE

b. Books are paperbacks. FALSE

⇒ Being a majority is not sufficient for well-formed CGs.

Quantificational vagueness Although CGs seem to quantify somehow over entities, they resist analysis via well-understood formal quantificational devices. The issue is that, as a class, they are not equivalent to any sentences involving overt quantificational operators.

(6) *Not* ALL

a. Dogs have four legs. TRUE

b. All dogs have four legs. FALSE

(7) a. Students are female. FALSE

b. All students are female TRUE

Consider a context where by chance all students in some domain are female.

(8) *Not* MOST

a. Ducks lay eggs. TRUE

b. Most ducks lay eggs. FALSE

(9) a. Ducks are female. FALSE

b. Most ducks are female. TRUE

Consider a context where by chance most ducks in some domain are female.

(10) *Not* SOME

a. Dogs have three legs. FALSE

b. Some dogs have three legs. TRUE

(11) a. Letters from Antarctica go in this box. TRUE

b. Some letters from Antarctica go in this box. FALSE

Consider a context where no letter ever arrived from Antarctica.

(12) *Not* MANY

a. Dogs have long ears. FALSE

b. Many dogs have long ears. TRUE

(13) a. Humans travel in space. TRUE

b. Many humans travel in space. FALSE

(14) *Not universal quantification about "normal" instances*

a. Ducks lay eggs. TRUE

b. Every normal duck lays eggs. FALSE

⇒ No single natural language quantifier singles out all CGs.

Intensionality CGs describe not only what actually obtains as a matter of some observed regularity or habit, they can also determine what is a matter of some stipulation, which may be merely possible, hypothetical, and has never been actually realized.

Lawler (1973), Dahl (1995).

(15) a. Members of this club help each other in emergencies.
TRUE even if no emergencies have yet occurred.

b. John is a taxpayer.
TRUE even if John has evaded paying taxes.

c. This machine crushes up oranges and removes the seeds.
TRUE even if the machine is new and to be later destroyed accidentally in shipping.

- Notice too that co-extension does not guarantee truth:

(16) a. Lions have manes. TRUE

b. Lions are male. FALSE

⇒ CGs are irreducible to single (extensional) quantifier or quantity expression, such as *always*, *usually*, *generally*, etc.

Krifka et al. (1995) insist that this is the case no matter how vague and probabilistic such expressions might be.

Messy entailment patterns Unlike with ordinary predicates, in the case of CGs we cannot conclude anything about supersets or subsets from the the truth of a CG.

Nickel (2016)

(17) a. Baby giraffes have short necks $\not\Rightarrow$ Giraffes have short necks

b. Lions have manes $\not\Rightarrow$ Female lions have manes

$\Rightarrow$ It is not clear what the logic for CGs should be.

Context dependency Sometimes two contradictory generalizations about the same population may be judged true at the same time.

See Nickel (2008). The thing to know about doberman dogs is that they are born with floppy ears, but then breeders cut and shape them artificially.

(18) a. Dobermans have floppy ears.
TRUE, if said by a biologist, describing "nature's law".

b. Dobermans have pointy ears
TRUE, if said by a breeder describing main features of different species.

- Nevertheless, context-dependency is not absolute:

(19) Elephants are white.

Consider a context where you are looking at a white elephant.

$\Rightarrow$ CGs are subject to information supplied by the context and world-knowledge in unclear ways.

Homogeneity A similar phenomenon to what we see with plural definite descriptions: the negation of a FALSE CG is not necessarily TRUE.

Löbner (2002). Note that the negation of a TRUE generic is FALSE though.

(20) a. Dogs have three legs. FALSE
$\rightsquigarrow$ *generally, dogs have three legs*

b. Dogs don't have three legs. FALSE
$\rightsquigarrow$ *no dog has three legs*

(21) a. Lions are male. FALSE
$\rightsquigarrow$ *generally, lions are male*

b. Lions aren't male. FALSE
$\rightsquigarrow$ *no lion is male*

$\Rightarrow$ No law of the excluded middle for FALSE CGs.

$p \vee \neg p \vDash \top$

Summing up There is a clear tension: we have clear intuitions about what CG-statements are, but we cannot single out what the necessary conditions to form CGs are.

⇒ We seem to understand generic statements, but we don't understand why we understand them.

3 Kind predication *vs.* Quantification

- The standard treatment of generic sentences is that they contain an unspoken quantifier GEN, meaning, roughly, *generally*.

The orginal proposal dates back to Farkas and Sugioka (1983), would build on Carlson (1977). They take GEN to be a vague universal quantifier.

- However, given the issues reviewed above, several have argued against this received view. Instead, they propose that all forms of CG can be reduced to kind predication.

Most notably Liebesman (2011), Cohen (2013) and Nickel (2016, 2017).

- Next we will briefly touch upon kind predication, then review the initial reasons that were considered for positing GEN, its major criticisms and some of the counterarguments.

3.1 The kind predication approach

- According to the kind predication theory, all cases of CGs (of the form $\ulcorner Fs\ G \urcorner$) can be reduced to simple instances of a predicate-argument relation, at the kind level.

Of course this requires an explicit theory of how ordinary Bare Plurals such as *bird* come to denote a kind instead of ordinary objects. In linguistics, Carlson (1977) and Chierchia (1998) present the two most popular accounts.

- The claim is simple: all CGs predicate properties of kinds, and are true just in case the kind has the property. In this view, Bare Plurals refer directly to kinds.

- In some cases, predicates that do not readily take kinds as arguments require an adjustment through e.g. an operator *Gn*.

This was Carlson's (1977) original proposal.

(22) a. $extinct(^{\uparrow}dinousaurs)$

b. $Gn([\lambda x_o.\, fly(x_o)])(^{\uparrow}birds)$

- Above instead a typical quantificational tripartite structure, we have a monadic operator applying to a single property of object level individuals and returning a predicate of kinds.

- Others offer more radical views. Liebesman (2011), for instance, argues that **all** CGs are kind predication. Under his view, CGs have a bipartite structure identical to the structure of simple atomic sentences.

Including those with subjects other than Bare Plurals, although he never explicitly shows how to achieve such results.

- Thus the only interpretation of *dogs bark* corresponds to *the kind 'dog' barks*.

- So, why is (a) a good CG but not (b)?

(23) a. Lions have manes.

b. Lions are male.

- His answer is that "kinds can, and often do, inherit properties from their members. The truth of 'Dogs bark' is kind-level, though such a truth holds invirtue of facts about individual dogs".

- Can we make predictions, then? Not really: Liebesman is very clear that no systematic answer will be forthcoming to the question of when a kind inherits a property from its members. It is an **extra-semantic fact**, and thus it should not concern us (semanticists).

3.2 Quantification by GEN

Basics of GEN GEN is a dyadic and unselective quantifier, pretty much like other quantificational adverbs. For instance, suppose that *always* was a monadic operator taking a single propositional argument.

Lewis (1975). Assume simply that propositions are sets of situations that are part of the evaluation world (a maximal situation).

(24) a. $[\![\text{always}]\!]^{w,g} = [\lambda p_{\langle s,t\rangle} \,.\, \forall s(s \leq w \rightarrow p(s))]$

b. $[\![\text{Sue always gives a book to Mary}]\!]^{w,g} =$
$\forall(s \leq w \rightarrow \exists y(y \text{ is a book in } s \wedge \text{Sue gives } y \text{ to Mary in } s))$.

"*Every* ***actual situation*** *is s.t. Sue gives a book to Mary*".

- We have to **restrict** *always* to certain situations. How? Focus helps:

(25) a. Sue always gives A BOOK to Mary.
⇝*If Sue ever gives anything to Mary, it's a book*

b. Sue always gives a book TO MARY.
⇝*If Sue ever gives a book to anyone, it's to Mary*

⇒ We observe the same variation with CGs.

The classical examples involves typhoons: *Thypoons arise in this part of the Pacific.* On one interpretation, the sentence means that typhoons in general have the property of arising in that part of the Pacific; i.e. the sentence is FALSE. On its most salient reading–easier to access with focus on *typhoons*, the sentence means that there are hurricanes that arise in that part of the Pacific; the sentence is TRUE.

(26) a. Sue gives BOOKS to Mary.
⇝*If Sue ever gives anything to Mary, it's books*

b. Sue gives books TO MARY.
⇝*If Sue ever gives books to anyone, it's to Mary*

- In general, sentences with a quantificational adverb QAdv and some focused phrase XP_F in sentence *S* will be s.t. the restrictor *C* of QAdv is understood to be the non-focused material in *S* and the scope of QAdv is understood to be the focused constituent XP.

(27) [[QAdv *C*] [$_S$ ...XP_F ...]]
Where *C* is the **restrictor** and *S* is the **scope** of QAdv.

Sometimes the "scope" is referred to as the "matrix".

(28) [[GEN C] [$_S$ Sue gives A BOOK to Mary]]

a. Restrictor: $[\lambda s' . [\lambda x . \text{Sue gives } x \text{ to Mary in } s']]$

b. Scope: $[\lambda s' . [\lambda x . x \text{ is a book in } s']]$

c. Truth-Conditions:

$\text{GEN}s, x(s \leq w \wedge \text{Sue gives } x \text{ to Mary in } s \rightarrow x \text{ is a book in } s)$

"*Generally, situations where Sue gives something to Mary, are situations where Sue gives books to Mary.*"

(29) [[GEN C] [$_S$ Sue gives a book TO MARY]]

a. Restrictor: $[\lambda s' . [\lambda x . \exists y(y \text{ is a book in } s \wedge \text{Sue gives } y \text{ to } x \text{ in } s')]]$

b. Scope: $[\lambda s' . [\lambda x . x \text{ is Mary in } s']]$

c. Truth-Conditions:

$\text{GEN}s, x(s \leq w \wedge \exists y(y \text{ is a book in } s \wedge \text{Sue gives } y \text{ to } x \text{ in } s) \rightarrow x \text{ is Mary in } s)$

"*Generally, situations involving Sue giving a book to somebody, are situations where Sue gives a book to Mary.*"

Merits of the GEN account There are two main immediate advantages to the GEN approach.

❶ The multiple readings of sentences like (26) above.

❷ The fact that CGs makes statements about *instances of a kind*, not the kinds themselves.

- How could a kind predication theory account for these two facts?

The kind theorist's response to multiple readings Recall the classic example:

(30) Typhoons arise in this part of the Pacific.

a. Reading 1: *In general typhoons arise in this part of the Pacific.*

b. Reading 2: *This part of the Pacific is such that there are typhoons that arise in it.*

- A kind predication approach has no intuitive way to capture this ambiguity.

(31) $[\lambda x . \textit{arise-in-this-part-of-the-Pacific}(x)](^{\uparrow}\textit{typhoons})$

- Liebesman (2011) argues that Reading 2 of (30) corresponds in fact to a simple existentially quantified sentence:

(32) $\exists x(\textit{typhoon}(x) \wedge \textit{arise-in-this-part-of-the-Pacific}(x))$

- In support of this claim, Liebesman mentions the fact that sometimes sentences with Bare Plural subjects do get existential interpretations:

(33) Tigers are on the front lawn $\rightsquigarrow$ Some tigers are on the front lawn...

- However:
  - (33) is **not** a CG.
  - The truth-conditions are too weak, the sentence is rendered TRUE by a single typhoon.

⇒ So issue ❶ does not seem to have a good response from a kind predication perspective.

The kind theorist's response to CG's being object-level predications Issue ❷ involved the fact that CGs may be statements about individuals as much as they may be about kinds. So how could an LF like the one below capture this?

(34) $[\lambda x \,.\, \mathit{fly}(x)]({}^{\uparrow}\mathit{birds})$

- Cohen (2013) suggests that this is due to a post-semantic process known as "predicate transfer". The idea is that sometimes we produce sentences that involve a category mistake.

(35) a. The turkey-sandwich wants a soda.

b. Sue is parked outside.

- Obviously, sandwhiches don't drink soda, and people cannot be parked, so the corresponding LFs of (35) should be ill-formed. Since we can nevertheless interpret sentences like (35) without issue, Cohen suggests that these are reinterpreted post-semantically, as something like below:

Although the how reinterpretation process actually happens is a bit of a mystery.

(36) a. $[\lambda y \,.\exists x(x \text{ is the car of } y \wedge x \text{ is parked outside})](\text{Sue})$

b. $[\lambda y \,.y \text{ is eating a turkey-sandwich} \wedge y \text{ wants a soda})](\text{Sue})$

- Cohen proposes a similar post-semantic process to interpret CGs, where (a) is reinterpreted as (b):

(37) Birds fly

a. $[\lambda x_o \,.\, x_o \text{ fly}]({}^{\uparrow}\mathit{birds})$

b. $[\lambda x_k \,.\, \text{ members of } x_k \text{ generally fly}]({}^{\uparrow}\mathit{birds})$

- Sterken (2015) has pointed out two main issues with this account.

Leslie (2015) provides some more.

  - It amounts to stating that **all** CGs involve category mistakes.
  - They fail the *optionality criterion*: post-semantic processes like predicate transfer are always optional, meaning that we should still access their non-nonsensical (literal meaning).

From Recanati (2002).

(38) a. Sue is parked outside ⇝ Sue is parked outside, pretending to be a car

b. Birds fly ⇝ ?

⇒ Issue ❷ does not seem to have a good response either a kind predication perspective.

Some other objections against GEN Other objections that one finds from time to time in the literature include the following three.

① There is no known exponent of GEN.

Response: there is no known exponent of e.g. quantifier domain variables and we can't do without them.

② GEN's semantics seems to be intractable.

Response: upon closer inspection, many natural language expressions are problematic (as fundamental ones as logical connectives!). Perhaps GEN is problematic in a different way, but that is not a good *a priori* argument against its existence.

③ It makes the wrong prediction when it comes to conjoined predicates expressing both kind predication and CG predication:

Liebesman (2011)

(39) Mosquitoes are widespread and irritating.

Response: Kind predication and adverbial quantification co-occur quite often.

(40) a. Mosquitoes are widespread and [$_{\text{AdvQ}}$ usually irritating].

b. Mosquitoes are widespread and [$_{\text{AdvQ}}$ GEN irritating].

Easy to account for through conjunction reduction.

Some additonal evidence for GEN: binding GEN being a quantifier it comes well equipped to bind variables. Take a reflexive like (41):

(41) Cats clean themselves

- The correct formulation of the its truth-conditions require that any cat individual x cleans x, suggesting an interpretation along the following lines.

(42) $[\lambda x\,.x$ cleans $x]$.

- Clearly, *the kind cat clean the kind cat* does not make any sense, and an interpretation like *members of the cat kind clean members of the cat kind* does not capture the right truth-conditions of (41).
- Similar observations hold for Carlson's (1977) original example:

Bhatt and Pancheva (2006) point out another plausible argument: the "arbitrary" interpretation of PRO only arises in generic but not in episodic contexts (in non-obligatory control constructions):

(43) It is difficult [$_{\text{PRO-arb}}$ to dance the dance]

(44) This morning it is difficult [$_{\text{PRO}}$ to dance the dance], because the floors are wet.

(45) Ants know how to get back to their nests.

4 The need for two analyses

- It seems (in my own assessment), that some form of GEN operator will be required, while, at the same time, kind predication exists independently.
- The discussion above has been assuming that there is a **single** semantic analysis of cGs "to rule them all"! But is this the case?
- Next: present some new-ish data suggesting that (*i*) not all CGs are "created equal", **but** (*ii*) that this distinction is **unrelated** to the observed differences between kind predicational and quantificational treatments of CGs.

Advocates of CG-heterogeneity include Krifka (2013) and Pelletier (2010), but they are a a minority.

4.1 Rules and patterns

- Carlson (1995) discusses two different analyses to model CGs:
  - The Rules & Regulations (R&R) perspective:
    The truth of CGs depends on some causal structure or forces in the world that are behind episodic instances.

(46) a. Bishops move diagonally. — game rules
  b. Tab A fits in slot B. — operating instructions
  c. The Vice-President succeeds the President. — parliamentary rules
  d. Two magnets attract each other. — natural laws
  e. This machine crushes oranges. — design

  - The Induction perspective:
    CGs express inductive generalizations whose base is some observed set of instances. They are inferential generalizations based on patterns, as such they must be backed up by evidence.

(47) a. Birds fly.
  b. Dogs bark.
  c. John smokes after dinner.

- Interestingly, Carlson (1995) sees the two as **competing** approaches, and he favors the R&R approach.
- Nevertheless, it is quite apparent that the properties of CGs that the R&R excels at capturing are **precisely** the problematic ones for the Inductive approach, and vice-versa.

Although he does manifest some reservations wrt. to a possible unification of all CGs under a R&R analysis

(48) a. Rule descriptions: ✓R&R; ✗Ind.
Bishops move diagonally, In the UK one drives on the left...

b. Non-actuality: ✓R&R; ✗Ind.
This machine crushes oranges, Tab A fits in Tab B...

c. ILPs: ✓R&R; ✗Ind.
John is a bachelor/murderer...

d. Habituals: ✗R&R; ✓Ind.
John smokes after dinner, Ocassionaly Liz drives to work

e. Inferential generalizations: ✗R&R; ✓Ind.
Crows are smaller than ravens....

f. Gradability: ✗R&R; ✓Ind.
Dutchmen are good sailors, African marathoners run fast...

g. Exceptions: ✗R&R; ✓Ind.
(Categorically excluded from R&R.)

Krifka (2013) has already noted this, differentiating between "descriptive" and "definitional" generics, roughly corresponding to Inductive and R&R generics.

- Why not both? Intuitively the distinction between the two is clear...

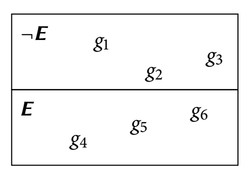
⇒ Can we find evidence for the existence of two types of CGs sentences each identified by different formal and semantic properties, and each marking only a part of the domain of CGs?

4.2 A new perspective

- **General Hypothesis**
  Learning of generalizations proceeds by either learning some R&Rs or by Induction.

- Rather than regarding **exceptions** as problematic, we are going to treat them as having a privileged status!

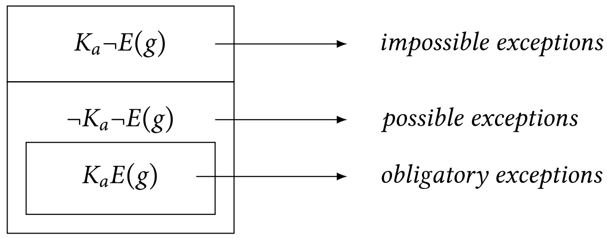
- **Fact**
  For some generalization g, either there are exceptions to g, or there aren't; E ("has exceptions") induces a bipartition of the space of all g.



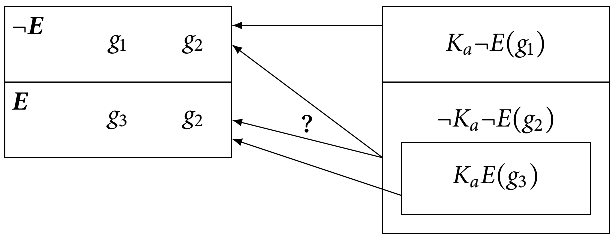
- **Consequence**
  Given that for any g, either $E(g)$ or $\neg E(g)$, a cognitive agent a may contend three hypotheses as to what supporting evidence there is for g: either a knows that g has exceptions, a knows that g hasn't exceptions, or a does not know whether g has exceptions.

We write $K_a\varphi$ to express that "a knows φ".

- Let's represent a epistemic space as follows:


$K_a \neg E(g)$
impossible exceptions
$\neg K_a \neg E(g)$
possible exceptions
$K_a E(g)$
obligatory exceptions

- Now we can express Agent a's three options like this:



- **Strong generalizations**
  R&R generalizations permit no exceptions, no counter-instances; they live in $\neg E$.

- They convey dispositions whose defining properties/conditions do not change, are taken to be tendentially stable and not expected to change.

We should resist the temptation to say that these are "necessarily" stable: think about *bachelor*; societal changes may lead to redefine what it means to be a bachelor (by virtue of redefining what it means to be married). But note that, if you are bachelor you must be a bachelor all the time.

- In these cases, the issue of exceptions with wrt. some episode of some generalization to **does not meaningfully arise**. Let's call these Strong Generalizations.

(49) a. Triangles have three sides.

b. Cats are mammals.

c. This machine crushes oranges.

d. John is a bachelor.

- **Weak Generalizations**
  Inductive generalizations are **inferential**: by repeated observation of episodes $p_1 \dots p_n$, a pattern emerges.

- They are *ceteris paribus*: for all we know they *could* constitute a Strong Generalization.

(50) a. Birds fly.

b. John smokes after dinner.

c. Dutchmen are good sailors.

d. Typically books are paperback.

- Unlike Strong Generalizations, these are **Weak Generalizations**; the cognitive agent a cannot rule out the possibility of exceptions.

- Note that there is no one-to-one correspondence between the presence/absence of exceptions and R&R/Induction, since some Inductive generalizations do not have exceptions:

That is, R&R $\Rightarrow \neg E$; but $\neg E \not\Rightarrow$ R&R.

(51) a. The sun rises in the East.
$\rightsquigarrow$ *the causal forces driving the sun to rise in the East have been discovered and explicitly formulated in the rules of physics.*

b. Ravens are black.
$\rightsquigarrow$ *the causal forces driving ravens to be black have been discovered and explicitly formulated in the rules of biology, which can also account for exceptions.*

- Although *ceteris paribus*, these generalizations **behave** as Strong Generalizations: they are not inferential anymore.

And as we will see below, we have evidence that *linguistically* they pattern with Strong Generalizations.

- So let's clarify:

(52) a. Triangles have three sides.

b. The sun rises in the East.

c. John smokes after dinner.

d. Typically books are paperbacks.

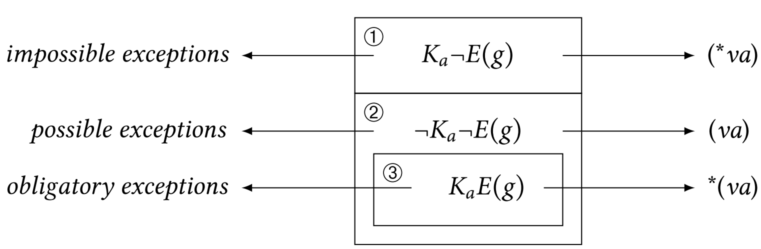
Type	**Strength**	***a*'s attitude wrt. *E***	
R&R	Strong	$K_a\neg E(g)$	(52a)
Induction	Strong	$K_a\neg E(g)$	(52b)
Induction	Weak	$\neg K_a\neg E(g)$	(52c)
Induction	Weak	$K_aE(g)$	(52d)

- So, what is all this for?
- **Concrete Hypothesis**
The weak/strong distinction is not just **notional**. The **linguistic reality** of such division is supported by the existence of expressions that pick out one sub-type.
- Up next: Czech verbal suffix *va*, which we take to be a generic marker of Weak Generalizations.

Another candidate is Spanish "habitual" periphrastic verb *soler*.

4.3 Morphological markers of Weak Generalizations

- The picture, in a nutshell:



- *Va*-generics stand for weak generalizations that require compatibility with exceptions; ② and ③: they signal that *a* is denying the existence of a relevant Strong Generalization.

- Thus, by employing a *va*-generic, *a* is committing herself to either the knowledge of exceptions (③) or explicitly signaling her ignorance concerning the absence/presence of exceptions (②).

- What is important about generic-*va* is that it must not be confused with its homonymous imperfective suffix *va*:

(53) **Imperfective *vs.* generic *va***

a.	psát write.INF *episodic*: to write/be writing *generic*: to write as a habit	b.	psá**va**t write.VA.INF *episodic*: - *generic*: to write as a habit
c.	přepisovat ITER.write.IMPF.INF *episodic*: to rewrite/be rewriting *generic*: to rewrite as a habit	d.	přepisová**va**t ITER.write.IMPF.VA.INF *episodic*: - *generic*: to rewrite as a habit
e.	dávat give.IMPF.INF *episodic*: to give/be giving *generic*: to give as a habit	f.	dává**va**t give.IMPF.VA.INF *episodic*: - *generic*: to give as a habit

The morpheme *va* (and its allomorphic variants) is a verbal suffix that previous literature has labeled as a frequentative or iterative marker (e.g. Dahl 1995, where *va* is treated as a marker of imperfective aspect. Here I will take for granted that *va* is not just a marker of imperfectivity (*pace* Dahl 1995; see again Filip and Carlson 1997 and Filip 2018.

- In what follows I will present five data-points in support of this characterization of *va*-generics.

Obligatorily generic Unlike formally unmarked generic statements (e.g. with imperfective aspect) *va* is unambiguously generic.

(54) a. Honza sedí v hospdě.
Jon sit.IMPF in pub
'Jon {is sitting / (usually) sits} in a bar.'

b. Honza sedá**vá** v hospdě.
Jon sit.VA in pub
'Jon {#is sitting / (usually) sits} in a bar.'

- Formally unmarked imperfectives behave as in English, they are ambiguous between generic and episodic interpretations.

- Generic-*va* is *sufficient* but not *necessary* for CG.

Obligatory verifying instances *Va*-generics require that there be at least one verifying instance of the generically-predicated property in the actual world.

They share this property with habituals.

(55) a. Tento stroj drtí pomeranče.
this machine crushes oranges
'This machine crushes oranges.'
…✓'although we haven't used it yet.'

b. Tento stroj drtí**vá** pomeranče.
this machine crush.VA oranges
'This machine crushes-*va* oranges.'
…✘'although we haven't used it yet.'

- Generic-*va* is ungrammatical in the absence of evidence.

Incompatibility with exceptionless CGs *Va*-generics are infelicitous with exceptionless generalizations such as analytical truths, constitutive and regulative rules, etc.; i.e. with R&Rs.

(56) a. Trojuhelník { má / #mí**vá** } tři strany.
triangle has has.VA three sides
'Triangles have three sides.'

b. V Anglii se { jezdí / #jezdí**vá** } po levé straně.
in England REFL drive drive.VA on left side
'In England one drives on the left.'

c. Velryba { je / #bý**vá** } savec.
whale is is.VA mammal
'A whale is a mammal.'

- This makes generic-*va* different with Q-adverbs like *usually*, etc., which are oftentimes compatible with exceptions.

Incompatibility with universal-Q Similarly, *va*-generics are incompatible with universal quantification that uses up the same situation variable.

(57) #Každou sobotu Honza sedá**vá** v hospodě
each Saturday John sits.VA in pub
'Every Saturday John usually sits in the pub.'

Obligatory with positive-counterinstances Generic-*va* **must** be used to express generalizations that concern generic properties to which there are known *positive counterinstances.* Leslie (2008)

(58) a. Books are paperbacks. FALSE

b. Typically, books are paperbacks. TRUE

(59) a. Knihy jsou brožované.
book.PL.NOM be.IMPF paperback
'Books are paperback.' FALSE

b. Knihy býv**a**jí brožované.
book.PL.NOM be.VA paperback
'Books tend to be paperback.' TRUE

No frequency conveyed The semantic contribution of the suffix *va* cannot be reduced to an ordinary quantifier over situations (e.g. *most*, *usually*).

- *Va* marks generic sentences that are true even in low-frequency cases.

(60) a. Žraloci napadá**va**jí plavce.
shark attack.VA bather
'Sharks may attack bathers.' TRUE

b. Žraloci obyčejně napadá**va**jí plavce.
shark usually attack.VA bather
'Sharks tend to attack bathers.' FALSE

- Generic-*va* may freely occur with quantificational adverbs denoting low frequency, such as *rarely*.

(61) a. Ten šuplík bý**vá** jen velmi zřídka zamčený.
that drawer is.VA only very rarely locked
'That drawer used to be locked only very rarely.'

b. #Usually the drawer is very rarelay locked.

Epistemic effects In cases where exceptions to the generically predicated property are not known, *va*-generics convey an additional epistemic meaning that the speaker is uncertain as to the extent to which the generality expressed by the proposition holds.

(62) U každého domu bý**vá** zahrada.
at each house is.VA garden
'At each house, there tends to be a garden.'
$\not\rightsquigarrow$ *in most situations, there is a garden next to each house*

(63) Felicity conditions of (62): Speaker *S* is commited to the following...

a. at least one house has a garden.
b. at least one house does not have a garden.
c. there is a house~garden pattern.
$\rightsquigarrow$ *S* cannot commit herself to a stronger statement.

Summing up All these properties of *va*-generics make it compatible with Weak Generalizations, but not with Strong Generalizations.

(64)

	Strong	Weak	*va*
Exceptions	✘	✓	✓
Verifying instances	✘	✓	✓
Epistemic effect	✘	✓	✓

4.4 Wrap up

- If this is on the right track, there is *linguistic evidence* for two types of CGs. It's not just a matter of on-the-surface non-uniformity of CGs; it is genuinely reflected in the semantic properties of marked/unmarked generics.
- The key factor to understand the distinction between marked (*va*) and unmarked (*va*-less) CGs in Czech (and Strong *vs* Weak Generalization in the general case) seems to be essentially modal: they signal speaker's commitment to (the possibility of there being) exceptions.
- But if that is so, then there is no hope for unification for all CGs.

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