Definitional Generics as Second-Order Predications

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Dear reader! Do you know what the word "greenhorn" means? It is a really annoying and denigrating term for anyone to whom it is applied. Green is the color, of course, and horn actually means "feeler". In short, a greenhorn is a person who is still green, new and inexperienced in the country, and who has to extend his feelers gingerly if he does not want to risk giving offense. —

A greenhorn is a fellow who doesn't get up from his chair when a lady wants to sit down, and who greets the man of the house before having paid his respect to the wife and daughter. He slips the cartridge in backward when he loads his gun, or first rams the primer, then the bullet, and finally the powder into his muzzleloader. A greenhorn either speaks no English at all or sounds stilted when he does. Yankee English or the jargon of the backwoodsmen is an abomination to him. He finds it impossible to lean that kind of language, let alone use it.

A greenhorn takes a raccoon for an opossum, and the prints of a turkey for the trail of a buffalo. A greenhorn smokes cigarettes and despises the man spitting tobacco juice. When he is slapped by a Paddy, a greenhorn will run to complain to the Justice of the Peace instead of shooting the fellow down on the spot in a true Yankee fashion. He hesitates to place his dirty boots on the knees of his traveling companion and to slurp his soup with the wheeze of a dying buffalo. Because he wants to keep clean, a greenhorn drags a sponge the size of a giant pumpkin and ten pounds of soap into the prairie with him. He puts a compass into his pocket only to discover three or four days later that the needle points almost anywhere but will never again point north.

Karl May, *Winnetou I* (1892), Chapter I: *A Greenhorn* (translation from German)

1. The landscape of genericity

Genericity, according to Carlson & Pelletier (eds.) 1995:

<u>Kind reference</u>

(1) *Steller's sea cow was extinct by 1768.*

Involves reference to kind individuals that are realized by specimens of the kind.

<u>Generic (characterizing) sentences:</u>

(2) *Sea cows grew about 8 meters long.*

Express non-accidental properties that hold of the members of a class of entities due to an underlying pattern. Often allow for exceptions (e.g., sea cows that did not reach the size of 8 meters because they were killed young, didn't have enough to feed, or were genetically defective).

<u>Kind reference and characterizing sentences combined</u>

(3) *The sea cow was also a slow swimmer and apparently was unable to submerge.*

The subject refers to the kind, Steller's sea cow, as in (1). But the sentence expresses a predication that is motivated by the fact that it also holds of most or all specimens, as in (2).

<u>Question addressed in this talk</u>

In Krifka e.a. (1995), a number of different interpretations for characterizing sentences were identified. In more recent work, but rooted in older work, two fundamental types were distinguished, here called **descriptive** and **definitional**. Example:

(4) a. *Boys like soccer.* (descriptive)
b. *A boy doesn't cry.* (definitional)

This talk tries to elucidate the nature of this distinction.

2. Descriptive and definitional generics: First characterizations

2.1 Descriptive generalizations vs. regulative definitions

<u>How they differ semantically</u>

Carlson (1995) discussed two contrasting views on the meaning of generic sentences:

- The **inductive** approach: Generic sentences express inductive generalizations based on some observed set of instances. Examples: *Dogs bark. / The sun rises in the East. / Jill walks to school.*
- The **rules-and-regulations** or **realist** approach: Generics express the "structures in the world" or "causal forces" behind instances. Paradigm cases: Regulations like *Bishops move diagonally,* physical rules like *Two massive bodies attract each other*, designs like *Tab A fits in tab B* (on a cutout toy).

Carlson argues for the rules-and-regulations approach for all generalizing generic sentences (that is, generic sentences excluding kind predications).

Later researchers (e.g. Cohen 2001, Greenberg 2003) argued that there are different types of generalizing generic sentences, one favoring the inductive approach, one favoring the rules-and-regulations approach:

- **Descriptive** generalizations; we assume underlying causal forces that explain them.
- **Definitional** statements that are based on "rules and regulations" that may concern rules of games, of social behavior, or of language use.

<u>How they are expressed</u>

Descriptive and definitional statements often show formal differences. The best-known distinction for English is:

- **Bare plural** NPs rexpress descriptive and also definitional generics.
- **Indefinite singular** NPs express definitional generics.

Original observation by Lawler (1973); his terms: accidental (descriptive) vs. essential generalizations (definitional statements)

(5) a. *A madrigal is polyphonic.* c. *Madrigals are polyphonic.* (definitional)
b. *#A madrigal is popular.* d. *Madrigals are popular.* (descriptive)

2.2 Greenberg (2003) on the description / definition distinction

- **Descriptive generalizations** "assert, on the basis of several actual instances of the set having the predicated property, that 'there is some pattern here.' In other words, the generalization is not accidental. In the case of *Boys don't cry,* we can imagine an alien from Mars visiting our planet and watching the behavior of children."

- **"In virtue of" (definitional) generalizations** "can only be asserted [with respect to] some relatively specific property associated with the property denoted by the [...] subject, in virtue of which every member of the corresponding set has the predicated property. For example, *A boy doesn't cry* will be true [...] if there is some property we associate with the set of boys: a genetic property, or a social norm property [...] in virtue of which every member of the set of boys will not cry."

2.3 Research questions

A. How can we characterize, and implement in a formal model, the semantic difference between descriptive and definitional generics?

B. How is this difference marked in language(s)? If it is not marked directly, are there other properties that typically go with one or the other interpretation of generics?

C. Can one derive the type of markings or the concomitant tendencies (B) from the semantic difference (A)?

3. The semantics of descriptive and definitional generics

3.1 Available options

Krifka e.a. (1995) present a number of possibilities for the representation of generic (characterizing) statements. We discuss some of them with the example:

(6) *A lion has a bushy tail. / Lions have bushy tails.*

Nonmonotonic inferences

There are various options; one is default logic, Reiter (1980):

(7) If **lion**(x) is true,
and if $\exists$y[**bushy_tail**(x) $\wedge$ **has**(x,y)] is consistent with what is known so far,
we can assume: $\exists$y[**bushy_tail**(x) $\wedge$ **has**(x,y)]

- Handles the possibility of exceptions well.
- Captures the fact that generics do not concern closed classes (like lions in a zoo).
- But: Generic sentences are analyzed as metalinguistic statements that lack truth values; generic sentences can be at most useful, not true.
- Unclear how to treat quantificationally modified generic sentences, e.g. *A lion often / sometimes / rarely / never has a bushy tail.*

Quantification over prototype

Nouns have prototypical extensions, generic sentences express universal quantifications over prototypical extensions:

(8) $\forall$x[TYP(**lion**) $\rightarrow \exists$y[**bushy_tail**(y) $\wedge$ **has**(x,y)]]

- Handles exceptions; exceptions are non-prototypical cases.
- But: Problems with predicate-specific prototypes, e.g. *a duck has colorful feathers* (only males do) and *a duck lays whitish eggs* (only females do).

Modal quantificational analyses

(9) **GEN**$_x$ (**lion**(x); $\exists$y[**bushy_tail**(y) $\wedge$ **has**(x, y)])
is true in worlds w iff $\forall$x[**lion**(x) $\rightarrow \exists$y[**bushy_tail**(y) $\wedge$ **has**(x,y)]] is true in the most ideal worlds relative to a notion of ideality in w.
Spelled out in a Lewis (1972) / Kratzer (1981) style analysis:
Sentence is true in w relative to a modal base B_w and an ordering relation $\leq_w$ iff
For every x and w′ $\in B_w$ such that **lion**(x) is true in w′
there is a world w″ $\in B_w$ such that
w′ $\leq_w$ w″ and **lion**(x) $\wedge$ **∃y[bushy_tail**(y) $\wedge$ **has**(x,y)] is true in w″
and for all w‴$\in B_w$ s.th. w″$\leq_w$w‴ **lion**(x) $\wedge$ **∃y[bushy_tail**(y) $\wedge$ **has**(x,y)] is true in w‴.

- Possible exceptions can be handled, as quantification is with respect to "ideal" worlds.
- Different flavors of generic sentences can be treated, as we may have different types of ideal worlds (different modal bases or ordering relations).

(10) a. *Dogs like to eat cheese.*
Ideal worlds contain only dogs with normal taste,
which refers both to the genetics of dogs and their upbringing;
epistemic modal based on what is known about dogs.

b. *Snakes are slimy.*
Ideal worlds contain only snakes that are slimy; stereotypical modal.

c. *Boys don't cry.*
Ideal worlds contain only boys that don't cry in typical situations that could lead to crying; deontic modal relating to behavioral standards imposed by society.

e. *Married couples pay reduced income taxes.*
Ideal worlds contain only married couples that pay reduced income taxes;
deontic modal relating to laws and their execution.

f. *Bachelors are unmarried males.*
Ideal worlds: Those where all bachelors are unmarried;
linguistic modality, referring to all worlds in which the rules of English are used in the way they are used in the world of evaluation.

g. *Quadratic equations have up to two solutions.*
Ideal worlds: Those where all quadratic equations have up to two solutions,
i.e. all possible worlds; alethic modality.

The worlds we quantify over depend on the property expressed in the restrictor and in the matrix. E.g. in (10.a) we quantify over worlds containing only normal dogs (restrictor) with respect to their taste (matrix) (cf. Chierchia 1995).

This avoids the problem of a possibly empty set of entities that are prototypical for a kind – but only with a slight modification:

(11) *Ducks lay eggs.*
Ideal worlds: Those in which all ducks are able to bear young and lay eggs.

Problem: There are no ideal worlds in which there are only female ducks. Solutions:

- Quantification about situations, i.e. partial worlds, or:
- Quantification is only about entities that satisfy the presuppositions of the consequent. Here: to lay eggs presupposes to be able to have young, i.e. presupposes to be female.

Probabilistic interpretation

Cohen (1999): Generics express relative probability judgments.

(12) Probability($\exists$y[**bushy_tail**(y) $\wedge$ **has**(x,y) | **lion**(x)]) $\approx$ 1

- Interpretation as relative frequency if number of **lion**(x) approaches infinity.
- Predicts that generics can be formed only for (potentially) open classes.

3.2 Descriptive and definitional generics in Greenberg (2003)

Greenberg (2003) proposes that descriptive and definitional generics have the same underlying semantics – one that involves modal quantification. They differ only in the nature of the accessibility relation

Descriptive generics

Descriptive generics express that the generalization constitutes a pattern that is not accidentally true, i.e. is not just restricted to the actual set of entities or circumstances.

(13) *Boys like soccer.*

is true in w, I iff

$\forall$w′[w′$\in$ **inrmax**(w,I) $\rightarrow$
$\exists$I$\subset$I′ $\forall$d,s[d are boys in w′ $\wedge$ C(s,d,w′) $\wedge$ loc(s,I′) $\rightarrow$ d like soccer in s in w′]

where
-- **inrmax**(w,I) is the set of inertia worlds that continue w and interval I in a normal way, except that they allow for other individuals than the ones in w to be boys,
-- C(s,d,w′) says that s is a contextually relevant situation in w′ that contains d,
-- loc(s,I′) says that s is a situation in interval I′

Definitional generics (“in virtue of” generics)

Assert that a generalization is nonaccidentally true due to some property (cf. Brennan 1993).

(14) *A boy doesn’t cry.*

is true in w iff

$\exists$S $\forall$w′ [$\forall$d [d is a boy in w′ $\rightarrow$ [d is a S in w′ and S $\in$ $C_{R(boy,\ w)}$]]
$\rightarrow$ $\forall$s, d [d is a boy in w′ $\wedge$ C(s, d, w′)] $\rightarrow$ d does not cry in w′ in s]

There is a property S (e.g., being tough) such that
S is associated with boys in w, i.e. ideal boys in w have property S
and for all worlds w′ such that all boys in w′ have this property S,
it holds that
every contextually relevant situation s in w′ that contains a boy in w′
is such that s does not cry in w′ in s.

- The accessibility relation R determines which properties S are salient for boys in w in the context – $C_{R(boy,\ w)}$.
- quantification is restricted to worlds w′ in which all boys satisfy the S property;
- we say that in those worlds every boy d in all contextually relevant situations s (i.e. situations that could lead to crying) are such d in fact does not cry in s.

But: Representation still insufficient, as the domain of w′ has to be further restricted; it is still **logically** possible that a boy that satisfies S actually does cry in an appropriate situation.

3.3 Definitional and descriptive generics in Cohen (2001)

Descriptive generics

Descriptive generics are not dealt with; cf. probability judgment account in Cohen (1999).

Definitional generics

In contrast to Greenberg, Cohen (2001) assumes distinct representation (in particular, a representation not related to probability):

(15) *A boy doesn’t cry.*

in-effect (! **boy**(x) $\Rightarrow$ $\neg$**cry**(x))

where
-- **boy**(x) $\Rightarrow$ $\neg$**cry**(x) is a formula, perhaps a modalized universal quantification,
-- ! **boy**(x) $\Rightarrow$ $\neg$**cry**(x) is a “rule” based on the formula,
where the formula describes a proposition that indicates how the world should be like in order to satisfy the rule.
-- **in-effect** (! **boy**(x) $\Rightarrow$ $\neg$**cry**(x)) is an assertion that the rule is in effect.

- Rules cannot be true or false. But with **in-effect**, we arrive at a sentence that can be true or false. A sentence like *A madrigal is monophonic* expresses a rule that is not in effect, hence it is false.
- Definitions like Φ[x] :$\Leftrightarrow$ Ψ[x] are rules that allow us to replace one expression by another in all contexts; partial definitions like Φ[x] :$\Rightarrow$ Ψ[x]allow us to replace Φ by Ψ in upward-entailing contexts. In order to work in full generality, definitions must be based on essential properties, not just accidental ones.

4. Definitional generics as predications about meanings

4.1 Proposal

- Descriptive generics and definitional generics have a fundamentally different representation.
- Descriptive generics are either based on modal quantification or on probability judgments – not discussed here.
- Definitional generics make statements about the meanings of expressions and how they should be used. This makes them second-order predications. They are not quantificational or based on probability judgments.
- This explains why bare plurals tend to be used for descriptive generics, and why indefinite singular generics tend to be used for definitional generics. But these are mere tendencies.
- This explains a number of other observations.

4.2 Predications about meanings

The standard way of using language: Communicate about the world

Meanings of expressions are fixed by the language shared by the interlocutors. The goal of the communicative move is to transfer information about the world.

(16) *John is tall.*
S(peaker) presupposes that A(ddressee) knows the meanings of *John, is, tall*;
S communicates to A about the world of utterance w that *John is tall* is true,
e.g. that John is substantially taller than the standard of a mutually recognized comparison class.

(17) *Boys like soccer.*
S presupposes that A knows the meanings of *boys, like, soccer*;
S communicates to A about the world of utterance w that *Boys like soccer* is true,
that is, that if x has the property *boys* one should expect that x also has the property of liking soccer.

(18) General pattern:
Assume S, A, interpretation function $[\![\cdot]\!]^S = [\![\cdot]\!]^A$, current common ground c;
if S utters assertion Φ, then S intends to restrict c to $c \cap [\![\Phi]\!]^{S/A}$

The other way of using language: Communicate about language

The meanings of expressions are often not completely fixed by the language shared by the interlocutors. That is, there is reason to assume that $[\![\cdot]\!]^S \neq [\![\cdot]\!]^A$. The goal of the communicative move is to make $[\![\cdot]\!]^S$ and $[\![\cdot]\!]^A$ more similar.

This is of great relevance in language learning, were $[\![\cdot]\!]^S$ and $[\![\cdot]\!]^A$ differ drastically.

(19) [Caretaker, with infant, watching a ball jumping up and down:]
And now the ball is jumping up and down.

Standard-fixing use of positive adjectives: Barker (2002).

(20) [A: *What do you mean by tall?* – B: *Well,*] *John is tall.*

S assumes that it may be that $[\![tall]\!]^S \neq [\![tall]\!]^A$.
S presupposes that A knows how tall John is.
Also, $[\![$*John is* tall$]\!]^S = 1$.
S intends to change $[\![\cdot]\!]^A$ such that $[\![$*John is tall*$]\!]^A = 1$, making $[\![\cdot]\!]^S$ and $[\![\cdot]\!]^A$ more similar.

Dictionary definitions:

(21) *In Irish mythology, a* ***leprechaun*** *(Irish: leipreachán) is a type of male faerie said to inhabit the island of Ireland.* [Beginning of entry in Wikipedia].

S does not assume that A knows the meaning of *leprechaun*; the goal is to enrich $[\![\cdot]\!]^A$ such that $[\![$*leprechaun*$]\!]^A$ is defined, and $[\![$*leprechaun*$]\!]^A = [\![$*leprechaun*$]\!]^S$.

S assumes that A assigns the same meaning to the other words of the definition.

S fixes (parts of) $[\![$*leprechaun*$]\!]^A$ by stating $[\![(21)]\!]^S = 1$, and by proposing that A changes $[\![\cdot]\!]^A$ such that $[\![(21)]\!]^S = 1$.

Partial definitions:

(22) *A greenhorn takes a raccoon for an opossum.* [Beginning of Karl May, Winnetou I]

As before, in particular:
S fixes (minor parts of) $[\![$*greenhorn*$]\!]^A$ by stating $[\![(22)]\!]^S = 1$, and by proposing that A changes $[\![\cdot]\!]^A$ such that $[\![(22)]\!]^A = 1$

Definitions need essential properties

The process of interpretation fixing is not quite as simple as saying that the addressee should consider a certain sentence as true. Consider the possible regular interpretation of (22):

(22) a. 'There is an x that is a greenhorn and x takes a raccoon for an opossum.'
(Existential, unusual as the predicate is stative, not episodic)

b. 'If someone is a greenhorn, he has the tendency to take a raccoon for an opossum.'
(Descriptive generalization)

(a) cannot be used to fix the meaning of *greenhorn*, as it just states a property of one element of the class. (b) is a better candidate, but it might still be too insignificant to characterize the class (think about mere descriptive generics). When a sentence is used in a definitional sense, then the property expressed of the term to be defined should be essential.

An objection: Definitions restricted to linguistic properties in the narrow sense!

Traditionally we take as definitions those are based on purely linguistic aspects (as presented in a dictionary), not on empirical aspects (as presented in an encyclopedia). e.g.:

(23) a. *A bachelor is an unmarried male.* (definition; analytic statement)
b. *Bachelors like to throw wild parties.* (empirical, synthetic statement)

However, following Quine (1951), "Two dogmas of empiricisms", it is questionable that there is such a strict distinction between analytic and synthetic truths.

Definitions as second-order predications on meanings

Proposal: Definitional sentences have a particular logical form in which a predication is made about a meaning (about an intension).

(24) *A leprechaun is a type of male faerie.*

type_of_male_fairie(^ **a_leprechaun**)

where ^ **a_leprechaun** is the intension of **a_leprechaun**, a property mapping possible worlds w to individuals x iff x is a leprechaun in w.

(25) *A greenhorn takes a raccoon for an opossum.*

↑ **take_raccoon_for_opossum**(^ **a_greenhorn**)

where ↑ stands for the lifting of a predicate to a second-order predicate on properties.

Cf. also ter Meulen (1980), second-order predcation:

(26) *Red is a (type of) color.* **a_color**(^ **red**)

Taxonomic readings of second-order predications.

(27) *A leprechaun is a type of male faerie.*

Here *type of faerie* applies to the set of subtypes of fairies (such as elves, gnomes, sylphs, trolls, goblins...), each understood as a property.

The meaning of an expression (a property) is restricted by identifying its position in a taxonomic hierarchy. This is possible if the addressee knows the hierarchy and corresponding properties (e.g., that fairies are spiritual creatures similar but different from humans, often with supernatural powers).

Characterizing property reading of second-order predication

(28) *A greenhorn takes a raccoon for an opossum.*

Here *takes a raccoon for an opossum* applies to properties P such that every x to which P applies has the property of taking a raccoon for an opossum (in a given situation where distinguishing these two animals is relevant).

In the characterizing property reading of a second-order predication $\uparrow\Phi(^\wedge\alpha)$ about the meaning (the intension) $^\wedge\alpha$ of an expression α S proposes to A to fix the interpretation $[\![\cdot]\!]^A$ such that (in all normal worlds w′) $\forall x[[\![^\wedge\alpha]\!]^A(w')(x) \rightarrow [\![\Phi]\!]^A(w)(x)]$.
This enables the addressee to draw inferences. For example, if informed that x is a greenhorn, and x is in a situation where identifying a raccoon y is relevant, the addressee can conclude that x will take y for an opossum.

4.3 Phenomena explained

To be X is to be Y

Burton-Roberts (1976) observes the following paraphrases:

(29) a. (i) *A whale is a mammal.* ⇔ (ii) *To be a whale is to be a mammal.*
b. (i) *A beaver builds dams.* ⇔ (ii) *To be a beaver is to build dams.*

He proposes (in Generative Semantics style) that the (i)-sentences are derived from the (ii)-sentences by a transformation.
The paraphrase holds for the definitional generics, but not for descriptive generics:

(30) a. (i) *A madrigal is polyphonous.* ⇔ (ii) *To be a madrigal is to be polyphonous.*
b. (i) *Madrigals are popular* ⇎ (ii) *To be (a) madrigal(s) is to be popular.*

This paraphrase option can be explained by current proposal: The second-order predication Φ fixes a meaning of an expression α such that whenever something falls under α, it also falls under Φ. This is expressed by the paraphrase.

Preference for indefinite singulars

The purpose of definitional generics is to give criteria when to call x a P. For this, singular forms are optimal because in the prototypical case x is a singular object. This also shows up in the *to be* – paraphrase:

(31) a. *To be a madrigal / ??madrigals is to be polyphonic.*
b. *To be a beaver / ??beavers is to build dams.*

This is just a preference and can be overridden when the predicate requires a sum individual:

(32) a. *Friends support each other.*
b. *To be friends is to support each other.*

Conjunctions and disjunctions of indefinite generics

Burton-Roberts (1976) observes that definitional generics do not like to be conjoined:

(33) a. *Beavers and otters build dams.*
b. **A beaver and an otter build dams.*

Observe that this is replicated with the paraphrase:

(34) **To be a beaver and to be an otter is to build dams.*

Disjunctions are possible, again reflected by the paraphrase:

(35) a. *A beaver or an otter build dams.*
b. *To be a beaver or an otter is to build dams.*

Possible reason for the difference:

- Disjunction of properties form a property again:
$[\![\textit{a beaver or an otter}]\!] = \lambda w\lambda x[[\![\textit{a beaver}]\!](w)(x) \vee [\![\textit{an otter}]\!](w)(x)]$
- Conjunction of properties to a property is possible, but this would refer to their intersection – not very useful if one wants to know something about the two concepts.
$[\![\textit{a beaver and an otter}]\!] = \lambda w\lambda x[[\![\textit{a beaver}]\!](w)(x) \wedge [\![\textit{an otter}]\!](w)(x)]$
- For some reason, the Boolean conjunction of the predicate is dispreferred, possibly because of their second-order interpretation.
$[\![\textit{a beaver and an otter}]\!] = \lambda \underline{P}\ [\underline{P}([\![\textit{a beaver}]\!]) \wedge \underline{P}([\![\textit{an otter}]\!])]$

Dobrovie-Sorin & Laca (1996) observe that conjunction sometimes is good:

(36) *A camel and a dromedary are very similar.*

This cannot just be due to collectiveness of predicate – cf. Cohen (2001):

(37) **A camel and a dromedary gather near waterholes.*

But notice that *be similar* is a reasonable predicate to be said of concepts (properties). They are similar iff their specimens are similar.

Evaluative nouns as subjects

Burton-Roberts (1976), with reference to Bolinger (1972), observes that evaluative degree nouns like *fool, scoundrel, angel, charlatan* do not occur in non-generic sentences. The also do not occur in descriptive generic sentences. Reason: Evaluative nouns are not descriptive.

(38) a. *A doctor lives on the opposite side. / ?? A fool lives on the opposite side.*
b. *Doctors like chamber music. / ??Fools like chamber music.* (M.K.)

But they do occur in definitional generics:

(39) a. *A fool is happy to be robbed.*
b. *A scoundrel is a man to steer clear of.*

Cohen (2001) points out the following cases, showing that bare plurals are dispreferred in definitional generics:

(40) a. *A chicken is a coward.*
b. *Chickens are cowards.* (Unlikely descriptive reading about real chickens).

Burton-Roberts uses this fact to claim that indefinite generics are like predicational nouns, as evaluative nouns occur preferably in this positoin:

(41) *John is a fool / a scoundrel / an angel.*

Explanation in current setting: Definitional generics are about the meaning of words. There is nothing that would make us expect that the meaning of evaluative nouns could not be explained in this way.

Categorizing use of definitional generics

A typical use of definitional generics is to indicate whether an entity falls / does not fall under a property. This is as predicted, as the definitional generics specify essential features about the meaning of the property.

(42) a. *Don't cry! A (real) boy doesn't cry.*

Use of future tense for definitional generics

(43) a. *Don't cry! A boy won't cry.*
b. *Ein Junge wird nicht gleich weinen.*
'A boy will not start to cry immediately.'
c. *Ein Gentleman wird einer Dame stets die Tür öffnen.*
'A gentleman will always open the door for a lady.'

Cf. also Babu (2006) for Malayalam (use of future marker *–um* for definitional and imperfective marker *–unna* for descriptive generics); Klimek-Jankowska (2008) for the use of present perfective (= future) markers in definitional generics quantify over eventualities.

Explanation: Definitional generics are used to give criteria for categorizing entities. This is a future-oriented task: For future encounters of entities x, the sentence will instruct us whether x falls under the defined property or not.

Difficulty of question contexts

Cohen (2001) notes that definitional generics are difficult to question:

(44) a. ? *Is a madrigal polyphonic?*
 b. *Are madrigals popular? / Are madrigals polyphonic?*

Explanation: Questions are fine with descriptive statements – they ask for information about facts. A definition is an instruction by S for A to use language in a particular way; this cannot be asked in the same way as a fact.

Difficulty in propositional contexts

(45) a. *Mary believes / swears ? that a boy doesn't cry. / that boys like soccer.*
 b. *It is not true ? that a boy doesn't cry. / that boys like soccer.*

In contexts that require standard propositons, definitional sentences are odd. This does not affect denontic modal sentences, which are not necessarily definitional:

(46) *Mary believes that a boy / boys shouldn't cry.*

Defintional sentences are fine under the predicates *hold*, which appears to be able to express an attitude towards language use.

(47) *Mary holds that a boy doesn't cry. / that John is tall.*

Different topic qualities; avoidance of definite article

Definitional generics cannot be expressed with explicit topic constructions.

(48) a. *As for madrigals, they are popular. / polyphonic.*
 b. ? *As for a madrigal, it is polyphonic.*

It is generally accepted that descriptive generics make a statement about a class of entities, hence this class can be named by a topic-marking expression.

Definitional generics are, in a sense, about the meaning of an expression, so they should have topical properties as well. But this expression is to be defined, hence it does not have the property of givenness to the same degree as in the case of descriptive generics.

This may also be behind the avoidance of the definite article with definitional generics, as definite articles would presuppose sufficient familiarity with the concept, but it is the purpose of definitional articles to establish the concept in the first place. Cf. Mari & Marin 2008

Incompatibility with adverbs of quantification ranging over defined term

(49) a. *A boy usually / typically doesn't cry. / A boy never cries.*
 b. *Boys usually / typically / often / sometimes / never like soccer.*

The (a)-sentences are fine, but the adverb does not quantify over boys as in descriptive statements, but over potential crying situations. For *A boy usually doesn't cry* we have:

(50) $\uparrow$ λx[**most** (s: s is a potential crying situation ∧ x is in s; ¬[x cries in s])] (^ **a_boy**)
 'If x is classified as a boy, then x usually does not cry in potential crying situations'

Modified nouns are less likely definitonal

Burton-Roberts (1976) points out the lack of *to be* paraphrase in:

(51) *A sick whale yields no blubber.* $\not\Leftrightarrow$ *To be a sick whale is to yield no blubber.*

Modified noun phrases often lack a definitional reading. Reason: Definitonal readings are concerned with teaching the understanding of expressions. Modified noun phrases are complex expressions that typically get their meaning compositonally. Therefore it is more useful to teach the meanings of simple expressions, and of idioms with non-compositional meaning.

(52) *A good child doesn't complain when asked to clean up the kid's room.*

This is definitional; *good child* cannot be decomposed into the meanings of *good* and *child.*

Scope orderings with descriptive and definitional generics?Schubert & Pelletier (1987), cf. also Cohen (2001):

(53) a. *Storks have a favorite nesting area.* (ambiguous: ∀storks∃area, ∃area∀storks)
 b. *A stork has a favorite nesting area.* (claim: only ∀stork∃area)

Explanation of (b): In the definitional reading, the whole remnant clause forms a secondary predicate. This forces narrow scope of other quantifiers:

(54) $\uparrow$ ∃y[**favorite_resting_area**(y) ∧ **has**(x,y)] (^ **a_stork**)

However, specific indefinites – perhaps generated by another mechanism – are possible:

(55) *A muslim turns to a specific direction when praying, namely to Mecca.*

A final note: Indefinite singulars in non-definitional sentences

Sentences like (51) also show that **indefinite singulars are not restricted to definitional generics**. Possible reason: the to readings do not compete. Cf. Farkas & de Swart 2007 for a similar competion account for bare plurals and definite generics.

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