

## Mass Definite Generics

Aviv SCHOENFELD

### Introduction.

Languages with definiteness and the count-mass distinction differ in whether the definite generic article is forbidden, optional or obligatory in (simplex) mass NPs, (1) (English, German, Spanish).

- (1)
- a. (#The) gold is getting more expensive.  
(*the gold* can refer to a kind of gold)
  - b. (Das) Gold steigt im Preis.  
(Dayal 2004:ex.86b)
  - c. #(El) agua se encuentra por todas partes.  
(Borik & Espinal 2015:ex.31b)  
the water<sub>refl</sub> found for all parts  
'Water is found everywhere.'

Although generic *the* is forbidden in the simplex mass NPs in (1a) and (2), it is optional in the complex ones in (3), with five sorts of modification. *Pesto* and *pesto sauce* are synonyms, so it is modification rather than meaning which licenses *the* in (3a) and (3b–e) by extension.

- (2) (#The) {pesto, hating, tuberculosis, tape, wine} is widespread.  
*unmodified*

- (3)
- a. (The) pesto sauce is widespread.  
*1st noun in N-N compound*
  - b. (The) electrician's tape is widespread.  
*modificational genitive*
  - c. (The) hating of minorities is widespread.  
*argumental genitive*

d. (The) pulmonary tuberculosis is widespread.

*relational adjective*

e. (The) French wine is widespread.

*classificative ethnic adjective*

We take the licensing by modification in (2–3) to be insightful about modification in general, and we attribute the optionality of *the* in (3) to modifiers having kind-level denotations.

As for (1), the analyses of Dayal (2004) and Borik & Espinal (2015) have different implications for how languages vary, and we give a new argument for the former from diachrony.

### **Background.**

Under Dayal (2004:§3.2), properties can shift to kinds via the type-shifts in (4).

(4)

a.  $\lambda P.\cap P$  ( $\cap P$  defined only if every extension of  $P$  has a maximal element)

‘The function from property  $P$  to its kind-correlate.’

b.  $\lambda P.\iota(\lambda k.P_{\text{taxonomic}}(k))$

‘The function from property  $P$  to the maximal element in the set of (proper and improper) kinds of  $P$ .’

(4a) is covert in English while (4b) is vocalized as *the*, and (4b) is applicable only if (4a) is not. To illustrate, (4a) is applicable to GOLD; in every situation with gold, the sum of all gold is gold. This applicability blocks (4b) (vocalized as *the*) from applying to GOLD, explaining *the* being forbidden in (5a). By contrast, (4a) is inapplicable to LION; in situations with multiple lions, the sum of all lions is not a (singular) lion. This allows (4b) vocalized as *the* to apply to LION, explaining *the* being obligatory in (5b).

(5)

- a. **WIDESPREAD** ( $\cap$ GOLD) (4b) blocked  
*(#The) gold is widespread.*
- b.  $\cap$ LION undefined **WIDESPREAD** ( $\cap(\lambda \mathbf{k}.\text{LION}_{\text{taxonomic}}(\mathbf{k}))$ )  
*(#The) lion is widespread.*

**Modification.** In Polish, the position of an adjective corresponds to a kind- or instance-level use.

(6)

- a. czarny    dzięcioł    ‘woodpecker who is black’  
(Wągiel 2014:ex.10)  
black    woodpecker  
*instance-level use*
- b. dzięcioł    czarny    ‘specimen of the species *Dryocopus martius*’  
woodpecker    black  
*kind-level use*

We posit that the sorts of modifiers in (3) have the dual-use in (6), but without affecting word order in English. In support, *pesto* has a kind-level use in *Pesto Genovese is a (widespread) pesto*. Also, there is theoretical intuition that modificational genitives like *electrician’s* in (3c) involve reference to kinds (Munn 1995). Lastly, McNally & Boleda (2004) analyze *pulmonary* in (7a) as having the kind-level denotation in (8a), which we extend to the modifiers in (7b–c) via (8b–c).

(7)

- a. Tuberculosis can be pulmonary.  
(McNally & Boleda 2004:ex.33)
- b. Hating can be of minorities.  
*genitive argument*
- c. This kind of wine is French.  
*classificative ethnic adjective*  
(Arsenijević et al. 2014)

(8)

a.  $\llbracket \text{pulmonary} \rrbracket = \lambda k. \mathbf{PULMONARY}(k)$

(McNally & Boleda 2004:ex.35b)

‘The set of kinds which verify the kind-level predicate PULMONARY.’

b.  $\llbracket \text{of minorities} \rrbracket = \lambda k. \forall w \forall e [R_w(e, k) \rightarrow *MINORITY_w(TH(e))]$

‘The set of kinds s.t. every possible event (e) which they realize (R) has a plurality of minorities (\*MINORITY) as its theme (TH).’

c.  $\llbracket \text{French} \rrbracket = \lambda k. \mathbf{ORIGIN}(k, \text{France})$

(Arsenijević et al. 2014:ex.17)

‘The set of kinds which come into existence within the spatial domain of France.’

(9) implements the dual-use assumption on *pesto* as a modifier (as in *pesto sauce*).

a.  $\llbracket_{\text{inst}} \text{pesto} \rrbracket = \lambda s \lambda x. \mathbf{PESTO}(x) \langle s, \langle e, t \rangle \rangle$

*instance-level property*

‘The function from situations s to the set of sums of pesto in s.’

b.  $\llbracket_{\text{subkind}} \text{pesto} \rrbracket = \lambda J \lambda k. J(k) \wedge \mathbf{PESTO}(k) \langle \langle e^k, t \rangle, \langle e^k, t \rangle \rangle$

*kind-level modifier*

‘The function from sets of kinds to their intersection with the set of kinds of pesto.’

We propose that the (non-)occurrence of *the* in (3) corresponds to two derivations of equivalent propositions. The bare version of (3a) utilizes (9a), whose property-intersection ( $\cap_p$ ) with SAUCE undergoes  $\iota$ ; it is covert in English, hence (10a) has bare *pesto sauce*. By contrast, the definite version of (3a) utilizes (9b), which prompts SAUCE to shift to **SAUCE** (the set of kinds of sauce), and the maximal element of the resulting set is picked out by  $\iota$  denoted by *the*, (10b). In both cases, the argument of **WIDESPREAD** is pesto sauce as a kind.

(10)

- a. **WIDESPREAD** ( $\cap \lambda w \lambda x. \text{PESTO}_w(x) \cap_p \lambda w \lambda x. \text{SAUCE}_w(x)$ )  
**WIDESPREAD** ( $\cap \lambda w \lambda x. \text{PESTO}_w(x) \wedge \text{SAUCE}_w(x)$ )  
*Pesto sauce is widespread.*
- b. **WIDESPREAD** ( $\iota \lambda J \lambda k. J(k) \wedge \text{PESTO}(k) \text{ SAUCE}$   
**WIDESPREAD** ( $\iota \lambda k. \text{SAUCE}(k) \wedge \text{PESTO}(k)$ )  
*The pesto sauce is widespread.*

We extend analysis (10) to Polish, which lacks a definite article but the use of adjectives manifests in word order, (11) (Wągiel p.c.).

(11)

- a. Pszenica zwyczajna jest rozpowszechniona w Europie.  
wheat common is widespread in Europe.LOC  
‘Common wheat (*Triticum aestivum*) is widespread in Europe.’
- b. Zwyczajna pszenica jest rozpowszechniona w Europie.  
common wheat is widespread in Europe.LOC  
‘Wheat which is ordinary for wheat is widespread in Europe.’

In our analysis, post-nominal *zwyczajna* ‘common’ in (11a) denotes a kind-level modifier which applies to **WHEAT** and returns a set whose maximal element is *Triticum aestivum*. This kind is picked out by  $\iota$  as in (10b), except  $\iota$  is covert in Polish. By contrast, pre-nominal *zwyczajna* in (11b) denotes an instance-level property which combined with **WHEAT** returns the property of instances of wheat which are ordinary for wheat. This property shifts to a kind via  $\cap$ , as in (10a).

Why does modification license mass definite generics in English? In our analysis, it is due to changing the locality facts. When **PESTO** is most local to the kind-level predicate, the mismatch is repairable via the highly-ranked  $\cap$ , which blocks lower-ranked type-shifts like (4b). By contrast, when **PESTO** is most local to the denotation of the modifier, the mismatch is unrepairable with  $\cap$ , which allows lower-ranked shifts like  $\cap_p$  in (10a) or the shift from **SAUCE** to **SAUCE** in (10b). The latter needs  $\iota$  denoted by *the* to achieve reference to kinds, hence modification licenses the definite generic article in mass NPs in English.

### Cross-linguistic.

(12) is Borik & Espinal's (2015:ex.63) account of the definite article being forbidden in (1a) and obligatory in (1c).

(12)

- |    |                            |         |                         |         |                      |
|----|----------------------------|---------|-------------------------|---------|----------------------|
| a. | Basic intension of noun    | English | instance-level property | Spanish | kind-level predicate |
| b. | Is $\cap$ in the language? |         | yes                     |         | no                   |

Following (12), the basic intension of *gold* is a property to which  $\cap$  is applicable, hence *the* is forbidden in (1a). By contrast, the basic intension of *agua* 'water' is a set of kinds whose maximal element is water as a kind. The only way to refer to this kind is via  $\iota$  denoted by *el*, hence it is obligatory in (1c). (12) could extend to account for the optionality in (1b) by positing that German has covert  $\cap$  and *Gold* is ambiguous between a property and a kind-level predicate, i.e. the bare version of (1b) results from covert  $\cap$  applying to the property-denotation of *Gold*, and the definite version results from  $\iota$  denoted by *das* applying to the kind-predicate denotation. However, it is unclear why languages should vary in the two ways in (12).

(13) is Dayal's (2004) account of (1), which assumes that  $\iota$  is a canonical function of the definite article while  $\cap$  is non-canonical. (13a) has the denotations of the definite articles, and it follows from (13b) that although the German definite article can denote  $\cap$ , this does not block covert  $\cap$ . Thus, bare and definite (1b) result respectively from covert  $\cap$  and  $\cap$  denoted by *das*.

(13)

- |    |  |         |  |              |
|----|--|---------|--|--------------|
|    |  | English |  | German       |
|    | Spanish  |         |  |              |
| a. | The definite article lexicalizes   | $\iota$ |  | $\iota \cap$ |
| b. | A covert type-shift is blocked if it is equivalent to any a canonical any function of an overt determiner. |         |  | $\iota \cap$ |

Unlike (12), diachrony offers an answer to why languages vary as in (13). English, German and Spanish represent consecutive stages in a diachronic progression where the definite article expands in use (Mainz 2020), which we formalize as acquiring  $\bar{n}$  in addition to  $\bar{i}$ . We further assume that there is a delay between acquiring  $\bar{n}$  and the universal Blocking Principle in (14) taking effect to block covert  $\bar{n}$ . Thus, the optionality in (1b) is due to German residing in the delay, while the obligatoriness in (1c) is due to (14) “catching up” after the Spanish definite article has acquired  $\bar{n}$ . Thus, we argue for (13) over (12) as an account of (1).

## References:

- Arsenijević, B. et al. 2014. Ethnic adjectives are proper adjectives. *Chicago linguistic society* 46. 17–30.
- Borik, O. & M. T. Espinal. 2015. Reference to kinds and to other generic expressions in Spanish: Definiteness and number. *The linguistic review* 32(2). 167–225.
- Dayal, V. 2004. Number marking and (in)definiteness in kind terms. *Linguistics and philosophy* 27(4). 393–450.
- Munn, Alan. 1995. *WECOL* 24, 181–195.
- Schmuck, Mirjam. 2020. The grammaticalization of definite articles in German, Dutch and English: A micro-typological approach. In *German and Dutch in contrast*, 145–178. Berlin/Boston: de Gruyter.
- Wągiel, M. 2014. From kinds to objects: Prenominal and postnominal adjectives in Polish. *Olomouc Linguistics Colloquium 2014*, 457– 476.