# Definite Kinds in Polish

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Though kind-reference and genericity both express generalizations about the world, there is a crucial linguistic and conceptual distinction between kind-referring nominals and generic sentences. While generics can take various forms and may include habituals such as *John smokes after dinner*, kind-reference is more restricted and refers directly to the abstract representation of a kind. One common test for reference to a kind is the subject's compatibility with kind-level predicates, e.g. *be extinct, be discovered, be invented*. Morphosyntactically, this distinction relies on the notion of NUMBER: a kind-referring subject is numberless whereas generic subjects may be singular or plural (following Borik and Espinal 2012, 2014; contra Dayal 2004). Within this framework, bare nouns denote properties of kinds, which must be bound by the iota operator to license direct reference to kinds. In English, the iota operator is encoded overtly via the definite determiner ((1). NUMBER is absent from the kind-denoting DP, because the role of NUMBER is instantiation, while kind-reference does not rely on instances of kinds (cf. B&E 2012:139: "all actualizers rely on the presence of NUMBER in morphology, syntax and semantics"). By contrast, reference to instances of kinds is built on NUMBER. Because there is no singular marker in English, numberless and singular DPs look alike ((2). Nonetheless, the existence of numberless nominals can be verified via linguistic tests for NUMBER, as illlustrated for Brazilian Portuguese ((3) and Polish ((4) below.

(1) The dodo is extinct. $[_{DP}$ the $[_{NP}$ dodo$]]$ ⤳ $\iota x_k[\text{dodo}'(x_k)]$

(2) The owl hunts at night. $[_{DP}$ the $[_{NP}$ owl$]]$ (*kind reference*)
    or $[_{DP}$ the $[_{NumP}$ SG $[_{NP}$ owl$]]]$ (*individual reference*)

(3) O professor tem livro. $[_{NP}$ livro$]$
    'The professor has book' (i.e. has published, may be one or many books)

(4) Sebastian nosi krawat. $[_{NP}$ krawat$]$
    'Sebastian wears tie' (i.e. it may always be the same tie or different ones)

Our claim is that Polish, a Slavic language without overt determiners, also encodes numberless definite kinds, following the pattern previously identified for English, Russian and Spanish (B&E 2012, 2014):

(5) Dodo wyginął. $[_{DP} \emptyset_{DEF} [_{NP}$ dodo$]]$ ⤳ $\iota x_k[\text{dodo}'(x_k)]$
    'Dodo went extinct'

Although Polish does not mark DEFINITENESS overtly, we assume the presence of a covert determiner in (5). We further assume that (covert) determiners are responsible for reference assignment (cf. Borer 2005, Pereltsvaig 2006). To illustrate, pronominal reference to determiner-less NPs is impossible (6), but when a demonstrative is present, the anaphoric pronoun is allowed (7). Crucially, kind-denoting nominals may also serve as pronominal antecedents (8), indicating that a covert determiner is present in these cases.

(6) #Jacek zbudował półkę na książki$_i$. Kupił je$_i$ przez internet.
    Jack built shelf.ACC for books$_i$. He bought them$_i$ online

(7) Jacek$_j$ potrzebuje półki na te$_j$ książki$_i$. Kupił je$_i$ przez internet.
    Jack$_j$ needs shelf.GEN for these$_j$ books$_i$. He bought them$_i$ online

(8) Wieloryb$_i$ wyginie, jeśli nie przestanie się na niego$_i$ polować.
    Whale$_i$ will become extinct if not stop REFL for it$_i$ hunt

To show that the covert determiner in kind-referring DPs is DEFINITE and that it triggers a uniqueness presupposition, we present some evidence from object topicalization. As illustrated by the minimal pair in (9), there is a strong preference in Polish for fronted objects to be interpreted as definite and unique. Hence, (9a) is acceptable but (9b) is defective, since a typical car has exactly one steering wheel but as many as four tires. Seeing that kind-denoting nominals are perfectly felicitous in the same configuration (10), we conclude that their syntactic representation includes a DP projection headed by a covert definite determiner, which translates into the iota operator in the semantics, thus presupposing uniqueness.

(9) CONTEXT: Mary began to draw a picture of a car.

   a. Kierownicę             narysowała   jako    pierwszą.
      steering wheel.FEM.ACC   drew.3SG.FEM as     first.FEM
   b. #Oponę             narysowała   jako    pierwszą.
      tire.FEM.ACC         drew.3SG.FEM as    first.FEM

(10) Żarówkę           wynalazł          Tomasz Edison.
    light bulb.FEM.ACC   invented.3SG.MSC   Thomas Edison

Although our Polish data is consistent with B&E's theory of kind-reference, it also points to some outstanding issues. Most significantly, the assumption that reference to kinds is derived via the application of the iota operator, which presupposes uniqueness, requires that bare nouns have exactly one kind in their extension. In other words, the kind WOODPECKER is in the denotation of [NP woodpecker] in English and [NP dzięcioł] in Polish, but the subkind BLACK WOODPECKER is not. Otherwise, the extension of [NP dzięcioł] would have no unique member for the iota operator to return as an output. Note that redefining iota as a maximality operator in the sense of Link (1983) does not solve the issue since there is no lattice structure defined on the domain of kinds in B&E (2012)'s theory.

While the assumption that bare nouns denote properties of unique kinds is not problematic on its own, it is incompatible with intersective analyses of kind modification proposed by McNally & Boleda (2004) for Catalan, B&E (2012) for Spanish, and Wągiel (2014) for Polish. The contradiction becomes apparent when we compare the translations below: (11) requires the predicate $woodpecker'$ to have the unique kind WOODPECKER in its extension, whereas (12) presupposes that BLACK WOODPECKER is also a member of $woodpecker'$.

(11) $[_{DP} \emptyset_{DEF} [_{NP} \text{dzięcioł}]] \rightsquigarrow \iota x_k[woodpecker'(x_k)]$

(12) $[_{DP} \emptyset_{DEF} [_{NP} \text{dzięcioł} [_{AP} \text{czarny}]]] \rightsquigarrow \iota x_k[woodpecker'(x_k) \wedge black'(x_k)]$

We propose to address this inconsistency by rejecting an intersective semantics for modified kinds. Instead, we claim that postnominal adjectives in Polish are modifiers of properties of kinds, with the subkind-of relation SK holding between kinds and their subkinds. Given the denotation of the adjective in (13), the iota operator can now apply to the modified noun in (14) without giving rise to a theory-internal contradiction (15).

(13) $[_{AP} \text{czarny}] \rightsquigarrow \lambda P \lambda x_{sk} \exists y_k[P(y_k) \wedge SK(y_k, x_{sk}) \wedge black'(x_{sk})]$

(14) $[_{NP} \text{dzięcioł} [_{AP} \text{czarny}]] \rightsquigarrow \lambda x_{sk} \exists y_k[woodpecker'(y_k) \wedge R(y_k, x_{sk}) \wedge black'(x_{sk})]$

(15) $[_{DP} \emptyset_{DEF} [_{NP} \text{dzi.} [_{AP} \text{czar.}]]] \rightsquigarrow \iota x_{sk} \exists y_k[woodpecker'(y_k) \wedge R(y_k, x_{sk}) \wedge black'(x_{sk})]$

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