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A Syntactic Approach to Indefinite Null Objects

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1 Indefinite null objects (INO) in the literature

(1) *John read___ (for days). / John was reading___ (when I entered the room).*

– generally assumed not to be present in syntax at all
– represented in the lexicon as a part of a lexical entry for a given verb, typically as a result of ∃-quantification

(2) a. argument structure **conversion**: x EAT y → (∃y) x EAT y (Bresnan 1978; Dowty 1978)
b. inference rules for **two lexical predicates**: x EAT ≡ (∃y) x EAT y (Fodor and Fodor 1980)
c. enriching LCS structure with a "zero" argument:
[CAUSE([Thing]$^{\alpha}_{i}$, [Event GO([Thing $\mathbf{0}$]$_{i}$, [Path TO([Place IN([Thing MOUTH-OF([α])])])])])] (Cote 1996)

2 Where we are heading

INO have to be derived by a generalized type-shifting ∃-closure (which I call Intransitivization), **operating on event-introducing argument-seeking little v** (verbalizer in the sense of Marantz 2013)

(3) **Intransitivization:** $\exists \rightsquigarrow \lambda T_{\langle e,vt\rangle}\lambda e_{\langle v\rangle}\exists x\,[T(x)(e)]$
(where e is the type of individuals, v is the type of events, t is the type of propositions)

Outline

1. **Evidence against** INO's **syntactic** representation (Section 4)
2. Deriving INO: need for an ∃-closing type-shifter and semantic **parallelism with** indefinite bare plural and mass nouns (**BP&MN**) (Section 5)
3. **Three arguments in support** of INO's productive, syntax-based derivation:
   (a) **morphosyntactic** one: secondary imperfectives take INO (6.1)
   (b) **syntactico-semantic** one: perfectives are incompatible with INO (6.2)
   (c) **pragmatic** one: INO licensed by context in a systematic way (6.3)
4. Comparison to a **related proposal by Alexiadou *et al.* 2014** (Section 7)

3 Introducing INO in Czech

(4) *Táta často vyřezává___ / zrovna teď vyřezává___ / *vyřeže___.*
Daddy often carves.IMPF / right now carves.IMPF / carves.PF
'Daddy often carves / is carving right now / will carve out.'

- highly productive, found with different lexical semantic classes of verbs
- combine only with imperfectives, in contrast to definite NO (*I won*), and overt indefinite pronouns (5)
- the imperfectives can have either a habitual or a continuous (progressive-like) interpretation, see (4)

(5) *Táta něco vyřezává / něco vyřeže.*
Daddy something carves.IMPF / something carves.PF
'Daddy is carving something / will carve something out.'

4 INO are NOT syntactic arguments

INO introduce a new discourse entity, which can be referred to with a pronoun (see Cote 1996:158 for English).

(6) *Karel jedl___ rychle. Bylo to vynikající.*
Charles ate.IMPF quickly was it delicious
'Charles was eating quickly. It was delicious.'

(7) INO **cannot serve as reflexive binders**
a. *Karel$_i$ maloval nějaké objekty$_{\emptyset}$ vedle sebe$_{i/j}$.*
Charles drew.IMPF some objects next self/selves
'Charles drew some objects next to himself/themselves.'
b. *Karel$_i$ maloval___$_{\emptyset}$ vedle sebe$_{i/*j}$.*
Charles drew.IMPF next self/selves
'Charles drew next to himself.'

(8) INO do **not control** into infinitival clauses
a. *Marie ne-může vzít telefon, protože zrovna učí___.*
Mary not-can pick phone because just teaches.IMPF
'Mary cannot pick up the phone because she is teaching right now.'
b. */?? *Marie ne-může vzít telefon, protože zrovna učí___$_{\emptyset}$* [PRO$_i$ *zpívat*].
Mary not-can pick phone because just teaches.IMPF sing.INF
'Mary cannot pick up the phone because she is teaching to sing right now.'
c. *Marie ne-může vzít telefon, protože zrovna učí___ zpěv-∅/zpěv-u.*
Mary not-can pick phone because just teaches.IMPF singing-ACC.SG.M/-DAT.SG.M
'Mary cannot pick up the phone because she is teaching singing right now.'

Selected references

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5 Deriving INO

5.1 Low-scope indefiniteness only

(9) *Každý student četl___.*
every student read.IMPF
A: ∀y [student(y) → ∃x [text(x) ∧ y read x]]
B: #∃x [text(x) ∧ ∀y [student(y) → y read x]]

(10) *Karel teď ne-čte___.*
Charles now not-reads.IMPF
A: ¬∃x [K. is reading x]
B: #∃x¬[K. is reading x]

(11) *Karel překládá___ všude.*
Charles translates.IMPF everywhere.
A: ∀v [place(v) → ∃x [thing(x) ∧ K. translates x at v]]
B: #∃x [thing(x) ∧ ∀y [place(v) → K. translates x at v]]

INO scope below aspectual *for*-adverbials, just like BP:

(12) *Vrah zabíjel___ několik dní v kuse.*
murderer killed.IMPF several days in piece
'A murderer killed/was killing for several days in a row.'

NB! The same sort of narrow scope attested with BP&MN in English (Carlson 1977).

(13) *Everyone read a book on giraffes.*
A: ∀x [person(x) → ∃y [book(y) ∧ x read y]] (opaque, non-specific reading)
B: ∃y [book(y) ∧ ∀x [person(x) → x read y]] (transparent, specific reading)

(14) *Everyone read books on giraffes.*
A: ∀x [person(x) → ∃y [book(y) ∧ x read y]]
B: #∃x [book(x) ∧ ∀x [person(x) → x read y]]

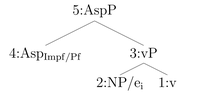
Carlson further observes that BP sometimes exhibit the "narrowest" scope, not attested at all with a corresponding singular indefinite:

(15) ??#*Max killed a rabbit for three hours.*
∃x [rabbit(x) ∧ ∀t:∈3hrs [AT (M. killed x, t)]]

(16) *Max killed rabbits for three hours.*
∀t:∈3hrs [∃x [rabbit(x) ∧ AT (M. killed x, t)]]

5.2 ∃-closure as a type-mismatch resolver

(17) Standard verbal Fseq (partial); v and Asp connected by a head movement (Schoorlemmer 1995)



Standard accompanying semantics;
aspect expressed as an inclusion relation between the reference time (t) and the temporal trace of an event (τ(e))
(Klein 1994; Paslawska and von Stechow 2003)

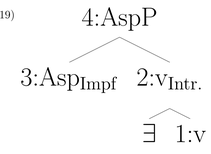
1: λxλe[VERB(e) ∧ Theme(x)(e)]
2: x
3: λe[VERB(e) ∧ Theme(x)(e)]
4a: λEλt∃e [E(e) ∧ t⊆τ(e)] (Imperfective)
4b: λEλt∃e [E(e) ∧ τ(e)⊆t] (Perfective)
5: λt∃e [VERB(e) ∧ Theme(x)(e) ∧ t⊆τ(e)] (or . . . t ⊇τ(e))

If no nominal phrase for v to merge with ⇒ type mismatch between the denotation of vP and that of Asp,☹

⇒ Need for a local type-adjustment operation allowing objectless transitive verbs to participate in the semantic derivation – which is what (3) does,☺

(18) **Intransitivization** (as a syntax-sensitive rule): If $[\![v]\!] \in D_{\langle e,vt\rangle}$, then $[\![v_{Intransitivized}]\!] = \lambda e_{\langle v\rangle}\exists x[[\![v]\!](x)(e)]$

(19)



1: λxλe[VERB(e) ∧ Theme(x)(e)]
2: λe∃x[VERB(e) ∧ Theme(x)(e)] (after (18))
3: λEλt∃e [E(e) ∧ t⊆τ(e)]
4: λt∃e∃x[VERB(e) ∧ Theme(x)(e) ∧ t⊆τ(e)]

5.3 More parallelism between INO and bare plurals

Chierchia (1998): low-scope indefinite reading of BP&MN comes about as a result of ∃-quantifying, type-adjusting operation (called Derived Kind Predication); see also Dayal 2011:145.

- BP (&MN) primarily denote properties that shift to kinds in argument positions, via the nominalizing $^{\cap}$-operator (so they can directly merge with kind-selecting predicates)

(20) *Dogs are widespread.* ⇝ widespread($^{\cap}$DOGS)

- In episodic contexts, "the type of the predicate is automatically adjusted by introducing a (local) existential quantification over instances of the kind" (Chierchia 1998:364).

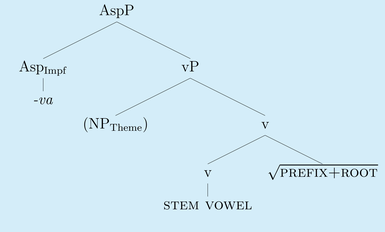
(21) **Derived Kind Predication (DKP)**
If P applies to objects and k denotes a kind, then P(k) = ∃x[$^{\cup}$k(x) ∧ P(x)]

(22) Indefinite BP – indefinite null objects parallelism
a. [$_{vP}$read books] ⇝ λxλe[read(e)∧Theme(e, x)]($^{\cap}$books)
⇔ λe∃x[read(e)∧Theme(e, x)∧$^{\cup\cap}$books(x)] (via DKP)
b. [$_{vP}$read] ⇝ λxλe[read(e)∧Theme(e, x)]
⇔ λe∃x[read(e)∧Theme(e, x)] (via Intransitivization)

6 Why intransitivization as an operation located in syntax?

6.1 To explain INO of secondary imperfectives (SI)

(23) Morpho-syntactic derivation of secondary imperfectives by *-va*-suffixation in Asp from the common stem that they share with perfectives (cf. Ramchand 2004, Romanova 2004, Jabłońska 2007)



(24) *Jan zapiso-va-l___ / přerovná-va-l___ / rozdá-va-l___ / zmodernizová-va-l / oslavo-va-l___.*
Ian note-IPF-PST reorganize-IPF-PST give-IPF-PST modernize-IPF-PST celebrate-IPF-PST
'Ian was making notes / reorganizing / giving away / modernizing / celebrating.'

NB! The forms in (24) presumably do not exist in the lexicon at all. The morphologically simpler, perfective counterparts of these verbs in (25) are ungrammatical with INO, despite having the same lexical semantics.

(25) *Jan *zapsa-l___ / *přerovna-l___ / *rozda-l___ / *z-modernizova-l___ / *oslavi-l___.*
Ian noted.PF reorganized.PF gave away.PF modernized.PF celebrated.PF

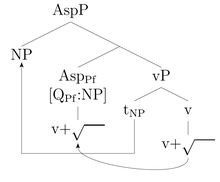
If ∃-closure operates on the v-projection before the Asp-head merges, as captured in (19), the existence of INO expected for all eventive argument-taking verbal stems.

⇒ This, of course, leaves us with the question why INO do not surface in the case of perfectives.

6.2 To allow systematic account of INO's incompatibility with perfectives

Dvořák (2017): the direct object of monotransitive perfective verbs must move from its base-generated position in Spec,vP to Spec,Asp$_{Pf}$, to satisfy Asp$_{Pf}$'s quantificational requirements
– formalized as an EPP-like feature (Q_{Pf}) constituting the perfective aspectual head, loosely modelled after Borer 2005

(26) Valuing perfectivity feature by an NP-movement:



⇒ INO unable to satisfy the unvalued Q_{Pf} due to their non-existense as syntactic arguments (see Section 4), hence the ungrammaticality exemplified in (4) and (25).

INO – BP&MN parallelism attested once again

- In Dvořák 2017, I show that monotransitive **perfective verbs in Czech can take as complements different syntactico-semantic types of NPs** (overt quantifier phrases, singular count nouns, definite/specific BP&MN, kind-denoting BP&MN, and generically-interpreted BP&MN)

– **with one exception**: indefinitely-interpreted BP&MN (see also Krifka 1992).

(27) Jan četl knihy. × #Jan pře-četl knihy.
'Ian read.IMPF books.' 'Ian read.PF books (completely).'

- The incompatibility of indef. BP&MN with perfectives follows naturally under their account in (22-a): A BP/MN that merges in Spec,v as the direct internal argument and becomes existentially closed-off within a vP as a result of Chierchia's type-adjusting mechanism in (21) is consequently unable to move to Spec,Asp$_{Pf}$ (see Giorgi and Pianesi 2001 for a related proposal in Italian).

⇒ Under (3)/(18), this parallelism between INO and BP&MN is expected.

6.3 To account for INO's systematic contextual licensing

Some predicates combine with INO out of the blue (those typically used in examples), but many others allow INOs only in the contexts that supply (linguistically or extra-linguistically) the property/kind instantiated by a given INO; see the contrast between two imperfective verbs, *čte* and *sbírá* below.

(28) a. *Jan čte___.* × ??*Jan sbírá___.*
Ian reads.IMPF Ian collects.IMPF
b. **Jan přečte___.* – **Jan sebere___.*
Ian will read.PF Ian will collect.PF

(29) *Do večera musíme mít deset košů švestek. Proto Jan od časného rána sbírá___.*
Before evening must have ten buckets plums so Ian from early morning collects.IMPF
'We have to have ten buckets of plums before evening. So Ian has been picking from the early morning.'

(30) *[The whole class is collecting trash in a park, but Ian isn't. Sue asks:] Proč Jan ne-sbírá___?*
why Ian not-collects.IMPF
'Why doesn't Ian collect?'

Moreover, context also influences the INO meaning in the case of verbs like 'read' or 'drink', which allow what could be called the **canonical** or **prototypical INO** (Rizzi 1986, Rice 1988), with a default interpretation.

(31) a. *When my tongue was paralyzed, I couldn't eat or drink.*
b. *I've tried to stop drinking.* Fillmore 1986:96
c. *All the cows got oil in their troughs and they are finally drinking [as a part of an experiment].*

While it is not desirable to embed all of these different restrictions on INO interpretation in the lexicon (Haegeman 1987), they could be elegantly encoded as a presupposition for the application of (3).

(32) $\exists_{Intr} \rightsquigarrow \lambda T_{\langle e,vt\rangle}$ { λe∃x[T(x)(e)] if C supplies the kind that x instantiates; undefined otherwise

What makes *read*-type verbs special is that they are **pragmatically associated with objects belonging to a single natural kind or class of entities**, so the "context of the verb itself" can supply the kind that INO instantiates.
NB! This is the major **difference between INO and indef. BP&MN** – the latter's restricting property expressed overtly as their nominal root.

7 A related proposal (and its shortcomings)

- The presence of a general de-transitivizing rule of ∃-closure acknowledged in other languages, namely Russian (Babko-Malaya 1999) and Germanic languages (Alexiadou *et al.* 2014).
- However, it has been noted that English has a number of predicates, such as *break* or *open*, that never allow INO. (× In Czech, they do allow INO if imperfective.)
- To explain this, Alexiadou *et al.* stipulates that verbs with a simple lexical conceptual structure (LCS), whose object is a direct argument of the root, as in (33-a), allow (3), but those with a complex LCS, as in (33-b), do not, since the "**Become-subevent has to be identified by an argument in syntax**" (stemming from Argument Realization Principle of Rappaport Hovav and Levin (2001)).

(33) a. **non-core transitives (NCT)** *I swept (it):* [x ACT ⟨sweep⟩ y]
b. **core transitives (CT)** *I broke *(it):* [[x ACT] CAUSE [y BECOME ⟨broken⟩]]

- Some of the problems related to this proposal:
  1. Semantically, nothing prevents the application of ∃-closure the way it is specified in (3) to the unsaturated argument (y) of the event Become ⟨X⟩.
  2. It is not accepted unequivocally that it is the presence of a Become-subevent that distinguishes NCTs from CTs; see Dowty 1979 or Rothstein 2004 (and references therein) for arguing that all accomplishment predicates contain such subevent in their semantics.
- I propose instead to capture the split in (33) in terms of different internal vP-syntax (Marantz 2007, 2013; see also Harley 2005)

(34) a. Class 1 transitives

– root modifies eventuality introduced in v, v+ROOT then merges with an argument, interpreted as undergoing a change-of-state

b. Class 2 transitives

– root itself names a state → needs an argument before merging with v, which then introduces the causing event

⇒ The internal argument of INO-allowing verbs merges with a verbalized root, i.e. *after* the merger of v+√ × the roots of INO-disallowing verbs have to merge with an NP *before* (event-introducing) v does.

⇒ We can employ the intransitivizing ∃-closure in (3)/(18) to derive English data without further stipulations since it applies only at the (eventivizing) v-node. ☺

⇒ If the split into Class 1 and Class 2 transitives is subject to parametrization, the difference between Czech and English accounted for as well. ☺