Composition and opacity without articles:  
A case study in Tagalog

James N. Collins  
Stanford University  
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Concordia University  
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1 Introduction

- Cross-linguistically, definiteness can be signalled in a variety of different ways besides definite articles like English the.
- For example, in Tagalog, the choice of voice morphology on the verb can signal the definiteness or indefiniteness of the verb's patient argument.
- How can we reconcile this kind of morphosyntactic signalling of definiteness with our understanding of NP interpretation and semantic composition?
- The plot:
  - Verbal affixes determine the semantic type of the verb.
  - This, in turn, constrains the types of the verb's NP arguments.
  - In some cases, the NP argument must type-shift in order for semantic composition to be successful, thus inducing a definite interpretation of the NP.
  - Thus, in Tagalog, definiteness emerges within the semantic composition and is not encoded by the lexical semantics of any dedicated article.

Roadmap:

- §2: the choice of voice affix affects the interpretation of the patient NP
- §3: the semantic effect arises within composition and is not due to the semantics of an article
- §4: the analysis accounts for the observed range of interpretations of bare NP arguments of both extensional and intensional transitive verbs.

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2 The definiteness effect of verbal affixes

- Tagalog’s system of voice affixation is by and large typical of western Austronesian languages more broadly (Starosta et al. 1982; Wouk and Ross 2002; Foley 2008).

- Serve to promote one NP to subjecthood (De Wolf 1988; Kroeger 1993:§2; Himmelmann 2007). Actor voice promotes actor NP to subject, patient voice promotes patient NP, and so on.

- Subjecthood marked by the nominative case marker *ang* on common nouns.

- Non-subject core arguments marked with genitive marker *ng* on common nouns.

(1) a. *t ⟨ in ⟩ ago ko ang kompyuter*
   (pv).PERF.hide GEN.1SG NOM computer
   I hid the computer.

b. *nagtago ako ng kompyuter*
   AV.PERF.hide NOM.1SG GEN computer
   I hid a computer.

- I argue the semantic distinction between the patient NPs in (1) is definiteness, and not specificity (cf. e.g., Rackowski and Richards 2005).

- Bare NP nominative patients show prototypical properties of definites (existence and uniqueness implications), while bare NP genitive patients show properties of indefinites (narrow scope).

- **Existence:** In (2a) nominative patients impose a felicity condition (Tonhauser et al. 2013) such that the utterance context must entail that the NP is instantiated by at least one individual. No such requirement is imposed by genitive patients.

(2) a. **Context:** Juan and Maria approach a closed, sound proof room. Maria walks in, then re-emerges and says:
   
   #Nakilala ko ang wizard
   pv.meet GEN.1SG NOM wizard
   ‘I met the wizard.’ (Comment: confusing, which wizard does she mean?)

b. Nakakilala ako ng wizard
   av.meet NOM.1SG GEN wizard
   ‘I met a wizard.’ (Comment: fine)

- **Uniqueness:** Nominative patients, but not genitive patients, enforce a requirement that the referent be unique or highly salient among individuals who instantiate the NP’s descriptive content.

(3) **Context A:** The speaker knows that Maria only has one lawnmower and wants to borrow it.

**Context B:** #The speaker knows that Maria has more than one lawnmower.

*Hihiramin ko [ang lawnmower ni Maria]*

fut.borrow.pv GEN.1SG NOM lawnmower GEN Maria

‘(lit.) I will borrow the lawnmower of Maria.’

---

1*Comment on Context B:* [the sentence] doesn’t imply that she has a lot of lawnmowers.

**JNC:** Does it sound like I think she only has one lawnmower if I say “hihiramin ko ang lawnmower ni Maria”?

**Comment:** Yes.
Like prototypical definites, two nominative patient NPs with the same descriptive content are expected to be coreferential (4) (see also Matthewson 1998:106). No such constraint is imposed by genitive patients.

(4)  a. Nahuli ni Maria ang mamamatay tao noong Miyerkules at
    perf.pv.catch gen Maria nom murderer on Wednesday and
    nahuli ni Carlos ang mamamatay tao noong Huwebes
    perf.pv.catch gen Carlos nom murderer on Thursday.
    'Maria caught the murderer on Wednesday and Carlos caught the murderer on Thursday.'
    (Comment: Sounds like Maria let him go.)

b. Nakahuli si Maria ng mamamatay tao noong Miyerkules at
    perf.av.catch nom Maria gen murderer on Wednesday and
    nakahuli si Carlos ng mamamatay tao noong Huwebes
    perf.av.catch nom Carlos gen murderer on Thursday
    'Maria caught a murderer on Wednesday and Carlos caught a murderer on Thursday.'
    (Comment: Fine, different murderers.)

Thus, nominative patients imply that the descriptive content of the NP is uniquely instantiated, a prototypical implication of definites.

• Narrow scope of genitive patients: The indefinite status of genitive patients evidenced by their necessary scoping under sentential operators like negation (5):

(5)  Context A: There are two interesting films, but Juan had an appointment so couldn't see either.
    Context B: #There are two interesting films, but Juan only saw one of them.
    Hindi nakapanood si Juan ng interesanteng pelikula ngayon araw
    neg av.watch nom Juan gen interesting lk film today
    'Juan didn't watch an interesting film today' (true in context A, false in context B)

Similar results obtain for conditionals, modals, and intensional transitive verbs.

• Specificity: Although genitive patients are scopally non-specific, they may be epistemically specific (in the sense of Farkas 1994), used with a unique referent in mind.

The genitive patient in (6) ng babae antecedes a pronominal anaphora siya, and further, the indefinite is fully identified as a particular individual.²

(6)  Context: The speaker is confessing an affair to his wife.
    nakilala ako ng babae, at saka, siya ay si Jennifer
    av.meet nom 1sg gen woman, and also, nom 3sg top nom Jennifer
    'I've met a woman, and what's more, it's Jennifer.'

• Summary:
  – Bare NP nominative patients signal unique instantiation of the NP's descriptive content, thus behaving like definites.
  – Bare NP genitive patients do not imply uniqueness and under operators like negation, they even fail to imply existence, thus behaving like narrow scope indefinites.

²See Sabbagh (2012) for more examples of specific genitive patients in Tagalog.
3 Nominative case and patient voice

- Do the particles ang/ng themselves contribute (in)definite semantics? Are they analogous to English (in)definite articles?

- Data from quantificational NPs points to the opposite conclusion: ang/ng themselves do not contribute to indefinite or definite interpretations.

- When nominative NPs include the numeral isang 'one', they may be interpreted indefinitely (see also Kroeger 1993:15, Bell 1978 on similar data from Cebuano).

- In (7a), the nominative patient does not impose a felicity condition that the unique instantiation of the NP's content is a common ground belief.

\[
\text{(7) Is(in)alaysay ni Jesus ang isang talinhaga upang ituro sa kanila na dapat PV.(PERF).recount GEN Jesus NOM one parable PURP teach OBL them LK must silang laging manalangin NOM.3SG.LK always.LK INF.AV.CAUS.pray}
\]

'Jesus recounted a parable in order to teach them that they must always pray...' (Lukas 18:1)

- With isang, the uniqueness requirement of bare NP nominative patients is suspended.

\[
\text{(8) h(in)uli ni Maria ang isang magnanakaw noong Miyerkules, samantala (PV.PERF).catch GEN Maria NOM one thief on Wednesday, while h(in)uli ni Juan ang isang magnanakaw noong Huwebes (PV.PERF).catch GEN Juan NOM one thief on Thursday 'Maria caught a thief on Wednesday, while Juan caught a thief on Thursday.' (Comment: two different thieves.)}
\]

- In a conditional sentence, the existence implication of the bare nominative patient scopes out of the conditional antecedent (expected if the bare NP is a presuppositional definite).

- With isang, the existential scopes within the conditional antecedent.

\[
\text{(9) a. Maiinis si Mary kung ipapatugtog ni John ang rekont}
\]

'What do I do if I miss a dose?'

\[
\text{PV.FUT.CAUS.play GEN John NOM record}
\]

(MP.1SG.LK fate PV if PV.PERF.omit GEN.1SG NOM one dose)

'What do I do if I miss a dose?'\(^3\)

- The addition of isang cancels the definite implications of nominative patients.

\[\text{http://www.bccdc.ca/NR/rdonlyres/8EE8C1E4-0227-4CEC-9A45-0C883C1D412E/0/IsoniazidMarch2015_TagV04.pdf}\]
• Similar effects with universal quantifiers:

(10)  
\[ \text{a. mumultahin } \text{ni John [ang lahat ng lalakad sa damo']} \]  
\[ \text{FUT.fine.PV GEN John NOM all GEN FUT.walk OBL grass} \]  
\[ \text{‘John will fine everyone who walks on the grass.’} \]

\[ \text{b. Context: The speaker doesn’t know whether or not there are any thieves in John’s neighbourhood.} \]

\[ \text{aarestohin } \text{ni John [ang lahat ng magnanakaw sa distrito niya]} \]  
\[ \text{FUT.arrest.PV GEN John NOM all GEN thief OBL district NOM.3SG} \]  
\[ \text{‘John will arrest every thief in his district.’ (Comment: Fine, it’s like a general rule, doesn’t mean there are thieves in his neighbourhood.)} \]

• Conclude that the definite implications are not contributed by \textit{ang}, which is present in both definite and indefinite nominative patients.

• To account for these facts, I propose definite interpretations of Tagalog bare NP nominative patients arise in the semantic composition via type-shifting operators, rather than overt articles.

• The effect is derived via the following two proposed constraints.

(11)  
\[ \text{a. Bare nominative patients (without additional quantificational material) denote properties.} \]

\[ \text{b. Patient voice verbs combine with individual-type expressions.} \]

• Under this analysis, the VP node in (12) is left undefined (NB: KP = case marked NP).

(12)  
\[ \text{VP} \]
\[ \text{undeﬁned} \]
\[ \text{V} \]
\[ \text{tinago} \quad \text{ang kompyuter} \]
\[ \lambda x \lambda y. \text{hide}(y, x) \]
\[ \lambda y. \text{hide}(y, t(\text{computer})) \]

• This type-mismatch is resolved by lowering the bare NP via Partee’s (1987) \textit{iota} operator.

• \textit{iota}: a partial function, takes a property-denoting expression as an argument and returns the unique instantiator of the property if there is one, and undefined otherwise.

• Thus, property shifted by \textit{iota} is a Strawsonian definite (presupposing uniqueness and existence (Strawson 1950)).
• Alternatively, the bare NP may serve as the restrictor argument of an overt quantificational determiner like *isang or *lahat.

• Here, the nominative patient is a generalized quantifier (\langle et,t \rangle\text{-type}), and combines with the transitive verb via quantifying in or QR.

• As the addition of the quantificational determiner raises the type of the nominative patient to a GQ-type, *iota is unable to apply. Definiteness thus does not arise.

\( t\langle in \rangle ago \quad ko \quad [ang \ lah at \ ng \ kompyuter] \)
\( \langle pv. \text{PERF}. \rangle . \text{hide} \quad \text{GEN.1SG} \quad \text{NOM} \quad \text{all} \quad \text{GEN} \quad \text{computer} \)
‘I hid every computer.’

\( \forall z [\text{computer}(z) \rightarrow \text{hide}(Sp,z)] \)

\( \lambda P. \forall z [\text{computer}(z) \rightarrow P(z)] \)

\( \lambda x \lambda y . \text{hide}(y,x) \)

Why does *iota apply to bare nominative NPs, and not other type-shifters?

Partee (1987) proposes the type shifter *A which shifts a property to a GQ much like an indefinite article.

\( \lambda \forall x [P(x) \land Q(x)] \)

Why can’t *A apply to nominative bare NPs deriving an unattested indefinite interpretation?

\( \text{Blocking Principle:} \text{ For any type shifting operation } \tau \text{ and any } X : \tau(X) \text{ if there is a determiner } D \text{ such that for any set } X \text{ in its domain, } D(X) = \tau(X) (\text{Chierchia 1998:360}). \)

As Tagalog does not lexicalize a definite article (i.e., an overt *-operator), covert *-application of bare nominative NPs is not blocked by principle (17).

However, (17) does block application of covert type-shifting of nominative patients with *A. *A is lexicalized in Tagalog by *isang.

Nominative patients with *isang can be interpreted as quantificational indefinites, composing with the verb via QR as in (15).
• Under this analysis, the meaning of the GQ is equivalent to the putative meaning of nominative patients type-shifted by A (18), which is therefore blocked by (17).

\[
\begin{align*}
\text{a. } & \text{ang isang kompyuter } \sim \lambda P. \exists x \left[ \text{computer}(x) \land P(x) \right] \\
\text{b. } & \text{A(kompyuter) } \sim \lambda P. \exists x \left[ \text{computer}(x) \land P(x) \right]
\end{align*}
\]

**Summary:**

– Thus, PV-verbs compose with GQ arguments, including indefinites, without type-shifting, but forces property-denoting bare NPs to lower via \( \iota \).

– As Tagalog does not lexicalize a definite article, covert \( \iota \)-application is not blocked and definite readings of bare NPs may arise.

4 **Actor Voice**

• Genitive patients are interpreted as (narrow scope) indefinites.

(19) *Hindi nakapanood si Juan ng interesanteng pelikula ngayon araw*

neg AV.watch NOM Juan GEN interesting.LK film today

‘Juan didn't watch any interesting film today.’

• Could this interpretive restriction be due to the genitive case marker \( \text{ng} \)?

• This hypothesis is refuted by data like (20), where we find genitive marking on definites.

(20) *Is(in)alaysay ni Jesus ang isang talinhaga*

PV.(PERF).recount GEN Jesus NOM one parable

‘Jesus recounted a parable.’

• If case marking isn’t responsible for the indefinite semantics of genitive patients, can we conclude that the AV verb is responsible?

• If the PV verb forced the type-coercion creating the definite semantics, a natural conclusion is that the conditions forcing that type-coercion are not present when the verb is in AV.

• Previous work (Van Geenhoven 1998; Chung and Ladusaw 2004; Collins 2014) provide compositional analyses of transitive verbs composing with bare NP objects, deriving narrow scope indefinite interpretations.

• **Preliminary Hypothesis:** The Tagalog AV morpheme is an overt instantiation of a verbal type shifter "semantic incorporation" (SI) (21) (following Van Geenhoven 1998), which existentially closes the patient argument in a narrow scope position.

\[
\text{SI } \sim \lambda R \lambda P \lambda y. \exists x [P(x) \land R(y,x)]
\]

• (22) is an analysis whereby the Tagalog actor voice affix \( \text{nag-} \) instantiates this meaning.

• The inflected verb takes property-denoting expressions like bare NPs as arguments, and existentially quantifies over them, deriving an indefinite interpretation.
• The preliminary hypothesis is successful with extensional transitive verbs like \textit{nagtago}, correctly accounting for the narrow scope indefinite interpretations of bare NP genitive patients.

• It is less successful with intensional transitive verbs (ITVs) like \textit{naghanap} ‘seek, look for’.

• Genitive patients of ITVs are obligatorily interpreted as non-specific\footnote{\textit{naghahanap} /a.sc/v.sc/p.sc/r.sc/o.sc/g.sc\search\si/n.sc/o.sc/m.sc/Juan/Juan/ng/g.sc/e.sc/n.sc/sinturon/belt}.\footnote{\textit{naghahanap} /a.sc/v.sc/p.sc/r.sc/o.sc/g.sc\search\si/n.sc/o.sc/m.sc/Juan/Juan/ng/g.sc/e.sc/n.sc/unikorn/unicorn}

• The existential commitment ordinarily introduced by genitive patients in extensional contexts is suspended when the genitive is an intensional object\footnote{\textit{naghahanap} /a.sc/v.sc/p.sc/r.sc/o.sc/g.sc\search\si/n.sc/o.sc/m.sc/Juan/Juan/ng/g.sc/e.sc/n.sc/unikorn/unicorn}.\footnote{\textit{naghahanap} /a.sc/v.sc/p.sc/r.sc/o.sc/g.sc\search\si/n.sc/o.sc/m.sc/Juan/Juan/ng/g.sc/e.sc/n.sc/sinturon/belt}

• Further, genitive patients of ITVs resist substitution with co-extensional NPs.

\begin{itemize}
\item (An intentionalized version of) the analysis in (22) ported over to ITVs gives the wrong result (25).
\end{itemize}
• The existential quantifier and the descriptive content of the NP are introduced outside the scope of the ITV, generating an unattested specific reading of the object (contra 23-24).

• Revised Proposal: it is the uninflected root, not the voice affix, which existentially quantifies over its patient argument.

• The existential quantifier (introduced by the voice morphology under the previous analysis) is instead already present in the root’s meaning.

• The existential quantifier is lexically specified to outscope or not outscope intensional operators.

• A revised analysis of the extensional predicate tago ‘hide’. Here, the actor voice morpheme does not make a (relevant) semantic contribution. We successfully reconstruct the results of the original analysis.

(26)  
\[
\lambda y \lambda w. \exists x [\text{computer}_w(x) \land \text{hide}_w(y, x)]
\]  

\[
\text{VP} \quad \text{nagtago} \quad \text{V} \quad \text{KP} \quad \text{ng kompyuter}
\]

\[
\lambda P \lambda y \lambda w. \exists x [P_w(x) \land \text{hide}_w(y, x)]
\]

VP \(\sim\) a property of \(y\) at \(w\) s.t. there is something that is a computer at \(w\) which \(y\) hid at \(w\)

• Following Quine 1960, an ITV like hanap ‘search’, semantically decomposes into an individual-relation find embedded under a modal operator (27) (see also Zimmermann 1993, 2006; Van Geenhoven and McNally 2005).
• The modal operator is a teleological necessity modal, stating that in all worlds compatible with the agent's goals, the agent finds an individual which instantiates the property denoted by the patient NP (27).

(27) $\lambda y \lambda w. \forall v \in \text{teleo}_w(y) [\exists x \text{belt}_v(x) \land \text{find}_v(y, x)]$

Revisiting patient voice:

This analysis works well for data concerning actor voice verbs and genitive patients, but creates problems for the previous section's analysis of patient voice verbs and nominative patients.

If verb roots are functions from properties to properties, and, as assumed earlier, the patient voice affix is semantically vacuous, then patient voice verbs should combine with property arguments without type-shifting, deriving the wrong result (28).

(28) $\lambda y. \exists x [\text{computer}(x) \land \text{hide}(y, x)]$

This undermines the previous subsection's analysis of definiteness, induced by a type-mismatch which is not predicted under the revised analysis.

Thus, I propose that the patient voice operator is not semantically vacuous, but instead encodes a variation of Montague's $BE$ operator (Montague 1973).
(29)  a. \(BE \rightsquigarrow \lambda Q \lambda y. Q(\lambda z. z = y)\)
    b. \(\nu v/-\text{in-} \rightsquigarrow \lambda f \lambda y \lambda x. f(\lambda z. z = y)(x)\)
    c.  
      \[
      \begin{array}{c}
      \text{Voice} \\
      -\text{in-} \\
      \text{tago}
      \end{array}
      \lambda y \lambda x. \text{hide}(x, y)
      \]

\[\lambda f \lambda y \lambda x. f(\lambda z. z = y)(x) \quad \lambda P \lambda y. \exists x [P(x) \land \text{hide}(y, x)]\]

- The effect of the patient voice affix is to neutralize the effect of the existential quantifier encoded in the root, lowering the type of the verbal root from a function from properties to properties, to an individual relation (the inflected verb meaning in /two.oldstyle/nine.oldstylec).

- (30) lifts the meaning of the patient voice affix to an intensional setting. The VP shows the predicted meaning of the patient voice affixed ITV root \text{hanap}: an extensional, individual-relation.

(30)  
\[
\begin{array}{c}
\text{Voice} \\
-\text{in-} \\
\text{hanap}
\end{array}
\lambda y \lambda x \lambda w. \forall v \in \text{teleo}_w(x)[\text{find}_v(x, y)]
\]

\[
\lambda f \lambda y \lambda x \lambda w. f(\lambda z. z = _w y)(x)(w) \quad \lambda P \lambda y \lambda w. \forall v \in \text{teleo}_w(y)[\exists x [P(x) \land \text{find}_v(y, x)]]
\]

\[V \rightsquigarrow \text{a relation between individuals } x, y \text{ at world } w \text{ s.t. in all worlds } v \text{ compatible with } x's \text{ goals at } w, x \text{ finds } y \text{ at } v\]

5 Conclusion

- Semantic complexity arising in NP interpretation should not always be handled by complicating the representations of NP semantics.

- Here I have presented a system in which the complexities of NP interpretation are best handled by enriching the semantics of the NP's selecting verbs, which constrain the types of their arguments, thus deriving the observed range of NP interpretations via type-coercion.

- The proposal shows how definiteness may emerge within semantic composition, even when not encoded by the lexical semantics of any dedicated article.

- Although Tagalog lacks definite articles, it is still able to express semantic notions associated with articles in English, albeit with very different morphosyntactic signalling.
References


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