

How to be a ham sandwich or an eel: The English deferred equative and the Japanese *eel* sentence

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Proceedings of the 29th International Conference on
Head-Driven Phrase Structure Grammar

Online (Nagoya/Tokyo)


Stefan Müller, Elodie Winckel (Editors)

2022

Frankfurt/Main: University Library

pages 120–134

Keywords: nominative predicate construction, eel sentence, deferred equative, lexical rule

Oshima, David Y. 2022. How to be a ham sandwich or an eel: The English deferred equative and the Japanese *eel* sentence. In Stefan Müller & Elodie Winckel (eds.), *Proceedings of the 29th International Conference on Head-Driven Phrase Structure Grammar, Online (Nagoya/Tokyo)*, 120–134. Frankfurt/Main: University Library. DOI: 10.21248/hpsg.2022.7. 

Abstract

In some languages including English and Japanese, a nominal predicate construction (NPC; “NP₁ is NP₂”) has a marked variety—“open-ended-relation NPCs” (ONPCs), to label it—where the referents of the subject NP and the predicate NP are understood to be in some pragmatically prominent relation other than identity or inclusion (e.g. *I’m the ham sandwich* ‘I’m the customer who ordered the ham sandwich’). The Japanese ONPC has been called the “eel sentence (eel construction)”, after an oft-cited example involving *unagi* ‘eel’ as its predicate NP. The English ONPC is discussed in good detail by Ward (2004; “Equatives and deferred reference”, *Language* 80) under the rubric of the “deferred equative”. The ONPCs in the two languages can naturally be used only under limited discourse configurations, with the English one being more severely constrained than the Japanese one. This work develops semantic analyses of the two ONPCs that improve on previous accounts.

1 Introduction

In some languages including English and Japanese, a nominal predicate construction (NPC; “NP₁ is NP₂”) may receive a marked interpretation where the referents of the subject NP (SNP) and the predicate NP (PNP) are understood to be in some pragmatically prominent relation other than identity or inclusion. I refer to NPCs on this marked interpretation as “open-ended-relation NPCs” (ONPCs). The Japanese ONPC has been called the “eel sentence (eel construction)”, after an oft-cited example involving *unagi* ‘eel’ as its PNP (Hoffer 1972; Okutsu 1978; Tokizaki 2003). The English ONPC is discussed in good detail by Ward (2004) under the rubric of the “deferred equative”. The English ONPC is discourse-pragmatically more constrained than the Japanese one, as illustrated in (1)/(2).¹

- (1) (a restaurant customer to a waitperson who brought several dishes to the table)
(E) I’m the ham sandwich.
(J) *Watashi wa hamusandoitchi desu.*
I Th ham.sandwich Cop.Plt.Prs
‘(lit.) I am (the) ham sandwich.’
- (2) (in reply to: “What did you have for your lunch? I had a hamburger.”)
(E) #I’m {a/the} ham sandwich.
(J) *Watashi wa hamusandoitchi desu.*
I Th ham.sandwich Cop.Plt.Prs
‘(lit.) I am (a) ham sandwich.’

[†]This work was supported by JSPS KAKENHI Grant Number 22K00505.

¹The abbreviations used in glosses are: Acc = accusative, Attr = attributive, Aux = auxiliary, Cop = copula, Gen = genitive, Ger = gerund, Inf = infinitive, Nom = nominative, NpFV = nonperfective, Plt = polite, Prs = present, Pst = past, Th = thematic *wa* (ground/topic-marker).

This work develops semantic analyses of the two ONPCs that make accurate predictions on their discourse-pragmatic distributions.

2 The English open-ended-relation NPC (the deferred equative)

2.1 Ward (2004) on deferred equatives

Ward (2004) argues that English NPCs like (3) and (4B) instantiate a special construction that he terms *the deferred equative*.

- (3) (to a restaurant waitperson who brought several dishes to the table)
I'm the ham sandwich.
- (4) A: I remember that one student each is writing an M.A. thesis on *Alien*, *Rocky*, and *Platoon*, but I cannot recall who is working on which movie.
B: Ken is *Alien*, Joe is *Rocky*, and Chris is *Platoon*.

Prima facie, it may be tempting reduce the peculiarity of English sentences like (3)/(4B) to metonymic transfer at the level of nominals (Nunberg 1995; Copestake & Briscoe 1995), which is observed in sentences like (5a,b).

- (5) (uttered by a restaurant employee)
- a. The ham sandwich is at Table 7.
 - b. That french fries is getting impatient.
- (adapted from Nunberg 1995:115)

Given that in English it is customarily possible for an NP to stand for an entity (e.g. a person) metonymically associated with its referent (e.g. a dish), it may seem reasonable to treat (3)/(4B) as regular NPCs whose predicate NP happens to have undergone this kind of metonymic transfer.

Ward (2004), however, convincingly argues that NPCs like like (3)/(4B) cannot be accounted for in terms of metonymic transfer at the level of nominals (“deferred nonequatives”). One piece of evidence that the subject and predicate NPs of a deferred equative (typically) retain their literal meaning is that a predicate NP or subject NP literally denoting a non-human but equated with a human, such as *the pad thai* in (6b)/(7b), still accepts a modifier selecting a non-human-denoting modifiee.²

²(6a)/(7a) are acceptable on an interpretation where the subject or predicate NP happens to have undergone metonymic transfer, as in (i):

- (i) Quite a few celebrities come to our restaurant regularly. The ham sandwich at table 5 is James Gordon. The pad thai, who always leaves a big tip, is Bruce Wayne.

- (6) a. #John is the pad thai, who drives a Rolls Royce.
 b. John is the pad thai, which looks delicious.
 c. John is talking to the pad thai, who drives a Rolls Royce.
 (Ward 2004:281)
- (7) a. #The pad thai, who drives a Rolls Royce, is John.
 b. The pad thai, which looks delicious, is John.
 c. The pad thai, who drives a Rolls Royce, is talking to John.
 (Ward 2004:281)

The contrast between (8) and (9) likewise shows that the predicate NP of a deferred equative by default refers to what it literally refers to, while a complement NP (i) with a transferred sense/reference and (ii) selected by a regular verb (i.e. non-copula) does not.

- (8) Let's see ... You're {what/#who}, the pad thai or the nam sod?
 (adapted from Ward 2004:281)
- (9) (restaurant waitpeople talking about customers)
 Tell me honestly, {#what/who} do you like more, the pad thai or the nam sod?
 (adapted from Ward 2004:281)

Observing the unnaturalness of utterances like (10B-b) and (11B-b), Ward (2004) proposes that the deferred equative construction (my open-ended-relation NPC) (i) presupposes the presence of a contextually salient (surjective) *pragmatic mapping* between two (non-empty/non-singleton) sets of relevant discourse referents, and (ii) asserts that on this mapping the referent of the subject corresponds to that of the predicate NP.

- (10) A: How was your meal?
 B: Good. I {a. had/b. #was} the pad thai.
 (adapted from Ward 2004:280)
- (11) A: Sorry you had to have lunch all by yourself. What did you have?
 B: I {a. had/b. #was} the pad thai.
 (adapted from Ward 2004:280)

He formulates pragmatic mappings in the form of an open proposition (OP), defined as “a proposition with one or more variables or underspecified elements, corresponding to that aspect of information structure that constitutes backgrounded or presupposed information”. In the case of (12a), the relevant OP looks like (12b).

- (12) a. (a restaurant customer to a waitperson who brought several dishes to the table)
 I'm the pad thai.
 b. OP: $X \text{ maps onto } Y$, where X is a member of the set $\{x \mid x \text{ is a customer}\}$ and Y is a member of the set $\{y \mid y \text{ is an order}\}$.

c. FOCI: I, the pad thai

(adapted from Ward 2004:279)

One problem with Ward's formulation is that, given that a mapping is by definition a relation that is potentially many-to-one but never one-to-many, it wrongly predicts that an utterance like (13) is infelicitous, a member of $\{x \mid x \text{ is a customer}\}$ corresponding to two members of $\{y \mid y \text{ is an order}\}$.

- (13) (a restaurant customer to a waitperson who brought five dishes to a table of three)
I'm the ham sandwich and fried chicken.

Note that here the speaker need not assume that the waitperson is aware that the ham sandwich and fried chicken were ordered by the same customer, so that in a way the two dishes constitute a "single order".

2.2 Proposal

I propose that the felicitous use of an English open-ended-relation NPC requires (i) that there be (a) a contextually prominent set of entities P that contains the referent of the subject NP and at least one other member, (b) a contextually prominent set of entities Q that contains the referent of the predicate NP and at least one other member, and (c) a contextually prominent binary relation R , and (ii) that it is common ground that R is a *serial and surjective correspondence* from P to Q (i.e. each member of P is in R with at least one member of Q , and vice versa).

(14), repeated from (2), does not meet this condition, there being no established set of dishes each of which is known to have been eaten by somebody among the people under discussion; it is not even common ground that somebody ate a ham sandwich.

- (14) (in reply to: "What did you have for your lunch? I had a hamburger.")
#I'm a ham sandwich.

(15B) does not meet this condition either (cf. (4)). Here, that somebody among the people under discussion saw *Rocky* is part of the interlocutors' shared knowledge, but the condition that each of the contextually salient movies was seen by someone (among the people under discussion) is not satisfied.

- (15) (It is common ground that Ken, Joe, and Chris each saw one of *Rocky*, *Alien*, and *Platoon*, and nobody else saw any movie.)
A: Ken saw *Rocky*, right? What about Joe and Chris? Which movie did they see?
B: ??Joe and Chris are *Rocky*, too.

The English ONPC furthermore conveys what may be called *the exhaustivity implication* (cf. Velleman et al. 2012 and Büring & Križ 2013 on the cleft construc-

tion), as a non-presuppositional not-at-issue content,³ as illustrated by (16b).

- (16) (a restaurant customer to a waitperson who brought five dishes to a table of three)
- a. I'm the ham sandwich and fried chicken.
 - b. I'm the ham sandwich. #I'm the fried chicken, too.
 - cf. I ordered the ham sandwich. I ordered the fried chicken, too.

The exhaustivity implication is concerned only with the referent of the PNP but not with the referent of the SNP. The felicity of (17) evidences this point.

- (17) (at a national press conference where a number of reporters from every major newspaper are present)
John is the Washington Post. Mary is the Washington Post, too.
'John is a reporter for the Washington Post. Mary is a reporter for the Washington Post, too.'

(adapted from Ward 2004:282)

That the exhaustivity implication is not part of the at-issue content can be shown with the oddity of discourses like (18a,b):

- (18) (It is common ground that three critics, including Ken, wrote reviews of five movies in total, and each critic wrote on one or two movies)
- a. Ken is not *Alien*. #He wrote a review of *Rocky*, too.
 - b. Probably Ken is *Alien*. #But he may have written a review of *Rocky*, too.

That the exhaustivity implication is non-presuppositional, on the other hand, can be shown with an example like (19), which is felicitous despite it being contextually plausible (i.e. consistent with the common ground) that Ken wrote reviews of three or more movies.

- (19) (It is common ground that three critics, including Ken, wrote reviews of 10 movies in total, and each critic wrote on two to five movies)
Ken is *Alien* and *Rocky*.

The meaning of an English open-ended-relation NPC will look like (20), with the first clause of (4B) ("Ken is *Alien*") as an example. Materials between curly braces ($\{\cdot\}$) represent presupposition(al not-at-issue content)s, and ones between vertical bars ($|\cdot|$) represent non-presuppositional not-at-issue contents. \mathbb{R} is a context-dependent variable ranging over relations between two entities, and \mathbb{P} and

³Here, the term "not-at-issue content" is understood broadly and taken to subsume presupposition (= presuppositional not-at-issue content) as its subtype. "Presupposition(al not-at-issue content)s" in the current work correspond to Tonhauser et al.'s (2013) "[+SCF (Strong Contextual Felicity)] projective contents, and non-presuppositional not-at-issue contents correspond to their "[−SCF] projective contents".

\mathbb{Q} are context-dependent variables ranging over sets consisting of two or more entities. “ \sqsubseteq ” stands for the (individual or material) parthood relation (Link 1998).

- (20) $\{\mathbb{P} \sqsubseteq_{\mathbb{R}} \mathbb{Q} \ \& \ \mathbf{ken} \in \mathbb{P} \ \& \ \mathbf{alien} \in \mathbb{Q}\}[\forall z \in \mathbb{Q}[\mathbb{R}(\mathbf{ken}, z) \rightarrow z \sqsubseteq \mathbf{alien}]]$
 $[\mathbb{R}(\mathbf{ken}, \mathbf{alien})]$
- (21) For any context c , world w , and assignment g ,
- a. $[\{\phi\}[\psi]]^{c,w,g}$ is defined only if $[\wedge\phi]^{c,w,g} \in \text{CG}(c)$ (i.e. it is common ground in c that “ ϕ ”); if defined, $[\{\phi\}[\psi]]^{c,w,g} = [\psi]^{c,w,g}$;
 - b. $[\phi|\psi]^{c,w,g}$ is defined only if $[\phi]^{c,w,g} = 1$; if defined, $[\phi|\psi]^{c,w,g} = [\psi]^{c,w,g}$.
- (22) a. $\text{Dom}(\mathbb{R})$ is relations between two entities (\mathbb{R} is of type $\langle e, \langle e, t \rangle \rangle$).
b. For any context c , world w , and assignment g , $[\mathbb{R}]^{c,w,g}$ is defined only if $g(\mathbb{R})$ is a relation between two entities that is prominent in c ; if defined, $[\mathbb{R}]^{c,w,g} = g(\mathbb{R})$.
- (23) a. $\text{Dom}(\mathbb{P})$ is non-empty, non-singleton sets of entities (\mathbb{P} is of type $\langle e, t \rangle$). Likewise for \mathbb{Q} .
b. For any context c , world w , and assignment g , $[\mathbb{P}]^{c,w,g}$ is defined only if $g(\mathbb{P})$ is a set of entities that is prominent in c ; if defined, $[\mathbb{P}]^{c,w,g} = g(\mathbb{P})$. Likewise for \mathbb{Q} .
- (24) $P \sqsubseteq_R Q =_{def} \forall x_1 \in P, \forall y_1 \in Q[\exists x_2 \in P, \exists y_2 \in Q[R(x_1, y_2) \ \& \ R(x_2, y_1)]]$

In prose, (20) amounts to saying that (i) there is some serial and surjective correspondence R between two sets: $\{\mathbf{Ken}, \dots\}$ and $\{\mathbf{Alien}, \dots\}$ (presupposition), (ii) \mathbf{Ken} stands in R with \mathbf{Alien} (at-issue content), and (iii) \mathbf{Ken} does not stand in R with any movie other than \mathbf{Alien} (exhaustivity implication).

3 The Japanese open-ended-relation NPC (the eel sentence)

The Japanese ONPC (the eel sentence) is associated with a strictly weaker presupposition than the English one, but it still is more discourse-pragmatically constrained than acknowledged in the previous literature. In addition to there being a contextually prominent two-place relation R , the construction presupposes (i) that there is some x such that $\langle \text{the referent of the SNP}, x \rangle \in R$ (*existence presupposition*), and (ii) that there is at least one pair of entities $\langle y, z \rangle$ such that (a) $\langle y, z \rangle \in R$ and (b) y is distinct from the referent of the SNP (*multiple-pair presupposition*). Furthermore, like the English one, the Japanese ONPC conveys the exhaustivity implication (with respect to the PNP).

(25) and (26) illustrate the effect of the existence presupposition. In both exchanges, the relation ‘ x studies the life of y (as a marine biologist)’ is made prominent by the first utterance of interlocutor B, but while follow-up utterance (25B₂) is natural, (26B₂) is not. This contrast can be attributed to the existence

presupposition—that B’s husband studies the life of some marine creature—being satisfied only in (25).

(25) A: ‘I heard that you and your husband are marine biologists. Do you work on particular creatures, like whales?’

B₁: *Watashi wa kuromaguro no seitai o kenkyuu shite*
 I Th bluefin.tuna Gen life Acc study do.Ger
imasu.

Npfv.Plt.Prs

‘I study the life of bluefin tuna.’

B₂: *Otto wa unagi no seitai o kenkyuu shite imasu.*
 husband Th eel Gen life Acc study do.Ger Npfv.Plt.Prs

‘(My) husband studies the life of eel.’

B₂’: *Otto wa unagi desu.*
 husband Th eel Cop.Plt.Prs

(lit.) ‘(My) husband is eel.’

(26) (The interlocutors have just met for the first time. A does not anything about B’s husband.)

A: ‘So you are a marine biologist? Do you work on a particular creature, like whales?’

B₁: *Watashi wa kuromaguro no seitai o kenkyuu shite*
 I Th bluefin.tuna Gen life Acc study do.Ger
imasu.

Npfv.Plt.Prs

‘I study the life of bluefin tuna.’

B₂: (Chinamini) *otto wa unagi no seitai o kenkyuu shite*
 incidentally husband Th eel Gen life Acc study do.Ger
imasu.

Npfv.Plt.Prs

‘(Incidentally) (my) husband studies the life of eel.’

B₂’: # {Chinamini / ∅} *otto wa unagi desu.*
 incidentally husband Th eel Cop.Plt.Prs

(lit.) ((Incidentally) (my) husband is eel.)

(27) and (28) illustrate the effect of the multiple-pair presupposition. (28B’) sounds odd, there being no contextually prominent pair of a person and a movie distinct from ⟨Ken, *Alien*⟩.

(27) (It is common ground that Mari and Ken saw a possibly different movie.)

A: ‘Mari saw *Rocky*, right? What about Ken? What movie did he see?’

B: *Ken wa Alien o mimashita. / Ken mo Rocky o mimashita.*

K. Th A. Acc see.Plt.Pst K. also R. Acc see.Plt.Pst

‘Ken saw *Alien*. / Ken saw *Rocky*, too.’

B': Ken wa *Alien* desu.
 K. Th A. Cop.Plt.Pst
 (lit.) 'Ken is *Alien*.'
 B'': Ken mo *Rocky* desu.
 K. also *R*. Cop.Plt.Pst
 (lit.) 'Ken is *Rocky*, too.'

(28) (It is common ground that Ken is the only person who saw a movie.)

A: 'What movie did Ken see?'
 B: Ken wa *Alien* o mimashita.
 K. Th A. Acc see.Plt.Pst
 'Ken saw *Alien*.'
 B': #Ken wa *Alien* desu.
 K. Th A. Cop.Plt.Pst
 (lit.) (Ken is *Alien*.)

(29), finally, illustrates the effect of the exhaustivity implication.

- (29) (in reply to: 'What did you have for your lunch? I had a hamburger.')
- a. Watashi wa hamusandoitchi o tabemashita. (Ato) furaidochikin
 I Th ham.sandwich Acc eat.Plt.Pst and fried.chicken
 mo tabemashita.
 also eat.Plt.Prs
 'I ate a ham sandwich. (And) (I) ate fried chicken, too.'
- b. Watashi wa hamusandoitchi desu. # $\{Ato / \emptyset\}$ furaidochikin
 I Th ham.sandwich Cop.Plt.Prs and fried.chicken
 de mo arimasu.
 Cop.Inf also Aux.Plt.Prs
 (lit.) 'I am a ham sandwich. (And) (I) am fried chicken, too.'
- cf. Watashi wa gaka desu. (Ato) toogeika de mo
 I Th painter Cop.Plt.Prs and potter Cop.Inf also
 arimasu.
 Aux.Plt.Prs
 'I am a painter. (And) I am a potter, too.'

Taking (27B') as an example, the meaning of a Japanese open-ended-relation NPC will look like (30).

(30) Ken wa *Alien* desu. '(lit.) Ken is *Alien*.' \mapsto
 $\{\exists y_1, x_2, y_2[\mathbb{R}(\mathbf{ken}, y_1) \ \& \ \mathbb{R}(x_2, y_2) \ \& \ x_2 \neq \mathbf{ken}]\}[\forall z[\mathbb{R}(\mathbf{ken}, z) \rightarrow z \sqsubseteq$
alien]] $[\mathbb{R}(\mathbf{ken}, \mathbf{alien})]$

In prose, this amounts to saying that (i) Ken and at least one other person stand in some contextually prominent relation *R* with some movie (possibly the same one) (presupposition), (ii) Ken stands in *R* with *Alien* (at-issue-content), and (iii)

he does not stand in R with any movie other than *Alien* (exhaustivity implication).

4 Derivation of the regular and open-ended-relation NPCs

This section discusses how an ONPC can be generated in the constraint-based framework, and how that compares with the case of the regular, unmarked NPC.

4.1 The regular (identity/inclusion-type) NPC

A typical NPC implies that the relation of identity holds between the referents of the subject and predicate NPs, as in (31a,b), or the relation of inclusion holds between the referent of the subject NP and the set or collection denoted by the predicate nominal, as in (32a,b).

- (31) a. Cicero is Tully.
 b. Hiratsuka Raicho {wa/ga} Hiratsuka Haru da.
 H. R. {Th/Nom} H. H. Cop.Prs
 ‘Hiratsuka Raicho is Hiratsuka Haru.’
- (32) a. Cicero is an orator.
 b. Hiratsuka Raicho {wa/ga} sakka da.
 H. R. {Th/Nom} writer Cop.Prs
 ‘Hiratsuka Raicho is a writer.’

An issue of dispute about the semantics of the NPC—which is by and large independent from the main concerns of the current work—is how the two unmarked types of relations expressible with it, identity (equation) and inclusion (attribution), are related to each other (Higgins 1979; Declerck 1988, 1990; Mikkelsen 2011).

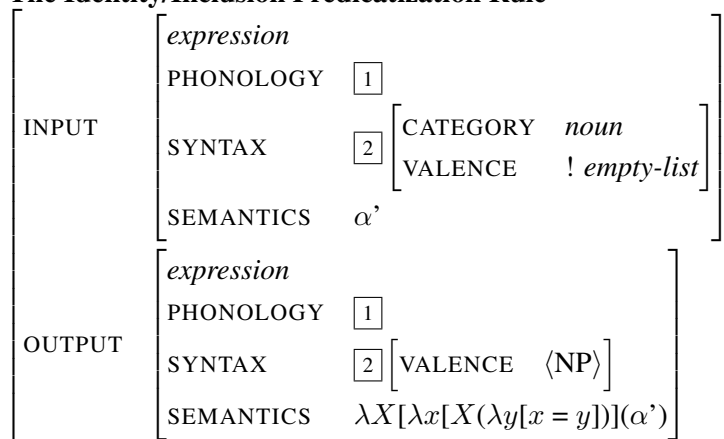
Montague (1973) posits the meaning along the lines of (33) for the copula BE, which, with the assumption that an (indefinite or definite) common noun phrase as well as a proper name filling the slot of the predicate NP is a generalized quantifier, uniformly accounts for identification statements like (34) and inclusion statements (property-ascribing statements) like (35) (“ \rightarrow_β ” stands for beta-reduction).

- (33) $\text{is} \mapsto \lambda X[\lambda x[X(\lambda y[x = y])]]$
- (34) Cicero is Tully.
 a. Tully: $\lambda P[P(\mathbf{tully})]$
 b. is Tully:
 $\lambda X[\lambda x[X(\lambda y[x = y])]](\lambda P[P(\mathbf{tully})])$
 \rightarrow_β (twice)
 $\lambda x[x = \mathbf{tully}]$
 c. Cicero: $\lambda Q[Q(\mathbf{cicero})]$

- d. Cicero is Tully:
 $\lambda Q[Q(\mathbf{cicero})](\lambda x[x = \mathbf{tully}])$
 \rightarrow_{β} (twice)
cicero = tully
- (35) Cicero is an orator.
- a. an orator: $\lambda P[\exists z(\mathbf{orator}(z) \ \& \ P(z))]$
- b. is an orator:
 $\lambda X[\lambda x[X(\lambda y[x = y])]](\lambda P[\exists z[\mathbf{orator}(z) \ \& \ P(z))])$
 \rightarrow_{β} (twice)
 $\lambda x[\exists z(\mathbf{orator}(z) \ \& \ x = z)]$
- c. Cicero: $\lambda Q[Q(\mathbf{cicero})]$
- d. Cicero is an orator:
 $\lambda Q[Q(\mathbf{cicero})](\lambda x[\exists z[\mathbf{orator}(z) \ \& \ x = z]])$
 \rightarrow_{β} (twice)
 $\exists z[\mathbf{orator}(z) \ \& \ \mathbf{cicero} = z]]$
 $\Leftrightarrow \mathbf{orator}(\mathbf{cicero})$

I follow here Montague's (1973) uniform approach in assuming that (what may be informally referred to as) the identity-type NPC and the inclusion-type NPC encode the same logical relation between the referents of the subject and predicate NPs, specifically " $\lambda X[\lambda x[X(\lambda y[x = y])]$ ". I depart from Montague, on the other hand, in not attributing this semantic component to the copula, but instead positing a phrase-modificational rule (in the spirit of Copestake & Briscoe's (1995) lexical rules⁴) applied to an NP and yields a homophonous NP (i) that has an extended, "predicative" meaning and (ii) selects a subject.

(36) **The Identity/Inclusion Predicativization Rule**



⁴Despite what their name suggests, Copestake & Briscoe's (1995) lexical rules can have phrases as well as lexemes/words as their input/output.

4.2 The English open-ended-relation NPC

The following rule generates (the PNP of) an English ONPC:

(37) The Open-Ended-Relation Predicativization Rule (English)

INPUT	$\left[\begin{array}{l} \textit{expression} \\ \text{PHON} \quad \boxed{1} \\ \text{SYN} \quad \boxed{2} \left[\begin{array}{l} \text{CATEGORY} \quad \textit{noun} \\ \text{VALENCE} \quad \textit{! empty-list} \end{array} \right] \\ \text{SEM} \quad \alpha' \end{array} \right]$
OUTPUT	$\left[\begin{array}{l} \textit{expression} \\ \text{PHON} \quad \boxed{1} \\ \text{SYN} \quad \boxed{2} \left[\text{VALENCE} \quad \langle \text{NP} \rangle \right] \\ \text{SEM} \quad \lambda X[\lambda x[X(\lambda y[\{\mathbb{P} \leftrightarrow_{\mathbb{R}} \mathbb{Q} \ \& \ x \in \mathbb{P} \ \& \ y \in \mathbb{Q}\} \\ [\forall z \in \mathbb{Q}[\mathbb{R}(x,z) \rightarrow z \sqsubseteq y] [\mathbb{R}(x,y)]]]])](\alpha') \end{array} \right]$

(38) illustrates the composition of the English ONPC *Ken is Alien*.

(38) Ken is Alien.

- a. $\textit{Alien} \mapsto \lambda P[P(\mathbf{alien})]$
- b. $(\textit{is } \textit{Alien} \textit{ [predicativized with rule (37)]}) \mapsto$
 $\lambda X[\lambda x[X(\lambda y[\{\mathbb{P} \leftrightarrow_{\mathbb{R}} \mathbb{Q} \ \& \ x \in \mathbb{P} \ \& \ y \in \mathbb{Q}\} [|\forall z \in \mathbb{Q}[\mathbb{R}(x,z) \rightarrow z \sqsubseteq y]|[\mathbb{R}(x,y)]]]])](\lambda P[P(\mathbf{alien})])$
 \rightarrow_{β}
 $\lambda x[\{\mathbb{P} \leftrightarrow_{\mathbb{R}} \mathbb{Q} \ \& \ x \in \mathbb{P} \ \& \ \mathbf{alien} \in \mathbb{Q}\} [|\forall z \in \mathbb{Q}[\mathbb{R}(x,z) \rightarrow z \sqsubseteq \mathbf{alien}]|[\mathbb{R}(x,\mathbf{alien})]]]$
- c. $\textit{Ken} \mapsto \lambda Q[Q(\mathbf{ken})]$
- d. $\textit{Ken is Alien} \mapsto \lambda Q[Q(\mathbf{ken})](\lambda x[\{\mathbb{P} \leftrightarrow_{\mathbb{R}} \mathbb{Q} \ \& \ x \in \mathbb{P} \ \& \ \mathbf{alien} \in \mathbb{Q}\} [|\forall z \in \mathbb{Q}[\mathbb{R}(x,z) \rightarrow z \sqsubseteq \mathbf{alien}]|[\mathbb{R}(x,\mathbf{alien})]]])$
 \rightarrow_{β}
 $\{\mathbb{P} \leftrightarrow_{\mathbb{R}} \mathbb{Q} \ \& \ \mathbf{ken} \in \mathbb{P} \ \& \ \mathbf{alien} \in \mathbb{Q}\} [|\forall z \in \mathbb{Q}[\mathbb{R}(x,z) \rightarrow z \sqsubseteq \mathbf{alien}]|[\mathbb{R}(\mathbf{ken},\mathbf{alien})]]]$

4.3 The Japanese open-ended-relation NPC

The following rule, minimally contrasting with (37), generates (the PNP of) a Japanese ONPC:

(39) **the open-ended-relation predicatization rule (Japanese)**

INPUT	$\left[\begin{array}{l} \textit{expression} \\ \text{PHON} \quad \boxed{1} \\ \text{SYN} \quad \boxed{2} \left[\begin{array}{l} \text{CATEGORY} \quad \textit{noun} \\ \text{VALENCE} \quad \textit{! empty-list} \end{array} \right] \\ \text{SEM} \quad \alpha' \end{array} \right]$
OUTPUT	$\left[\begin{array}{l} \textit{expression} \\ \text{PHON} \quad \boxed{1} \\ \text{SYN} \quad \boxed{2} \left[\text{VALENCE} \quad \langle \text{NP} \rangle \right] \\ \text{SEM} \quad \lambda X[\lambda x[X(\lambda y[\{\exists y_1, x_2, y_2[\mathbb{R}(x, y_1) \ \& \ \mathbb{R}(x_2, y_2) \ \& \ x_2 \neq x] \} \\ [\forall z[\mathbb{R}(x, z) \rightarrow z \sqsubseteq y] [\mathbb{R}(x, y)]])])](\lambda P[P(\mathbf{alien})]) \\ [\mathbb{R}(x, y)]])](\alpha') \end{array} \right]$

(40) illustrates the composition of the Japanese ONPC *Ken wa Alien desu*.

(40) **Ken wa Alien desu. ‘Ken is Alien.’**

- a. *Alien* $\mapsto \lambda P[P(\mathbf{alien})]$
- b. *Alien* (desu) [predicatized with rule (39)] \mapsto
 $\lambda X[\lambda x[X(\lambda y[\{\exists y_1, x_2, y_2[\mathbb{R}(x, y_1) \ \& \ \mathbb{R}(x_2, y_2) \ \& \ x_2 \neq x] \} \\ [|\forall z[\mathbb{R}(x, z) \rightarrow z \sqsubseteq y]|[\mathbb{R}(x, y)]])])](\lambda P[P(\mathbf{alien})])$
 \rightarrow_{β}
 $\lambda x[\{\exists y_1, x_2, y_2[\mathbb{R}(x, y_1) \ \& \ \mathbb{R}(x_2, y_2) \ \& \ x_2 \neq x] \} [|\forall z[\mathbb{R}(x, z) \rightarrow z \sqsubseteq \mathbf{alien}]|[\mathbb{R}(x, \mathbf{alien})]]]$
- c. *Ken* (wa) $\mapsto \lambda Q[Q(\mathbf{ken})]$
- d. *Ken wa Alien desu* $\mapsto \lambda Q[Q(\mathbf{ken})](\lambda x[\{\exists y_1, x_2, y_2[\mathbb{R}(x, y_1) \ \& \ \mathbb{R}(x_2, y_2) \ \& \ x_2 \neq x] \} [|\forall z[\mathbb{R}(x, z) \rightarrow z \sqsubseteq \mathbf{alien}]|[\mathbb{R}(x, \mathbf{alien})]]])$
 \rightarrow_{β}
 $\{\exists y_1, x_2, y_2[\mathbb{R}(x, y_1) \ \& \ \mathbb{R}(x_2, y_2) \ \& \ x_2 \neq \mathbf{ken}] \} [|\forall z[\mathbb{R}(\mathbf{ken}, z) \rightarrow z \sqsubseteq \mathbf{alien}]|[\mathbb{R}(\mathbf{ken}, \mathbf{alien})]]]$

5 Conclusion

This work put forth semantic analyses of the English open-ended-relation NPC (Ward’s (2004) “deferred equative”) and the Japanese open-ended-relation NPC (commonly referred to as the “eel sentence” in the literature) that improve on existing accounts, and proposed positing phrasal rules to derive the two ONPCs utilizing the apparatus of constraint-based syntax. The findings hopefully contribute to the future discussion of how open-ended-relation NPCs across languages might contrast with each other, being subject to different sets of discourse-pragmatic constraints.

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