

Semantic constraints on the subject-to-object raising (ECM) construction in Japanese

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Data: a prototypical example

(1b) below embeds a quotative complement associated with an accusative subject.

1.

- (a) Yamada-wa Tanaka-ga baka da to omotte.ita.
Yamada-TOP Tanaka-NOM fool COP COMP thought
'Yamada thought that Tanaka was a fool.'
- (b) Yamada-wa Tanaka-o baka da to omotte.ita.
Yamada-TOP Tanaka-ACC fool COP COMP thought
'Yamada considered Tanaka to be a fool.'

(adapted from Kuno (1976, pg. 26, #17a,b))

How does (1b) differ from (1a)? What structural difference accounts for the apparent case alternation? Is there a difference in meaning that motivates the structural change?

With a minimum of theory-internal assumptions, let's describe the essential parts of the construction:

2. ... NP-*o* (finite predicate) ... -*to* ... cognitive verb
-
- The diagram shows a horizontal line with two upward-pointing arrows. The left arrow points to the 'NP-o' part of the sentence, and the right arrow points to the boxed '(finite predicate) ...' part. A horizontal line connects the two arrows, and the word 'predication' is written below this line.

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Puzzles

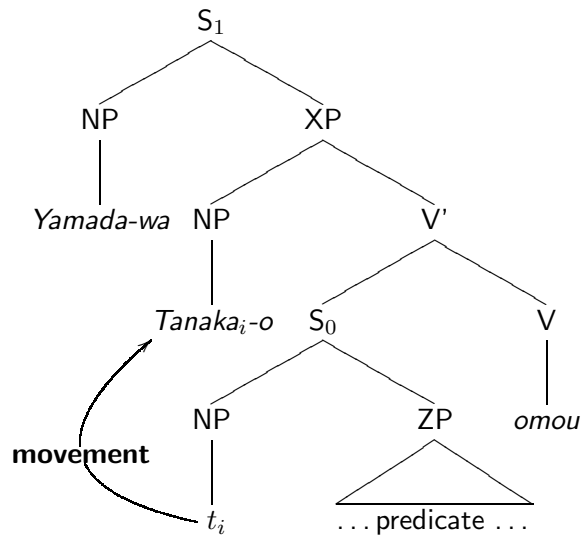
The construction is known as 1) Subject Raising to Object; 2) Exceptional Case Marking; 3) Prolepsis Construction. These names refer to assumptions about structure. I prefer the theory-neutral term "Accusative-Quotative Construction." Here are some questions a syntactician might ask about this construction:

1. Inventory of matrix verbs (contrast with English: **kitai suru* 'expect'; **oboeru* 'remember'; **hakken suru* 'find', etc. vs. *koukai suru* '*regret'; *yorokobu* '*rejoice', etc.)
2. Structural account for "case alternation" (e.g., sister of matrix verb? governed by matrix verb? -*o* is a post-position?, etc.)
3. Properties of accusative subjects: Reference (e.g., no idiomatic subjects? no non-specific accusative subjects? no WH-words under downstairs Q scope? etc.); Constituency (e.g., matrix argument? embedded subject? matrix adjunct?)
4. Restrictions on complement predicates (e.g., only adjectival and copular predicates?; only stative predicates?; only tenseless predicates?; only individual-level predicates?, etc.)
5. Restrictions on syntactic operations
 - (a) Scrambling nominative subjects vs. scrambling accusative subjects
 - (b) Subject-predicate inversion
 - (c) Binding (anaphors of various types)
 - (d) Passivization, tough constructions, pseudo-clefting, etc.
 - (e) Scope effects and reconstruction

There are several accounts, each with theory-internal advantages.

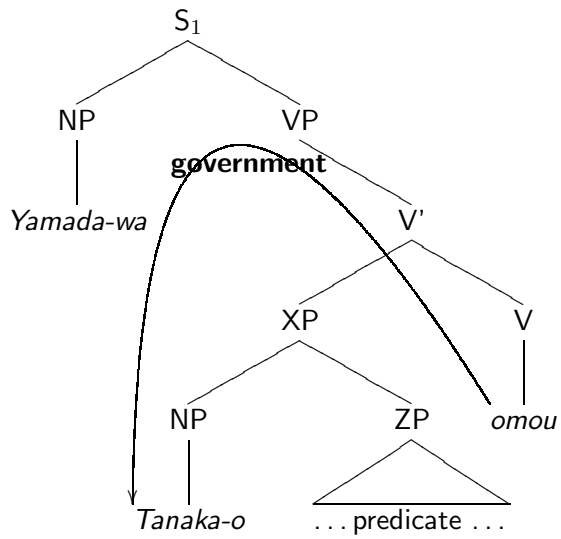
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Raising to object



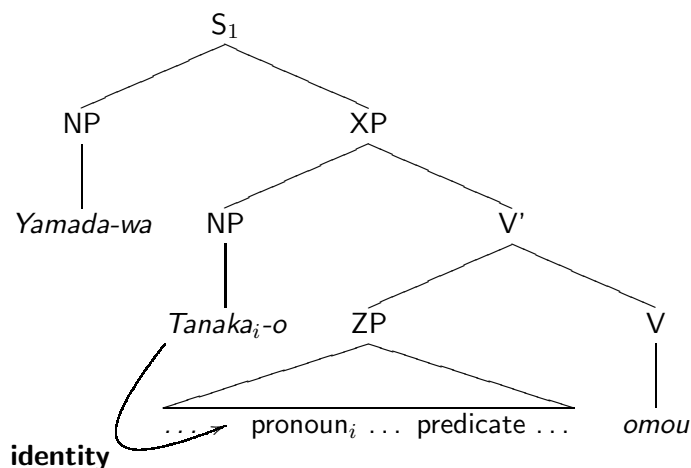
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Exceptional Case Marking



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Prolepsis (“Extra NP analysis”)



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Structural height of the accusative subject (Kuno)

Occupying the matrix object position allows the accusative subject to precede matrix verb phrase adjuncts:

6.

- (a) *Yamada-wa [Tanaka-ga orokanimo tensai da] to omotte.ita.
Yamada-TOP Tanaka-NOM stupidly genius COP COMP thought
(lit.) 'Yamada considered Tanaka to stupidly be a genius.'
- (b) Yamada-wa Tanaka-o orokanimo [tensai da] to omotte.ita.
Yamada-TOP Tanaka-ACC stupidly genius COP COMP thought
'Stupidly, Yamada considered Tanaka to be a genius.'

(adapted from Kuno (1976, pg. 25, #21d, 22d))

When the adverb is placed after the nominative embedded subject *Tanaka ga* in (6a) above (i.e., unambiguously inside the subordinate clause), it modifies only the embedded predicate, incurring a conflict in meaning. But with accusative subject *Tanaka o*, as in (6b), the following adverb can modify the matrix predicate, and avoid the paradoxical interpretation "to stupidly be a genius". Evidence of this sort was ignored by proponents of the ECM analysis until it was shown that the structural height of the accusative subject must be such as allow it to bind reciprocals in matrix verb phrase adjuncts.

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Structural height of the accusative subject (Lasnik and Saito)

An accusative subject can bind a reciprocal pronoun in a matrix-level adjunct.

7.

- (a) ?*Rie-wa karera_i-ga muzitu da to otagai_i-no syougen ni.yotte sinzite.iru.
Rie-TOP they-NOM innocent COP COMP each.other's-GEN testimony by believe
(lit.) *'Rie believes that they are innocent based on each other's testimony.'
- (b) Rie-wa karera_i-o muzitu da to otagai_i-no syougen ni.yotte sinzite.iru.
Rie-TOP they-ACC innocent COP COMP each.other's-GEN testimony by believe
'Rie believes them to be innocent based on each other's testimony.'

(adapted from (Sakai: 1996, pg. 197, #9a,b), following Lasnik and Saito (1991))

In (7) above, only the accusative subject *karera-o* in (7b) is high enough in the structure to c-command the reciprocal *otagai* contained in the verb phrase adjunct. The question is whether the accusative subject moves to this high position or originates in it.

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Conflicting evidence: Base generation in situ over movement

On the basis of the lack of scope ambiguity in (8b), Oka (1988) concludes that the *o*-argument is not a clausemate with the *ni*-argument, and neither does it leave a trace in that position: It is base-generated *in situ*, like a topic.

8.

- (a) John-ga [dareka_i-ni [daremo-ga e_i sitto.site.iru]] to omotte.iru.
John-NOM someone-DAT [everyone-NOM is.jealous]] COMP thinks
'John thinks that someone_i, everyone is jealous of e_i.'
- (b) John-ga [dareka_i-o [daremo-ga e_i sitto.site.iru]] to omotte.iru.
John-NOM someone-ACC [everyone-NOM is.jealous]] COMP thinks
'John considers someone_i to be such that everyone is jealous of e_i.'

(adapted from Oka (1988, pg. 196, #24a,b) (My gloss))

(It will be seen below that interaction between \exists and \forall is impossible for reasons independent of syntax, but probes using different pairs of operators do bear out Homma's intuition for accusative arguments that aren't thematic subjects).

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Conflicting evidence: Movement over base generation in situ

However, Sakai (1996, pg. 198) uses the licensing of negative polarity items and the phenomenon of discontinuous [[indeterminate NP ... *mo*] ... NEG] to show that there is a trace in the embedded clause for sentences like (9b) below.

9.

- (a) Masao-ga [_S dare-ga baka da] to-mo omotte.i-nai.
Masao-NOM who-NOM fool COP COMP-mo think-NEG
'Masao does not think that anyone is a fool.'
- (b) Masao-ga dare-o [_S t_i baka da] to-mo omotte.i-nai.
Masao-NOM who-ACC fool COP COMP-mo think-NEG
'Masao does not think anyone to be a fool.'

(adapted from Sakai (1996, pg. 197, #12b,c) (My gloss))

The indeterminate *dare* 'who' must be in the c-command domain of the quantificational particle *mo*, and both must be under the scope of negation (Homma: 1998, pp. 27–28).

(It turns out that raised non-subjects and raised major subjects only take wide scope w.r.t. focus particles marked on the complementizer, but thematic subjects *can* take narrow scope.)

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Scope interaction: Thematic subjects

Kuno (1976, pp. 27–28), in his seminal work on accusative-quotative constructions, claims that some speakers of Japanese find scope ambiguity in accusative-quotative constructions where there is none in corresponding constructions with nominative subjects of embedded complement clauses. As an example, Kuno notes the availability of a wide-scope reading for the accusative-quotative noun phrase in (10b) below.

10.

- (a) Dareka-ga minna-ga baka da to omotte.iru.
Someone-NOM everyone-NOM fool COP COMP think
(i.) 'There is someone who thinks that everyone is stupid.' ($\exists > \forall$)
(ii.) \neq 'For every person, there is someone who thinks that person is stupid.' ($\forall > \exists$)
- (b) Dareka-ga minna-o baka da to omotte.iru.
Someone-NOM everyone-ACC fool COP COMP think
(i.) 'There is someone who thinks that everyone is stupid.' ($\exists > \forall$)
(ii.) 'For every person, there is someone who thinks that person is stupid.' ($\forall > \exists$)

(adapted from Kuno (1976, pg. 28, #37,39))

Kuno sees the availability of the interpretation (10bii.) for sentence (10b) as support for the claim that the accusative subject is not in the subordinate clause, but is rather a clausemate of the matrix subject noun phrase.

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Quantifier/Focus interaction: Thematic subjects

Homma (1998, pg. 26) examines the scope of focus particle *sae* 'even' marked on the complementizer of the embedded clause.

11.

- (a) Aya-wa daremo-ga kanemoti da to-sae omotte.iru.
Aya-TOP everyone-NOM rich COP COMP-even think
(i.) 'Aya even believes that everyone is rich.' (*even* > \forall)
(ii.) \neq 'For each person x , Aya even has a belief that x is rich.' (\forall > *even*)
- (b) Aya-wa daremo-o kanemoti da to-sae omotte.iru.
Aya-TOP everyone-ACC rich COP COMP-even think
(i.) 'Aya even believes that everyone is rich.' (*even* > \forall)
(ii.) 'For each person x , Aya even has a belief that x is rich.' (\forall > *even*)

(adapted from Homma (1998, pg. 26, #8,9,10))

By the lack of scope ambiguity in (11a), it may be supposed that the nominative subject remains in a syntactic position lower than the complementizer (presumably to receive case), while the ambiguity in (11b) suggests that the accusative subject moves across the complementizer to a position where it can c-command *sae*, but leaves a trace that is c-commanded by *sae*. Thus, Homma concludes that 1) the accusative subject moves to a high position, and that 2) reconstruction is possible for at least some kinds of accusative subjects.

(This observation could be considered a counter-argument to both the prolepsis analysis for all accusative-quotative constructions, and to J. H. Yoon's (to appear; 2007) contention that the sources of all accusative-quotative sentences are double nominative sentences. Overtly double nominative sentences behave differently, as will be seen directly below.)

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Scope asymmetry: Major subjects

In contrast to the case with thematic accusative subjects, an accusative-quotative construction that corresponds to a double nominative construction (i.e., one with a "major subject") shows scope asymmetry:

12.

- (a) Aya-wa daremo-ga oya-ga kanemoti da to-sae omotte.iru.
Aya-TOP everyone-NOM parents-NOM rich COP COMP-even think
(i.) 'Aya believes even that everyone is such that their parents are rich.' (*even* > \forall)
(ii.) \neq 'For each person x , Aya even has a belief that x is rich.' (\forall > *even*)
- (b) Aya-wa daremo-o oya-ga kanemoti da to-sae omotte.iru.
Aya-TOP everyone-ACC parents-NOM rich COP COMP-even think
(i.) \neq 'Aya believes even that everyone is such that their parents are rich.' (*even* > \forall)
(ii.) 'For each person x , Aya even has a belief that x 's parents are rich.' (\forall > *even*)

(adapted from Homma (1998, pg. 27, #11,12,13) (my glosses))

(12a) is unambiguous for the same reason that (11a) is unambiguous: The leftmost subject must have its nominative case checked within the complement clause. But in contrast with the ambiguity of (11b), the accusative subject of 12b can only have wide scope with respect to *sae*, suggesting that it is base generated at a position outside the c-command domain of the embedded complementizer. One interesting question is how to test these constructions using pairs of quantifiers, as opposed to a \langle quantifier, focus \rangle pair.

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Multiple underlying structures

From observations on scope relations, Homma (1998, pg. 25, #2a,b) assigns two underlying structures to accusative-quotative constructions:

13.

- (a) NP-ga [CP [IP *NP-o* PRED] to] omotte.iru
- (b) NP-ga [XP *NP-o* [CP [IP ... PRED] to]] omotte.iru

Homma (1998, pg. 25, #2a,b)

There seem to be two basic kinds of accusative-quotative structure, each with the option of appearing as a “major object accusative subject,” which I add as a third category because it seems to allow 1) the appearance of resumptive pronouns, and 2) subject-predicate inversion:

accusative thematic subjects cases where the accusative subject is a) the thematic subject of the lexical predicate in the complement, b) unaccompanied by a resumptive pronoun in the complement clause, and c) not a “major object” (i.e., a [NP + *no koto*] complex)

accusative major subjects cases where the accusative subject is associated with a saturated sentential predicate (including cases with resumptive pronouns) or is a non-subject thematic argument of the lexical predicate in the complement

major object accusative subjects cases where the accusative subject undergoes “*no koto* incorporation,” including a) thematic subjects of the complement predicate, and b) major subjects (note that resumptive pronouns are sometimes licensed, for both sub-cases, and sentences with resumptive pronouns behave syntactically as members of the class described in **accusative major subjects**).

Although the possibilities suggest a heterogeneous set of derivational sources, most proposals for syntactic derivations of accusative-quotative constructions concentrate on a particular structural schema and a set of principles constraining it.

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Syntactic characteristics of accusative-quotative constructions

To eliminate “impostor” constructions such as [thematic object + sentential adjunct + transitive cognitive verb], we define the data set:

- The matrix subject doesn't have to be sentient (depending on the matrix verb).
- The matrix verb must be able to 1) take a quotative complement, and 2) assign accusative case.
- The accusative subject is never the thematic argument of the matrix verb.
- The accusative subject is not necessarily the logical subject of the overt predicate in the complement clause.
- The accusative subject is “high enough” in the structure to c-command matrix VP adjuncts.
- The accusative subject can scramble to the left of the matrix subject.
- Subjects of idiomatic expressions aren't candidates for the accusative subject position.
- The accusative subject must precede the complement predicate (except in a limited number of special cases).
- The accusative subject can “reconstruct” to a position in the complement clause (at least when it is the thematic subject of the overt predicate in the complement clause).

The accusative-quotative construction is subject to some (apparently semantic) constraints, so that there are indefinitely many nominative-quotative constructions without accusative-quotative counterparts.

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Basic concepts for a semantic explanation

An accusative-quotative construction is a special kind of propositional attitude statement.

Propositional attitude statement

example: *Hanako wa kare ga/o usotuki da to omotte iru* 'Hanako believes him to be a liar.'

proposition: *kare ga usotuki da* 'he is a liar.'

attitude: belief

agent of attitude *Hanako* (the matrix subject)

Context of interpretation: the set of propositions that serves as "background" for understanding the next utterance. There are at least two of these in operation when it comes to propositional attitude statements:

- 1 *Hanako's* belief world set
- 2 the speaker's belief world set
- 3 the hearer's belief world set

Existential assertion: When a proposition is added to the context (asserted), if some entity is thereby added to (or subtracted from) the inventory of entities in the context of interpretation, then that proposition is an existential assertion (or, it "has existential force").

Eventuality: a spatio-temporal location (an entity) in which events take place or in which other entities exist or enter into temporary states or participate in events

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No tensed complements?

Kawai (2006) has argued for a long time, in the spirit of Oshima (1979); Stowell (1982); Kitagawa (1985); Ueda (1988) and Ohta (1997) that the complement of the accusative subject construction in general has no tense, but is a tenseless, aspectless projection homophonic with the predicating portion of a nominative-quotative construction.

14.

- (a) *Kanozyo-wa sono.otoko-o sagisi da to sinzite.iru.*
She-TOP atthat.man-ACC sagisi COP COMP believes
'She believes the man to be a swindler.'
- (b) **?Kanozyo-wa sono.otoko-o sagisi dat-ta to sinzite.iru.*
She-TOP that.man-ACC sagisi COP-PAST COMP believes
She believes the man to have been a swindler.'

(adapted from Kawai (2006, pg. 331, #4a,b) (Kawai's judgment))

The basic idea is that the downstairs predicate has no tense, hence the downstairs subject can't check nominative case, and must move by "Last Resort."

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Tensed S is not an island in Japanese

There are plenty of reasons to reject Kawai's (2006) analysis. First an argument from syntax: Non-subject arguments can "raise" out of downstairs clauses (15b) in which nominative case has already been checked.

15.

- (a) John-ga [dareka_i-ni [daremo-ga e_i sitto.site.iru]] to omotte.iru.
John-NOM someone-DAT [everyone-NOM is.jealous]] COMP thinks
'John thinks that someone_i, everyone is jealous of e_i.'
- (b) John-ga [dareka_i-o [daremo-ga e_i sitto.site.iru]] to omotte.iru.
John-NOM someone-ACC [everyone-NOM is.jealous]] COMP thinks
'John considers someone_i to be such that everyone is jealous of e_i.'

(adapted from Oka (1988, pg. 196, #24a,b) (My gloss)) In addition, the accusative subject in (15b) corresponds to a dative argument. If there's movement it's not for reasons of case.

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Tensed complements under certain conditions

In fact, many researchers accept past tense downstairs under the right conditions:

16. John-wa sono toki-no zibun-no koudou-o [_S amarinimo keisotu dat-ta] to koukai-site iru.
John-TOP that time-GEN self-GEN action-ACC much.too thoughtless COP-PAST COMP
regret-do is
'John regrets his behaviour of that time as being too thoughtless.'

(Saito: 1982, pg. 22, #42)

And we can "coerce" an acceptable variant of (14b) by including a temporal reference in the description of the accusative subject:

17. Kanozyo-wa sakki.denwa.site.kita.otoko-o sagisi dat-ta to sinzite.iru.
She-TOP the.man.who.just.called-ACC sagisi COP-PAST COMP believes
She believes the man who just called to have been a swindler.'

(derived from Kawai (2006, pg. 331, #4b))

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Coercion for tensed complements

The question is not whether there's a projection of a syntactic category of tense, but whether 1) there's a necessity to make a temporal reference and 2) whether there's an antecedent to refer to.

18.

- (a) Tarou-wa gakubusei.zidai-o yokat-ta to omotte.iru rasii.
Tarou-TOP undergraduate.years-ACC good-PAST COMP think seem
'It seems Tarou considers his undergraduate years to have been enjoyable.'
- (b) Mokugekisywa-wa ziko-o mukou-ga muri.site butukatta to mite.iru.
Witness-TOP accident-ACC other.side-NOM taking.unreasonable.action collided COMP see
'The witness reckons the accident to be such that the other side took unreasonable action and caused the collision.'
- (c) Uranaisi-wa kare-o usidosi-ni umare-ta to suisoku-suru.
Fortune.teller-TOP he-ACC year.of.the.cow-LOC be.born-PAST COMP conjecture-does
'The fortune teller surmises him to have been born in the year of the cow.'

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Are accusative subjects always specific?

Takemura (1975-1976) made the claim (following M. Shibatani (p.c.)). But the claim needs to be qualified.

19.

- (a) Tarou-wa dareka-ga hannin da to omotte.iru.
Tarou-TOP someone-NOM culprit COP COMP think
'Tarou thinks that (there is) someone (who) is the culprit.'
- (b) Tarou-wa dareka-o hannin da to omotte.iru.
Tarou-TOP someone-ACC culprit COP COMP think
'Tarou believes someone to be the culprit.'

(adapted from Takemura (1975-1976, pg. 186, #21a,b) (my glosses))

In fact, an existential interpretation of the accusative subject is possible in (20) from the belief world set of the speaker.

20. Zirou-wa nanra.ka.no kairui-o biyaku da to omotte.iru rasii.

Zirou-TOP some.kind.of shellfish-ACC aphrodisiac COP COMP think seem

'There is some kind of shellfish x such that Zirou seems to believe x to be an aphrodisiac.'

The precise notion is *epistemic specificity*. Specific indefinite noun phrases are expressions that simultaneously 1) *refer* in one belief world set, and 2) fall under existential quantification in another. In the belief world of the agent of attitude, non-specific indefinite reference (existential assertion) is impossible for propositions expressed by accusative-quotative complements. But an ambiguous indefinite accusative subject (like that in (20) above) can still be interpreted as existentially quantified from outside the domain of the belief operator of the agent of attitude.

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Intermediate scope under a belief operator

Note that in this conception of specificity there can be so-called “intermediate scope specifics” without contradiction:

21. *Dono.rikouhosya-mo sorezore aru.kuromaku-o onzin da to omotte.iru.*
Which.candidate-FOC respectively a.certain.mastermind-ACC patron COP COMP think
'Every candidate respectively considers a certain mastermind to be a patron.'

In a situation like (21) (according to Fodor and Sag (1982)), even if each *candidate* has someone in particular in mind, the reference of *aru kuromaku* 'a certain mastermind' cannot be “specific” in the sense of “referential” because the expression is under the scope of another quantifier (i.e., its value co-varies with the value of *every candidate*).

So the question is, specific according to whose context of interpretation?

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The interpretation of floating quantifiers

A nominative subject associated with a floating numeral-classifier pair in an existence-asserting predication is fine in root context (22a), but can't be a source for an accusative-quotative construction (22b):

22.

- (a) *Ik.kaku.zyuu-ga ni-hiki ura.niwa-ni iru.*
One.horn.beast-NOM two-animal back.yard-LOC exist.
'There are two unicorns in the backyard.'
- (b) **Hanako-wa ik.kaku.zyuu-o ni-hiki ura.niwa-ni iru to omotte.iru.*
Hanako-TOP one.horn.beast-ACC two-animal back.yard-LOC exist COMP think
(intended) 'Hanako believes there to be two unicorns in the backyard.'

For property-ascribing predications, an interpretation *is* available for a discontinuous quantifier-classifier pair of weak form associated with an accusative subject: It is either that of 1) a cardinally specified universal quantifier (such as the English *both*, specified for *two*: *Hanako wa Tarou to Zirou o hutari sukebe da to omotte iru* 'Hanako believes Tarou and Zirou to be the both of them sex-obsessed'), or 2) a partitive pronoun (e.g., *Hanako wa otoko o hanbun izyou sukebe da to omotte iru* 'Hanako believes men to be the majority of them sex-obsessed').

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Floating quantifiers with property ascriptions

23.

- (a) Kodomo-ga huta-ri zyus-sai.izyou da.
Children-NOM two-people ten.years.old.more.than COP
(i.) 'The/Some particular children are both more than ten years old.'
(ii.) 'Two of the children are more than ten years old.'
- (b) Tarou-wa kodomo-o huta-ri zyus-sai.izyou da to omotte.iru.
Tarou-TOP children-ACC two-people ten.years.old.more.than COP COMP think
(i.) 'Tarou believes the children to be both more than ten years old.'
(ii.) 'Tarou believes the children to be such that two of them are more than ten years old.'

Note that the weakly quantified (existential) interpretation is not available, even in root context (23a).

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Floating quantifiers with definite "hosts"

In Japanese, a quantifier-classifier pair (or lexical quantifier) of weak form associated with an overtly definite group noun phrase always receives partitive interpretation (regardless of whether the predication involved is existential-eventive or not):

24.

- (a) Ano.tamago-wa ni-ko(-ga) datyou-no da.
Those.eggs-TOP two-CL(-NOM) ostrich-GEN(NMZ) COP
'Two of those eggs are ostrich eggs.'
- (b) Ano.tamago-wa ni-ko(-ga) kaeri-sou da.
Those.eggs-TOP two-CL(-NOM) hatch-about.to COP
'Two of those eggs are about to hatch.'

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Complement predicates: Kuno's version

Kuno (1976, pg. 33) generalized that the accusative-quotative complement can only be formed on either adjectival predicates or “nominal + copula” predicates. This generalization is not observationally adequate. First, it is not restrictive enough. Some adjectives denoting temporary states (e.g., *isogasii* ‘busy’; *uresii* ‘happy’, etc.) are a bad fit for many subject pairings and for many pragmatic contexts, and the same holds for some nominal predicates (e.g., *uridasityuu da* ‘be on sale’; *taikityuu da* ‘be on stand-by’; *yasumi da* ‘be on vacation’, etc.). A “nominal + copula” predicate formed on a noun phrase with a head denoting hearsay (e.g., *sou da* ‘be hearsay’; *uwasa da* ‘be a rumor’, etc.) is bad for both accusative- and nominative-quotative complements of Kuno’s (1976, pg. 43) “thinking and feeling verbs.” For many accusative subjects, nominal predicates formed on noun phrases with heads denoting intention (e.g., *tumori* ‘intention’; *kontan* ‘design’; *ki* ‘inclination’; *yotei* ‘plan’, etc.) are a bad fit for many subject pairings and for many pragmatic contexts. These are just a few exceptions to Kuno’s generalization if we were to read it as a statement of sufficient conditions.

Secondly, the generalization is too restrictive. Verbal predicates representing habitual/generic actions (e.g., *gunzyusangyou ni sihon suru* ‘invest in munitions industry’; *kodomo o gyakutai suru* ‘abuse children’, etc.), resultative states (e.g., *kekkon site iru* ‘be married’; *sinde iru* ‘be dead’, etc.) and stative properties (e.g., *tariru* ‘be sufficient’; *sugiru* ‘be in excess’, etc.) can form the basis of accusative-quotative complements for many subject pairings and for many pragmatic contexts. These are just a few exceptions to Kuno’s generalization if we were to read it as a statement of necessary conditions.

Complement predicates: No existential ones?

Predications involving location and existence are almost always bad in accusative-quota

25.

- (a) Hanako-wa neko-ga/*-o asihuki-no ue-ni iru to omotte.iru.
Hanako-TOP cat-NOM/-ACC mat-GEN over-LOC exist COMP think
'Hanako thinks that the cat is on the mat.'
- (b) Hanako-wa rei-no neko-ga/*-o asihuki-no ue-ni iru to omotte.iru.
Hanako-TOP example-GEN cat-NOM/-ACC mat-GEN over-LOC exist COMP think
'Hanako thinks that the aforementioned cat is on the mat.'

But there is no restriction against "existential predicates" *per se* in accusative-quotative clausal complements:

26. Akemi-wa Hiroshi-o saishi-ga iru to utagatte.iru.
Akemi-TOP Hiroshi-ACC wife.and.child-NOM exist COMP suspect
(lit.) 'Akemi suspects Hiroshi to have a wife and child.'

(26) above does not refer to a belief about an existential assertion, but rather a belief about Hiroshi's membership in the class of "entities that have wives and children."

27. Hanako-wa Kamisama/yourei-o sonzai-suru to omotte.iru.
Hanako-TOP God/ghost-ACC exist-do COMP think
'Hanako believes God/ghosts to exist.'

(27) is not an existential assertion, as it presupposes the existence of the referent of the accusative subject noun phrase. Such statements ascribe to entities the property of existing in the actual world: membership in the set of all the entities in the actual world. Such statements do not add to the contextual domain. The restriction is against complement predications that directly assert existence (either of the accusative subject, or of an eventuality in which the accusative subject is a participant).

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Complement predicates: No stage-level ones?

Constraint on predicates: (in Carlson's (1977a; 1977b) system) The only predicates which can appear in the heads of clauses in accusative-quotative complements are either 1) non-derived individual-level predicates, or 2) individual predicates derived through generalization.

The **Constraint on predicates** as it is formulated above comes closer to observational adequacy than any other proposed in the literature by virtue of the fact that it rules out one kind of predicate and one kind only: individual-level predicates derived through existential quantification over stages. Unfortunately, the **Constraint on predicates** does not capture *all* the facts about the distribution of predicates in the subject-raising-to-object construction. The problem can't be explained by referring to a partition on the class of predicates.

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Predication: No existence assertion

Besides not allowing case alternation from *-ga* to *-o*, the following examples all have one thing in common.

28.

- (a) Tarou-wa otousan-ga/*-o syuttyou-suru to mita.
Tarou-TOP father-NOM/-ACC travel.on.business-do COMP saw
'Tarou reckoned his father would go on a business trip.'
- (b) Tarou-wa singata-ga/*-o san-syurui hatubaityuu da to omotte-iru.
Tarou-TOP new.model-NOM/-ACC three-CL on.sale COP COMP think
'Tarou thinks that (there are) three new models (that) are on sale.'
- (c) Hanako-wa zousui-ga/*-o oisikat-ta to omotte-iru.
Hanako-TOP chop.suey-NOM/-ACC delicious-PAST COMP think
'Hanako believes the chop suey was delicious.'

The commonality: The embedded predications are all existence-asserting. The predicate in (28a) asserts the existence of a future eventuality in which an event can take place. The predicate in (28b) asserts both the the existence of three types of new models, and also the existence of a present eventuality in which *singata san syurui* can assume a temporary condition. And the predicate in (28c) asserts the existence of a past eventuality.

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Supplying antecedent eventualities

29.

- (a) Tarou-wa ryokou.no.sitaku.o.site.iru.otousan-ga/-o syuttyou-suru to mita.
Tarou-TOP preparing.for.travel.father-NOM/-ACC travel.on.business-do COMP saw
'Tarou reckoned his father-who-is-preparing-for-travel to be going on a business trip.'
- (b) Tarou-wa tenzi.site.aru.sinamono-ga/-o minna hatubaityuu da to omotte-iru.
Tarou-TOP goods.no.display-NOM/-ACC all on.sale COP COMP think
'Tarou believes the goods on display to all be on sale.'
- (c) Hanako-wa kinou.no.zousui-ga/-o oisikat-ta to omotte-iru.
Hanako-TOP yesterday's.chop.suey-NOM/-ACC delicious-PAST COMP think
'Hanako considers yesterday's chop suey to have been delicious.'

In each of (29a), (29b) and (29c), the denotation of the accusative subject is spatio-temporally restricted (i.e., its denotation is co-extensive with a specific eventuality). The complement predicate depends on that eventuality for its interpretation.

It appears that if the predication is eventuality dependent, an antecedent eventuality has to be supplied somehow, or else the accusative-quotative construction is unacceptable. Why? Because existential assertion is not possible under the belief operator in an accusative-quotative construction.

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More ways to license eventuality-dependent predicates: Generics

Where a habitual/generic interpretation is possible (i.e., with generalization over episodic stage-level predicates), there is no existential quantification over stages, and it happens that such predications can appear in accusative-quotative constructions. Kitano (1990) was one of the first to point out this kind of data.

30. Tarou-no rentogen-dake-kara sensei-wa kare-o tabako-o suu to handan-dekita.
Tarou-GEN x.ray-only-from doctor-TOP he-ACC tobacco-ACC smoke COMP judge-was.able
'Just from Tarou's x-ray, the doctor was able to judge him to smoke tobacco.'

With the right combination of subject, predicate, and context, it is possible to interpret a stative stage-level [locative post-positional phrase + existential predicate] as generic, and in these cases the predication can be a source for an accusative-quotative construction.

31. Tarou-wa bunsu-o bunbo-no sita-ni aru to kantigai.sita.
Tarou-TOP numerator-ACC denominator-GEN under-LOC exist COMP mistook
'Tarou mistook the numerator to be under the denominator.'

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Organizing the results

The restrictions on the reference of accusative subjects and the predications they are involved in can only be described by reference to the tuple $\langle \textit{subject}, \textit{property}, \textit{contextual domain} \rangle$.

Empirical observation: Propositions expressed by the accusative-quotative complement cannot directly assert the existence of an entity or an eventuality *as evaluated with respect to the contextual domain defined by the belief world of the agent of attitude*.

Property ascription: (informal) Property ascriptions are statements of set membership or equality over entities in the contextual domain.

Semantic/pragmatic constraint: The proposition expressed by an accusative-quotative complement must be a property ascription *on the accusative subject when evaluated with respect to the belief world of the agent of attitude* (the referent of the matrix subject noun phrase).

What we thought were judgments of ungrammaticality were really judgments of pragmatic infelicity.

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Property ascription formalized

Suppose the assertion of a proposition P updates a context C_n (a set of propositions) to a new context C_{n+1} (that is, $C_n + P = C_{n+1}$). Suppose further that for a context C_n the set of entities that exist in C_n (the contextual domain of interpretation) is D_n . Let \mathbf{M} be a function mapping C to D (the “ontological distiller,” so to speak). So $\mathbf{M}(C_n) \rightarrow D_n$, and $\mathbf{M}(C_{n+1}) \rightarrow D_{n+1}$ and so on. A proposition Q is a property ascription if $\mathbf{M}(C_n) \rightarrow D_n$ and $\mathbf{M}(C_n + Q) \rightarrow D_n$. That is, if asserting Q makes no change in the contextual domain, then Q is a property ascription. If we further suppose that eventualities (spatio-temporal locations) are elements of the domain of entities D , then the notion of property ascription will do what we want it to. (Horn: 2008, pp. 5–6)

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