Two kinds of question-embedding strategies and veridicality alternations

The puzzle. In many languages, clause-embedding predicates exhibit declarative veridicality alternations conditioned by clause type. In Japanese and Turkish, nominal embedded clauses lead to veridical readings, but *diye*/*to* (D/T) clauses, to non-veridical ones, in (8)-(9) of Appendix. We focus on the interpretations that these predicates exhibit when they embed interrogatives, which are syntactically parallel to declaratives in that they are either nominal or headed by D/T: (3)-(4).

According to Spector & Égré ('15) and previous literature, a question-embedding sentence relates the subject to a specific propositional answer, as in (1). Given this, we have a naive but legitimate expectation for veridicality-alternating predicates in Turkish/Japanese in (2).

(1) x Vs $Q \Leftrightarrow \exists p \in Q[x \text{ Vs that } p]$ (assuming a partition denotation for Q)

(2) a. x Vs nominal-$Q \Leftrightarrow \exists p \in Q[x$ Vs nominal-$p]$ (relaltion to a true answer)
b. x Vs D/T -$Q \Leftrightarrow \exists p \in Q[x$ Vs D/T -$p]$ (relation to a potentially false answer)

That is, with the relevant predicates, nominal questions should yield a veridical reading describing an attitudinal relation to their true answer while D/T-questions should yield a non-veridical reading describing a relation to a *potential but not necessarily true* answer. Our puzzle is that this expectation is met for nominal questions, but not for D/T-questions. The veridicality alternating predicate *odoroku*/*şaşır*- ('be surprised') is indeed veridical with nominal questions (see Tomioka '20 for evidence that the Jp question in (3) is nominal). But, in (4), the corresponding sentences with D/T-questions *lack* a reading where the predicate describes a relation to a potential answer.

(3) Tu Hanako [parti-ye kim-in gel -diğ -in]-e **şaşırdı**.
Hanako party-DAT who-GEN come-NMZ-3S -DAT was.surprised

Jp Hanako-wa [dare-ga sono party-ni kuru -ka]-ni **odoroita**.
Hanako-TOP who-NOM the party-DAT come-Q -DAT was.surprised
'Hanako was surprised by (the true answer to the question) who will come to the party.'

(4) Tu Hanako [partiye kim gel-ecek diye] **şaşırdı**.
Hanako party-DAT who come-FUT DIYE was.surprised

Jp Hanako-wa [dare-ga sono party-ni kuruno -ka-to] **odoroita**
Hanako-TOP who-NOM the party-DAT come-Q-TO was.surprised
Unavailable: Hanako was surprised by a possible answer to who'll come to the party.
Available: Hanako was surprised, thinking "Who will come to the party?"

A twist to this puzzle is that sentences (4) have a reading that relates the subject to the question (but not any of its answers), where the question is something that they represent mentally. We propose an account for the lack of the unavailable reading, which also captures these truth conditions.

Adjunction and complementation. Following earlier literature on declaratives (Özyıldız '19, Shimoyama & Goodhue '22), we show that nominal(ized) questions are syntactic *complements* of attitude verbs, whereas D/T-clause questions are *adjuncts*. Evidence comes from: • In (10), D/T questions can compose with predicates whose argument slots are saturated; nominal questions, case-marked like regular arguments, cannot. • In (11)-(12), D/T-clauses require adverbial pro-forms, and nominalizations, nominal ones. • In (13), D/T-clauses cannot, in general, be subjects, in contrast with nominalizations, yet they may still compose with passives (as modifiers).

Analysis. Taking into account the syntactic properties of nominal and D/T-clauses, our solution to the puzzle is as follows. Veridicality is a restriction that alternating predicates lexically impose

on their complements, which results in veridical readings with nominal declaratives and questions. The same restriction does not hold for D/T-clauses, which are modifiers of the eventuality described by the main predicate. Concretely, we give embedding predicates event-semantic entries like (5):

(5) $[\![$*odoroku / şaşır-* 'be surprised'$]\!]^w$
$= \lambda Q_{\langle s,st\rangle} \lambda e_v$: $\underline{\exists p \in Q[p(w)]}$. $\exists p \in Q[p(w) \wedge \textbf{surprise}(e) \wedge \textbf{Theme}(e, \iota s[\text{EXEMP}(s,p)])]$

This entry entails that there is a proposition p in the set Q that is true, and that the theme of the surprise event is the (contextually salient) situation that exemplifies p (see Kratzer '02). As Q is saturated by the denotation of nominal complements, this analysis correctly predicts that these yield veridical readings with questions and with declaratives (following Uegaki '15, '22, and others in assuming that declaratives denote singleton proposition-set).

Unlike nominal clauses, D/T-clauses are analyzed as event modifiers as in (6):

(6) $[\![$*diye/to*$]\!]^w = \lambda Q_{\langle st,t\rangle} \lambda e_v$. $\exists e'[\textbf{represent}(e') \wedge \textbf{Theme}(e', Q) \wedge e \sim e']$
where $e \sim e'$ iff $e = e'$ or e' directly causes e (cf. Özyıldız et al. '19)

Here, *diye/to* take a clause denotation Q and return a predicate that is true of eventualities e, which (a) will be identified with the eventuality described by the main predicate, and (b) are appropriately related to eventualities e' that are representations of Q. (We use the meta-language predicate 'represent' to include mental representations as well as linguistic productions. We ultimately believe that Potts's '04 utterance relation or Maier's '18 form function could be used too.) Like before, Q may be a declarative or a question denotation, but not only does (6) not enforce veridicality, nor does it require that the representation be of a propositional answer to Q. This derives non-veridicality, as well as additional aspects of the truth conditions associated with D/T-clauses. An example denotation of a VP involving a nominalized declarative and a D/T-question is given below:

(7) $[\![$ Q-D/T [p-NMZ/pro *odoroku/şaşır-*] $]\!]^w$ (see (14) for LF)
$= \lambda e_v.[p(w) \wedge \textbf{surprise}(e) \wedge \textbf{Th}(e, \iota s[\text{EXEMP}(s,p)])] \wedge \exists e'[\textbf{repr}(e') \wedge \textbf{Th}(e', Q) \wedge e \sim e']$
true of events e of being surprised by the true proposition p and representing question Q

Predictions. Our analysis predicts that there can be semantic restrictions imposed by predicates other than veridicality that uniformly apply to nominal declaratives and interrogatives but not to D/T-clauses. This prediction is borne out with predicates like *mitomeru/kabul et-* 'admit', *hitee-suru/inkâr et-* 'deny' (response-stance verbs; Cattell '78), which presuppose that the content of the complement has been introduced in the reported discourse. This presupposition holds for nominal clauses but not for D/T-clauses. Similarly, S-selection—which can be thought of as lexical semantic restrictions—is observed for nominal clauses but not for D/T-clauses. E.g., Jp *tazuneru* 'ask' is incompatible with nominalized declaratives but compatible with D/T-declaratives. Turkish *um-* 'hope' is incompatible with nominal questions but compatible with D/T-questions. See (15).

Cross-linguistic variation. Bondarenko ('22) notes that a clause under Russian *objasnit'* 'explain' can exhibit two types of embedding strategy, parallel to the internal-argument/adjunct distinction in Turkish/Japanese. However, crucially, the two types of clauses cannot co-occur under *objasnit'* in Russian while they can in Turkish/Japanese. We suggest that this variation boils down to whether a language involves a head like *diye/to* which introduces an additional representation event. In Russian, since such an item is absent, the adjunction strategy is possible only if the predicate itself introduces a contentful eventuality (analyzed in terms of silent SAY composing w/ *objasnit'* in Bondarenko), which closes off the internal argument slot. In Turkish/Japanese, by virtue of *diye/to*, adjunction is available in general without the predicate itself introducing a contentful eventuality.

Appendix

(8) Tu Hanako [yağmur yağ -dığ -ın-a] **şaşırdı**.
Hanako [rain fall-NMZ-3S-DAT] was.surprised
Jp Hanako-wa [ame-ga hutta -no -ni] **odoroita**.
Hanako-TOP [rain-NOM fell-NMZ-DAT] was.surprised
'Hanako was surprised by the fact that it rained' ⇒ It rained.

(9) Tu Hanako [yağmur yağdı diye] **şaşırdı**.
Jp Hanako-wa [ame-ga hutta -to] **odoroita**.
Hanako-TOP rain-NOM fell TO/DIYE was.surprised
'Hanako was surprised, believing that it rained' ⇏ It rained.

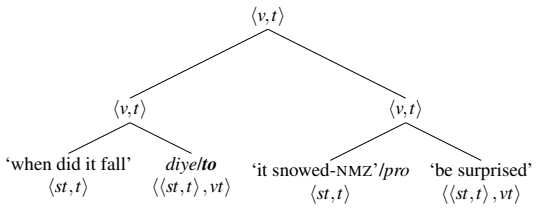
(10) Tu Taro kar-a [ne zaman yağdı diye / *yağ- dığ -ın-a] **şaşırdı**.
Taro snow-DAT when fall-PST DIYE / fall-NMZ-3S-DAT surprised
Jp Taro-wa yuki-ni [itsu huttano -ka-to / *hutta -ka -ni] **odoroita**.
Taro-TOP snow-DAT when fell-Q-TO / fell-Q-DAT surprised
Int. 'Taro was surprised by the snow, saying/thinking 'when did it snow''

(11) Tu Taro [kim gel-ecek diye] şaşırdı. Jiro da {**öyle/*on-a**} şaşırdı.
Taro who come-FUT DIYE surprised Jiro too {so/that-DAT} surprised
Jp Taro-wa [dare-ga kuru -ka-to] odoroita. Jiro-mo {**soo**/***sore**-ni} odoroita.
Taro-TOP who-NOM come-Q-TO surprised Jiro-too so/it-DAT surprised
'Taro was surprised: who will come. Jiro was surprised by it, too.

(12) Tu Taro [kim-in gel -diğ -in-e] şaşırdı. Jiro da {***öyle/on-a**} şaşırdı.
Taro who-GEN come-NMZ-3S-DAT surprised Jiro too {so/that-DAT} surprised
Jp Taro-wa [dare-ga kuru -ka -ni] odoroita. Jiro-mo {***soo/sore**-ni} odoroita.
Taro-TOP who-NOM come-Q-DAT surprised Jiro-too so/it-DAT surprised
'Taro was surprised by who will come. Jiro was surprised by it, too.'

(13) Tu Kim gel-di diye {*belli, tartış-ıl-dı}.
who come-PST DIYE obvious discuss-PASS-PST
Jp Dare-ga kita -ka-to {*toozen-da, giron-sareta}.
who-NOM came-Q-TO obvious discuss-PASS
Intended: 'It is obvious who came.' Available: 'Who came was discussed.'

(14)



(15) Tu Ai [kız-ı kazan-acak mı diye] umdu.
Ai daughter-POSS.3S win-FUT Q DIYE hoped
'Ai hoped and wondered whether her daughter would win.'
Jp Ai-wa [musume-ga katta hazu-da -to] shimpan-ni tazuneta.
Ai-TOP daughter-NOM won should-COP-TO] judge-DAT asked
Lit. 'Ai asked the judge her daughter should have won.'