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REGULAR ARTICLE

Agree and the subjects of specificational clauses

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Abstract

This article investigates agreement in Persian sentences with a specificational copular clause embedded under the epistemic modal *tavānestan* 'can'. We argue that this structure is a raising structure. It exhibits agreement on both the embedded and modal verbs. Crucially, while the subject fails to control agreement in the embedded clause, it successfully controls agreement on the modal. We argue that the subject's failure to form an Agree relation in the embedded specificational clause is due to its defective feature structure, resulting in agreement with the lower noun phrase instead, this being an accessible goal as well. In the matrix clause, the lower noun phrase is inaccessible, due to the presence of an intervening domain boundary. This triggers probe reduction, a process that impoverishes the feature structure of the probe, expanding the set of possible goals to include the subject. We extend this analysis to subject agreement in simple specificational clauses in languages like English.

KEYWORDS

agreement in copular clauses, domain boundaries, feature-relativized agree, modals, Persian, probe reduction, raising, subjects of specificational clauses

1 | INTRODUCTION

Across languages, subjects of specificational clauses (SSCs) vary with respect to whether they are tracked by subject agreement in the same way as canonical subjects. One prominent pattern,

exemplified by (1), is where SSCs fail to agree, but successful subject agreement is also attested, as in (2) (Higgins 1973, Heggie 1988, Moro 1997, and Mikkelsen 2005, among others).

(1) Qātel man (hast)-am. Persian
murderer I be.PRS-1SG
'The murderer is me.'

(2) The murderer is me. English

What is the difference between systems like Persian, in which SSCs fail to agree, and those like English, where they agree like regular subjects? Recent years have seen renewed interest in this question (Heycock 2012, Bejar & Kahnemuyipour 2017, Shlonsky & Rizzi 2018, Den Dikken 2019, Keine et al. 2019, Hartmann & Heycock 2020). SSC nonagreement is of interest because it challenges standard assumptions about agreement operations. In particular, it violates the general expectation that clausal agreement should be with the highest accessible goal in a clause (locality).

In this article we consider SSC agreement failure in relation to an adjacent problem: there are systems where SSCs fail to agree in copular clauses and yet successfully agree in a higher domain (Heycock 2009). Here we argue that Persian presents one such case. As we see in (1), Persian SSCs are nonagreeing in simple specificational clauses, where agreement is instead controlled by the lower nominal, hereafter referred to as NP2. However, when, as in (3), the specificational clause is selected by the modal *tavānestan* 'can'—which receives an epistemic reading—a new pattern arises.[1] While agreement on the copula still tracks NP2, the modal also shows agreement, which tracks the SSC (and not NP2).

(3) Qātel-e tahte-taqib mi-tun-**e** to bāsh-**i.**
murderer-EZ under-chase DUR-can-3SG you be.SBJV-2SG
'The wanted murderer can be you.'

(Here and in other examples in this article, EZ stands for the linking element known as *ezafe*.) In section 3.3 we will see that the pattern in (3) is not the result of default agreement.

The coupling of failure to agree in a lower clause with successful agreement in a higher clause is familiar from raising constructions where the lower domain is defective and cannot agree at all:[2]

(4) The murderers seem [*t* to be in custody].

In fact, we will argue in this article that the Persian pattern above has the hallmarks of a raising construction. However, the familiar explanation for the agreement pattern in raising constructions is that AGR in the subordinate domain is defective and cannot agree. The pattern under consideration here is different in that the downstairs clause is an agreement domain in its own right, as evidenced by the fact that there is full agreement with NP2. We need a different lens through which to analyze this pattern given that defectiveness of the embedded AGR cannot

[1] *Tavānestan* also has a deontic reading, but on this reading it does not show the agreement pattern we are interested in, because when it selects a copular clause, it forces a nonspecificational reading of the copular clause (Bejar & Kahnemuyipour 2013). We know that Persian nonspecificational copular clauses (i.e., predicational and equative clauses) exhibit canonical subject agreement, not NP2 agreement (see Bejar & Kahnemuyipour 2017).

[2] A reviewer points out that raising patterns are traditionally characterized in terms of case patterns rather than agreement. We adopt the widely held view that agreement can be an alternative morphological expression of the same relations that underlie case (Nichols 1986 and Chomsky 2001, among others). In the literature there are many accounts of raising framed in terms of agreement, for example, Boeckx 2000, Rezac et al. 2014, and Halpert 2019.

account for it. In the Agree framework, an obvious alternative possibility is that the locus of defectiveness is the SSC itself, such that its feature structure is reduced compared to other nominals. This is the position we will defend here. The puzzle presented by our pattern can then be stated as follows. How is it that in a structure like (3), the SSC is defective with respect to agreement in the domain of the copula but not in the domain of the modal verb?

We begin by providing evidence in section 2 that epistemic *tavānestan* is a raising predicate. We then develop an analysis of agreement in *tavānestan* structures in section 3. In section 4 we extend our analysis of the SSC agreement in the Persian modal environment to SSC agreement in simple copular clauses in English-type languages. In section 5 we consider an alternative analysis of these facts based on superiority and rule it out. Section 6 is a conclusion.

2 | THE SYNTAX OF *TAVĀNESTAN* 'CAN'

In this section we support the claim that epistemic *tavānestan* is a raising predicate.[3] The evidence involves availability of overt subjects, of temporal modification, of idiomatic readings, and of quantifier float; equivalence of truth conditions under an inchoative–causative alternation; subject animacy; and embedding of specificational clauses.

To begin, observe that the structure of the clause subordinated under *tavānestan* is defective. It cannot host an independent subject, as (5) illustrates, nor does it permit temporal modification independent from the matrix clause, as (6) illustrates.

(5) Bachchehā mi-tun-an (*dust-ā-shun) xune bāsh-an.
kids DUR-can-3PL friend-PL-their home be.SBJV-3PL
'The kids can (*their friends) be home.'

(6) *Bachchehā emruz mi-tun-an fardā xune bāsh-an.
kids today DUR-can-3PL tomorrow home be.SBJV-3PL
'*The kids can today be home tomorrow.'

This is typical of raising environments.

To further establish the raising status of epistemic *tavānestan* 'can', we contrast it with both *xāstan* 'want' and *jor'at kardan* 'dare'. While these verbs, like 'can', select a subjunctive complement, their properties are strikingly different from 'can'.[4] Using a battery of tests, we will argue here that epistemic 'can' is a raising verb while 'want' and 'dare' are control verbs.[5]

A raising verb, by definition, does not have a thematic subject while a control verb does. Our first tests establish that, in Persian, epistemic 'can' does not have a thematic subject while both

[3]As far as we are aware, this is the first time *tavānestan* has been argued to be a raising predicate. The dominant view among Persian linguists is that the language does not have raising structures (Hashemipour 1989, Karimi 1999, Ghomeshi 2001, Karimi 2008; but see Darzi 1996 on raising structures in Persian and Taleghani 2008 on pseudo-raising structures in Persian).

[4]While acknowledging several differences, Ghomeshi 2001 appears to ultimately treat 'want' on a par with 'can' structurally. We are departing from Ghomeshi's analysis.

[5]We picked these two control verbs for this comparison because they have different properties: 'want' is a nonobligatory-control verb while 'dare' is an obligatory-control verb (see footnote 13). It is worth noting that the properties of obligatory-control verbs in Persian are strongly debated (see Karimi 2008). Any attempt to fully engage with the literature on this topic would take us too far afield, but our hope is that the discussion in this article will add to the debate. Meanwhile, our only immediate goal is to establish the raising status of epistemic 'can' by drawing a contrast with control structures.

'dare' and 'want' do. We begin with a standard idiom test. The subject of an idiomatic expression, such as those in (7a) and (8a), can be separated from the rest of the expression by 'can' while retaining the idiomatic meaning, as in (7b) and (8b), but when the subject is separated by 'dare' as in (7c) and (8c) or 'want' as in (7d) and (8d), the idiomatic meaning is lost.

(7) a. Parande par ne-mi-zan-e.
bird wing NEG-DUR-hit-3SG
Idiomatically: 'The place is so empty.'
Literally: 'A (single) bird doesn't fly (here).'

b. Parande mi-tun-e par na-zan-e vali owzā-shun bad nist.
bird DUR-can-3SG wing NEG-hit-3SG but situation-their bad isn't
Idiomatically: ? 'The place might be empty, but their circumstances aren't bad' (i.e., they're doing OK).
Literally: 'The bird may not fly, but their circumstances aren't bad' (i.e., they're doing OK).

c. Parande jor'at mi-kon-e par na-zan-e vali owzā-shun bad nist.
bird dare DUR-do-3SG wing NEG-hit-3SG but situation-their bad isn't
Idiomatically: *
Literally: 'The bird is daring to not fly, but their circumstances aren't bad (i.e., they're doing OK).'

d. Parande mi-xā-d par na-zan-e vali owzā-shun bad nist.
bird DUR-want-3SG wing NEG-hit-3SG but situation-their bad isn't
Idiomatically: *
Literally: 'The bird wants to not fly, but their circumstances aren't bad' (i.e., they're doing OK).

(8) a. Shotor bā bār-esh gom mi-sh-e.
camel with load-its lost DUR-become-3SG
Idiomatically: 'The place is so cluttered.'
Literally: 'A loaded camel would get lost (here).'

b. Shotor mi-tun-e bā bār-esh gom be-sh-e vali chiz-ā-ye
camel DUR-can-3SG with load-its lost SBJV-become-3SG but thing-PL-EZ
bā-arzesh-i injā peydā mi-sh-e.
with-worth-INDF here found DUR-become-3SG
Idiomatically: ? 'It may be cluttered, but valuable things can be found here.'
Literally: 'A loaded camel can get lost, but valuable things can be found here.'

c. Shotor bā bār-esh jor'at mi-kon-e gom be-sh-e vali chiz-ā-ye
camel with load-its dare DUR-do-3SG lost SBJV-become-3SG but thing-PL-EZ
bā-arzesh-i injā peydā mi-sh-e.
with-worth-INDF here found DUR-become-3SG
Idiomatically: *
Literally: 'A loaded camel dares to get lost, but valuable things can be found here.'

d. Shotor bā bār-esh mi-xā-d gom be-sh-e vali chiz-ā-ye
camel with load-its DUR-want-3SG lost SBJV-become-3SG but thing-PL-EZ
bā-arzesh-i injā peydā mi-sh-e.
with-worth-INDF here found DUR-become-3SG
Idiomatically: *
Literally: 'A loaded camel wants to get lost, but valuable things can be found here.'

We infer from this that the subject of 'can' has raised from the subordinate environment, where the idiomatic reading is established, while the subject of 'dare' or 'want' is base generated in the matrix clause.[6]

Our second test involves quantifier float, a test commonly used to diagnose the base position of a DP, thus distinguishing raising from control. We can see in (9)–(11) that the quantifier 'all' can "float" in the subordinate subject position under 'can' but not under 'dare' or 'want'.[7,8]

(9) (Hame) bachchehā (hame) mi-tun-an (hame) xune bāsh-an.
all kids all DUR-can-3PL all home be.SBJV-3PL
'All the kids can be home.'

(10) (Hame) bachchehā (hame) jor'at mi-kon-an (??hame) xune be-mun-an.
all kids all dare DUR-do-3PL all home SBJV-stay-3PL
'All the kids dare to stay home.'

(11) (Hame) bachchehā (hame) mi-xā-n (??hame) xune bāsh-an.
all kids all DUR-want-3PL all home be.SBJV-3PL
'All the kids want to be home.'

We infer from this that the subject of 'can' raises from the subordinate clause while the subjects of 'dare' and 'want' are base generated in the matrix clause.[9]

A third test that differentiates raising and control structures is equivalence under passivization (see discussion in Landau 2013). The embedded clause of a raising structure, when passivized, is truth-conditionally equivalent to its active counterpart. This is not the case for control structures. Persian arguably does not have a true passive (Moyne 1974, Karimi 1989, Ghomeshi 1997, Karimi 2005), but Taleghani 2008 shows that the test can be performed with inchoative complex-predicate constructions, which are like the passive in that they promote an internal argument to subject (see also Folli et al. 2005). We see in (12) that the causative and

[6]The application of this test is complicated by the fact that most idiomatic/proverbial expressions involving subjects in Persian are fixed phrases that do not allow any kind of manipulation. Even with examples that allow manipulation, such as the ones in (7) and (8), the outcome is not perfect, as indicated by the question marks in the (b) examples. Nevertheless, there is a clear contrast in availability of the idiomatic reading in the (b) examples versus the (c) and (d) examples. An anonymous reviewer takes issue with the acceptability of (7b) but agrees with the judgment presented for (8b). In order to find a wider range of cases, a systematic review of idiomatic expressions is necessary, a task we leave for future research.
[7]In (10), we modified the predicate of the embedded clause slightly because 'dare' is more compatible with a volitional predicate like 'stay home' than with the stative 'be home'.
[8]The version of (11) with *hame* in the subordinate subject position is grammatical on the reading 'The kids want everyone to be home'. This is because 'want' allows an overt embedded subject, which can be *hame*, with the meaning 'everyone'.
[9]While, in our examples, there is a clear contrast in acceptability of quantifier float under epistemic 'can' versus the other two verbs, Karimi 2008 shows that quantifier float can occur with some control verbs in Persian (pp. 202–203) and also in English:

(i) We tried to all go to the movies.
(Karimi 2008: 206, n. 26)

Still, the contrast between (9) on the one hand and (10) and (11) on the other is of interest because it goes in the right direction. If *tavānestan* did not allow quantifier float, that would pose a serious challenge for our proposal, since it would be unexpected for a raising verb to disallow quantifier float. See also Sportiche 1988, Baltin 1995, and Bobaljik 2003 on the ability of quantifiers to compose with some instances of PRO.

inchoative counterparts of the subordinate clause under 'can' are truth-conditionally equivalent, consistent with raising. In contrast, the causative and inchoative counterparts of subordinate clauses under 'dare' (13) and 'want' (14) are not truth-conditionally equivalent, consistent with control.

(12) a. Raftār-e Maryam mi-tun-e Pari-ro nārāhat kon-e.
behavior-EZ Maryam DUR-can-3SG Pari-*RA* upset do-3SG
'Maryam's behavior can upset Pari.'
b. Pari mi-tun-e az raftār-e Maryam nārāhat be-sh-e.
Pari DUR-can-3SG of behavior-EZ Maryam upset SBJV-become-3SG
'Pari can become upset with Maryam's behavior.'

(13) a. Maryam jor'at kard Pari-ro nārāhat kon-e.
Maryam dare did Pari-*RA* upset do-3SG
'Maryam dared to upset Pari.'
b. Pari jor'at kard az dast-e Maryam nārāhat be-sh-e.
Pari dare did from hand-of Maryam upset SBJV-become-3SG
'Pari dared to become upset with Maryam.'

(14) a. Maryam mi-xā-d Pari-ro nāraahat kon-e.
Maryam DUR-want-3SG Pari-*RA* upset do-3SG
'Maryam wants to upset Pari.'
b. Pari mi-xā-d az dast-e Maryam nārāhat be-sh-e.
Pari DUR-want-3SG from hand-of Maryam upset SBJV-become-3SG
'Pari wants to become upset with Maryam.'

A fourth test manipulates another known difference between raising and control: control predicates have been said to require subject animacy whereas raising predicates do not (Perlmutter 1970, Becker 2007, Landau 2013). In (15) we see that 'can' is grammatical with an inanimate subject, but (16) and (17) show that 'dare' and 'want' are not.

(15) Eshtebāhaa mi-tun-an nādideh gerefte be-sh-an.
mistakes DUR-can-3PL unseen taken SBJV-become-3PL
'Mistakes can be overlooked.'

(16) *Eshtebāhaa jor'at mi-kon-an nādideh gerefte be-sh-an.
mistakes dare DUR-do-3PL unseen taken SBJV-become-3PL
Intended: 'Mistakes dare to be overlooked.'

(17) *Eshtebāhaa mi-xā-n nādideh gerefte be-sh-an.
mistakes DUR-want-3PL unseen taken SBJV-become-3PL
Intended: 'Mistakes want to be overlooked.'

An additional contrast between raising and control structures manifests itself in the very availability of specificational readings for embedded copular clauses. The intensional interpretation of the subject that is part of the specificational interpretation of a copular clause is available in raising

structures but not in control structures, as shown for English in (18).[10] While the specificational interpretation is available for the raising example in (18a), in the control example in (18b) the only possible interpretation of the copular clause is as an assumed-identity (equative) clause, such that there is a known individual referred to as *the winner* who is trying to assume the identity of Simone Biles.

(18) a. The winner seemed [*t* to be Simone Biles].
b. #The winner tried [PRO to be Simone Biles].

What we see in Persian is that a specificational reading is unavailable for matrix subjects of 'dare', as in (19), and 'want', as in (20). This leads to ungrammaticality for these examples because the NP2 agreement associated with the specificational reading of the copular clause is incompatible with other possible readings (e.g., equative).[11,12]

(19) *Barande jor'at mi-kon-e to bāsh-i.
winner dare DUR-do-3SG you be.SBJV-2SG
Intended: 'The winner dares to be you.'

(20) *Barande mi-xā-d to bāsh-i.
winner DUR-want-3SG you be.SBJV-2SG
Intended: 'The winner wants to be you.'

The unavailability of a specificational interpretation for copular clauses subordinated under 'dare' and 'want' contrasts with the situation for 'can'. In (21) we see that with 'can' the special interpretation of the SSC is available.

(21) Barande mi-tun-e to bāsh-i.
winner DUR-can-3SG you be.SBJV-2SG
'The winner can be you.'

[10]It is well established that SSCs can only be interpreted as intensional (Romero 2005, Heycock 2012, Arregi et al. 2020; see also Higgins 1973 on the special interpretation of SSCs). An SSC cannot be used extensionally to pick out a discourse referent. See also section 3.2.

[11]It is important to note that two factors must combine to give the ungrammaticality of (19) and (20): being a control structure and embedding a specificational clause. On the one hand, a predicate like 'want' (though not 'dare') allows a noncontrol use, where the subjects are not coindexed, making embedding of a specificational clause possible, as in (i). On the other hand, as (ii) illustrates, coindexation of the subject of 'want' (or 'dare', not shown) and the subject of an embedded copular clause is fine if the embedded clause is predicational (as in (ii)) or equative (not shown).

(i) Ali mi-xā-d barande to bāsh-i.
Ali DUR-want-3SG winner you be.SBJV-2SG
'Ali wants the winner to be you.'

(ii) Barande mi-xā-d tanhā bāsh-e.
winner DUR-want-3SG alone be.SBJV-3SG
'The winner wants to be alone.'

[12]There is another parse for the example in (20), with 'you' as the subject and main stress on the verb 'to be'. This is grammatical, but it has a different interpretation that does not concern us: 'The winner wants you to be (there)'.

This is expected if the nonthematic subject of epistemic 'can' originates as the intensional subject of the subordinated specificational clause and raises to its surface position.

We conclude that epistemic 'can' is a raising verb while 'dare' and 'want' are control verbs.[13] This conclusion is consistent with a long-standing body of work arguing that epistemic modals do not introduce external arguments and are raising predicates (Ross 1969, Zubizarreta 1982, Roberts 1985, Abraham 2002; cf. Wurmbrand 1999, according to which both deontic and epistemic modals are raising predicates). We posit the structure in (22) for epistemic *tavānestan* sentences.[14] The SSC is introduced into the derivation in the subordinate clause, where it receives the characteristic intensional interpretation, and it raises to become the subject of the matrix clause.

(22) $[_{CP} \ldots \text{SSC}_i \ldots \text{modal} \ldots [_{XP} \ldots t_i \text{ T} \ldots [\text{NP2} \ldots \text{BE}]]]$

Having established the raising status of epistemic *tavānestan*, we now turn to the main puzzle of this article and address the agreement pattern seen in the structures described by (22).

3 | PERSIAN AGREEMENT IN RAISING ENVIRONMENTS

In this section we address the central problem of this article: in raising structures where epistemic *tavānestan* subordinates a specificational copular clause, the SSC fails to agree in the subordinate domain but successfully agrees when it raises to the higher domain. If we squint, this pattern has a familiar feel: it is a hallmark of raising structures that the raised element fails to establish an Agree relation in the subordinate clause but is able to do so in the matrix clause. The traditional way of understanding this is that in raising structures the subordinate domain is defective with respect to Agree. However, the pattern under consideration here is different in that the downstairs clause is an agreement domain in its own right. This is evidenced by the fact that there is full agreement with NP2:

[13]We could go on to differentiate 'dare' and 'want' from each other based on other properties. Specifically, under 'want', a subordinate clause can have an independent subject and independent temporal modifiers, as shown in (i), but under 'dare' it cannot, as shown in (ii).

(i) Bachchehā emruz mi-xā-n mā fardā xune bāsh-im.
kids today DUR-want-3PL we tomorrow home be.SBJV-1PL
'Today the kids want us to be home tomorrow.'

(ii) a. Bachchehā emruz jor'at mi-kon-an (*fardā) dars na-xun-an.
kids today dare DUR-do-3PL tomorrow lesson NEG-read-3PL
'Today the kids dare not to study (*tomorrow).'
b. *Bachchehā jor'at mi-kon-an mā dars na-xun-im.
kids dare DUR-do-3PL we lesson NEG-read-1PL
'*The kids dare for us not to study.'

We take these facts to suggest that 'dare' is an obligatory-control verb whereas 'want' involves nonobligatory control. Accordingly, the clause subordinated under 'dare' has a more reduced structure than the one under 'want'. On this view, the empty subjects in clauses subordinated under 'dare' and 'want' are PRO and *pro*, respectively.

[14]In (22) we abstract away from the internal syntax of the specificational clause. As we will see in section 3.1, this involves an inversion step for the SSC not shown in (22).

(23) Qātel-e tahte-taqib mi-tun-**e** to bāsh-**i.**
murderer-EZ under-chase DUR-can-3SG you be.SBJV-2SG
'The wanted murderer can be you.'
= (3)

Therefore we cannot attribute the nonagreement with the SSC in the subordinate clause to defectiveness of the downstairs clause with respect to Agree. Instead, we propose that the locus of defectiveness is the SSC itself, such that its feature structure is reduced compared to other nominals. As a result, agreement occurs with the SSC only if there is no better match for the probe. The puzzle presented by our pattern can then be stated as follows. How is it that in a structure like (23), the SSC is the best match in the agreement domain of the modal verb but not in the agreement domain of the copula?

In the remainder of this section we lay out our analysis of this agreement pattern. We begin by setting up a basic syntax for specificational copular clauses in section 3.1. In section 3.2 we introduce the idea that SSCs have a deficient feature structure. In section 3.3 we establish that the agreement in the matrix clause, the *tavānestan* clause, is not default agreement. In section 3.4 we put these pieces together and give an analysis of how SSC agreement fails inside the subordinate copular clause but succeeds in the matrix modal clause. In section 3.5 we explore the idea that the mechanisms proposed in section 3.4 depend on the presence of a phase boundary between the matrix and subordinate clauses. Section 3.6 summarizes.

3.1 | The syntax of specificational clauses

An abundance of previous work on specificational clauses has converged on an analysis of them as inversion structures: for example, Mikkelsen 2005, Den Dikken 2006, and Heycock 2012. In particular, Bejar & Kahnemuyipour 2017 provides arguments supporting this approach for Persian. On this view, the structural subject of a specificational clause is not the notional subject of that clause. The notional subject—NP2—is base generated in a small clause, where it remains in situ. In addition to the notional subject, the small clause introduces a nominal complement, the SSC. The derivation of the specificational clause proceeds as schematized in (24) (for Persian). A dashed line indicates Match without Agree, while a solid line indicates Match and Agree.

(24) Inverted SSCs in specificational clauses

a.			...	F	$[_{\text{small clause}}$ NP2	SSC]
b.			SSC	F	$[_{\text{small clause}}$ NP2	*t*]
c.		T_{AGR}	SSC	F	$[_{\text{small clause}}$ NP2	*t*]
d.		—————————— ✓				
		- - - - - - ✗				
		T_{AGR}	SSC	F	$[_{\text{small clause}}$ NP2	*t*]
e.	SSC	T_{AGR}	*t*	F	$[_{\text{small clause}}$ NP2	*t*]

In (24a) the small clause is introduced by a functional head F that will end up being the target for inversion in (24b), where the SSC moves to spec,FP. The inversion process results in the SSC being the structurally higher nominal. After inversion, T merges in (24c). T is an AGR head, meaning it hosts a phi probe that will be the locus of Phi Agree. This occurs in (24d). The probe searches its c-command domain, within which the SSC is the highest goal; however, the probe's attempt to

form an Agree relation with the SSC fails. The reasons for this failure are the concern of this article and will be discussed in detail in section 3.2. Although the SSC cannot enter an Agree relation, the small-clause subject NP2 is also in the search path of the probe and is able to value it. Note that it is nevertheless the SSC and not NP2 that moves to spec,TP to satisfy the EPP; this is shown in (24e). We infer from this that the EPP is partially dissociated from Agree: the closest goal in the search path of the probe will satisfy the EPP, regardless of whether it succeeds in valuing the probe.

3.2 | Deficient feature structure of SSC and consequences for Agree

The absence of an Agree relation with the SSC in (24d) raises a question that is central to this article. Why does the SSC not value this probe? Here we develop an analysis according to which the SSC has deficient feature structure and cannot value the probe.

The deficiency of SSCs goes beyond failure to agree. SSCs famously exhibit a range of other special properties. One important property is that an SSC cannot directly refer to a discourse referent or a contextually salient individual. Instead it is a higher-order intensional expression that serves to identify a class of entities, the extension of which is established by NP2 (Romero 2005, Heycock 2012, Arregi et al. 2020). For instance, in (25), the SSC does not refer to an entity in the discourse. Rather, the extension of 'the murderer' is established by the second-person pronoun NP2.

(25) Qātel to-yi.
murderer you-be.PRS.2SG
'The murderer is you.'
(Context: Detective Hercule Poirot revealing the identity of the murderer.)

The specificational clause in (25) stands in contrast with nonspecificational copular clauses, such as predicational and equative clauses, in which the subject can be extensional. In (26) we show an equative clause in Persian with an assumed-identity reading, where the subject is extensional and fully referential. The context for this reading is key (see parenthesis under the example).[15]

[15] Assumed-identity structures with a first- or second-person postcopular NP are known to be ineffable in some languages (see Keine et al. 2019 for German and Bejar 2012 for Spanish). This is also the case for some Persian speakers (including an anonymous reviewer) but not all, especially if the examples and their corresponding contexts are carefully constructed. For instance, we can support an extensional reading for the subject by modifying it with a nonrestrictive relative clause. We apply this in (i) using the context for (26): three individuals—a murderer, a thief, and an arsonist—are playing a game of charades and impersonating one another and guessing who is impersonating who. The murderer adopts a smiling manner to impersonate the thief. The arsonist says the following to the thief.

(i) Qātel, ke hamash labxand mi-zan-e, qat'an to-e, (ne-mi-tun-e
murderer that constantly smile DUR-hit-3SG definitely you-is NEG-DUR-can-3SG
man bāsh-e).
I be.SBJV-3SG
'The murderer, who is constantly smiling, is definitely you (he can't be me).'

(26) Qātel to-e.
murderer you-be.PRS.3SG
'The murderer is you.'
(Context: In a prison's game room, a murderer, a thief, and an arsonist play charades using themselves as characters. The arsonist says to the thief: The murderer is you.)

As argued in Bejar & Kahnemuyipour 2017, the referential deficiency of the subject in (25), as opposed to (26), correlates with agreement: in (26) the subject can agree whereas in (25) it cannot. This correlation has been observed for other languages as well (Den Dikken 1997 for Dutch, Heycock 2012 for German, and Bartošová 2017 for Czech).

We model the deficiency of the SSC in its feature structure. Specifically, we propose that intensional nominals lack a person specification [π], though they can have other phi features like number, as well as having a category feature, which we will assume is [n]. Extensional nominals have at least a [π] specification if they are third person and may also have participant and speaker features, [part] and [spkr], if they are local persons. This approach is in the spirit of accounts that relate syntactic phi features with mechanisms of indexation (Rezac 2004, Sudo 2012, Podobryaev 2017, Kučerová 2018). In (27) we show these feature specifications, abstracting away from number.

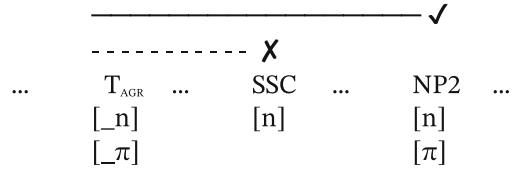
(27)

Intensional	Extensional:	Third person	Second person	First person
[n]		[n]	[n]	[n]
		[π]	[π]	[π]
			[part]	[part]
				[spkr]

With these feature structures in place we can now return to the problem of the SSC's failure to establish an Agree relation in (24d). The idea that a goal with defective features cannot value a probe is a standard assumption about the Agree operation (Chomsky 2000). Feature defectivity is determined relative to the feature structure of the probe, which can be more or less richly articulated (a point of variation; Bejar 2003, Bejar & Rezac 2009). An element in the search path of the probe counts as a goal if its feature structure intersects with that of the probe. However, a goal can only value the probe (i.e., halt/satisfy the probe) if its feature structure fully contains the features of the probe (Bejar 2003; cf. Deal 2015).

To account for the Persian pattern, where an SSC fails to enter an Agree relation with T (24d) but nonetheless moves to spec,TP (24e), we posit a probe that is more highly specified than the SSC—[_n] and [_π]—but has an intersecting feature with it, the category feature. Because the SSC cannot value the probe, the probe remains active, and its search path extends beyond the SSC to NP2 as in (28). We assume that a probe will interact with all of the goals in its search domain until it is valued.

(28)



With these mechanisms in place, we now turn to the agreement pattern under *tavānestan*. We first show that modal agreement with the SSC is not default agreement (section 3.3) and then develop the full analysis of this pattern (section 3.4).

3.3 | SSC agreement is not default agreement

In this section, we establish that the agreement in the higher clause in an example such as (29) is not default agreement.

(29) Qātel-e tahte-taqib mi-tun-**e** to bāsh-**i.**
murderer-EZ under-chase DUR-can-3SG you be.SBJV-2SG
'The wanted murderer can be you.'
= (3), (23)

Confirmation that the modal agreement in (29) tracks the SSC and is not default third-person singular agreement can be seen in (30). Here the SSC is plural, and modal agreement is likewise plural, while on the copula, agreement is again with NP2.[16]

(30) Qātel-ā-ye tahte-taqib mi-tun-**an** to o Ali bāsh-**in.**
murderer-PL-EZ under-chase DUR-can-3PL you and Ali be.SBJV-2PL
'The wanted murderers can be you and Ali.'

We note that (29) and (30) are not true minimal pairs because we have changed not only the plurality of the SSC but also the plurality of NP2, which is forced by a matching requirement. We can establish definitively that the agreement on the modal is independent of the agreement in the subordinate clause by introducing disjunction in the position of NP2. Disjunction has the property of showing plural agreement, as in (31), despite picking out a semantically singular entity.

(31) To yā Ali keyk-o xord-**in**?
you or Ali cake-ACC ate-2PL
'Did you or Ali eat the cake?'

Because it picks out a semantically singular entity, it circumvents the matching requirement and is compatible with a singular SSC. In (32), a singular SSC occurs with a morphosyntactically plural NP2. Agreement is with the morphosyntactically plural NP2 as expected.

(32) Qātel-e tahte-taqib to yā Ali hast-**in.**
murderer-EZ under-chase you or Ali be-2PL
'The murderer is you or Ali.'

[16]For some speakers, structures like the ones in (30) are ineffable with a second-person NP2. However, these same speakers accept plural agreement with the SSC in the matrix clause if NP2 is third person:

(i) Qātel-ā-ye tahte-taqib mi-tun-**an** [shahrdār-o barādar-esh bāsh-**an**].
murderer-PL-EZ under-chase DUR-can-3PL mayor-and brother-his be.SBJV-3PL
'The hunted murderers can be the mayor and his brother.'

In (33) we see an example of a disjoint NP2 under the modal *tavānestan*, where a singular SSC leads to singular agreement on the modal while the disjoint NP2 leads to plural in the embedded clause.

(33) Qātel-e tahte-taqib mi-tun-**e** to yā Ali bāsh-**in.**
murderer-EZ under-chase DUR-can-3SG you or Ali be.SBJV-2PL
'The wanted murderer can be you or Ali.'

The contrast between (30) and (33), both involving morphosyntactically plural NP2s, confirms that agreement on the modal is determined by the SSC and crucially is not default agreement.[17]

3.4 | Agreement under *tavānestan*

We now have the pieces in place to consider the agreement alternation in the environment of the raising modal. Recall that in this environment the SSC controls agreement on the modal even though it fails to control agreement in the subordinate specificational clause ((29), (30), (33)). Our question is why this should be the case. We suggest that agreement with the SSC in the matrix clause arises because no other agreement controller is available, that is, because NP2 cannot control the matrix agreement. We consider two possible explanations for this: inactivity of NP2 and inaccessibility of NP2. Below, we lay out each possibility in more detail and opt for a version of the latter.

One way to account for the lack of agreement with NP2 is to invoke Chomsky 2000 and 2001's Activity Condition. On this view, NP2 cannot control agreement in the matrix clause because it has already entered into an Agree relation in the subordinate clause, rendering it inactive.

Further evidence from Persian rules out this possibility. We have already seen that the *tavānestan* raising structure shows agreement in both the matrix and subordinate clauses. In the examples we have seen so far, the raising predicate embeds a specificational copular clause, with the result that the upstairs agreement and the downstairs agreement are controlled by different NPs. However, if we move away from subordinated specificational clauses, we see that the downstairs agreement and the upstairs agreement can both be controlled by the same NP. The raised subject can control agreement in the subordinate clause and then again in the matrix after it raises:

(34) Context: a lottery draw
Person A: I wish we had a million dollars.
Person B: Well, I bought a lottery ticket. We can be the winners tonight.
Mā emshab mi-tun-**im** barande bāsh-**im.**
we tonight DUR-can-1PL winner be.SBJV-1PL
'We can be the winners tonight.'

[17]That the matrix modal exhibits true agreement is further supported by the fact that, when we look beyond specificational constructions, we find clear agreement between epistemic *tavānestan* and its subject:

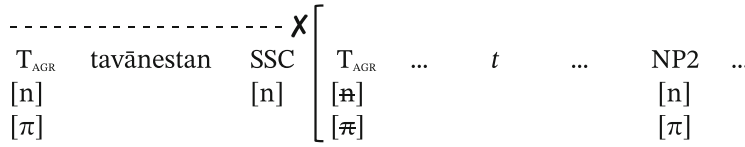
(i) (Bā sahlengāri-shun) unā mi-tun-an hame-ye xuna-ro xarāb kon-an.
with negligence-their they DUR-can-3PL all-EZ house-*RA* destroy do-3PL
'(With their negligence,) they can destroy the whole house.'

See also (34) in the next section for another example.

This shows clearly that earlier agreement in the subordinate clause does not render an NP inactive, contrary to the predictions of the Activity Condition.

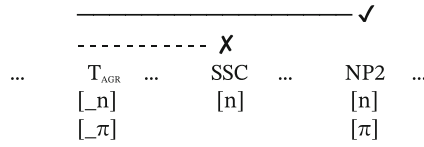
This leaves us with the second explanation for the failure of NP2 to control the matrix agreement, namely that it is inaccessible. We posit that there is a domain boundary between the matrix AGR probe and NP2 that blocks the probe, rendering NP2 inaccessible:

(35)

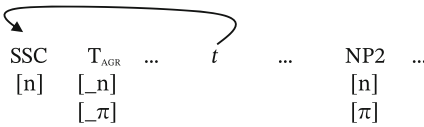


Before we address the nature of the boundary in (35), which we will do in section 3.5, we illustrate how the inaccessibility of NP2 leads to agreement between the matrix T_{AGR} and the featurally deficient SSC. Let us consider, in (36), the steps leading to (35). In (36a) we pick up the derivation at the point when the probe on the embedded T_{AGR} fails to establish an Agree relation with the deficient SSC, doing so with NP2 instead. While the interaction between the probe and the SSC does not result in Agree, it does identify the SSC as the element that, in (36b), satisfies the EPP of the downstairs clause. The downstairs clause is selected by the matrix modal *tavānestan* in (36c). When matrix T_{AGR} enters the structure in (36d), it probes; all things being equal, the defective SSC should again fail to enter into an Agree relation with this probe, which should be valued by NP2. However, NP2 is inaccessible due to the postulated domain boundary, and T_{AGR} establishes an Agree relation with the only accessible goal, the defective SSC.

(36) a.

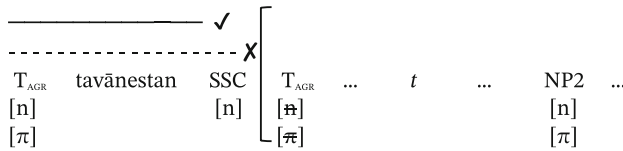


b.



c.

d.



What is still needed is a mechanism that connects the boundary effect to the unexpected agreement with the defective SSC (36d). Here we adopt an Agree mechanism independently proposed for other phenomena, probe reduction (Bejar 2003, Bejar & Kahnemuyipour 2017):

(37) Probe reduction
Failure to Agree reduces the feature structure of a probe.

Reducing the feature structure of a probe results in an expansion of the set of possible controllers because the search criteria established by the probe become less restrictive. Thus, while a probe may be "picky" on the first cycle of Agree, it will not be on subsequent cycles. What follows is a schematization of probe reduction on the T_{AGR} node of the *tavānestan* clause.[18]

(38) SSC agreement via probe reduction

a. T_{AGR} [_n] [_π] ... SSC [n] ✗

b. T_{AGR} [_n] [π] ... SSC [n] ✓

In (38), the feature structure of the probe is initially complex, including [_n] and [_π] features, but is reduced to just [_n] after the search space is exhausted. While the phi-deficient SSC is unable to value the initial feature structure of the probe (38a), it is able to value the reduced structure (38b).[19]

We take probe reduction to be a general mechanism of probe–goal syntax. It has been used elsewhere to account for similar alternations in the viability of phi-deficient (typically third-person) goals: see Bejar 2003 for various systems with person sensitivities and Bejar & Kahnemuyipour 2017 for Eastern Armenian equatives. One might construe probe reduction as a violation of Minimalist principles in that it tampers with the feature structure. We note, however, that probe reduction is similar to feature deletion, an independently motivated operation. In feature-checking *a la* Chomsky 1995 (and subsequent works), deletion is a consequence of the checking operation, which flags a feature set as requiring deletion. Probe reduction can be seen as an extension of this kind of deletion mechanism, tied to attempted and failed instances of checking (or Agree) instead of successful ones.[20]

[18] Probe reduction stands in contrast to the dynamic-probe mechanism proposed in Deal 2022, which likewise alters the feature structure of a probe but does so by adding to it. Whereas Deal's dynamic-probe mechanism applies when a probe has formed an Agree relation with a first goal, the probe-reduction mechanism applies when a probe has failed to form an Agree relation.

[19] An anonymous reviewer points out that our pattern bears on Moro 1997's account of NP2 agreement in Italian inverse specificational copular sentences. Moro tied NP2 agreement to the availability of *pro* drop, proposing a pro-predicate in spec,TP that inherits the phi features of NP2 while the actual predicate (our SSC) sits in an adjunction position higher in the structure. Given that Persian is like Italian in being a *pro*-drop language, one might have expected a Moro-style analysis to carry over directly to Persian. However, this analysis of NP2 agreement cannot be adopted for Persian because it is not compatible with the observed mix of embedded NP2 agreement and matrix SSC agreement in modal constructions. Since an adjunct cannot be the target of Agree or raising, Moro's analysis seems to predict that the highest accessible argument of the embedded clause should be the pro-predicate, which incorrectly predicts NP2 agreement in the matrix clause.

[20] We thank an anonymous reviewer for raising the issue of the nature of probe reduction as a syntactic operation. An alternative suggested by the reviewer is to take probe reduction to be postsyntactic. This would entail taking feature valuation to also be postsyntactic, in the spirit of Arregi & Nevins 2012 and others. On this view, Agree in the syntax would consist solely of a matching operation that would identify probe–goal pairs. We do not think such an approach is viable for our data. In our system, valuation plays an important role in the syntax insofar as it serves to signal whether a probe is deactivated by Agree or remains active. This is crucial to deriving the alternation between SSC agreement and NP2 agreement. If valuation were to be moved to the morphology, another mechanism would have to be introduced into syntax to serve this purpose.

We now turn to a discussion of the nature of the domain boundary posited above.

3.5 | The inaccessibility of NP2

In the article so far, we have looked at specificational clauses subordinated under epistemic *tavānestan* in Persian and posited that the presence of a domain boundary renders NP2 inaccessible, leading to SSC agreement in the matrix clause. In fact, a similar pattern in Brazilian Portuguese has been accounted for by invoking a domain boundary, in Costa 2004. Like Persian, Brazilian Portuguese manifests a contrast between SSC nonagreement in simple specificational clauses, as in (39), where NP2 (*eu* 'I') controls agreement, and SSC agreement when a specificational clause is embedded under a modal, as in (40).[21]

(39) O assassino sou eu. Brazilian Portuguese
the murderer be.1SG I
'The murderer is me.'
(Costa 2004: 49, (19); glosses adjusted and free translation ours)

(40) O assassino pode ser eu. Brazilian Portuguese
the murderer may.3SG be I
'The murderer may be me.'
(Costa 2004: 50, (22b); free translation ours)

Brazilian Portuguese, unlike Persian, does not have two agreement domains in such contexts, since the embedded specificational clause in (40) is nonfinite and altogether nonagreeing. Nonetheless, there is a clear contrast between the accessibility of NP2 in the simple copular clause (39) and its inaccessibility in the modal environment (40). For Costa, this is explained by the presence of a domain boundary between the matrix and subordinate clauses in (40). Costa provides independent evidence from clitic climbing that the modal context in Brazilian Portuguese involves two syntactic domains. In (41a) we see an example with a clitic in the clause embedded under the modal *devo* 'must', and (41b) shows that the clitic cannot climb into the matrix clause.

(41) a. Eu não devo lhe dar o libro. Brazilian Portuguese
I not must him give the book
'I must not give him the book.'
b. *Eu não lhe devo dar o libro.
I not him must give the book
Intended: 'I must not give him the book.'
(Costa 2004: 51, (27); free translations ours)

Costa furthermore presents a striking contrast between Brazilian Portuguese and European Portuguese. In European Portuguese, modal contexts involve restructuring, as evidenced by the possibility of clitic climbing. That is, the equivalent of (41b) would be grammatical in European Portuguese. Costa takes this to mean that there is no domain boundary in European Portuguese

[21] Costa 2004 does not address the possibility that agreement with the SSC in (40) might be default agreement. However, the crucial fact for us is the inaccessibility of NP2 agreement in (40), which is independent of this question.

modal contexts, which predicts that NP2 should be accessible for agreement. This prediction is borne out, as shown in (42), where agreement with NP2 persists.

(42) a. O assassino dev-o ser eu. European Portuguese
the murderer must-1SG be I
'The murder must be me.'
b. O assassino poss-o ser eu.
the murderer may-1SG be I
'The murderer may be me.'
(Costa 2004: 49, (21); free translations ours)

Costa invokes phase theory (Chomsky 2001, 2008) in his account of the domain boundary in modal contexts in Portuguese. Under this view, in Brazilian Portuguese modal contexts there is a phase boundary between the matrix and embedded clauses that is absent in European Portuguese; in other words, the subordinate clause in Brazilian Portuguese is a phase.

The essence of Costa's approach is the same as ours in that the presence of a domain boundary leads to the inaccessibility of NP2. Let us examine whether or not a phase-based analysis of the domain boundary can be extended to our case. We will see in what follows that there are competing considerations in favor of and against this approach but that overall the Persian facts seem to be reconcilable with it.

To begin, we note that the clause embedded under epistemic *tavānestan* is demonstrably a CP: a complementizer is always possible:[22]

(43) Qātel-e tahte-taqib mi-tun**-e** [$_{CP}$ **ke** to bāsh-i].
murderer-EZ under-chase DUR-can-3SG that you be.SBJV-2SG
'The wanted murderer can be you.'

This lends support to the idea that the subordinate clause is a phase, since CPs are the best-established candidates for phases in phase theory. In addition, as we have already shown (see (23)), the subordinate clause is an AGR domain. This, too, is characteristic of phases.

Meanwhile, there are properties of the subordinate clause that may undermine the phasal status of this domain. A phase was originally proposed to be functionally complete (Chomsky 2001). Recall from section 2 that the subordinate clause under *tavānestan* is temporally defective and unable to license overt subjects.[23] This might pose a problem for the phase analysis, if we associate phases with nondefective domains. In addition, the raising analysis of epistemic *tavānestan* seems to be in tension with the idea that the subordinate clause is a phase. The classic view of

[22]We thank an anonymous reviewer for providing (43) and for bringing the possibility of adding a complementizer to our attention. See Darzi 2008 and Taleghani 2008 for arguments that *ke* in Persian is a true complementizer and not a clitic, contra Ghomeshi 2001.

[23]It could be the case that the unavailability of subject licensing is a consequence of temporal deficiency. This has been argued for Greek: see Iatridou 1993, Varlokosta 1994, and Alexiadou & Anagnostopoulou 2002. In this literature, a distinction is made between morphological tense deficiency and semantic tense deficiency. All subjunctives are morphologically deficient, and some are, in addition, semantically deficient. It is semantic deficiency that correlates with the unavailability of subject licensing. In our data, the subjunctive used under epistemic *tavānestan* patterns as semantically defective (and an overt subject cannot be licensed) whereas the subjunctive used under the control verb 'want' patterns as merely morphologically defective (and an overt subject can be licensed).

raising is that the very possibility of A movement across a clause boundary signals defectivity, hence absence of a phase boundary.

Neither of these challenges is irreconcilable with a phasal analysis when a broader literature is taken into consideration. As for defectivity, it has been understood since Legate 2003 that defective domains can still be phases (see also Deal 2009 and Bobaljik & Wurmbrand 2013 among others). The Brazilian Portuguese patterns reported by Costa 2004 (see (40) and (41)) illustrate this point, with the embedded domain being inaccessible to the higher clause (blocking both agreement and clitic climbing), as expected for a phasal domain, while at the same time being internally defective (lacking agreement and tense).[24]

As for raising, the traditional prohibition of raising across a phase boundary has increasingly come to be challenged by accounts of *hyperraising* (Ura 1998), which involves raising out of erstwhile-complete environments like finite CPs (see Grosu & Horvath 1984 for Romanian, Ura 1994 for various languages, Alexiadou & Anagnostopoulou 2002 for Greek, and, for Bantu languages, Carstens 2011, Diercks 2012, Halpert 2019). For example, Halpert 2019 presents a pattern in Zulu where raising out of finite CPs is grammatical and obligatory yet the raised subject is also licensed in the lower clause and agrees fully with the embedded predicate. Many reported cases of hyperraising (e.g., Romanian, Greek, Brazilian Portuguese) involve raising out of subjunctive CPs. If the distinction between raising and hyperraising is taken to be raising across a phase boundary—perhaps mediated by a phase-deactivation mechanism (see, e.g., Rackowski & Richards 2005, Nunes 2008, Halpert 2019)—this opens the possibility that raising under *tavānestan* in Persian is a case of hyperraising. In fact, Costa observes in passing (p. 52, n. 6) that Brazilian Portuguese has a raising predicate *parecer* 'seem' that seems to introduce a phase boundary under his analysis, since it exhibits agreement with the SSC rather than the embedded NP2. He, too, speculates that this pattern may be due to superraising (our hyperraising).

Putting together all of the considerations discussed above, it is plausible that the boundary effect that is crucial to our probe-reduction analysis can be attributed to a phase boundary and unified with Costa's account.[25]

3.6 | Summary

In this section we have addressed the question of how the SSC, which is unable to control agreement in a clause embedded under the modal *tavānestan*, is nonetheless able to

[24]Indeed, it is arguably the case that the subordinate clause in Costa's Brazilian Portuguese data, which is argued to be a phase, is even more defective than the clause embedded under epistemic *tavānestan*. The Persian subordinate clause at least has an AGR head, while the Brazilian Portuguese counterpart does not. Meanwhile, the two seem equivalent with respect to temporal defectivity, with sentences like (6) being bad in Brazilian Portuguese just as they are in Persian (Suzi Lima, personal communication). Thus, whatever questions may arise for Persian about the phasal status of defective clauses arise for Brazilian Portuguese as well. Costa does not address these issues.

[25]The lack of a simple correlation between defectivity and phasehood can arguably be seen as a problem for phase theory (cf. Boeckx & Grohmann 2007, Boeckx 2012; see Keine 2019 and 2020 for an alternative approach to domain opacity). If a phase analysis turned out to be untenable, an alternative could be to connect the domain opacity under *tavānestan* to the distribution of AGR heads in the structure. On this view, the subordinate AGR head T itself is what blocks the probe, rendering NP2 inaccessible. This might be reducible to Relativized Minimality or a defective-intervention effect. Such an approach would be reminiscent of Maling & Sprouse 1995, which takes the domain of an inflectional head to extend downwards into its c-command domain but only as far as the next inflectional head.

control agreement in the matrix clause. We first established that the matrix T_{AGR} is not able to enter an Agree relation with NP2, and we proposed that this was due to a domain-boundary effect. The unavailability of NP2 leaves the deficient SSC as the only accessible goal in the search domain of the probe. In this context, probe reduction, a general mechanism that reduces the feature structure of a probe, expands the set of possible controllers to include the deficient SSC.

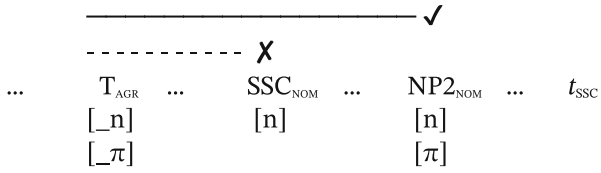
The proposals in this section essentially complete our analysis of the Persian modal pattern. Having developed an account of SSC agreement in this pattern, we next turn our attention to SSC agreement in simple specificational clauses in languages like English and ask whether an extension of our account is possible.

4 | SSC AGREEMENT IN SIMPLE CLAUSES

In this section we turn to the pattern in simple specificational clauses and the puzzle of variation across languages between agreeing and nonagreeing SSCs. In particular, we are interested in the question of how English-type languages, with SSC agreement in simple clauses, are derived. We suggest that this puzzle has a similar solution as the modal puzzle discussed in section 3, in that whether the SSC controls agreement or not is again tied to the (in)accessibility of NP2: when NP2 is inaccessible to the probe, agreement with a deficient SSC becomes possible through probe reduction.

We begin by reviewing the analysis of NP2 agreement in simple specificational clauses that we proposed for Persian in sections 3.1 and 3.2. For concreteness, consider the schematization in (44). This captures the inversion of the SSC over NP2 (as per section 3.1) and the probe sequence according to which the Agree relation with the SSC fails due to its defective feature structure, despite its superiority, and consequently an Agree relation with NP2 succeeds.

(44)



Our account relates the (in)accessibility of NP2 to a domain-boundary effect. This entails that in a language like Persian there is no domain boundary intervening between the T_{AGR} of the specificational clause and NP2. Supporting evidence for this is the case pattern on the SSC and NP2 in Persian specificational clauses, which is nominative–nominative:

(45) Qātel to-yi.
murderer you-be.PRS.2SG
'The murderer is you.'

This is the expected case pattern if T_{AGR} is the sole locus for case assignment, since nominative is the characteristic case associated with T_{AGR} in Persian (Bejar & Kahnemuyipour 2017). We know that NP2 is nominative because specific noun phrases in accusative environments in Persian are obligatorily marked with the differential object marker, glossed as *-RA*. In

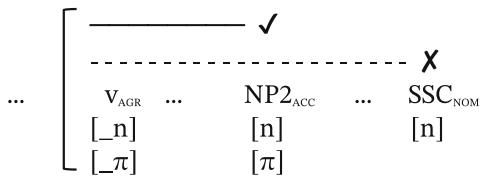
particular, personal pronouns, being inherently specific, must appear with *-RA* in accusative environments:

(46) Ali to-ro did.
Ali you-*RA* saw
'Ali saw you.'

The pronominal NP2 in (45) does not take the *-RA* marking, clearly indicating that it is nominative.

The situation in Persian contrasts with English, an SSC-agreeing language, in that in English the case pattern on the SSC and NP2 is nominative–accusative. We take the locus of accusative case on NP2 to be a v phase head—v_{AGR}—that selects the small clause where the SSC and NP2 are introduced.[26] As a result, an Agree relation is established between v_{AGR} and NP2, leading to accusative case on NP2, as schematized in (47). Crucially, v_{AGR} cannot establish an Agree relation with the SSC given its defective feature structure, even though the SSC and NP2 are arguably equidistant from the probe due to the symmetric structure of a small clause (Chomsky 1995, among others).

(47)



Next, inversion places the SSC in the higher AGR domain. In this domain, in the first cycle of Agree, as shown in (48a), the SSC fails to value the probe due to its defective feature structure; however, NP2 is not accessible due to the intervening domain boundary. This leads to probe reduction and a subsequent Agree relation between T_{AGR} and the SSC, as shown in (48b).[27]

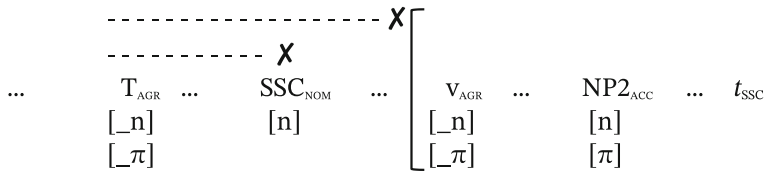
[26]The issue of case assignment to the second nominal in binominal copular structures is a longstanding problem that strains standard theories of case (Maling & Sprouse 1995). In languages with accusative on the second nominal, the source of accusative is controversial. Indeed, accusative is unexpected given the unaccusative nature of the copula, and one might expect nominative on the second nominal to be the norm.

A reviewer asks why English v should be associated with case when it is not in Persian. We take this difference to fit within the range of allowable parametric variation for functional projections. More generally, case systems have been argued to vary with respect to whether they have multiple case loci or a single locus: for example, on both T and V or on *either* T or v (Levin & Massam 1985, Bobaljik 1992, 1993, Rezac 2011, Coon 2013).

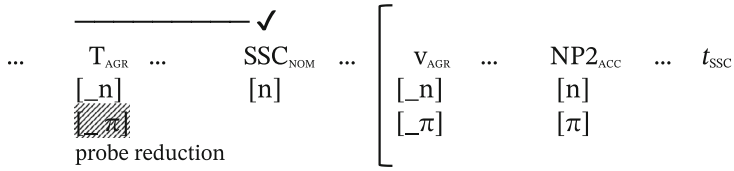
An alternative that might seem attractive is to treat the case of the postcopular nominal as default case. Indeed, this would seem to fit our data well, given that the default case in Persian is arguably nominative, while in English the default case is arguably accusative (the postcopular nominal being nominative in Persian and accusative in English). We note, however, that the default-case hypothesis has been rejected for other nominative–nominative systems (Maling & Sprouse 1995) and for other nominative–accusative systems (Maling & Sprouse 1995, Schütze 2001).

[27]A prediction of this approach is that in structures where a phase boundary intervenes between two nominals, agreement with the first will always ensue. Crucially, this does not mean that morphological nominative on the second nominal should automatically result in agreement with that nominal. There are at least two ways agreement with the first nominal could persist in such cases. One possibility is that there is a boundary and abstract accusative on the second nominal but the morphology is unmarked. Another possibility is that there is no boundary but the probe structure is not more articulated than the feature structure of the first nominal. This is important since it is well established that

(48) a.



b.



In this section, we have argued that the agreement with the SSC in simple specificational clauses in English-type languages follows from the inaccessibility of NP2 due to an intervening domain boundary and the mechanism of probe reduction. This proposal unifies the patterns seen in simple specificational clauses in English-type languages with the modal pattern found in Persian-type languages, analyzed in section 3. We now turn to a discussion of a possible competing account of agreeing and nonagreeing SSCs.

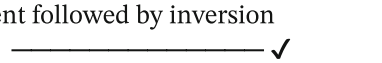
5 | AN ALTERNATIVE APPROACH TO SSC (NON)AGREEMENT

We have proposed an account of SSC (non)agreement in Persian that appeals to accessibility and conditions on probe–goal relations. Under this approach, SSC nonagreement in the lower AGR domain results from the defective feature structure of the SSC relative to the probe, while in the higher AGR domain the SSC is the only accessible goal and hence able to match a probe that undergoes reduction. An alternative to this kind of approach is to model (non)agreement with the SSC not in terms of the feature structures but in terms of locality, manipulating the position of the SSC in the clause. Such an account is developed by Heycock 2009 and 2012 (see also Hartmann & Heycock 2016, 2017, 2020). In this section we lay out the broad strokes of this approach, which we refer to as the *superiority* approach, and we develop an argument against extending it to Persian.

Under the superiority approach, the closest goal in the search space of the probe always establishes an Agree relation with it. Whether or not the SSC is the closest goal depends on where it lands as a result of the inversion operation, and this is the locus of variation. If the SSC lands above the AGR head, agreement is with NP2 (e.g., Persian), as schematized in (49). If it lands below the AGR head, it is the SSC that controls agreement (e.g., English), as schematized in (50).

(49) NP2 agreement followed by inversion

a.



b. SSC T_{AGR} ... $[_{\text{small clause}}$ NP2 ... $t_{SSC}]$

languages with nominative–nominative copular clauses can have agreement with both the first nominal and the second. See Hartmann & Heycock 2020 on agreement alternations in nominative–nominative structures in Faroese and Icelandic.

(50) Inversion followed by SSC agreement

a. T_{AGR} ... SSC ... [$_{\text{small clause}}$ NP2 ... t_{SSC}]

b. ——————✓

T_{AGR} ... SSC ... [$_{\text{small clause}}$ NP2 ... t_{SSC}]

Heycock 2009 and 2012 in fact deal with a pattern in Faroese that is highly reminiscent of the Persian modal context: NP2 agreement in the lower domain gives way to SSC agreement in the higher domain in modal contexts. In (51a) we see that agreement in a specificational clause in Faroese can be with NP2. In (51b), however, agreement on a matrix modal that embeds a specificational clause has to be with the SSC.[28]

(51) a. Orsøkin til eldin vóru tey brennandi kertiljósini — Faroese
cause.DEF of fire.DEF were.PST.PL the burning candles.DEF
í stovuni.
in room.DEF
'The cause of the fire was the burning candles in the living room.'
(Heycock 2009: 60, (7c))

b. Orsøkin til eldin man hava verið tey brennandi
cause.DEF of fire.DEF may.3SG have.INF been the burning
kertiljósini í stovuni.
candles.DEF in room.DEF
'The cause of the fire may have been the burning candles in the living room.'
(Adapted from Heycock 2012: 232, (81d))

The switch from NP2 agreement in the subordinate clause to SSC agreement in the matrix clause, as in (51b), follows naturally from the superiority approach, in that after inversion, the SSC is the closest goal to the matrix T_{AGR}:

(52) ——————✓ ——————————✓

T_{AGR} ... SSC T_{AGR} ... [$_{\text{small clause}}$ NP2 ... t_{SSC}]

The superiority analysis of the modal context has natural appeal, but it cannot be extended to Persian for reasons that we turn to now. Under the superiority approach, SSC nonagreement in a simple specificational clause (49) follows from the landing site of inversion, which must be higher than T_{AGR}. We will present evidence that the inversion step in Persian must be below T_{AGR}, similar to (50), despite the fact that agreement is with NP2. If so, then superiority cannot capture NP2 agreement, and an analysis like ours that relies on the defectiveness of the SSC is warranted. Crucially, if the SSC is defective, then superiority of the SSC in the matrix clause, as in (52), is a necessary but not sufficient condition for SSC agreement.

Fundamental to the superiority proposal is the idea that languages differ with respect to the size of the inversion step in specificational clauses. Crucially, the minimal constituent that

[28] Heycock 2009 and 2012 report variation amongst speakers. The reported NP2 agreement in (51a) is preferred by 73% of speakers, and the reported SSC agreement in (51b) is preferred by 95% of speakers. We abstract away from this variation because what we are interested in is how to account for agreement with the SSC in cases like (51b). Note that (51b) is constructed based on an example in Heycock's questionnaire, with the correct form of the modal added.

contains the inverted structure is TP in NP2-agreement languages (49), whereas it is smaller than TP in SSC-agreement languages (50). Differently put, under this approach, only in SSC-agreement languages is there an intermediate landing site for specificational subjects en route to spec,TP. This predicts that in NP2-agreement languages, inverted structures must be as big as TP or at least bigger than their counterpart in SSC-agreement languages. However, there is evidence that in Persian, an NP2-agreement language, the inverted structure can in fact be smaller than the inverted structure in English, an SSC-agreement language. This can be shown using small-clause constructions under 'consider'-type verbs.

In English, it is well known that the inversion pattern (50) is not possible in the small-clause complement of verbs like *consider*, as (53) illustrates. From this it has been inferred that the structure required for inversion is larger than what is available in a small-clause context. In other words, if we label as FP the projection whose specifier is the landing site of inversion, then it can be said that the small-clause complement of *consider* is not large enough to include FP, as depicted in (54).

(53) *Many consider [the winner Bernie Sanders].
(Cf. *Many consider [Bernie Sanders the winner].*)

(54) English inversion under *consider* not possible without landing site spec,FP
T_{AGR} consider ... [$_{\text{small clause}}$ Bernie Sanders ... winner]
Inversion not possible
(no landing site spec,FP)

This is the standard explanation for the unavailability of specificational clauses under *consider* (Moro 1997). In Persian, however, the inverted order is grammatical in the complement of a 'consider'-type verb, as (55) shows (as is the uninverted order). Assuming that 'consider'-type verbs select small-clause complements in Persian, like English, the availability of inversion in Persian suggests that the landing site for inversion in Persian is within the small clause, as in (56).

(55) Xeyliyā [$_{\text{small clause}}$ barande-ro Bernie Sanders] mi-dun-an.
many winner-*RA* Bernie Sanders DUR-know-3PL
'Many consider the winner (to be) Bernie Sanders.'

(56) Persian inversion under 'know'
T_{AGR} know ... [$_{\text{small clause}}$ [$_{FP}$ ... [Bernie Sanders ... winner]]
Inversion is possible
(to landing site spec,FP)

This contrasts with the situation we just saw for English (54). In other words, if anything, the inverted structure in Persian is smaller than that of English. This is exactly the opposite of what is expected under the superiority account.[29]

[29] A reviewer asks whether 'know' in (55) can be passivized, as expected for a small-clause structure. It cannot be, but this is for independent reasons. For one, as noted in section 2, Persian does not have passives but instead uses a causative–inchoative alternation. 'Know', a stative verb, cannot participate in this alternation.

TABLE 1 Unification schemas

	Schema 1: English simple clause	Schema 2: Persian modal context
Step 1	v_{AGR} [NP2 SSC]	T_{AGR} SSC v [NP2 *t*]
Step 2	v_{AGR} [NP2 SSC]	T_{AGR} SSC v [NP2 *t*]
Step 3	SSC v_{AGR} [NP2 *t*]	C T_{AGR} *t* v [NP2 *t*]
Step 4	T_{AGR} SSC v_{AGR} [NP2 *t*]	T_{AGR} SSC C T_{AGR} *t* v [NP2 *t*]
Step 5	T_{AGR} SSC v_{AGR} [NP2 *t*]	T_{AGR} SSC C T_{AGR} *t* v [NP2 *t*]
Step 6	T_{AGR} SSC v_{AGR} [NP2 *t*]	T_{AGR} SSC C T_{AGR} *t* v [NP2 *t*]

One might object that another interpretation of these facts is available: the small-clause complement of a 'consider'-type verb in Persian is simply bigger than its counterpart in English, hence containing the inversion structure. However, even if that were to be the case, it is easy to show that it still cannot be as big as TP. For one thing, a TP complement would have to be postverbal in Persian, as in (57), unlike the bracketed small clause in (55).

(57) Ali mi-dun-e (ke) barande Bernie Sanders-e.
Ali DUR-know-3SG that winner Bernie Sanders-is
'Ali knows that the winner is Bernie Sanders.'

In addition to being preverbal, the small clause does not exhibit the structure of a TP: there is no verb, inflection, or tense marking. In other words, the landing site for inversion in Persian must be below T, contrary to what is required by the superiority account. Meanwhile, our feature-deficiency account is fully compatible with the low inversion position since it takes inversion in specificational clauses to be below T across languages, with the variation in agreement arising from a difference in the accessibility of NP2.

6 | CONCLUSION

We have argued that SSCs, being defective in their feature structure, are uniformly transparent in the first cycle of Agree. Consequently, if a lower NP is accessible in the search domain of the probe, agreement with that NP ensues. This is the source of NP2 agreement in copular contexts. If no other NP is accessible, agreement with the SSC occurs as a result of probe reduction. We associate this inaccessibility uniformly with the presence of an intervening domain boundary, a CP phase in the Persian modal context and a vP phase in English-type simple specificational clauses. This unification is sketched out in table 1. Both schemas show the derivation of structures with two domains. In the lower domain both noun phrases are accessible, but it is NP2 that forms an Agree relation with the probe, due to the deficient feature structure of the SSC (step 2). In the higher domain, NP2 is inaccessible due to the intervening domain boundary (step 5), resulting in agreement with the SSC, via probe reduction (step 6). Note that step 4 of schema 2 (Persian) represents the hyperraising operation. We abstract away from details, but crucially we take hyperraising to make the SSC accessible to the matrix domain (perhaps by displacement to the edge of CP, to evade the Phase-Impenetrability Condition: Chomsky 2001).

Common to both environments schematized in table 1 is failure of the highest goal (the SSC) to enter an Agree relation in the lower domain (step 2). While in the Agree framework failure to form an Agree relation can be captured via defectivity of the probe or the goal, in this case it is due to the defective feature structure of the goal. The puzzle posed by the patterns presented in this article is how the same goal that patterns as defective in one domain subsequently comes to be nondefective in a higher domain. The answer proposed here is the probe-reduction mechanism, which is triggered when a probe fails to find a nondefective goal in its search domain. The probe-reduction mechanism reduces the feature structure of a probe, thus expanding the set of possible goals to include even ones with a defective feature structure like the SSC. We should highlight the asymmetric nature of probe reduction: under this mechanism, a defective goal transitions from defective in a lower domain to nondefective in a higher domain, but the reverse is not possible. In other words, there is probe reduction but no probe expansion.

In analyzing the Persian modal pattern we have proposed that epistemic *tavānestan* introduces a raising structure. To the best of our knowledge, this is the first raising analysis of this construction (making it possibly the only true raising structure in Persian—but see Darzi 1996).[30] The raising analysis of *tavānestan* seems to introduce a tension between the permeability of the lower domain with respect to movement, which is characteristic of raising environments, and its impermeability with respect to agreement, as needed for our analysis of SSC agreement. This leaves open interesting questions with respect to the heterogeneous nature of boundaries and domains and their interactions with different kinds of syntactic processes.

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DATA-AVAILABILITY STATEMENT

The full original data generated by this study are available from the authors upon reasonable request.

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[30]We take deontic *tavānestan* to be a control structure, in line with Ghomeshi 2001 and Karimi 2008. Crucially, previous literature on this topic has not made a distinction between deontic and epistemic *tavānestan*. See also footnote 1.

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