Polar particles in Farsi: Anaphora in the scoreboard model of discourse[1]

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Abstract. Cross-linguistically, polar particles can be used in two readings: *polarity* and *conformity*. In response to positive polar questions/assertions, the two readings of each particle generate the same proposition. However, in response to negative initiatives, they lead to ambiguity (Krifka, 2013; Roelofsen and Farkas, 2015; Geist and Repp, in press). In this paper, we investigate the reading(s) of the particles *âre* 'yes' and *na* 'no' in Farsi for five types of initiatives: (i) positive assertions, (ii) negative assertions, (iii) negative polar questions (NPQs), (iv) biased negative questions with the discourse particle *dige* (*dige*-NPQs) and (v) tag questions (TQs). Based on the distribution of readings, we argue that different readings of polar particles react to propositions placed in different compartments of the Scoreboard Model representation.

Keywords: Polar particles, bias implicature, anaphoricity, discourse model.

1. Introduction

Pope (1976) highlights that across languages, polar particles (PolPrts) can serve two distinct functions. They may signal whether a response is positive or negative, known as the *polarity* reading, observed in Chinese. Alternatively, they can convey agreement or disagreement with an initiative (including both assertions and polar questions), termed the *conformity* reading,[2] as in Japanese. In certain languages, such as English and Farsi, the same particles can exhibit both readings. For example, in English, *Yes* can denote a positive response in the polarity reading or agreement with an initiative in the conformity reading. Similarly, *No* can express a negative response in the polarity reading or disagreement with an initiative in the conformity reading. In reactions to positive initiatives, the two readings of each PolPrts converge in the same proposition, as in example (1); but, in responses to negative initiatives, the two readings come apart and lead to different propositions, as in (2).

(1)   A: Did John come to the party?
       B1: Yes, he did.   Polarity[Positive]/Conformity[Agreement]
       B2: No, he didn't.   Polarity[Negative]/Conformity[Disagreement]

(2)   A: Did John not come to the party?
       B1: Yes, he DID.   Polarity[Positive]
       B2: Yes, he didn't.   Conformity[Agreement]
       B3: No, he DID.   Conformity[Disagreement]
       B4: No, he didn't.   Polarity[Negative]

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[2] This reading is commonly referred to as the *truth-based* or *(dis)agreement* reading. However, the term "truth-based" might imply that the other reading does not involve truth values, while "(dis)agreement" can be confusing due to the *agreement* and *disagreement* feature values. For the sake of clarity, we call it the *conformity* reading.

Note that the acceptability of different answers to negative initiatives may vary among speakers (in different languages). However, the presence of prosodic saliency, presented in CAPS in (2.B1, B3), enhances the acceptability of particular answers (see Goodhue and Wagner, 2018).

Moreover, while PolPrts often accompany a short answer, namely the *prejacent* (e.g., *he did* in the above examples), they can also occur in isolation, leading to ambiguity as in (3):

(3)   A: Did John not come to the party?
       B1: Yes.   meaning '*he did*' or '*he didn't*'
       B2: No.   meaning '*he did*' or '*he didn't*'

Such responses raise a question regarding the source of ambiguity in (bare) PolPrts.[3] While some (syntactic-based) accounts reject the ambiguity in examples like (3) (see §2.1), the possibility of different propositions with the same particle in (2) is explained as a kind of relation between the particle and the polarity projection of the prejacent. Generally, one group claims that the ambiguity lies in the antecedent, suggesting that negative initiatives offer two possible antecedents (Ginzburg, 1997; Krifka, 2013; Holmberg, 2013); while the other group places the burden on the particles, indicating different features (Pope, 1976; Kramer and Rawlins, 2009; Roelofsen and Farkas, 2015).

In this paper, we investigate PolPrts *âre* 'yes' and *na* 'no' in Farsi, which have both polarity and conformity readings. We examine their reading distribution in five environments: as declarative responses (i) to positive assertions, (ii) to negative assertions, (iii) to negative polar questions (NPQs), and (iv) to biased negative polar questions with the discourse particle *dige* (*dige*-NPQs), and (v) as constitutive part of the tag in tag questions (TQs). As we will see, the data from Farsi contribute two noteworthy points to the existing literature. Firstly, for declarative responses to different initiatives, they highlight the significance of bias in the initiative when determining the preferred PolPrts reading. Secondly, we will address the lack of ambiguity – which we refer to as *unambiguity* – and meaning of Farsi PolPrts when used in the tag of TQs. This fifth environment has so far remained largely unexplored in the PolPrts literature (but see e.g. Servidio, 2014).

In a nutshell, the proposed analysis has the following tenets. First, PolPrts in Farsi are lexically ambiguous between the polarity and the conformity readings. Second, initiatives – including here assertions/questions and the declarative part of a TQ – introduce propositional discourse referents (DRs) which, using the Scoreboard Model of discourse (Farkas and Bruce, 2009), are presented as issues to be discussed and/or as speaker (actual or tentative) commitments. Third, PolPrts are anaphoric to these DRs but, crucially, they look for their DR in different "compartments" of the Scoreboard representation depending on the reading.

This paper is organized as follows. In the next section, we will review the literature on PolPrts. Section 3 presents the core data of PolPrts from Farsi both in declarative responses and in TQs. In Section 4, we present our analysis of the data, developing our account in three main steps. We first define basic lexical entries for *âre* 'yes' and *na* 'no' in their two readings, then we minimally extend the Scoreboard Model of discourse, and finally we enrich our lexical

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[3]What we (and many researchers) refer to as *ambiguity* is referred to by different terms in the literature, such as *multifunctionality*, *negative neutralization*, or *interchangeability*, all of which roughly describe the ability of PolPrts to precede both positive and negative prejacents as in (2).

entries by making them sensitive to different components of the Scoreboard representation. The account is subsequently applied to the data. Section 5 discusses an open issue relating to PolPrts in Farsi alternative questions. Section 6 concludes.

2. Previous Accounts

A substantial body of literature has been dedicated to the investigation of polar particles, particularly to their usage in declarative statements as reactions to assertions and as responses to polar questions (PQs). Broadly speaking, the existing accounts can be categorized into two main perspectives: syntactic and semantic, each aiming to address the underlying structure and the ambiguity puzzle associated with PolPrts. In this section, we will review three primary studies: one syntactic approach (Kramer and Rawlins, 2009) and two semantic approaches (Krifka, 2013; Roelofsen and Farkas, 2015).

2.1. Polarity Interpreters

Kramer and Rawlins (2009) introduce PolPrts as adverbial response markers, which adjoin to a (higher) polarity projection ΣP of their prejacent with a TP complement, as in (4) (see also Holmberg, 2013). Note that in this model the prejacent always exists but it can be fully or partially elided. Following Merchant (2005), the prejacent is licensed to be elided by the $[E]$ feature, which requires semantic identity between prejacent and antecedent.[4]

(4) $\left[_{\Sigma P} \left[_{AdvP} Yes/No\right] \left[_{TP} \left[_{\Sigma P} \ \right] \right] \right]$

According to this approach, PolPrts serve as polarity interpreters of their propositional prejacent. Kramer and Rawlins propose that *Yes* has no polarity feature [∅] to mark, while *No* carries a *Negative* [NEG] feature. Moreover, they argue that the particle *No* establishes a negative concord relation with the remaining polarity projections, where only one of the negations in the chain can be interpretable [iNEG] and the rest are uninterpreted [uNEG]. This explains why *No* can co-occur with sentential negation (e.g., *No, he didn't*) without resulting in double negation in standard English. Moreover, in response to negative initiatives like (5), the authors reject the possibility of a positive answer with bare PolPrts as in (B1)–(B2) due to the identity failure. They present (B3)–(B4) as the only answers, where the prejacents are identical to the antecedent.

(5)   A: Did he not come? $\left[_{TP} \text{He} \left[_{\Sigma P_{iNEG}} \text{didn't come} \right] \right]$
         B1: #Yes.   (meaning 'he did.')
         $\left[_{\Sigma P} \text{Yes} \left[_{\Sigma P_{[E]}} \left[_{TP} \text{he} \left[_{\Sigma P} \text{came} \right] \right] \right] \right]$ ✗ Identity failure

         B2: #No.   (meaning 'he did.')
         $\left[_{\Sigma P} \text{No} \left[_{\Sigma P_{[E]}} \left[_{TP} \text{he} \left[_{\Sigma P} \text{came} \right] \right] \right] \right]$ ✗ Identity failure

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[4]Note that Kramer and Rawlins (2009) follow the PF-Deletion view of the ellipsis (Chao, 1988; Merchant, 2005).

B3: Yes.   (meaning 'he didn't.')
$[_{\Sigma P} \text{Yes}_{[\emptyset]} [_{\Sigma P_{[E]}} [_{TP} \text{he} [_{\Sigma P_{[iNEG]}} \text{didn't come}]]]]$

B4: No.   (meaning 'he didn't.')
$[_{\Sigma P} \text{No}_{[uNEG]} [_{\Sigma P_{[E,uNEG]}} [_{TP} \text{he} [_{\Sigma P_{[iNEG]}} \text{didn't come}]]]$

Kramer and Rawlins argue that *Yes* and *No* can serve as a polarity interpreter of a positive answer to negative questions only when the prejacent is uttered. *Yes*, as a featureless particle, can easily be followed by an explicit prejacent, as shown in (B5) below. However, for *No* followed by an explicit positive prejacent, the authors introduce a lexically different *Reversal-No*, as in in (B6) (for details see Kramer and Rawlins, 2009):

(5)   B5: Yes, he DID. $[_{\Sigma P} \text{Yes}_{[\emptyset]} [_{TP} \text{he did} [_{vP_{[E]}} \text{come}]]]$
      B6: No, he DID. $[_{\Sigma P} \text{No}_{[REV]} [_{TP} \text{he did} [_{vP_{[E]}} \text{come}]]]$

2.2. Salient Discourse Referents

Krifka (2013) defines PolPrts as propositional proforms that are anaphoric to a salient antecedent (cf. *propositional lexemes* in Ginzburg and Sag, 2000). He argues that sentential negation makes available two propositional discourse referents (DRs): a negative DR_1 expressed by *NegP* and a positive DR_2 expressed by *TP*, as illustrated in (6):

(6)   He didn't come.
      $[_{ActP} [\text{ASS}] [_{NegP \to DR_1} \text{He}_1 \text{didn't}_2 [_{TP \to DR_2} t_1 t_2 [_{vP} \text{come.}]]]]$

The author defines the particle *Yes* as an identity function taking a DR as input and returning the same DR as output, while *No* negates its input. Additionally, Krifka claims that, in English, PolPrts include a speech act component in their semantic meaning, leading to the lexical entries in (7)–(8). This explains why they cannot be used in embedded positions. In other languages such as German and French, PolPrts do not include a speech act layer, thus allowing for embedding.

(7) $[\![[_{ActP} \text{ yes}]]\!] = \text{ASSERT}(p)$ (8) $[\![[_{ActP} \text{ no}]]\!] = \text{ASSERT}(\neg p)$

Krifka proposes that PolPrts can freely refer to propositional DRs made available by the antecedent. Thus, in response to negative initiatives like (6), bare particles in principle result in ambiguity: *Yes* can stand for a positive or a negative response, and so can *No*, as shown in (9):

(9)   B1: Yes. $= [\![[_{ActP} \text{ yes}_{\to DR_2}]]\!] = \text{ASSERT}(DR_2)$ (meaning 'he did.')
            $= [\![[_{ActP} \text{ yes}_{\to DR_1}]]\!] = \text{ASSERT}(DR_1)$ (meaning 'he didn't.')

      B2: No. $= [\![[_{ActP} \text{ no}_{\to DR_2}]]\!] = \text{ASSERT}(\neg DR_2)$ (meaning 'he didn't.')
            $= [\![[_{ActP} \text{ no}_{\to DR_1}]]\!] = \text{ASSERT}(\neg DR_1)$ (meaning 'he did.')

To derive the optimal particle in ambiguous cases, Krifka proposes two constraints penalizing the selection of *NonSalient* and *DisAgreement* discourse referents, respectively. The first

constraint is a general principle of anaphora resolution, which ensures that the most prominent DR is chosen. According to Krifka (2013), in "typical cases", a negative antecedent occurs in a context where the positive proposition is already salient, making the positive DR the optimal choice. At the same time, he acknowledges the possibility of contexts in which the negative proposition is the most salient one (see Krifka, 2013:p. 14). The second constraint is grounded in the inherent semantic/discourse difficulty associated with the process of disagreement. It suggests that accepting someone's proposal is typically an easier process compared to rejecting it (Farkas and Bruce, 2009). The author suggests that the constraints have different costs, with violating *DISAGR resulting in a higher penalty compared to violating *NONSAL. Speakers are expected to choose the particle with the lesser penalty for the intended meaning (see Krifka, 2013: p. 13, for the optimal particles).

2.3. Feature Markers

Another group of studies focusing on the anaphoric reading of polar particles attribute the ambiguity to the particles themselves rather than to the choice of the antecedent. Pope (1976) introduces two reading systems: the *polarity*-reading in which PolPrts mark the answer as a positive or negative form, and the *conformity*-reading in which PolPrts are in agreement or disagreement with the initiative. She proposes that languages employ either one of these systems or a combination of features. Farkas (2011) extends her proposal to analyze English and Romanian particles within the Scoreboard Model of discourse by Farkas and Bruce (2009).

Roelofsen and Farkas (2015) further develop the account using Inquisitive Semantics (*InqSem*). They capture the most highlighted/salient proposition in various types of initiatives. InqSem has the advantage of treating both declaratives and polar questions similarly as sets of propositions, with declaratives denoting a singleton set and polar questions denoting a binary set consisting of positive and negative propositions. In both types, the uttered proposition is the highlighted one. The authors propose two polarity features: the *Absolute* feature with $[+, -]$ values and the *Relative* feature with [agree, reverse] values. They suggest that PolPrts in English mark disjunctive features, in which the particle *Yes* can mark the answer as positive or as agreeing with the initiative, while the particle *No* can mark the answer as negative or as disagreeing with the initiative. Thus, the ambiguity of PolPrts arises from their dual role in feature marking.

(10)   A: Did John not come?
$\{\lambda w.come_w(j), \lambda w.\neg come_w(j)\}$, where $\lambda w.\neg come_w(j)$ is highlighted

B1: Yes.   B2: No.
$Yes_{[Reverse,+]}$ = he did. $No_{[Reverse,+]}$ = he did.
$Yes_{[Agree,-]}$ = he didn't. $No_{[Agree,-]}$ = he didn't.

Furthermore, the account aims to predict the optimal PolPrt for each answer by applying different constraints. Following Pope (1976), polarity features exhibit markedness in terms of semantic difficulty, where positive/agreement features are considered less marked ($<$) compared to negative/reverse ones, as the latter are semantically more challenging. Building on

that, Roelofsen and Farkas (2015) offer the following markedness scale, in which some feature combinations are less marked than others (see *natural classes* in Roelofsen and Farkas, 2015).

(11)   **Overall markedness scale:** [Agree, $+$] $<$ [Reverse, $-$] $<$ [Agree, $-$] $<$ [Reverse, $+$]

Roelofsen and Farkas also propose the *Realization Constraint*, which states the more marked a feature is, the stronger the pressure is to overtly realize it. Consequently, in ambiguous cases, there is a preference for realizing the marked feature over the unmarked one (for more discussions Roelofsen and Farkas, 2015, 2019).

3. Data from Farsi

In this section, we will see examples of *âre* 'yes' and *na* 'no' in Farsi in both polarity and conformity readings. Following Roelofsen and Farkas (2015), we represent the related readings with superscripts ^{Pos} and ^{Neg} for positive and negative features in the polarity reading, and ^{Agr} and ^{DAgr} for agreement and disagreement features in the conformity reading. When both features result in the same meaning, we present them together, separated by "/". When the reading is not clear, no superscription is provided. In the next subsections, we will present examples of PolPrts in responses to assertions (§3.1), in responses to simple polar questions and to biased polar questions with the discourse particle *dige* (§3.2), and in the tag of tag questions (§3.3).

3.1. PolPrts in Response to Assertions

Before providing the data, it is worth mentioning that in Farsi, declarative and interrogative forms share the same word order, with the distinction lying in the final falling ($\searrow$) and rising ($\nearrow$) contour, respectively. In our examples, the intonation symbols will be omitted, and a full-stop (.) and question mark (?) will indicate the corresponding forms. Notably, akin to languages such as Italian and French (Servidio, 2014; Pasquereau, 2020), Farsi PolPrts can be employed in embedded positions. These positions include occurrences under predicates of speech and thought (e.g., *say* and *think*), within antecedent and consequent clauses of conditionals, and within coordination structures. However, the present paper confines its focus to the examination of reading constraints associated with PolPrts, avoiding the exploration of embedding positions. Note also that PolPrts can be used in bare form or followed by a short answer. In Farsi, the short answer consists of the main verb, carrying the polarity of the sentence.

Examples (12) and (13) exemplify canonical positive and negative assertions, respectively. Un-ambiguous interpretations emerge in responses to positive assertions like (12): *âre* signifies a positive response, while *na* denotes a negative response, irrespective of the presence or absence of an explicit prejacent. In contrast, in reactions to negative assertions like (13), a certain degree of ambiguity is observed with bare particles (B1 and B4). Furthermore, the inclusion of overt prejacents shows that both positive and negative responses can be expressed with *âre* (B2 and B3) and with *na* (B5 and B6).[5] Additionally, it is crucial to acknowledge the potential

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[5]Note that speakers may exhibit variations in their preference for a particular particle over the alternative.

impact of prosody on the acceptability and interpretation of particles, particularly in their bare form. For instance, in (13), both particles often bear focal stress when signaling a positive response, such as *they went*. Consequently, focal stress is expected on *âre* and *na* in (B2) and (B5), as well as in (B1) and (B4) when expressing a rejecting response (Mohammadi, 2023). For the sake of simplicity, focal stress is not explicitly marked here.

(12) A: danešjuhâ mehmuni raftand.
     students   party   went

'The students went to the party.'

B1: $âre^{Pos/Agr}$.
    yes

'Yes, they did.'
'Yes, they didn't.'

B2: $âre^{Pos/Agr}$ raftand.
    yes   went

'Yes, they did.'

B3: # *âre* na-raftand.
     yes NEG-went

'Yes, they didn't.'

B4: $na^{Neg/DAgr}$.
    no

'No, they didn't.'
'No, they did.'

B5: # *na* raftand.
     no went

'No, they did.'

B6: $na^{Neg/DAgr}$ na-raftand.
    no   NEG-went

'No, they didn't.'

(13) A: danešjuhâ mehmuni na-raftand.
     students   party   NEG-went

'The students did not go to the party.'

B1: *âre*.
    yes

'Yes, they did.'   ($âre^{Pos}$)
'Yes, they didn't.' ($âre^{Agr}$)

B2: $âre^{Pos}$ raftand.
    yes   went

'Yes, they did.'

B3: $âre^{Agr}$ na-raftand.
    yes   NEG-went

'Yes, they didn't.'

B4: *na*.
    no

'No, they didn't.' (na^{Neg})
'No, they did.'   (na^{DAgr})

B5: na^{DAgr} raftand.
    no   went

'No, they did.'

B6: na^{Neg} na-raftand.
    no   NEG-went

'No, they didn't.'

3.2. PolPrts in Response to Questions

Moving on to polar questions, examples (14) and (15) exemplify positive polar questions (PPQs) and (simple) negative polar questions (NPQs), respectively. Similar to assertions, in responses to PPQs the two readings lead to the same interpretation, while in responses to NPQs they lead to ambiguity. However, a closer look at the data reveals an interesting difference in reading preference: While the two readings are equally available in reactions to negative assertions like (13) above, the conformity reading is felt somewhat degraded (indicated by %) in responses to (simple) NPQs like (15):

(14) A: danešjuhâ mehmuni raftand?
   students party went
  'Did the students go to the party?'
  B1: $âre^{Pos/Agr}$.
    yes
   'Yes, they did.'
   # 'Yes, they didn't.'
  B2: $âre^{Pos/Agr}$ raftand.
    yes   went
   'Yes, they did.'
  B3: # $âre$ na-raftand.
    yes NEG-went
   # 'Yes, they didn't.'
  B4: $na^{Neg/DAgr}$.
    no
   'No, they didn't.'
   # 'No, they did.'
  B5: # na raftand.
    no went
   # 'No, they did.'
  B6: $na^{Neg/DAgr}$ na-raftand.
    no   NEG-went
   'No, they didn't.'

(15) A: danešjuhâ mehmuni na-raftand?
   students party NEG-went
  'Did the students not go to the party?'
  B1: $âre$.
    yes
   'Yes, they did.' ($âre^{Pos}$)
   %'Yes, they didn't.' ($âre^{Agr}$)
  B2: $âre^{Pos}$ raftand.
    yes went
   'Yes, they did.'
  B3: % $âre^{Agr}$ na-raftand.
    yes NEG-went
   'Yes, they did.'
  B4: na.
    no
   'No, they didn't.' (na^{Neg})
   %'No, they did.' (na^{DAgr})
  B5: % na^{DAgr} raftand.
    no went
   'No, they did.'
  B6: na^{Neg} na-raftand.
    no NEG-went
   'No, they didn't.'

According to Pope (1976), languages exhibit a tendency to favor a specific reading based on the inherent bias embedded in their question forms. For instance, languages like Japanese, where polar questions convey the speaker's bias or anticipate a particular response, are more inclined to employ the conformity reading. Conversely, languages like Chinese with less explicit expectations for an answer tend towards the polarity reading. We argue that the split observed by Pope between languages may re-emerge within one and the same language – in this case, Farsi – when different types of initiatives are compared.

To see this, let us take a closer look at different negative polar question forms asking $[\neg p?]$. Consider the following minimal pair: Example (16) is a simple NPQ and example (17) is the same question with the discourse particle *dige*. Both forms imply speaker bias for the uttered proposition in the question (i.e., for $\neg p$), but the status of this bias differs between the two forms: Simple NPQs optionally exhibit bias, allowing the speaker to cancel it, whereas *dige*-NPQs obligatorily convey this bias due to the presence of the discourse particle *dige*. In response to both questions, (B1s) signify rejecting answers (p), while (B2s) denote accepting answers ($\neg p$), as made clear by the explicit prejacents:[6]

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[6]As previously noted, PolPrts in rejecting answers often bear focal stress (Mohammadi, 2023). Notably, in examples (16) and (17), both particles in (B1) are equally expected to carry focal stress.

(16) A: Ali mehmuni na-raft?   (simple NPQ)
        Ali party   NEG-went
      'Did Ali not go to the party?'

   B1: $âre^{Pos} \succ na^{DAgr}$ raft.   B2: $âre^{Agr} \prec na^{Neg}$, na-raft.
        yes   no   went   yes   no   NEG-went
        'Yes $\succ$ No, he did.'   'Yes $\prec$ No, he didn't.'

(17) A: Ali mehmuni na-raft   dige?   (*dige*-NPQ)
        Ali party   NEG-went DIGE
      'Did Ali not go to the party?' $\rightsquigarrow$ The speaker expects that Ali didn't go.

   B1: $âre^{Pos} \approx na^{DAgr}$ raft.   B2: $âre^{Agr} \approx na^{Neg}$, na-raft.
        yes   no   went   yes   no   NEG-went
        'Yes $\approx$ No, he did.'   'Yes $\approx$ No, he didn't.'

Interestingly, speaker judgments unveil a notable asymmetry. In the case of responses to simple NPQs like (16), the conformity reading of PolPrts, denoted by na^{DAgr} in (B1) and $âre^{Agr}$ in (B2), exhibits lower acceptability ($\prec$) in comparison to the polarity reading, marked as $âre^{Pos}$ and na^{Neg} in the examples. In contrast, in reaction to *dige*-NPQs like (17), the acceptability of PolPrts in the conformity reading improves to the extent that both readings are nearly equally acceptable ($\approx$) and register high levels of acceptability. The observed contrast, which has found additional validation through experimental data (Mohammadi, to appear a),[7] is summarized in (18):

(18) **Bias Observation:** The polarity reading of PolPrts consistently receives high acceptability in response to simple and *dige*-NPQs. However, the conformity reading of PolPrts varies from degraded acceptability in response to simple NPQs, which can but need not convey bias, to high acceptability in response to *dige*-NPQs, which mandatorily convey bias.

This observation underscores the influence of bias in the initiatives on the reading preference for response PolPrts, much in the spirit of Pope (1976).

3.3. PolPrts in Tag Questions

PolPrts have been extensively studied in declarative responses to different initiatives. However, their role in building questions remains largely unexplored. Tag questions (TQs), characterized by a declarative anchor followed by an interrogative tag, can be built in Farsi using the bare polar particles *âre* and *na* in the tag. The tag component can follow either a positive anchor, exemplified in (19) and (21), or a negative anchor, as illustrated in (20) and (22). Given that the anchor serves as the highlighted antecedent, PolPrts in (20) and (22) with a negative antecedent

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[7]In Mohammadi (to appear a)'s study, *dige*-NPQs are labelled as 'strongly biased' in that the implication of bias is strong and hence cannot be cancelled, and simple NPQs are labelled as 'weakly biased' in that the implication of bias is weak and thus can be cancelled.

are anticipated to yield different propositions in the tag, potentially introducing ambiguity. However, TQs in Farsi are not ambiguous. Instead, the intuition of native speakers is that *âre*-tags like (19) and (20) consistently convey the speaker's higher certainty or confidence in the anchor, whereas *na*-tags like (21) and (22) invariably indicate a lesser degree of certainty.

(19) Ali mehmuni raft, *âre*?
Ali party went yes
'Ali went to the party, didn't he?'

(20) Ali mehmuni na-raft, *âre*?
Ali party NEG-went yes
'Ali didn't go to the party, did he?'

(21) Ali mehmuni raft, *na*?
Ali party went no
'Ali went to the party, didn't he?'

(22) Ali mehmuni na-raft, *na*?
Ali party NEG-went no
'Ali didn't go to the party, did he?'

Note that judgments regarding the degree of confidence for each particle remain consistent irrespective of the polarity of the anchor. In other words, whether the speaker's belief in the anchor pertains to a positive or negative proposition, *âre*-tags consistently convey a higher credence in the anchor proposition while *na*-tags consistently signal lower credence (for *credence*, see Farkas and Roelofsen, 2017). The question is, which reading PolPrts unambiguously have in TQs so that the observed credence effects are derived.

Before addressing this question, we introduce the concept of Relational Attitude in (23). The fundamental idea is that, when the propositions in the assertive anchor and in the question tag share the same polarity, the question reflects the speaker's high confidence, as she is simply seeking confirmation of her original belief in the anchor; when the polarity of the anchor and the tag are reverse, the question reflects lesser confidence, as the speaker is considering an alternative to the anchor proposition (Mohammadi, to appear b):

(23) **Relational Attitude:** Let ϕ be a positive or negative proposition
- The question $[\phi, \phi?]$ indicates that the speaker has high credence in the anchor.
- The question $[\phi, \neg\phi?]$ indicates that the speaker has lesser credence in the anchor.

Equipped with this notion, let us see which of the two readings – polarity or conformity – can derive the degree of credence in examples (19)–(22). We start with the polarity reading. Are^{Pos} and na^{Neg} consistently yield positive and negative propositions, respectively. That is, regardless of the polarity of the antecedent, $âre^{Pos}$-tags function as PPQs, marked in grey in (19′)–(20′), while na^{Neg}-tags function as NPQs, marked in grey in (21′)–(22′). Following the Relational Attitude, *âre* is predicted to convey high and lesser credence in (19′) and (20′) respectively, while *na* is predicted to behave conversely in (21′) and (22′). These predictions do not align with the observed behavior of PolPrts.

(19′) Ali raft, *âre*?
Ali went yes
LF: Ali went, $âre^{Pos}$ [Ali went]?
✓ Relational Attitude: high credence

(20′) Ali na-raft, *âre*?
Ali NEG-went yes
LF: Ali didn't go, $âre^{Pos}$ [Ali went]?
✗ Relational Attitude: low credence

(21′) Ali raft, *na*?　　　　　　(22′) Ali na-raft,　*na*?
　　　Ali went no　　　　　　　　　　Ali NEG-went no

　　　LF: Ali went, *na*^{Neg} [Ali didn't go]?　　**LF:** Ali didn't go, *na*^{Neg} [Ali didn't go]?
　　　✓ Relational Attitude: low credence　　✗ Relational Attitude: high credence

Let us try now the conformity reading. On the one hand, *âre*^{Agr} consistently forms a question tag over the proposition found in the anchor. Based on the notion of Relation Attitude, this means that, both in (19″) and (20″), *âre*-tags signal high credence on the anchor proposition. On the other hand, *na*^{Agr} consistently builds a question tag over the negation of the anchor proposition. Hence, following the idea of Relation Attitude, *na*-tags signal lesser credence in the anchor both in (21″) and (22″). This correctly matches the observed behavior of PolPrts.

(19″) Ali raft, *âre*?　　　　　　(20″) Ali na-raft,　*âre*?
　　　Ali went yes　　　　　　　　　　Ali NEG-went yes

　　　LF: Ali went, *âre*^{Agr} [Ali went]?　　**LF:** Ali didn't go, *âre*^{Agr} [Ali didn't go]?
　　　✓ Relational Attitude: high credence　　✓ Relational Attitude: high credence

(21″) Ali raft, *na*?　　　　　　(22″) Ali na-raft,　*na*?
　　　Ali went no　　　　　　　　　　Ali NEG-went no

　　　LF: Ali went, *na*^{DAgr} [Ali didn't go]?　　**LF:** Ali didn't go, *na*^{DAgr} [Ali went]?
　　　✓ Relational Attitude: low credence　　✓ Relational Attitude: low credence

Finally, note that permitting both readings would lead to an ambiguity between high and lower credence interpretations in (20‴) and (22‴) below. Such ambiguity contradicts the attested behavior of the PolPrts.

(19‴) Ali raft, *âre*?　　　　　　(20‴) Ali na-raft,　*âre*?
　　　Ali went yes　　　　　　　　　　Ali NEG-went yes

　　　LF1: Ali went, *âre*^{Pos} [Ali went]?　　**LF1:** Ali didn't go, *âre*^{Pos} [Ali went]?
　　　✓ Relational Attitude: high credence　　✗ Relational Attitude: low credence

　　　LF2: Ali went, *âre*^{Agr} [Ali went]?　　**LF2:** Ali didn't go, *âre*^{Agr} [Ali didn't go]?
　　　✓ Relational Attitude: high credence　　✓ Relational Attitude: high credence

(21‴) Ali raft, *na*?　　　　　　(22‴) Ali na-raft,　*na*?
　　　Ali went no　　　　　　　　　　Ali NEG-went no

　　　LF1: Ali went, *na*^{Neg} [Ali didn't go]?　　**LF1:** Ali didn't go, *na*^{Neg} [Ali didn't go]?
　　　✓ Relational Attitude: low credence　　✓ Relational Attitude: low credence

　　　LF2: Ali went, *na*^{DAgr} [Ali didn't go]?　　**LF2:** Ali didn't go, *na*^{DAgr} [Ali went]?
　　　✓ Relational Attitude: low credence　　✗ Relational Attitude: high credence

To sum up section 3, Farsi polar particles display both polarity and conformity readings. The analysis of PolPrts in response to different initiatives reveals the following key findings: **(a)** PolPrts exhibit ambiguity in response to negative initiatives; **(b)** the polarity reading consistently maintains high acceptability across different types of initiatives; and **(c)** the acceptability

of the conformity reading is influenced by the bias of the initiative, with a higher acceptability observed for mandatorily biased initiatives. On the other hand, the examination of PolPrts in TQs yields the following results: **(d)** PolPrts in questions are unambiguous; **(e)** only the conformity reading accurately predicts the observed degree of credence.

4. The Proposal

Our proposed analysis unfolds in three steps. First, in §4.1, we offer the basic semantic denotations of Farsi PolPrts in both the polarity and conformity readings. These readings are defined within distinct lexical entries, treating PolPrts as propositional anaphoras as in previous approaches (Pope, 1976; Roelofsen and Farkas, 2015). Second, in §4.2, we introduce and minimally extend the Scoreboard model of discourse (Farkas and Bruce, 2009; Malamud and Stephenson, 2015), focusing on four types of initiatives: assertions, unbiased polar questions, biased polar questions, and anchors in TQs. Finally, in §4.3, we enrich the basic lexical entries of PolPrts by making them sensitive to the discourse status of the propositional discourse referents (DRs) introduced by the initiative. The idea is that the two PolPrts readings – the polarity reading and the conformity reading – seek a propositional DR in different "compartments" of the Scoreboard representation of the initiative. We will then show how (**I**) the role of bias in PolPrt reading preference in declarative responses (findings **(b)**-**(c)** above) and (**II**) the unambiguity and degree of credence of PolPrts in TQs (findings **(d)**-**(e)** above) stem from the availability of the right kind of DR in the Scoreboard representation of the initiative.

4.1. Basic Lexical Entries for Farsi PolPrts

In establishing PolPrts as propositional anaphoras, an exploration of their antecedents becomes imperative. Consistent with existing literature, PolPrts, akin to other anaphoric elements, make reference to the most salient or highlighted proposition in the context as their discourse referent. We follow in this respect the approach put forth by Roelofsen and Farkas (2015), who extensively delved into the concept of highlighted propositions across various types of initiatives within Inquisitive Semantics. Among other purposes, highlighting precludes PolPrts from being employed in response to *wh*-questions and alternative questions, as well as in out-of-the-blue contexts.

Couching their approach in the Distributive Morphology framework (Halle and Marantz, 1993), we saw that Roelofsen and Farkas treat PolPrts in English as expressing features disjunctively: *Yes* can mark an answer as a positive proposition or as agreeing with the initiative, while *No* can mark an answer as a negative proposition or as disagreeing with the antecedent. Our analysis of Farsi PolPrts aligns with the feature marker approach in spirit, but it follows Mohammadi (2022) in positing two separate lexical entries for each PolPrt. In other words, we define two lexical entries for *âre* 'yes' – $\hat{a}re^{Pos}$ and $\hat{a}re^{Agr}$ – and two lexical entries for *na* 'no' – na^{Neg} and na^{DAgr} –, hence rendering the PolPrts lexically ambiguous.

The proposed lexical entries are provided in (24). PolPrts function as identity functions with presuppositional conditions. The proposition to saturate the λp-slot is the prejacent following

the PolPrts, which we saw can appear overtly or elided. The anaphoric link is encoded in $g(i)$, which refers to the propositional DR highlighted by the initiative, as per Roelofsen and Farkas (2015). The functions $+$ and $-$ take a proposition p and return a truth value: $+p = 1$ iff p has positive polarity and $-p = 1$ iff p has negative polarity.[8]

(24) Lexical entries of PolPrts in Farsi: [To be revised]

    a. $[\![\, \hat{a}re_i^{Pos} \,]\!]^{w,g} = \lambda p : (p = g(i) \lor p = \neg g(i)) \land +p \, . \, p$

    b. $[\![\, na_i^{Neg} \,]\!]^{w,g} = \lambda p : (p = g(i) \lor p = \neg g(i)) \land -p \, . \, p$

    c. $[\![\, \hat{a}re_i^{Agr} \,]\!]^{w,g} = \lambda p : p = g(i) \, . \, p$

    d. $[\![\, na_i^{DAgr} \,]\!]^{w,g} = \lambda p : p = \neg g(i) \, . \, p$

In the polarity-reading entries (24a)–(24b), both PolPrts initially verify that the prejacent proposition and the DR $g(i)$ highlighted by the initiative are identical up to their polarity values (i.e., $(p = g(i) \lor p = \neg g(i))$). This is essential to prevent unrelated answers, as exemplified by *A: Did John come? B: #Yes, I am.* (cf. examples (89) and (90) in Farkas and Roelofsen 2017), while still allowing for coupling a prejacent and a DR that align in propositional content except for their polarity, thus enabling responses like *A: John did not come. B: Yes, he did.* Subsequently, $\hat{a}re^{Pos}$ and na^{Neg} require that their prejacent p exhibit positive and negative polarity, respectively. This way, the lexical entries guarantee that the polarity of $\hat{a}re^{Pos}/na^{Neg}$ and of the prejacent p align, thereby preventing infelicitous answers such as *A: Did John come? B: #Yes, he didn't.*

In the conformity-reading entries (24c)–(24d), $\hat{a}re^{Agr}$ presupposes that the prejacent proposition p and the DR $g(i)$ are identical ($p = g(i)$), whereas na^{DAgr} presupposes that they are complementary ($p = \neg g(i)$).

All together, with these lexical entries, *âre* can exclusively accompany a positive (over or covert) prejacent in response to a positive initiative while it can escort either a positive or negative prejacent after a negative initiative. Similarly, *na* can only accompany a negative (overt or covert) prejacent in response to positive initiatives, while both positive and negative prejacents are acceptable with *na* in response to negative initiatives. Thus, the analysis so far aligns with the core data from Roelofsen and Farkas (2015).

But recall that, in addition, we need to derive two key aspects of PolPrts in Farsi: **(I)** the varying acceptability of PolPrt readings based on the bias of the initiative and **(II)** the unambiguity and degree of credence of PolPrts in TQs. To achieve this goal, we move to the next step of our proposal.

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[8]See Roelofsen and Farkas (2015) p. 378 for a richer way to represent propositional content consisting of a pair $< [\![\phi]\!]^+, [\![\phi]\!]^- >$ which hosts a proposition derived from a positive structure as the first member of the pair and a proposition derived from a negative structure as the second member of the paper. For example, the positive sentence *John arrived* will have the pair representation $< \lambda w.\text{arrive}_w(j), \emptyset >$ while the negative sentence *John did not arrive* will be represented as $< \emptyset, \lambda w.\neg\text{arrive}_w(j) >$.

4.2. Discourse Referents of the initiative in the Scoreboard model

The second segment of our proposal capitalizes on the detailed representation of discourse as delineated by the Scoreboard model. Following Farkas and Bruce (2009), any stage of the discourse consists of a tuple including: the common ground, *CG* (Stalnaker, 2002); the *negotiation Table* as a stack of questions under discussion; the discourse commitments of the participants *A* and *B* in the conversation, represented by DC_A and DC_B; and the projected CG^* (they call it *projected set*). Adding the tentative *DC* of each participant, DC_A^*, DC_B^*, from Malamud and Stephenson (2015), we have the following schematic representation:

A	Table	B
DC_A		DC_B
DC_A^*		DC_B^*
$CG = \{...\}$	$CG^* = \{...\}$	

Table 1: Sample Scoreboard representation

According to Farkas and Bruce, conversational moves, including assertions and questions, denote functions from Scoreboard tuples to Scoreboard tuples. An Assertion $[\neg\phi.]$ by speaker A adds the proposition $\neg\phi$ to DC_A and the issue $\{\neg\phi\}$ to the negotiation *Table*, as in Table 2. An unbiased polar question $[\neg\phi?]$ adds the set containing $\neg\phi$ and its complement ϕ, i.e. $\{\neg\phi, \phi\}$, to the negotiation *Table*, as illustrated in Table 3. The effects on *CG* and CG^* defined by Farkas and Bruce (2009) are indicated in our tables but will not be relevant for our analysis.[9] Note that the uttered proposition, as the salient/highlighted one, is boldfaced in the Scoreboard representations (for saliency/highlighting see Krifka, 2013; Roelofsen and Farkas, 2015).

A		Table	B	
DC_A	$\neg\phi$	$\{\neg\boldsymbol{\phi}\}$	DC_B	
DC_A^*			DC_B^*	
$CG = \{...\}$		$CG^* = CG\overline{\cup}\{\phi\}$		

Table 2: Assertion $[\neg\phi.]$

A	Table	B
DC_A	$\{\neg\boldsymbol{\phi}, \phi\}$	DC_B
DC_A^*		DC_B^*
$CG = \{...\}$	$CG^* = CG\overline{\cup}\{\neg\phi, \phi\}$	

Table 3: Question $[\neg\phi?]$

Extending Malamud and Stephenson (2015)'s modeling of bias in TQs to bias in polar questions, we propose that $[\neg\phi\ dige?]$ signals that the speaker tentatively commits to $\neg\phi$. Thus, $[\neg\phi\ dige?]$ not only adds the issue $\{\neg\phi, \phi\}$ to the negotiation *Table*, but it also adds the proposition $\neg\phi$ that a speaker A signals a bias for to DC_A^*, as in Table 4:

A		Table	B	
DC_A		$\{\neg\boldsymbol{\phi}, \phi\}$	DC_B	
DC_A^*	$\neg\phi$		DC_B^*	
$CG = \{...\}$		$CG^* = CG\overline{\cup}\{\neg\phi, \phi\}$		

Table 4: *dige*-NPQs $[\neg\phi\ dige?]$

A		Table	B
DC_A			DC_B
DC_A^*	ϕ		DC_B^*
$CG = \{...\}$		$CG^* = \{...\}$	

Table 5: TQs $[\phi,...?]$

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[9]For the reader interested in CG^*, Farkas and Bruce (2009) argue that assertions, $[\phi.]$, project the confirmation of ϕ, while (default) PQs $[\phi?]$ project accepting and rejecting ϕ, representing as the future moves in CG^*. $CG\overline{\cup}X$ combines *CG* with the elements of set *X* pointwise and collects them into a set. That is, $CG^* = CG\overline{\cup}\{\neg\phi, \phi\}$ on e.g. Table 3 is simply a shorthand for $CG^* = \{CG\cup\{\neg\phi\}, CG\cup\{\phi\}\}$.

Finally, for TQs, we propose that the declarative anchor $[\phi]_{anchor}$ simply adds the proposition ϕ to DC_A^*, as in Table 5. Later, the tag will add the issue $\{\neg\phi, \phi\}$ to the negotiation *Table*. But, crucially, the parsing of the declarative anchor only adds a DR to DC_A^*, not to the *Table*.

4.3. Enriching the PolPrts lexical entries with Scoreboard sensitivity

We posit that the two readings of PolPrts – the polarity reading and the conformity reading – are anaphoric to DRs belonging to different parts of the Scoreboard representation of the initiative: PolPrts in the polarity reading pick up a DR from the negotiation *Table*, while PolPrts in the conformity reading pick up a DR from the $DC^{(*)}$, including current (DC) and tentative (DC^*) commitments. The rationale behind this distinction is that the polarity reading directly addresses the issue under negotiation and simply marks the polarity – positive of negative – of the proposition chosen to resolve the issue, while the conformity reading is a reaction to someone's (tentative) belief or commitment and signals agreement or disagreement with that commitment.

To implement this idea, we enrich our basic lexical entries with an additional presuppositional condition. In the polarity readings (25a) and (25b), PolPrts are anaphoric to a DR – $g(i)$ in the lexical entries – that is on the negotiation *Table* of the initiative, marked as purple ϕ in our Scoreboard representations above. That is, $\hat{a}re_i^{Pos}$ and na_i^{Neg} presuppose that $g(i) \in Table$. In contrast, in the conformity readings (25c) and (25d), PolPrts are anaphoric to a DR $g(i)$ that is in the (current/tentative) $DC_A^{(*)}$ of the initiative, marked as orange ϕ in our Scoreboard representations. In other words, $\hat{a}re_i^{Agr}$ and na_i^{DAgr} presuppose that $g(i) \in DC^{(*)}$:

(25) Lexical entries of PolPrts in Farsi: [Final version]
    a. $[\![\, \hat{a}re_i^{Pos} \,]\!] = \lambda p : (p = g(i) \vee p = \neg g(i)) \wedge g(i) \in Table \wedge +p \,.\, p$
    b. $[\![\, na_i^{Neg} \,]\!] = \lambda p : (p = g(i) \vee p = \neg g(i)) \wedge g(i) \in Table \wedge -p \,.\, p$
    c. $[\![\, \hat{a}re_i^{Agr} \,]\!] = \lambda p : p = g(i) \wedge g(i) \in DC^{(*)} \,.\, p$
    d. $[\![\, na_i^{DAgr} \,]\!] = \lambda p : p = \neg g(i) \wedge g(i) \in DC^{(*)} \,.\, p$

Equipped with these enriched lexical entries, we are ready to derive the two main empirical facts from Farsi: **(I)** the effect of bias on reading preference, whereby the conformity reading exhibits high acceptability with mandatorily biased initiatives but lower acceptability when the bias is optional, while the polarity reading consistently remains highly acceptable, and **(II)** the unambiguity and degree of credence in TQs.

We start with the bias effect. First, with Assertions, both polarity and conformity readings are acceptable, given the presence of the required DRs on the *Table* and in the *DC*, respectively:

A		Table	B	
DC_A	$\neg p$	$\{\neg p\}$	DC_B	
DC_A^*			DC_B^*	
$CG = \{...\}$		$CG^* = CG \cup \{\neg p\}$		

Table 6: Assertion $[\neg p.]$

(26) A: Ali didn't come.
    B1: $\hat{a}re_i^{Pos} \approx na_i^{DAgr}$ he did.
         yes   no
    B2: $\hat{a}re_i^{Agr} \approx na_i^{Neg}$ he didn't.
         yes   no

Second, *dige*-NPQs, characterized by obligatory bias towards a negative proposition, exhibit high acceptability for both readings, akin to assertions. The polarity reading is allowed because the intended DR is found on the *Table*, while the conformity reading is acceptable because, given that the initiative conveyed a bias, the desired DR is found in the DC^* as well:

A	Table	B
DC_A	$\{p, \neg \mathbf{p}\}$	DC_B
DC_A^* $\quad \neg p$		DC_B^*
$CG = \{...\}$	$CG^* = CG \overline{\cup} \{p, \neg p\}$	

Table 7: *dige*-NPQs [¬*p dige*?]

(27)   A: Did Ali not go *dige*?

B1: $\hat{a}re_i^{Pos} \approx na_i^{DAgr}$ he did.
    yes   no

B2: $\hat{a}re_i^{Agr} \approx na_i^{Neg}$ he didn't.
    yes   no

Finally, for simple NPQs [¬*p*?], which optionally express bias for ¬*p*, the polarity reading is acceptable but the conformity reading is significantly degraded. We contend that this is due to the unclear status of the bias implication. On one hand, simple NPQs can convey bias for ¬*p*, expressing the speaker's tentative belief. This establishes the presence of a DR in DC_A^* and consequently permits the conformity reading in the PolPrts, much as in Table 7. On the other hand, there exists a more viable competitor, namely *dige*-NPQs, which is designed to convey this bias explicitly via *dige*. Therefore, the bias in simple NPQs is easily cancelable, leaving no DR in $DC^{(*)}$ in Table 8 and thus rendering the conformity reading unavailable. The unclear status of this bias in simple NPQs makes the conformity reading precarious and more variable among speakers, as some bias-sensitive speakers may accept conformity PolPrts in this situation while bias-insensitive speakers reject them.

A	Table	B
DC_A	$\{p, \neg \mathbf{p}\}$	DC_B
DC_A^*		DC_B^*
$CG = \{...\}$	$CG^* = CG \overline{\cup} \{p, \neg p\}$	

Table 8: NPQs [¬*p*?]

(28)   A: Did Ali not go?

B1: $\hat{a}re_i^{Pos} \succ na_i^{DAgr}$ he did.
    yes   no

B2: $\hat{a}re_i^{Agr} \prec na_i^{Neg}$ he didn't.
    yes   no

Taken together, the consistent acceptability of the polarity reading is attributed to the presence of the required propositional DR on the *Table* in all cases, whereas the variable acceptability of the conformity reading stems from the presence or absence of a DR in $DC^{(*)}$.

We come now to the unambiguity of PolPrts in TQs. We have argued that the negative anchor [¬φ] simply adds the proposition ¬φ to DC_A^*. This means that, when *âre* or *na* in the tag seeks a salient DR as antecedent, it finds one in DC^* but not on the *Table*, as in Tables 9 and 10. Thus, PolPrts in the tag can be used in the conformity reading as in (29.b)–(30.b) but not in the polarity reading as in (29.a)-(30.a). This derives the lack of ambiguity for PolPrts in TQs.

A	Table	B
DC_A		DC_B
DC_A^* $\neg p$		DC_B^*
$CG = \{...\}$	$CG^* = \{...\}$	

Table 9: TQs [$\neg p$, *âre*?]

(29) Ali didn't go, *âre*?

    a. $[\![\,\hat{a}re_i^{Pos}\,]\!]$ ✗ No Referent
$$= \lambda p : (p = g(i) \vee p = \neg g(i)) \wedge g(i) \in Table\ \wedge$$
$$+p \cdot p$$

    b. $[\![\,\hat{a}re_i^{Agr}\,]\!]$ ✓ Referent
$$= \lambda p : p = g(i) \wedge g(i) \in DC^{(*)} \cdot p$$

    c. $[\![\,\text{Ali didn't go, } \hat{a}re_i^{DAgr}?\,]\!] =$
'Ali didn't go, did Ali not go?' ✓ High Credence

A	Table	B
DC_A		DC_B
DC_A^* $\neg p$		DC_B^*
$CG = \{...\}$	$CG^* = \{...\}$	

Table 10: TQs [$\neg p$, *na*?]

(30) Ali didn't go, *na*?

    a. $[\![\,na_i^{Neg}\,]\!]$ ✗ No Referent
$$= \lambda p : (p = g(i) \vee p = \neg g(i)) \wedge g(i) \in Table\ \wedge$$
$$-p \cdot p$$

    b. $[\![\,na_i^{DAgr}\,]\!]$ ✓ Referent
$$= \lambda p : p = \neg g(i) \wedge g(i) \in DC^{(*)} \cdot p$$

    c. $[\![\,\text{Ali didn't go, } na_i^{DAgr}?\,]\!] =$
'Ali didn't go, did Ali go?' ✓ Lower Credence

Additionally, we argued for the notion of Relational Attitude, which calculates the degree of credence in the anchor proposition based on the matching polarity of anchor and tag (high credence) vs. reverse polarity between anchor and tag (lower credence). Once we have secured the conformity reading for the PolPrts in the tag, the degree of confidence intuited by native speakers is automatically derived via the Relational Attitude: With $\hat{a}re^{Agr}$ the polarities of the anchor and tag match, leading to high credence as in (29.c); with na^{DAgr} the polarities of the anchor and tag are misaligned, resulting in lower credence as in (30.c).

To sum up section 4, after extending the Scoreboard model to reflect bias in polar questions and declarative anchors of TQs, we have defined the polarity and conformity readings of *âre* and *na* as sensitive to the Scoreboard representation of the initiative. The proposal correctly derives (**I**) the effect of bias on reading preference and (**I**) the unambiguity and credence of TQs.

5. Open Issue: Alternative Questions

Before concluding the paper, it is worth noting an unresolved puzzle regarding alternative questions (AltQs). In Farsi, *or-not*-AltQs like *Do you want coffee or not?* can be built by placing a PolPrts after the disjunction (PolPrts-AltQs). While *âre* is deemed unacceptable in such AltQs, as in (31) and (33), *na* is acceptable, albeit the formulation starting with a negative clause in (34) is slightly degraded compared to the formulation starting with a positive clause in (32):[10]

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[10]The lower acceptability of (34) may be due to a ordering convention in *or-not*-AltQs/PolPrt-AltQs by which the positive structure tends to precede disjunction, as mentioned by Van Rooy and Šafářová (2003). Still, (34) becomes felicitous in a context where the speaker is challenged regarding whether Ali did not go, prompting the speaker to seek clarification. Importantly, *âre*-AltQs in the same context still lead to infelicity.

(31) # Ali raft yâ *âre*?
       Ali went or yes

(32) Ali raft yâ *na*?
       Ali went or no
       'Did Ali go or not?'

(33) # Ali na-raft yâ *âre*?
       Ali NEG-went or yes

(34) ? Ali na-raft yâ *na*?
       Ali NEG-went or no
       'Did Ali not go or did he?'

The two readings of *na* in (34) with a negative antecedent (namely, the first disjunct) are expected to lead to two distinct propositions. However, (34) is not ambiguous. Let us try each reading in turn to see which one derives the correct results. In the polarity reading, $âre^{Pos}$ in (31′.LF1) correctly produces a logically ill-formed question [p or p?], but $âre^{Pos}$ in (33′.LF1) incorrectly derives the congruent form [$\neg p$ or p?]. Similarly, na^{Neg} in (32′.LF1) correctly yields the congruent form [p or $\neg p$?], yet in (34′.LF1) it wrongly leads to the illogical form [$\neg p$ or $\neg p$?]. In contrast, the conformity reading of both PolPrts accurately predicts the felicitous forms and identifies the infelicitous ones. Particle $âre^{Agr}$ in (31′.LF2) and (33′.LF2) correctly yields illogical forms, while na^{DAgr} in (32′.LF2) and (34′.LF2) returns proper readings:

(31′) # Ali raft yâ *âre*?
        Ali went or yes

LF1: Ali went or $âre^{Pos}$ [Ali went] ✓
LF2: Ali went or $âre^{Agr}$ [Ali went]? ✓

(33′) # Ali na-raft yâ *âre*?
        Ali NEG-went or yes

LF1: Ali didn't go or $âre^{Pos}$ [Ali went]?✗
LF2: Ali didn't go or $âre^{Agr}$[Ali didn't go]?✓

(32′) Ali raft yâ *na*?
        Ali went or no

LF1: Ali went or na^{Neg} [Ali didn't go]?✓
LF2: Ali went or na^{DAgr} [Ali didn't go]?✓

(34′) Ali na-raft yâ *na*?
        Ali NEG-went or no

LF1: Ali didn't go or na^{Neg}[Ali didn't go]?✗
LF2: Ali didn't go or na^{DAgr} [Ali went]?✓

The unsolved puzzle concerns the justification of the conformity reading. In the case of TQs, PolPrts in the question tag could only have the conformity reading because the declarative anchor introduces a tentative commitment but not yet an issue. However, it is not clear how a tentative commitment to the first disjunct in an AltQ could be motivated, since AltQs typically signal a balanced belief and interest in the two disjuncts (Van Rooy and Šafářová, 2003). While we cannot offer a solution at this time, we would like to point out that there is a second way to form *or-not*-AltQs in Farsi, namely Verbal-AltQs, in which the predicate of the first disjunct is repeated in the reverse polarity in the second disjunct, as illustrated in (35)–(36):

(35) Ali raft yâ na-raft?
       Ali went or NEG-went
       Did Ali go or not?

(36) Ali na-raft yâ raft?
       Ali NEG-went or went
       Did Ali not go or did he go?

Notably, the disjuncts in Verbal-AltQs are parallel to what $âre^{Pos}$ and na^{Neg} in the polarity reading would produce. This may have driven PolPrts-AltQs to specialize in the opposite reading,

i.e., in the conformity reading. We leave the investigation of the pragmatic properties of Verbal-AltQs vs. PolPrts-AltQs and their potential impact on PolPrts readings for future research.

6. Conclusion

This paper has examined polar particles in Farsi, *âre* 'yes' and *na* 'no', in their polarity and conformity readings. Our investigation includes their use in declarative responses to assertions and polar questions and in the formation of tag questions. The data from Farsi make a double contribution to the existing scholarship by shedding light on (**I**) the impact of bias on reading preferences in declarative responses and (**II**) the unambiguity and degree of credence in TQs. Our proposal is built in three steps. First, for each PolPrt, we define distinct basic lexical entries for each reading. Second, we minimally extend the discourse Scoreboard model by representing bias in polar questions and in the the declarative anchor of tag questions as tentative discourse commitments (DC^*). Finally, we argue that the two readings of PolPrts are anaphoric to discourse referents from different components of the Scoreboard representation of the initiative: The polarity reading requires an antecedent on the negotiation *Table* whereas the conformity reading seeks an antecedent in $DC^{(*)}$. The proposed sensitivity of PolPrts to the discourse status of the antecedent may inform further cross-linguistic explorations of PolPrts.

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