The Semantics of Affirmative Verum Focus

Siavash Rafiee Rad*

*Assistant Professor in Linguistics, Leiden University, Netherlands.
 E-mail: s.rafiee.rad@hum.leidenuniv.nl

Article Info	ABSTRACT
	This article undertakes an in-depth study of the role of the Affirmative Verum Focus (AVF) particle within elliptical constructions cross-linguistically, with a focus on Persian. We demonstrate how the AVF particle, spanning diverse linguistic frameworks, functions as a catalyst for licensing ellipsis and allows the resolution within elliptical constructions featuring its presence. We posit that the semantic representation of the AVF particle in the target sentence functions as a remnant and a parallel element to the negation marker in the source sentence. In turn, it operates in parallel with the semantic representation attributed to the negation marker in the source sentence. Functioning as a higher-order operator, the AVF particle interlaces the semantic representation of the source sentence with that of the target sentence. Finally, we will demonstrate how our analysis can extend to account for a comprehensive examination of ellipsis resolution across various forms of elliptical constructions, including sentential ellipsis.

1. Introduction

In this paper, we demonstrate the occurrences of Affirmative Verum Focus (AVF) and its semantic role such as in ellipsis resolution. The term Verum Focus was first introduced by Höhle (1988). AVF can occur in various types of elliptical constructions such as sentential ellipsis and gapping. For instance, in some languages, such as Dutch, German and Persian, when there are elements that are shared between the proposition p and q in expressions with the logical forms $\neg p \wedge q$ or $p \wedge \neg q$, the presence of AVF at the level of syntax is essential in order for ellipsis to be well formed.

The intentions of this paper are twofold: one is to fill the gap in the literature by studying the occurrence of this particle in Persian in both sentential ellipsis and gapping constructions in comparison with other languages such as Dutch and German, and second, to show how AVF allows ellipsis resolution at the level of semantics. We shall argue that AVF functions as an operator and assigns positive polarity to the proposition that it scopes over. In an elliptical construction, throughout this article we refer to the coordinate clause in which the antecedent verb is present as the source sentence and the coordinate clause in which the verb (along with other elements) is elided as the target sentence. The elements that are expressed in the target sentence, which semantically stand parallel to the elements in the source sentence, are referred to as remnants. AVF is shown in bold in every example. For the semantic analysis, we adopt a modified version of higher order unification proposal by building on the work of Huet and Lang (1978) and Dalrymple et. al. (1991).

This paper is divided into five sections. In section 2, we discuss the methodology and the theoretical framework. In section 3, we introduce the AVF particle, and we explain how it syntactically licenses ellipsis in sentential ellipsis and gapping constructions. In section 4, we present the Persian data and describe various Persian elliptical constructions with the AVF particle. In section 5, we propose an analysis of this particle and we demonstrate how a semantic analysis can account for the correct and grammatical reading of ellipsis site in constructions with AVF. Section 6 concludes.

2. A brief note on previous works

While there has been some investigation on the role of AVF in licensing ellipsis resolution in gapping constructions (see Neijt (1979), Repp (2009), Egg and Zimmermann (2011), Dimroth et. al. (2017) and Lohnstein, (2018) among others) and the semantics of AVF in general, to our knowledge there has been no comprehensive study on the AVF and its role in coordinate constructions in certain languages such as Persian. In what follows, we will provide a description of constructions in which this particle occurs.

When there are shared semantic elements in expressions with the logical forms $\neg p \wedge q$ or $p \wedge \neg q$, languages have various ways of representing one of these propositions in a reduced form, in which case some of the shared elements (if there are any) are unexpressed, resulting in various types of elliptical construction. Consider the following example:

(1) p: Dariush does not go to that university.

q: John goes to that university.

Presection: Dariush does not go to that university, but John does go to that university.

(2) p: John goes to that university.

q: Dariush does not go to that university.

Postsection: John goes to that university but Dariush does not go to that university.

In English, such constructions require an auxiliary verb in order to express the polarity of the elided verb (along with its arguments), shown by strikethrough in examples (1) and (2). This results in VP ellipsis (see Chomsky (1973), Ross (1967), Sag (1976), Shopen (1972), Jackendoff (1972), Wasow (1972), Williams (1977), and Dalrymple (2005), among others).

In contrast to English, in some languages such constructions, sharing the same predicate, are expressed in a different syntactic form, in which the contrastive polarity in these two constructions is expressed through other means. In Persian the particle čerā as shown in (3), in Dutch wel as shown in (4), in German schon or doch as shown in (5a) and (5b), and in some languages like Italian and French the word si and oui 'yes' as shown in (6) and (7) serve this function:

(3) Dariush be un na-xandid vali to čerā

Dariush to him NEG-laugh-3S.PST but you AVF

'Dariush did not laugh at him but you DID.'

(4) a. Bill komt wel, en Harrie komt niet.

Bill comes definitely [AVF], and Harry come not.

'Bill does come, and Harry not come.' (Neijt, 1979, 93, Ex. 37)

b. Harrie komt niet en Bill wel.

Harry come not and Bill definitely [AVF].

'Harry does not come and Bill does.'

(5) a. /KARL hat die /KAtze \NICHT gestreichelt, aber /HANS den /HUND \SCHON.

Karl has the cat not stroked. but Hans the dog already[AVF]

'Karl did not stroke the cat but Hans DID stroke the dog.' (Repp, 2008, 381, Ex. 54)

b. A: John ist nicht auf die Party gegangen.

John be.3S not to the party go.3S.PRTC.

'John didn't go to the party.'

B: Doch.

AVF

'Yes, he DID / Of course.'

(6) voi non avete acquistato una macchina, ma/pero lei si.

you.PL NEG have buy.PRTC a car but she AVF

'You did not buy a car but she DID.'

(7) a. Je n'ai pas acheté la voiture mais ma mère si/?oui

I NEG-be.PST buy.PST the car but my mother AVF

'I did not buy the car but my mother did.'

b. A: John n'a pas   achetè   la voiture.

   John NEG-PST buy.PST the car

   'John did not buy the car.'

B: si.

   AVF

  'Yes, he DID.'

In example (5a), we have glossed schon as AVF whereas Repp (2009) refers to this word as 'already'. However, one should distinguish this word from the adverb 'already' since native speakers of German seem not to associate the word schon in (5a) with the meaning 'already'. This can be also demonstrated through the following example:

(8) Karl wird die Katze nicht streicheln, aber Hans den Hund schon

   Karl will the cat   not stroke   but Hans the dog AVF

   'Karl will not stroke the cat but Hans WILL stroke the dog.'

As shown in (8), the tense of the verb in the source sentence and the expected tense of the verb in the target sentence are both future, and therefore, the word schon cannot be associated with the meaning 'already' since the action has not taken place yet. The only function of the word schon in (8), therefore, is acting as AVF, which expresses the positive polarity of the unexpressed verb based on the negated antecedent verb.

The word 'yes' in English may also function in the same way (see Merriam Webster dictionary for this definition of the word yes) as shown in (10a) or expressions such as 'do so, do so' as shown in (10b)):

(9) a. A: Don't say that!

   B: yes, I will.

   b. A: It doesn't look like you have a case here.

   B: do so, do so.

Examples (3) to (7) show that languages such as Dutch, German, Italian, French and Persian express the opposite polarity of the predicate in the source sentence through expressing AVF particles. In other languages, such as English, in coordinate constructions the auxiliary verb do may fulfil this purpose (see Romero and Han (2004), Kramer and Rawlins (2011) and Krifka (2013)) while in other elliptical constructions, such as the ones in (9), other expressions mark the opposite polarity of the target sentence. There are two questions that arise from the above data: (1) why is the presence of such a particle necessary for licensing ellipsis? (2) How does AVF allow the reconstruction of the correct semantic representation of the elided elements?

3. Methodology and theoretical framework

The data presented in this article is based on modern standard Persian (as well as German, Dutch, Italian and French). The article then focuses on the Persian data for the analysis using the formal

logic language. There have been different approaches to analysing ellipsis (see for example, Shopen (1972), Jackendoff (1972), Wasow (1972), and Williams (1977) for an interpretive rule or Fiengo and May (1994) for ellipsis resolution at the semantic level). As for the theoretical framework, the approach we adopt in this article is the semantic solution based on the work of Dalrymple et. al. (1991). We will also make use of higher order unification, proposed by Huet, G. (1975) and Huet and Lang (1978). For the analysis of ellipsis resolution, we use typed lambda calculus (see Church (1941), Thomason (1974), Dowty (1979), Partee (1975), Partee et. al. (1993), and Gamut (1991) for discussions on lambda calculus).

4. The elliptical constructions with the AVF particle in Persian

Consider the following Persian example:

(10) p: Dariush be un dāneshgāh na-raft.

       Dariush to that university NEG-go.3S.PST

    'Dariush did not go to that university.'

  q: to be un dāneshgāh raft-i.

    you to that university go-2S.PST

    'You went to that university.'

  Presection: Dariush be un   dāneshgāh na-raft   vali to   čerā

    Dariush to   that university NEG-go.3S.PST but you AVF

    'Dariush did not go to that university but you DID.'

(11) p: to be un dāneshgāh raft-i

     you to that university go-2S.PST

    'You went to that university.'

  q: Dariush be un dāneshgāh na-raft

    Dariush to that university NEG-go.3S.PST

    'Dariush did not go to that university.'

  Presection: to čerā, vali Dariush be un dāneshgāh na-raft

    you AVF, but Dariush to that university NEG-go.3S.PST

    'You DID, but Dariush did not go to that university.'

In the literature on gapping, there have been many attempts to define what should be considered as a gapping construction across languages (see Ross (1970), Hankamer (1973), Stillings (1975), Langendoen (1975), Kuno (1976), Neijt (1979), Dowty (1988), Steedman (1990), Johnson (2008), Repp (2008) and Repp (2009) and Laka (1994)). One generally agreed definition refers to gapping as "an ellipsis in which a verb is removed in one, or more, of a series of coordinations" (Johnson, 2014, 1). We refer to the coordination construction in (10) and (11) in Persian as gapping constructions since they consist of coordinate constructions with predicates of shared semantic value and the elided predicate differs from the predicate in the source sentence in terms of SUBJ agreement. In such constructions there are at least two remnants in the target sentence, which stand parallel to

their correlates in the source sentence. Therefore, we distinguish such constructions from phrasal coordination as they syntactically behave differently. This categorisation is similar to gapping constructions in other languages such as Dutch and German (see Neijt (1979) and Repp (2009)).

Consider example (5b) repeated below in (12) and its equivalent in Persian in (13):

(12)   A: John ist   nicht auf die Party gegangen

John be.3S not   to   the party go.3S.PRTC

'John didn't go to the party.'

B: Doch.

AVF

'Yes, he DID.'

(13)   A: John be mehmuni-ye na-raft.

John to party-DEF   NEG-go.3S.PST

'John didn't go to the party.'

B: čerā.

AVF

'Yes, he DID.'

As observed by Höhle (1992), AVF is not restricted to declarative sentences, and can be used in interrogatives and imperatives when used in the target sentence (or with expressed verb in response to a negative disposition for more emphasis). The particle čerā in Persian, as an AVF, can also be used in response to a negated question as illustrated in (14):

(14)   A: Dariush be mehmuni-ye na-raft?

Dariush to party-DEF   NEG-go.3S.PST

'Didn't Dariush go to the party.'

B: čerā. (with a falling intonation)

AVF

'Yes, he DID.'

(14A) is the interrogative form of the statement in (13A). The particle čerā in (14B) is the reply to the closed interrogative question in (14A) in which the speaker is putting forward a disposition to a proposition, that is Dariush did not go to the party. Speaker B by using the AVF čerā opposes this disposition and turns it into a positive statement, namely Dariush did go to the party. As shown in the example, intonation plays a crucial role in such cases since if the word čerā was uttered with a rising intonation, it would have been interpreted as the question word 'why' requiring further clarification by Speaker A as we will show further below in example (18). Note that if the source sentence were not negated, then the use of čerā in the target sentence would result in the ungrammaticality of the sentence as shown in (15):

(15) *Dariush be un dāneshgāh raft   va to   be in dāneshgāh čerā

Dariush to that university go.3S.PST and you to this university AVF

Intended: 'Dariush went to that university and you DID go to this university.'

Therefore, there must be an assumed proposition with negation in it (in this case expressed by the negation marker) for the use of the AVF to be licensed. Consider the following example:

(16)   (In a context where two friends are discussing how to get to a cinema from home, and   one of them, speaker B, is approaching their car):

A: bā   māshin na

with car   NEG

'Not by car'!'

B: čerā (with a falling intonation), bā māshin.

AVF

'Yes, by car.'

In (16), speaker A knows or at least believes that they are not going to the cinema by their car, and points out this fact in (16A) while speaker B is approaching the car. Speaker B, on the other hand, believes that they are going to the cinema by their car, and opposes the assertion made by speaker A. This contrasts the contribution to the common ground knowledge through questioning the initial disposition. As mentioned above, AVF should not be confused with homonymous lexical item in the language under study. For instance, in Persian AVF should not be mistaken for the question word čerā 'why'. Consider examples (17) and (18) which compare these functions:

(17)   A: Dariush be mehmuni-ye   na-raft.

Dariush to party-DEF   NEG-go.3S.PST

'Dariush didn't go to the party.'

B: čerā (with a falling intonation)

AVF

'Yes, he DID.'

(18)   A: Dariush be mehmuni-ye na-raft.

Dariush to party-DEF   NEG-go.3S.PST

'Dariush didn't go to the party.'

B: čerā (with a rising intonation)?

why

'Why [didn't Dariush go the party]?'

A: čon   mariz bud.

because ill   be.3S.PST

'Because he was ill.'

In (18B), speaker B accepts the assertion made by speaker A, and the question word čerā 'why' makes no changes to that assertion, but simply, through using this question word, speaker B is eliciting more information about the assertion. In short, it seems that the intention of B about an assertion plays a role in the use of the word čerā, either as AVF or the question word 'why'.

In addition, the question word čerā 'why' can occur with a negated verb whereas the word čerā as an AVF particle cannot accompany a negated verb. Also as shown above, another factor in the use of AVF in elliptical constructions is the polarity of the propositions in the source and target sentences. When polarities of propositions are different, the target sentence always overtly marks this contrast at the level of syntax if the verb is elided. Positive or negative polarities of the propositions will, therefore, function as one of these remnants to license gapping constructions. Consider the sentence in (19) and (20), which illustrate forward gapping in the presection coordination construction:

(19) Persian:

a. to   māshin ro   na-xarid-i   vali un māshin ro   xarid

   you car   OM NEG-buy-2S.PST but she car   OM buy.3S.PST

   'You did not buy a car but she bought a car.'

b. to   māshin ro   na-xarid-i   vali un čerā

   you car   OM NEG-buy-2S.PST but she AVF

   'You did not buy a car but she DID.'

(20) Dutch:

a. je   hebt de auto niet gekocht,   marr zij heeft de auto gekocht.

   you have the car not buy.PRTC but she has the car buy.

   'You did not buy the car but she bought the car.'

b. je   hebt de auto niet gekocht,   marr zij wel

   you have the car not buy.PRTC but she AVF

   'You did not buy the car but she DID.'

A comparison between examples (19) and (20) shows that both Persian and Dutch allow gapping constructions with the use of AVF as long as there are at least two remnants in the target sentence. In gapping constructions, the remnants in the target sentence must be semantically distinct from their correlates in the source sentence. The remnants in (19b) are the SUBJ argument un 'she' and the AVF particle čerā. The pronoun un 'she' is parallel to the pronoun to 'you' and they function as contrastive foci. The other parallel element is the AVF particle čerā. Therefore, the two remnants, i.e. the pronoun un 'she' and the AVF, as parallel elements, are both contrastive foci to their parallel elements in the source sentence. As we will demonstrate further below, we propose that AVF is an operator within ellipsis sites which stands as a contrastive focus to the Identity operator in the source sentence. When the AVF particle, čerā, is present as one of the remnants in the target sentence, the polarity of the proposition in the target sentence acts as a contrastive focus parallel to the Identity operator of the proposition in the source sentence as shown in (21). If that is not the case, i.e. the polarity of the source and target sentence are similar, then both propositions have similar Identities which do not function as contrastive foci. This, in turn, justifies why only in such cases the use of the word ham hamintor 'also, the same' is allowed as shown in (22):

(21) to   māshin   na-xarid-i   vali   un   [*ham hamnitor]   čerā.

  you   car   NEG-buy-2S.PST   but   she   also   the same   AVF   Intended:

 'You did not buy a car but she [*also] did.'

(22) to   māshin na-xarid-i   va   un   ham hamnitor   na-xarid

  you   car   NEG-buy-2S.PST   and   she   also   the same   NEG-buy.3S.PST

 'You did not buy a car and she did not buy a car, either.'

The reason for the ungrammaticality of (21) with ham hamintor is that the use of AVF entails a polarity contrast to the source sentence. Using both ham hamnitor (which can be regarded as an identity operator semantically) and the AVF in the target sentence results in a contradiction and hence, the sentence becomes ungrammatical.

It is important to briefly discuss the role of coordinators in gapping constructions. The sentence in (23a), while being grammatical, is considered less acceptable in comparison to (23b) since the coordinator va 'and' does not mark the feature adversative. Therefore, va 'and' does not facilitate the reconstruction of the unexpressed verb with a different polarity, in this case a negative marker, based on the positive antecedent verb in the source sentence. The acceptability of (23b) can be explained based on the fact that the coordinator vali 'but' enforces the Principle of Balanced Contrast (see Repp (2009)). In other words, the coordinator va 'and' does not require the occurrences of elements with contrastive semantic value with regards to the topics of both conjuncts, while the coordinator vali 'but' itself marks the contrast between the two coordinate clauses and as a result demands contrastive semantic values in the second conjuncts which accommodates what examples in (23) try to express:

(23) a. ?to   be un   xandid-i   va   un   be to   na-xandid

       you   to   him   laugh-2S.PST   and   he   to   you   NEG-laugh.3S.PST

    'You laughed at him and he did not laugh at you.'

    b. to   be un   xandid-i   vali   un   be to   na-xandid.

      you   to   him   laugh-2S.PST   but   he   to   you   NEG-laugh.3S.PST

    'You laughed at him but he did not laugh at you.'

These two examples demonstrate that in addition to the SUBJ and OBJ in the source and target sentences acting as contrastive foci, the polarities of the two propositions also act as contrastive foci (for the role of the negation marker as focus see also the work of Jackendoff (1972) and Anderson (1972)).

Going back to the discussion on remnants behaving as contrastive foci, Repp, when comparing German and Dutch, suggests that while Dutch does not allow the omission of AVF, in German the affirmative particle schon can be left out (see Repp, 2008, Ex. 56), in which case the coordinator aber seems to force the reconstruction of the unexpressed verb with positive polarity. However, it is not clear whether this possibility also relies on the number of the remnants or not. In her example (see example 5 above), the number of remnants in the target sentence is three including schon, and if this had not been the case, the omission of schon would have resulted in an ill-formed gapping

construction. Compare (5a) repeated below in (24) and (25):

(24) /KARL hat die /KAtze \NICHT gestreichelt, aber /HANS den /HUND \SCHON

     Karl   has   the   cat   not   stroked,   but   Hans.   the   dog   already [AVF]

 'Karl did not stroke the cat but Hans DID stroke the dog.'

(Repp, 2008, 381, Ex. 54)

(25)   *Karl hat die Katzei nicht gestreichelt, aber Hans die Katzei schon

     Karl has the cat   not stroked   but Hans the cat   AVF

 Karl did not stroke the cat but Hans DID stroke the cat.'

Note that in (25) both nouns in the source and target sentence are co-indexed and with this interpretation, leaving out the AVF schon results in the ungrammaticality of (25) since the only contrastive focus in the target sentence is the SUBJ Hans. Therefore, the omission of schon in the target sentence would be only allowed when polarity is not one of the contrastive foci and the number of remnants as contrastive foci, excluding schon, is sufficient to license gapping. This can be observed in the coordinate construction in (26):

(26)   Karl hat die Katze gestreichelt, aber Hans den Hund

     Karl has the cat   stroked   but Hans the dog

     'Karl stroke the cat but Hans the dog.'

The same condition applies in Persian. The key in licensing ellipsis in postsection logical forms lies in the negation marker. By treating the negation marker, na, as a remnant, the reconstruction of the interpretation of the target sentence with the correct polarity is made possible.

In coordinate constructions with postsection logical form, the reconstruction of a negative unexpressed verb based on a positive verb is not possible unless the negation marker is present. In these cases, the negation marker, as the discourse function focus, semantically represents a negated proposition which stands parallel to the polarity of the antecedent verb in the source sentence, represented at semantic level by the Identity operator. Similarly, the contrast in polarity of proposition in the target sentence in relation to its source sentence with negative polarity has to be expressed overtly at the level of syntax. Consider the sentences in (27) and (28), which illustrate an ill-formed backward gapping construction with the postsection logical form:

(27) *to   be un   xandid-i   vali un be to   na-xandid

     you to him laugh-2S.PST but he to you NEG-laugh.3S.PST

     Intended: 'You laughed at him but he didn't laugh at you.'

(28) *to   be un   xandid-i   va   un be to   na-xandid.

     you to him laugh-2S.PST and he to you NEG-laugh.3S.PST

     Intended: 'You laughed at him and he did not laugh at you.'

The ungrammaticality of gapping constructions in (27) and (28) is not due to the choice of the coordinator. Note that there are also two remnants in the target sentences distinct from their correlates in the source sentences. The reason for the ungrammaticality is that there is no element in the target

sentence to stand parallel to the negated proposition in the source sentence. In other words, at the syntax and semantic level, the contrastive polarity of the target sentence in relation to the source sentence is unclear and therefore, there is no contrastive focus in the target sentence to force the reconstruction of a proposition which in this case is a positive polarity based on its negative antecedent verb. The particle that serves this purpose, that is the allowing the correct interpretation of the target sentence based on a negated proposition, is AVF, as illustrated in (29) and (30):

(29) to   be un,   čerā, xandid-i,   vali un be to   na-xandid.

   you to him AVF laugh-2S.PST but he to you NEG-laugh.3S.PST

  'You DID laugh at him but he didn't laugh at you.'

(30) A: Haben sie   ein T-shirt   gekauft?

     have   they a   T-shirt   buy.PRTC

   'Have they bought a T-shirt?'

  B: John hat schon ein T-shirt gekauft,   aber Dariush hat kein T-shirt gekauft.

   John has AVF   a   T-shirt buy.PRTC, but. Dariush has no   T-shirt buy.PRTC

   'John has but Dariush hasn't bought any T-shirts.'

To sum up, in Persian, in gapping constructions with logical forms $\neg p \wedge q$ or $p \wedge \neg q$, since the polarity of the proposition in the source sentence is different from that of the target sentence, the presence of the contrastive marker in the target sentence at the level of syntax is always essential to represent the parallel contrastive focus in the target sentence. As we have shown, the number of the remnants in the target sentence in gapping constructions must be at least two and when the polarity marker is present, it must act as one of the remnants. In sentential ellipsis, however, AVF, can stand alone, and allow the correct interpretation of the target sentence based on a negative disposition since the topic for both the source and target sentence are similar. In gapping constructions, on the other hand, since at least a new focus is introduced to the discourse, the presence of at least another parallel element in addition to the AVF particle is necessary. In the next section, we will show how the semantic representation of the AVF particle imposes restrictions on the relation that holds amongst parallel elements in the target sentence and in turn allows the reconstruction of the correct interpretation of the proposition which contains the elided elements in elliptical constructions.

5. Ellipsis Resolution in Coordinate Constructions with AVF Particles

As discussed in section 3, in postsection logical form of coordination constructions, the polarity of the verb in the two coordinate clauses is opposite. We demonstrated that when forward gapping occurs in presection logical forms, the presence of the particle čerā is mandatory. Consider the sentence in (31), which illustrates gapping in a coordinate construction with postsection logical form:

(31) Dariush in   ro   nevesht,   vali un in ro   na-nevesht.

  Daiush this OM write.3S.PST, but   he this OM NEG-write.3S.PST

 'Dariush wrote this but he did not write this.'

In the target sentence in (31), the OBJ grammatical argument in 'this' and its marker ro 'OM' and

the verb nevesht 'wrote' are elided. The parallel elements in the source sentence are the semantic representation of the SUBJ argument Dariush, and the semantic representation of positive polarity, namely the polarity operator pos for the AVF. The parallel elements in the target sentence are the semantic representation of the SUBJ argument un, namely 'he', and the semantic representation of the negation marker na, namely the polarity operator neg.

The logical form of the source sentence and the relation that holds for the parallel elements in that sentence are illustrated in (32a) and (32b), respectively:

(32) a. [write' (Dariush, this)]

b. $\lambda x.\lambda U.\ U$ [write' (x, this)]

This lambda term is an expression of type $\langle e, \langle\langle t, t\rangle, t\rangle\rangle$. R' in (33) represents the relation that holds for the parallel elements in the target sentence:

(33) [R' (you, pos) = S']

The substitution of the lambda term for R' in (33) is presented in (34):

(34) $\lambda x.\lambda U.\ U$ [write' (x, this)] (you, neg)

This substitution results in the reconstruction of the semantic representation of the elided elements in the target sentence. The application of the lambda term in (34) to its arguments results in the logical form of the target sentence in (31), as illustrated in (35):

(35) [¬ (write' (you, this))]

The logical form in (35) allows the reconstruction of the syntactic structure of the unexpressed elements in the target sentence:

(36) un in ro   na-nevesht

he this OM NEG-write.3S.PST

'He did not write this.'

Turning to the semantic function of the AVF particle, as we showed in the previous section, it marks contrastive polarity for the proposition in the target sentence with relation to the source sentence. The semantic representation of AVF is a polarity modifying operator of type $\langle t, t\rangle$ as illustrated in (37):

(37) AVF: $\lambda U.\ pos(U)$

The AVF is therefore a polarity modifying operator that changes the polarity to pos, i.e. it reverses the polarity only when its input is negated and otherwise not as an AVF (but a question word). Consider the sentence in (38), which illustrates forward gapping in a coordinate construction with presection logical form:

(38) to   māshin na-xarid-i   vali un čerā

you car   NEG-buy-2S.PST but she AVF

'You did not buy a car but she DID.'

In the source sentence, the parallel elements are the semantic representations of the SUBJ argument to, 'you', and the semantic representation of the negation marker na, the polarity operator

neg. In the target sentence, the parallel elements are the semantic representations of the SUBJ argument un, 'she', and the semantic representation of the particle čerā, the polarity operator pos. The logical form of the source sentence in (39) is given in (40):

(39) [¬(buy' (you, car))]

The relation that holds for the parallel elements in the source sentence is presented in (41):

(40) λx.λU. U[buy' (x, car)]

This lambda term is an expression of type ⟨e, ⟨⟨t, t⟩, t⟩⟩. R' in (42) illustrates the relation that holds for the parallel elements in the target sentence:

(41) [(R' (she, pos) = S')]

The relation that holds for the parallel elements in the target sentence is identical to the relation that holds for the parallel elements in the source sentence, namely the lambda term in (40). The substitution of this lambda term for the metavariable R' in (41) results in the reconstruction of the semantic representations of the unexpressed elements in the target sentence:

(42) λx.λU. U[buy' (x, car)] (she, pos)

The logical form in (43) is the result of the application of the lambda term in (42) to its arguments, resulting in the logical form of the target sentence in (38):

(43) [(pos (buy' (you, car))]

Based on the above logical form, the target sentence can be interpreted correctly:

(44) un māshin   xarid

    she car   buy.3S.PST

   'She DID buy a car.'

Therefore, ellipsis resolution in coordinate contractions with AVF is licensed by treating AVF as the polarity modifier operator. Ellipsis resolution is allowed based on the fact that when neg or AVF stands as one of the contrastive foci in the target sentence, a polarity modifier operator is assigned to each proposition which stand parallel to one another as contrastive foci. This along with the semantics of the other contrastive foci (the entities and predicates) allows for the relation that holds in both the source and the target sentences to be of the same type. Such treatment of the AVF as an operator accounts for why the occurrence of AVF is only justified when an existence of a contrastive polarity operator, neg, represented by the negation marker on the verb of the source sentence is either present overtly or presupposed. In other words, some contrastive polarity relation in the logical language must always be assumed between p and q when there is an AVF particle present in the target sentence.

6. Sentential elliptical constructions with Affirmative Verum Focus

Let us now apply the analysis to sentential elliptical construction with AVF. We showed in section 2 that AVF could stand alone in response to an assertion that bears negative polarity. Consider the conversation in (45):

(45) A: Dariush be mehmuni-ye na-raft?

      Dariush to party-DEF   NEG-go.3S.PST

'Didn't Dariush go the party?'

B: čerā

   AVF

   'Yes, he DID.'

Part B of the above conversation does not represent a gapping construction because first, it does not contain a coordination construction and second, there is only one remnant in it, namely the AVF particle čerā. The expression in (45B), as the target sentence, illustrates sentential ellipsis with only one element, the AVF. The parallel element in the target sentence marks the polarity modifier operator as a contrastive focus. The negated statement in (45A) is expressed as a disposition by speaker A. The topic of that sentence is Dariush and the focus of the sentence is the statement made about Dariush, i.e. (him) not belonging to the set of individuals for which attended the party does not hold, and hence, the negation marker na. The semantic representation of the contrastive focus in the source sentence is the neg operator, which stands parallel to the semantic representation of AVF. The logical form of the source sentence in (45A) is illustrated in (46):

(46) [¬(go-to' (Dariush, party))]

The relation that holds for the parallel element, resulting in the meaning of the source sentence, is represented by the metavariable R in (47):

(47) [R (neg) = neg (go-to' (Dariush, party))]

The only possible substitute for the free metavariable R for the equation in (47) to hold is the lambda term in (48):

(48) λU. U (go−to' (Dariush, party)

This lambda term is an expression of type $\langle\langle t,t\rangle,t\rangle$. The variable R' in (49) represents the relation that holds for the parallel element in the target sentence in order to yield the meaning of that sentence:

(49) [R' (pos) = S']

The substitution of the lambda term in (48) for the metavariable R' in (49) is presented in (50):

(50) [λU. U (go−to'(Dariush, party)] (pos) =S'

This substitution results in the reconstruction of the semantic representation of the elided elements in the target sentence, namely go-to' (John, party). The application of the lambda term to its argument results in the logical form for the target sentence:

(51) [pos (go-to' (Dariush, party))]

This logical form is the correct and grammatical meaning of the target sentence in (44), based on which we can reconstruct the full target sentence:

(52) A: Dariush be mehmuni   raft

         Dariush to   party   go.3S.PST

      'Dariush went the party.'

To sum up, the proposed semantics for the particle čerā, as AVF, can account for licensing various

elliptical constructions with it, and explains how it yields the correct interpretation. The analysis, moreover, predicts why the occurrence of an AVF, such as, 'čerā', 'doch', 'do so, do so', in ellipsis site requires the assumption of a negated proposition which must have been put forward as a disposition. Hence, the role of the AVF particle is marking the contrast between the polarity modifier of the source and the target sentence in the logical language, imposing conditions on the interpretation of the relations that is applied to the parallel element(s) in the target sentence.

7. Conclusion

In this paper, we have discussed the role that AVF is an operator at semantic level which is contrastive to *neg* polarity. It plays a semantic role in licensing ellipsis in sentential and coordinate constructions. We have demonstrated the presence of AVF at the level of syntax is therefore also necessary to license ellipsis in various constructions. We have shown that this particle fulfils syntactic constraints in elliptical construction, such as gapping, by acting as one of the remnants that stands semantically parallel to its correlate in the source sentence. The remnants, which are expressed overtly in the target sentence, are contrastive focus discourse functions, parallel to their correlates in the source sentence. As demonstrated, the semantic analysis not only can account for the interpretation of the target sentence, but also explain why there are further constraints in licensing gapping in elliptical constructions. Finally, we have proposed that AVF should be treated as one of the foci in the target sentence and treating AVF as an operator at semantic level could provide relation between parallel elements of the same type, resulting in the reconstruction of the semantic representation of the elided verb with the intended polarity. This shows that parallel elements are not restricted to lexical items and extend to grammatical features, such as polarity markers (as pointed out by Dalrymple et. al. (1991) or even discourse functions such as focus. It could be argued that the auxiliary verb in English VP ellipsis is solely fulfilling the same function as an AVF particle, resulting in the representation of the sentences with the logical form not-p q or p not q in English in the form of VP ellipsis.

One question that arises from the data is whether there are semantic links between AVF particles across languages with their homonymous lexical items since, as we have shown in the examples in this article from Persian, German, French, Italian and Dutch, this particle in various languages also have other meanings in the respective languages. Based on the data presented, we understand that the use of the word *čerā* in Persian as AVF goes back at least to few centuries ago. It remains for further research to investigate how far back words such as *wel* and *doch* in Dutch and German, respectively, started to be used as AVF particles. Finally, the other question that needs to be addressed is the role that the stress plays in introducing contrastive foci in Persian.

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