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Presemantics and Semantics of Anaphoric Pronouns

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Abstract

Anaphoric Pronouns and their semantic analysis have been one of the most important and serious topics in the contemporary philosophy of language. Each of the diverse and alternate theories has been successful in analyzing some particular categories of anaphoric texts but unsuccessful in analyzing texts of some other forms. In this article, we will firstly introduce a new definition of 'ambiguity' and will clarify the distinction between semantics and presemantics. One of our important claims in this article is that as long as presemantic considerations about a given text have not been completed and properly settled, it's not possible to proceed to the semantic phase to analyze the logical structure of the text. The mentioned point explains why certain given anaphoric texts can accept different and diverse semantic analyses in different and diverse (presemantic) scenarios and why it's not possible to expect any single semantic theory to offer acceptable analyses for all kinds of anaphoric texts in all possible scenarios. It will also explain why philosophers of language have not been successful in finding a unique and comprehensive semantic theory to analyze all sorts of different anaphoric texts (even for those texts which have the same syntactical form). Moreover, we will also introduce one certain interesting feature of Farsi language in regard to ambiguity or unambiguity of certain texts which can't be found in most other languages. In the rest of article, we will also consider certain standard examples (including those known as Donkey-Anaphora) and will analyze them.

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1. Ambiguity and Presemantics

1. 1. Ambiguity

If I hear someone saying

(1) I saw a queen

What I hear is ambiguous, because I can't say whether the speaker is talking about a member of a royal family, a chessman, a card in a deck bearing the picture of a woman, or a particular and significant female ant or bee.

Similarly, if I hear someone saying

(2) Ralph wants a sloop

I will not know whether Ralph wants a particular sloop or simply suffers from slooplessness. If the former is true, we say that Ralph has *relational* attitude towards a particular sloop and if the latter is true we say that Ralph's attitude is *notional* (an attitude towards the notion of sloop).

In the first example ('I see a queen'), the culprit is "queen". Since "queen" is ambiguous, any text containing it will also inherit the ambiguity. This is called "Lexical Ambiguity".

In the second example ('Ralph wants a sloop), we cannot put our hands on any particular part of the text as the culprit. Neither "Ralph" nor "wants" nor "sloop" alone is responsible for the text's ambiguity. Any of these parts could have been used in a different text without creating ambiguity. So, "Ralph wants a sloop" is ambiguous because of its structure. This is called "Structural Ambiguity".

In general, a somewhat widely accepted definition of ambiguity is something like this:

"A word, phrase, or sentence is ambiguous if it has more than one meaning." (Bach K. "Ambiguity" entry *Routledge Encyclopaedia of Philosophy*).

At the first glance, the definition seems fine and innocent. However, we will challenge it in this essay and will argue that the mentioned definition is not only wrong, but also the source of some

very important misunderstandings in Philosophy of Language. To do this, we firstly need to clarify some important distinctions.

1. 2. Linguistic Meaning or Dictionary Meaning

When we open a dictionary, we see many words each of which is accompanied with a text. The text we read in front of each entry is called that word's linguistic meaning or dictionary meaning, which is actually an appropriate and necessary (if not always sufficient) guide to use the word correctly. If a language user fails to understand the linguistic meaning of a word, he will not be able to use the word correctly (unless by accident) and we will say that the user lacks adequate command on that language to use that particular word.

1. 3. Content

If, for example, we look up the pronoun "I" in a dictionary, we will find its linguistic meaning to be something like this: "Refers to the speaker or writer". As mentioned above, this is a guide to tell the user how to use the pronoun; however, the word's linguistic meaning is not its content[1]. If I says

(3) I am hungry

The sentence is about me and I am the content (and the referent) of the term "I"; whereas if you say "I am hungry", the sentence is telling something about you and you are the content (and the referent) of the pronoun "I".[2]

The important point to note is that the linguistic meaning of the pronoun "I" has not changed; you and I don't use different words with different dictionary entries when we utter (3); nonetheless, the contents of what we say are different. A word with the same linguistic meaning can have different contents (= meanings).

1. 4. Indexicality vs. Ambiguity

Now let's compare (1) with (3). What is the difference between "queen" in (1) and "I" in (3)? This is a key question not only to understand the difference between indexicality and ambiguity, but also to start figuring out a more important point which we are aiming at in this essay. "Queen" in (1) has multiple linguistic meanings (= dictionary meanings) and that's what makes it ambiguous; whereas, "I" in (3) has a unique linguistic meaning which makes it an unambiguous word with different contents depending on the context (= depending on who uses it with 'the

same' linguistic meaning read in the dictionary). It's important not to confuse indexicality with ambiguity. Having multiple or diverse contents won't make a word ambiguous as long as it has the same linguistic meaning. Having more than one possible content doesn't make "I" ambiguous, but having more than one possible linguistic meanings makes "queen" ambiguous.

1. 5. One Word, One Linguistic Meaning

Returning to (1) again, "queen" is a linguistic string. It's a string of letters which construct it. How many distinct words with this very string exist in English language? At least four words as we observed above. If we have a well-written dictionary, we will even notice that there are several entries for "queen" there, which correctly indicates that it's not one word with four different linguistic meanings. What we propose is that they are four distinct words made of the same string of letters.

Now, if we consider (3), we can clearly see that the case is much different. Here we have one single dictionary meaning for the pronoun. It's one word.

In other words, the number of linguistic meanings associated with a string is the number of words that string can make. Ambiguity issues arise only when we have multiple possible different linguistic meanings (and can't decide between them); or better said, ambiguity is a property of linguistic strings and not expressions (= words, sentences). We don't have any ambiguous word or sentence, we only have ambiguous strings. Once the word or the sentence (the expression) is fixed or known, it can't be ambiguous, because even though it may have different contents, it won't have different linguistic meanings.

1. 6. The Revised Definition of Ambiguity

So, what we propose here is actually a new definition for ambiguity (as distinct from what we quoted at the beginning of this essay). It's wrong to say that we have a word with different meanings; we should rather say that we have more than one word made of the same linguistic string. "Queen" is not one word with four meanings; there are four different words we write and pronounce in the same way (i.e. are made of the same string). Ambiguity is not a property to be assigned to expressions at all. It's a property of linguistic strings.[3]

The same is true for structural ambiguity. The string "Ralph wants a sloop" is not one sentence with two meanings; there are two sentences written by the same string.

Interestingly, Peter Geach had noticed a similar point, but had never followed the idea to its natural and important consequences:

"We now have a syntactically ambiguous string of words, which is really (like, say, 'Drinking chocolate is nice') not one sentence but two" (3, p. 147).

Hence, the new definition:

A linguistic string is ambiguous if and only if more than one (meaningful) expression can be made of it.

1. 7. Semantics vs. Presemantics

Let's return to our first example:

(1) I see a queen.

Is there any semantic theory to help us understand whether the utterer of (1) is talking about a member of a royal family, a chessman, a card in a deck bearing the picture of a woman, or a particular and significant female ant or bee? The answer is obviously in negative.

If we see the person who utters (1) sitting behind a chessboard, we will have reasons to believe that he is probably talking about a chessman, though it still may be a false conclusion as it is possible that while playing chess, the person was also chatting about entomology with his game mate. There are several possible scenarios[4] in which (1) could be uttered and most of the times no amount of empirical evidence (such as seeing a man behind a chessboard) can help us know with 100% certainty which scenario is in progress, but we must be careful not to mix our semantic (or better said, our presemantic) considerations with epistemic ones. It is the scenario in which the utterance is uttered which determines the meaning of "queen" and fixes the word. The fact that we can't know or be certain about the scenario is an epistemic (and thus an irrelevant) question.

Similarly, if we consider the second example ("Ralph wants a sloop"), there is no semantic theory to tell us whether Ralph is talking about a particular sloop or he is just tired of slooplessness. There are two distinct sentences which can be written using that string depending on the scenario.

Words and sentences are “expressions”. Semantic theories apply to expressions. When we have a “string” (rather than a fixed expression), we are in presemantic phase to determine which expression (word or sentences) is to be fixed by the string at hand. For example, when it’s still unclear whether Ralph wants a particular sloop or he just needs some sloop (any sloop), we can’t proceed to semantic phase to analyze it and offer its logical structure. *There is no semantic solution for presemantic problems.*[5]

Now, consider the following example:

(5) I want a sloop.

In this example, we have both indexicality and ambiguity (of the structural type). To determine whether the speaker wants a particular sloop or any sloop, what we need is the “scenario” in which the utterance is made. Presemantic considerations always take precedence, because we need to fix the expression (the sentence in this case) before being able to proceed to semantic phase.

To complete the analysis of this example, let’s assume a scenario in which the speaker who collects beautiful sloops has seen a particular sloop in a local exhibition and has liked its appearance and colour and wants to buy it just to add it to his collection. In this scenario, a friend meets him by accident in the exhibition and asks “what do you want here?” to whom our main personage responds “I want a sloop”. In this scenario, the utterer of (5) is talking about (and wants) a particular sloop[6].

Now, we proceed to semantic phase and (having the context in which Ralph is the utterer) we can resolve the indexicality. The final result is:

(5a) Ralph wants a (particular) sloop.

It can be analyzed to:

(5a) $(\exists x)$ (x is a sloop & Ralph wants x)

It correctly says that there is a particular sloop which is wanted by Ralph.

Alternatively, consider another scenario in the presemantic phase. The utterer of (5) requires a sloop to pass across a river. A friend meets him in the harbour where some people also come to sell and buy small vehicles and asks “what do you want here?” to whom he replies “I want a sloop.” Now passing to the semantic

stage and considering the context in which Ralph is the utterer, we will have:

(5b) Ralph wants some sloop (any sloop).

It can be analyzed as follows:

(5b)Ralph wants that ((∃x)(x is a sloop & Ralph has/owns x)[7]

1. 8. Translation Technique

The translation technique is a presemantic device to disambiguate certain ambiguous texts. There is no guarantee that it will always work for all ambiguous texts. Its chance of success depends on the target language we choose. The idea behind this technique is that to translate an expression to a different language, the utterer has to reveal the linguistic meaning (or dictionary meaning) of the expressions. For example if I ask the utterer of (1) to translate his utterance to a different language, there is a good chance that in the target language the translation of queen as a chessman is written and uttered by a different string than the equivalent term for queen as a bee.

This technique sometimes works seamlessly and sometimes not so successfully. For example, if I ask the utterer of (2) to translate it from English to a different language, depending on which language we choose as the target language, the translation may (or may not) resolve the ambiguity issues. The very interesting point here is that in most (if not all) languages, the translation of (2) will remain ambiguous. Farsi, on the other hand, has a very interesting feature for which (2) has two different translations depending on whether Ralph wants a particular sloop or not[8].

In Farsi, *relational* and *notional* readings of (2) need to be expressed by uttering different sentences; therefore if we ask the speaker to restate (2) in Farsi, he has to choose one of the two possible translations, which will lead to disambiguating the original sentence for us. We have no ambiguous translation of (2) in Farsi. The two possible translations are these[9]:

(2a) Ralph qayeqi ra mikhahad.

(2b) Ralph qayeqi mikhahad.

(2a) رالف قایقی را می‌خواهد.

(2b) رالف قایقی می‌خواهد.

Sentence (2a) says that Ralph wants a certain/particular sloop; whereas, sentence (2b) says that Ralph wants some (=any)

sloop (no matter which sloop). The extra term "ra" works as the sign of relational attitude in (2a)[10].

It's important to note that we are not making the strong and unreasonable claim that "ra" plays no other possible role in Farsi texts; what we propose here is that "ra" can play such a role when we are concerned with texts which are ambiguous between relational and notional readings.

2. Anaphoric Pronouns

2.1. Introduction

If I point to a man and say "He is my friend", the occurrence of the pronoun "He" is deictic; its referent doesn't depend on anything I have uttered previously and you won't need to look at my previous utterances to understand which man I am talking about.

On the other hand, if I say

(6) Sarah has a good English teacher. *He* is my friend.

"He" is an anaphoric pronoun, since it depends on another sentence preceding the one in which it has appeared.

2. 2. Anaphora and Ambiguity

Before our readers begin to wonder about the relation between anaphoric pronouns and the problems of ambiguity and presemantics we were discussing in the first part of this article, let us consider this example:

(7) Ralph is searching for a sloop. Finding *it* will save his life.

The first conjunct of (7) is nothing but the structurally ambiguous (2) which we were discussing above. There are countless scenarios in which (7) might be uttered. In some of those scenarios, the attitude towards "sloop" is relational; whereas, in others it's notional.

This is an example of a scenario in which the relational reading is correct: Ralph who is a tourist, had mistakenly left his pills inside a sloop the other day and has now returned to find that particular sloop. Someone asks him 'what are you searching for?" and he replies "I am searching for a sloop." As an example of a scenario in which the notional reading holds, consider this one: Ralph has left his pills in the hotel at the other side of the lake and the only way to go there is to pass across the lake in a sloop. In this

case, Ralph is searching for a sloop (any sloop, not a particular one) just to go and reach the hotel to have his pills. In the first scenario, finding a particular sloop will save Ralph's life, not because it is a sloop but because Ralph has left his pills in it; whereas, in the second scenario, finding a sloop will save Ralph's life because of being a sloop. That should clarify why we call it "notional" attitude.

Depending on whether the relational or the notional reading is to be taken, the logical and semantic analysis of the entire text will be different. For example, if we take the first scenario, (7) can be correctly analyzed to:

(7a) (∃x) (x is a sloop & Ralph is searching for x & Finding x will save Ralph's life)

However, the same analysis won't be correct if (7) has been uttered in the second scenario. That's because (7) is an ambiguous string.

Now, remembering the fact that disambiguation is a presemantic activity, it becomes instantly clear that no semantic theory can analyze (7) before resolving its ambiguity issues in presemantic phase. Even though this may look to be an obvious point at the first glance, it has an important consequence. Searching for a unique semantic theory to analyze all anaphoric texts merely on the basis of their 'forms' is in vain. This can also explain why some theories may look more successful in analyzing certain examples than other theories, but less successful just when the example changes.[11]

Classifying the anaphoric texts we are going to study in this article will help us to understand them better and to find their semantic analyses more easily. However, it should be noted that we neither can nor intend to study all possible anaphoric texts in one single article.

2. 3. Pronouns of Laziness

Consider the following examples:

(8) Ralph is a student. *He* is smart.

(9) Ralph has a shirt. *It* is red.

(10) A Triangle has three angles. *It* has three sides too.

(11) A man shot my horse. *He* is in the prison now.

In (8), we can easily replace the pronoun "He" in the second conjunct with "Ralph", resulting in "Ralph is smart"; but the same

thing can't be done in (9) as "a shirt is red" doesn't say the same thing "It is read" says there. Again, in (10) we can replace the pronoun "It" with "A triangle" (assuming that both of the conjuncts are saying universal statements about all triangles); whereas, in (11), it's again incorrect to replace "He" with "A man".

In all cases in which it is possible to replace an anaphoric pronoun with the exact expression it is anaphoric to and preserve the semantic content, the anaphoric pronoun is a pronoun of laziness. This type of anaphoric texts is the easiest to analyze, because the second conjunct can be reduced to a non-anaphoric text and be analyzed in the same way that the first conjunct is[12].

It's also worth mentioning Geach's argument against the very idea of "Pronoun of Laziness" and give an adequate answer to his argument. Consider the following two texts:

(12) If anyone owns a donkey, *he* beats it.

(13) If Smith owns a donkey, *he* beats it.

The pronoun 'he' is a pronoun of laziness in the second text, because it's possible to replace it with 'Smith'; whereas, the same pronoun is not a pronoun of laziness in the first text. Geach has an argument to show that the pronoun is not a pronoun of laziness even in the second text. The argument goes as follows:

The second text says the same thing of Smith which the first text says of anyone. Both texts are made of the following complex predicate:

"If ----- owns a donkey, *he* beats it."

However, once we replace the pronoun 'he' with the name 'Smith' in the second text, it will result in:

(14) If Smith owns a donkey, Smith beats it.

But (14) doesn't say the same thing about Smith that the first text says about anyone, because (14) is made of a different complex predicate:

"If ----- owns a donkey, Smith beats it."

It's obvious that it's not possible to use this latter predicate to make (12), because using 'anyone' in the empty place of the latter predicate will result in an entirely different sentence saying that Smith beats everyone's donkey (2, p.128).

The argument is flawed, because Geach has introduced his second complex predicate quite arbitrarily. There are actually three different complex predicates which (14) can be made of:

"If ----- owns a donkey, Smith beats it."

"If Smith owns a donkey, ----- beats it."

"If ----- owns a donkey, ----- beats it."

But Geach has arbitrarily picked the first one; while picking the third one (which also reasonably looks to be the default one to pick) would easily block the rest of Geach's argument. A more or less similar reply is also given to Geach's argument by Gareth Evans (7, p. 94).

2. 4. Conditional Anaphora

Conditional anaphoric texts have the form of conditional sentences. The anaphoric pronoun usually appears in the consequent and is anaphoric to a noun phrase in the antecedent. Consider the following examples:

(15) If Ralph has a daughter, he loves *her*.

(16) If Ralph has a credit card, he will pay this bill with *it*.

The pronoun "he" in both texts is a pronoun of laziness as it can be safely replaced with "Ralph" and is not what we are concerned with here. The anaphoric pronouns we are going to consider are respectively "her" and "it" in these two examples. There is an important difference between (15) and (16). The former can be analyzed in this way:

(15a) $(\forall x)$ (x is Ralph's daughter $\supset$ Ralph loves x)

It says that Ralph loves all and every one of his daughters, which is exactly what we understand of (15). In other words, if Ralph happens to have, say, two daughters and loves only one of them, (15) is false and so is (15a). But, (16) can't be analyzed in the same way, because it's not saying that Ralph will pay the bill with all of his credit cards. In other words, if Ralph happens to have, say, two credit cards and pays the bill with one of them, we won't say that (16) has turned to be false. Consequently, (16) calls for a different analysis. What we propose as the analysis of (16) is as follows:

(16a) $(\exists x)$ (x is a credit card & x belongs to Ralph) $\supset$ $(\exists y)$ (y is a credit card & y belongs to Ralph & Ralph pays this bill with y)

Looking at the proposed analysis more closely and carefully shows that it's actually a direct formalization of (16) after replacing the pronoun "it" with the expression "a credit card he has" or "a credit card belonged to Ralph".

We say that (15) has universal reading; whereas, (16) has particular or existential reading (and both have notional attitudes[13]).

Now, one may ask what in (16) makes it so different than (15). Is it that it's possible for Ralph to love more than one person, but impossible for him to use more than one credit card to pay a bill? No, because it's not even true that it's impossible to pay a bill using more than one credit card. One can pay a portion of the money using one credit card and the rest of it using a different credit card.[14]

Here we have a case in which two texts of exactly the same form accept two different semantic analyses for entirely presemantic reasons. The reason is that the two texts (and specially the second one) are considered in certain presemantic scenarios. Let's consider the following scenario:

A hacker has threatened Ralph that if he doesn't use any of his credit cards in the next 2 hours, he will hack that particular credit card account and will transfer its content to an unknown account. Ralph receives a bill and now we can utter (16) meaning that if Ralph has any of his credit cards with himself, he will use every one of them to pay this bill (just not to leave any of the cards unused).

2. 5. Conjunctive Anaphora

Conjunctive anaphoric texts either have the form of conjunctive sentences or (more usually) the form of two successive texts separated from each other by a period. The anaphoric pronoun usually appears in the second conjunct and is anaphoric to a noun phrase in the first one. The ambiguity problems regarding "relational vs. notional" readings play a very crucial role in analyzing this type of anaphoric texts. Consider the following examples:

(17) Ralph wants a sloop. He will use *it* to pass across the river.

(18) Sarah wants to have a son. *She* will take care of him.

(19) A triangle has three angles. *It* has three sides as well.

(20) Ralph wants a sloop. *It* is red.

(21) Ralph bought some donkeys. Harry vaccinated *them*.

(22) Just two actors starred in City Lights. *They* were amateurs.

(23) I saw some youngsters in the stadium. They were singing a song.

In examples (17) to (20), the first conjunct is ambiguous between notional and relational readings. In (17), just like what we saw in (7), even the second conjunct does no help to favour a reading to the other (except with more presemantic data). In (18), it seems that the second conjunct makes the notional reading (at least) more plausible or more likely than the relational reading. Example (19) can have a special universal (and of course, notional) reading if we consider it as being expressing some properties of triangles in general. The same reading is true whenever we use similar texts to define some concept or notion (whether this reading should be taken is again something which should be determined and clarified at presemantic stage having the scenario in which it is stated).

The second conjunct in (20), on the other hands, makes it clear that the first conjunct should be interpreted as having the relational reading. Examples (21), (22) and (23) have clearly a preferred relational reading, but they are interesting examples for some quite different reason which will be discussed later in this article.

2. 6. Conjunctive Anaphora with Notional Attitude

The second conjunct in a conjunctive anaphora with notional attitude (or notional reading) is actually a conditional anaphoric sentence by itself. Let's assume that our presemantic considerations have shown that (17) is uttered in a scenario in which it has the notional reading (that it to say, Ralph does not want any particular sloop, but just some sloop). In this case, (17) is actually saying this:

(17a) Ralph wants a sloop. If Ralph has some sloop, he will use it to pass across the river.

And now considering our previous analyses of conditional anaphora, it's easy to analyze the text. First of all it should be noted that the conditional anaphora in (17a) has a particular reading. In other words, it is similar to that in (16) rather than (15), because even if Ralph owns more than one sloop, it is not likely that he is going to use all of them to pass across the river. Hence, the final outcome of the analysis will be this:

(17b) Ralph wants that [(∃x) (x is a sloop & Ralph has x)] & [(∃y) (y is a sloop & Ralph has y) ⊃ (∃z) (z is a sloop & Ralph has z & Ralph uses z to pass across the river)].[15]

This is of course a different and new analysis compared to a traditional existential analysis Quine or Geach might suggest. The simple traditional analysis would be this:

(17c) Ralph wants that [(∃x) (x is a sloop & Ralph has x & Ralph uses x to pass across the river)].[16]

But, (17b) has a few advantages over (17c). First and foremost, in (17b), the second conjunct of (17) is not analyzed as if it is inside the scope of "Ralph wants that…" operator; this is an important advantage over (17c), because it is clear that what the second conjunct in (17) says doesn't express anything about Ralph's desires, but just gives an independent piece of information. It's evident that (17c) can't be amended in this respect by simply closing the brackets midway and leave the final part out of the scope of "Ralph wants that…", because the variable x will remain open in it. Changing the location of the "Ralph wants that…" operator with the existential quantifier will not solve the problem either, because it will indicate a special relational reading of (17) as if there is a particular sloop Ralph is looking for.

The second advantage of (17b) over (17c) is that the same method used in (17b) can easily be used to analyze texts with propositional attitudes as well. Consider this example:

(24) Ralph wants a sloop. Mary believes that he will use *it* to pass across the river.

Our proposed method can successfully analyze (24) in this way:

(24a) Ralph wants that [(∃x) (x is a sloop & Ralph has x)] & Mary believes that [(∃y) (y is a sloop & Ralph has y) ⊃ (∃z) (z is a sloop & Ralph has z & Ralph uses z to pass across the river)]

Whereas, the new operator "Mary believes that…" can't be added to the traditional method used in (17c) in any successful way.

Adding the new operator "Mary believes that…" to the traditional solution by putting it right before "Ralph uses x…" is wrong (see (24b) below), because "Mary believes that…" will fall

inside the scope of "Ralph wants that…" (as if Ralph wants that(… Mary believes that…)):

(24b) Ralph wants that [(∃x) (x is a sloop & Ralph has x & Mary believes that Ralph uses x to pass across the river)]

On the other hand, Closing the bracket of the operator "Ralph wants that…" midway to start the new operator "Mary believes that…." is problematic (see (24c) below) as it will leave the variable in "Ralph uses x" open.

(24c) Ralph wants that [(∃x) (x is a sloop & Ralph has x)] & Mary believes that (Ralph uses x to pass across the river)

Starting a new quantifier after "Mary believes that…" won't solve the problem either (see (24d) below), because it says that Mary believes that there is already a sloop at hand and Ralph will use it.

(24d) Ralph wants that [(∃x) (x is a sloop & Ralph has x)] & Mary believes that [(∃x) (Ralph uses x to pass across the river)]

(24b), (24c) and (24d) are all wrong. Hence, the traditional analysis is totally unable to convey the meaning of (24) properly.

The third advantage of the method used in (17b) over the method used in (17c) is that the former can successfully analyze the text even if the two conjuncts of (17) were uttered by two different speakers. Anaphoric texts with more than one speaker are called "Discourse Anaphora", which is rather out of the scope of this article.[17]

Now, let us analyze (18) using the same general method we introduced for conjunctive anaphoric texts with notional reading. The second conjunct will be interpreted as a conditional anaphoric sentence:

(18a) Sarah wants to have a son. If *she* has (at least) a son, she will take care of him.

The difference with (17a) is that here in (18a) the conditional anaphora has a universal reading. That is to say, if Sarah has more than one son, she will take care of all of them.[18] Hence, its analysis will be similar to that in (15) rather than (16):

(18b) Sarah wants that (∃x) (x is Sarah's son) & [(∀x) (x is Sarah's son ⊃ Sarah will take care of x)].[19]

Depending on the presemantic considerations and the scenario in which (19) is uttered, it can have notional or relational readings. If it is uttered to define "Triangle" or to give general properties of triangles in general, then the notional reading is correct and "a triangle" can be replaced with "every triangle":

(19a) Every triangle has three angles. *It* has three sides as well.

And it can be analyzed like this:

(19b) ($\forall$x) (x is a triangle $\supset$ x has three angles & x has three sides)[20]

2.7. Conjunctive Anaphora with Relational Attitude

The anaphoric pronoun in a conjunctive anaphoric text is either a bound variable or a directly referential term depending on presemantic considerations. The anaphoric text is a quantified sentence (and the anaphoric pronoun is a bound variable) unless it is an instance of *Donkey Anaphora*.

Let's start with (20). Since Ralph has relational attitude towards a particular sloop which happens to be red, the text can be analyzed in this way:

(20a) ($\exists$x) (x is a sloop & Ralph wants x & x is red)

Which is saying: There is (at least) a particular sloop which Ralph wants it and it is red.[21]

2. 8. Donkey Anaphora

We use "Donkey Anaphora" as a general title for all anaphoric pronouns with relational attitude which cannot be analyzed as bound variables. The name or title itself comes from example (18) above, which belongs to Gareth Evans (Cf. 5 and 6). Let's remember (18) and see why it can't be analyzed in the same way we analyzed (17):

(21) Ralph bought some donkeys. Harry vaccinated *them*.

If we use the previous method to analyze this sentence, we will have:

(21a) ($\exists$x) (x is donkey & Ralph bought x & Harry Vaccinated x)

The problem is that the truth conditions of (21a) and (21) are different. For (21a) to be true, it's enough if Harry vaccinated even one of the donkeys Ralph bought; whereas, what we understand of

(21) is that Harry vaccinated all of the donkeys Ralph bought. Hence, (21a) is not a successful analysis of (21).

Another example in which analyzing the anaphoric pronoun to a bound variable fails is (22):

(22) Just two actors starred in City Lights. *They* were amateurs.

Using the previous method, we will have:

(22a) [Just two x] (x is an actor & x starred in City Lights & x is amateur)[22]

If (22) is true, so is its first conjunct which says:

(22') Just two actors starred in City Lights.

But (22a) can be true while (22') is false. If just two amateurs have starred in City Lights, (22a) will be true, but then we can't infer that no other actors have starred in City Lights (perhaps a few professional actors have also starred in it); whereas, (22') strictly says that only two actors starred in City Lights. Hence, the analysis fails.

Evans proposed an alternate theory according to which some anaphoric pronouns are directly referential terms whose referents are fixed by a descriptions produced what the anaphoric pronouns are anaphoric to. This is called the E-Type theory of anaphoric pronouns. Consider (21) again. According to Evans, the pronoun "them" in the second conjunct can be replaced with the directly referential term Dthat (the donkeys Ralph bought). For a comprehensive account of the Dthat (…) operator see Kaplan (1977).[23] Consequently, the pronoun will not be bound by the quantifier in the first conjunct:

(21b) (∃x) (x is donkey & Ralph bought x) & Harry Vaccinated Dthat (the donkeys Ralph bought)

Similarly, (22) can be analyzed in this way:

(22b) [Just two x] (x is an actor & x starred in City Lights] & Dthat (the two actors who starred in City Lights) are amateur.

Unlike (22a), (22b) gives a correct analysis of (22). Anaphoric pronouns which are not bound variables and should be analyzed in this way are called E-Type pronouns.[24]

Evans was of the opinion that some anaphoric pronouns can be considered E-Type and analyzed in the way he proposed[25]. We propose that while Evans was generally right in what he said, he neglected the importance of presemantic considerations in deciding

whether a given anaphoric pronoun is a bound variable or rather E-Type. It's not all about the form and syntax of the text. The same text if uttered in a different scenario and with different presemantic considerations will need to be analyzed in a different way. We will support this claim with evidence and examples in this article.

2. 9. Bound Anaphora

Consider the following example:

(27) I saw a man in the theatre. *He* resembled you.

Consider a scenario in which I have been at the theatre the other day and among many people I met there I also visited a man who resembled one of my friends. The next day when I meet my friend I utter (27).

In this case, analyzing the anaphoric pronoun "he" using the E-Type theory would give an incorrect result, because the description "The man I saw in the theatre" would fail to refer to the man I am talking about if I have actually seen more than one man in the theatre (it would actually fail to refer at all).[26]

Geach, on the other hand, would suggest analyzing the pronoun to a bound variable, which in this case renders a correct analysis:

(27a) (∃x) (x is a man & I saw x in the theatre & x resembled you).

2. 10. Geach or Evans: Who was right?

Geach was of the opinion that anaphoric pronouns are bound variables; whereas, Evans was the founder and proponent of the E-Type theory. The conclusion we propose on the 'Geach vs. Evans' conflict is simple and in harmony with our general approach to anaphoric texts. It's the presemantic considerations and the scenario in which each text is uttered which can tell us which analysis is correct. Neither Geach nor Evans is fully right and neither of them is fully wrong. They both have neglected the presemantic considerations though. We can even imagine a scenario in which Evans' original example of donkey anaphora can have a different analysis and the anaphoric pronoun in it can be analyzed as bound variable.

Ralph has bought 30 donkeys among which Harry has vaccinated 10. Those ten donkeys are now sick despite being vaccinated and Ralph has sued Harry for the problem. Someone meets me in the court and asks about the case. I reply, "Ralph

bought some donkeys. Harry vaccinated them. However, the donkeys are sick." There is nothing wrong in my report and the hearer should not conclude that Harry had vaccinated all of the donkeys Ralph had bought. So, depending on presemantic considerations, even the famous (21) can have an analysis based on its rival theory.

Also, let's remember example (23):

(23) I saw some youngsters in the stadium. *They* were singing a song.

Following Evans's theory, we would need to Analyze the anaphoric pronoun "they" into "Dthat (the youngsters I saw in the stadium)" which would indicate that all of the youngsters I saw in the stadium were singing. This doesn't seem to be correct, because I might have seen a lot more youngsters in the stadium who were not singing. We normally don't assume that the stadium was empty of youngsters except those who were singing[27].

We can correctly analyze the pronoun into a bound variable with a minor adjustment just to show that I was talking about more than one single youngster:

(23a) (∃x) (∃y) (x is a youngster & y is a youngster & I saw x & I saw y & x was singing a song & y was singing a song & x is not identical with y)

3. Conclusion

Ambiguity doesn't mean having an expression (= word or sentence) with more than one meaning; it rather means having more than one expression which are made of the same linguistic string. Ambiguity problems should be solved at presemantic stage. The semantic phase can start only after finishing the presemantic stage and when the expression (rather than the linguistic string) is fixed and given.

Farsi language has an interesting feature which is worth a lot of further discussions and studies. We introduced the general outlines of this feature in this essay.

The disagreements between philosophers of language over the semantics of anaphoric pronouns (and consequently, the conflicts between different semantic theories) are mostly due to not paying enough attention to presemantic considerations. Each of

those rival theories works more or less fine in certain scenarios, but fails in others. This phenomenon supports our general doctrine that presemantic problems don't have semantic solutions and semantic analyses can be successful only after completing presemantic considerations.

Detailed analyses of some certain general forms of anaphoric texts have also been provided in this essay; and some of those analyses have benefited from new approaches to the problems.

Notes

1- Content of a word is actually its meaning (as distinct from linguistic meaning or dictionary meaning).

2- Of course, we are presupposing the "Direct Reference theory" of meaning here according to which the content of a pronoun or any other directly referential term is identical with the object it refers to, but this is a side point and not the gist of what we are saying in the text. In other words, even if you follow an indirect reference theory of meaning, the main point (which is the distinction between 'linguistic meaning' and 'content') will still hold. The only difference will just be that for you, the content of the pronoun will not be identical with an object but with a sense.

3- So, Russell was right to say that "Meaning is part of the word's definition" (13, p. 290), even though he said it in a rather different context without having the same ideas we are following in this article.

4- Note that "scenario" is something different than "context". The context in which an utterance is uttered usually contains elements such as "who", "when", "where", "to whom", which can help us to determine the content of indexicals and demonstratives. For example:

(4) I am tired today.

In a context in which the utterer is me and the date of utterance is April 4, 2008, the contents of the indexicals "I" and "today" will be determined accordingly. This is a semantic process because the expressions are already fixed (regardless of the context) and we don't have any ambiguity issues (remember the distinction of ambiguity and indexicality). Also, the logical structure of the analysis will not change if the sentence is uttered by different persons or at different times, which indicates that it accepts a unique semantic analysis even in different contexts. This is not the case with structurally ambiguous sentences uttered in different scenarios. "Scenario" is actually the presemantic counterpart of "context".

5- The term 'Presemantics' was originally introduced by John Perry (1998), though he didn't follow the idea to its natural and full consequences nor he did use it exactly in the sense we are using it here.

6- It's more than obvious that Ralph couldn't reply to his friend's question with "I want *the* sloop." In general, the distinction between *notional* and *relational* attitudes is something completely different from (and irrelevant to) definite and indefinite articles (terms "a" and "the").

7- Note that the following alternate analysis is not correct:

(5b') (∀x) (x is a sloop ⊃ Ralph wants x)

Because it says that Ralph wants all of the sloops which exist in the world.

8- Quine (1956) has noted a similar, though not quite identical, case regarding Latin and Romance languages, but he has not pursued the case any further.

9- We have used English alphabets to write Farsi words in the way they are pronounced. This method of writing Farsi sentences has achieved some popularity in recent years. It may be worth asking if a sentence written in this way is a genuine Farsi sentence.

10- Some Farsi linguists may wonder about the translation of (2a) and suggest that, because of the particularity of that sloop which Ralph wants, the translation to Farsi should be "Ralph qayeq ra mikhahad". But as we have mentioned in footnote 6 that is the confusion of *relational* attitude with the use of the article "the"; since if we use their suggested translation to Farsi (i.e.we use "qayeq" instead of "qayeqi") the hearer should already know which sloop we are speaking about, a condition which is absent despite the relational attitude.

11- Many of the disagreements among philosophers of language is also caused by the simple and trivial fact that a given string can have different semantic analyses in different scenarios and disagreements arise when each side takes only one of the possible scenarios and ignores others.

12- Pronoun of laziness can even be sensibly called “Pseudo Anaphora”.

13- Unfortunately, we don’t have enough space in this article to discuss conditional anaphoric texts with relational attitudes. Since they are a bit less relevant to the main points we are making here, we can safely forgo the discussion about them.

14- Consider the following scenario:

A hacker has threatened Ralph that if he doesn’t use any of his credit cards in the next 2 hours, he will hack that particular credit card account and will transfer its content to an unknown account. Ralph receives a bill and now we can utter (16) meaning that if Ralph has any of his credit cards with himself, he will use every one of them to pay this bill (just not to leave any of the cards unused).

15- It’s probably needless to emphasize that since the quantifiers do not overlap with each other, we could use the variable x in all cases without using y and z at all. We used y and z (redundantly) just for more clarity.

16- Compare with similar examples in Quine (1956).

17- But consider the following example:

John: Ralph wants a sloop

Mary: He will use *it* to pass across the river

Now, if we intend to report what John and Mary have said, we will say:

(25) John says that Ralph wants a sloop and Mary says that he will use it to pass across the river

Using the method proposed by us in this article, it will be analyzed in this way:

(25a) John says that [Ralph wants that [(∃x) (x is a sloop & Ralph has x)]] & Mary says that [[(∃y) (y is a sloop & Ralph has y) ⊃ (∃z) (z is a sloop & Ralph has z & Ralph uses z to pass across the river)]]

The traditional method has difficulties in analyzing such texts as well.

18- Again note that this is a presemantic consideration, because it depends on the culture; we can assume a hypothetical society in which parents don't normally love more than one of their children.
19- It's needless to emphasize that the second conjunct of the text (= the entire conditional sentence) is not in the scope of the "Sarah wants that…" operator.
20- Interestingly, in its notional reading, the anaphoric pronoun in (19) can even be considered as a pronoun of laziness and be replaced with "a triangle" or better said, with "every triangle":
(19c) Every triangle has three angles. Every triangle has three sides as well.
Consequently, it can be analyzed in the following way as well:

(19d) (∀x) (x is a triangle ⊃ x has three angles) & (∀y) (y is a triangle ⊃ y has three sides)
21- We shouldn't claim that there is a unique sloop which Ralph wants and it is red, because the truth conditions of (20a) and (20) are the same. If there are one or more red sloops wanted by Ralph, (20) is true. For example, Ralph might have been in the process of buying a few red sloops, while a quarrel begins over the colour of one of them. I meet Harry and ask him about the cause of the quarrel and he replies, "Ralph wants a sloop. It is red. But Ralph thinks that it is actually orange." There are also complications regarding the existential commitments of (20a), which are out of the scope of this article. The utterer of (20a) has been committed to the existence of red sloops. This commitment doesn't seem to be problematic in this particular example, but if the main sentence was not about sloops but, say, about dragons, it might look problematic to analyze it into a sentence starting with existential quantifier with wide scope. Nonetheless, we believe that the same general analysis can be applied even to such cases with minor adjustments, but we do not go into the details of those kinds of examples in this article, because it would require us to add several more pages to this essay and we are in lack of enough space.
22- As you see in this example, the quantifier or the determiner doesn't need to be the standard existential quantifier, (∀x). It can be any custom determiner such as [Just Two x], [Just one x] and the like.
23- To give a short account of the operator, it suffices to say that when a description such as D is inside this operator, the referent will be fixed by the description and Dthat (D) will be a **directly referential term** or a **name** for that object, which refers to the same object in all possible worlds, even in those worlds in which the object doesn't have the property the original description, D, says about it in the actual world. For example, Dthat (the comedian who starred in City Lights) refers to Chaplin even in those possible worlds in which Chaplin has not starred in City Lights or is not a comedian at all. It's also worth noting that this operator doesn't merely make rigid descriptions; it rather makes names. For example, "the actual author of Hamlet" refers to Shakespeare in all possible worlds, but it's still different than Dthat (the author of Hamlet), because the former is still an indirectly referential term, which refers to Shakespeare through the sense of the description; while the latter is directly referential. The difference can probably be more easily seen by considering the difference between "2+2" and "4". Both of them refer to the same object, number 4, in all possible worlds;

the former is a rigid description, while the latter is a name. For the name "4" to refer to number 4, there is no need to any media such as the "+" function.

24- Some philosophers of language such as Michael McKinsey (9, p. 161), Scott Soames (16, p. 145) and Stephen Neale (10, p. 130) and (11, p. 186) have argued that the Dthat() operator is not needed and the anaphoric pronoun can be replaced with the description without rigidly fixing the description's referent by the operator. However, as Nathan Salmon has adequately shown, the Dthat() operator is indeed required for having a correct analysis. Consider the following example:

(26) A comedian composed the musical score for City Lights. That *he* was multi-talented is a contingent truth.

Sir Charles Spencer Chaplin was the person who composed the musical score for City Lights and he was indeed multi-talented (as he was both a musician and a comedian). The fact that Chaplin was multi-talented is not a necessary truth; he might have not been multi-talented. Hence, the second conjunct of (26) is true. Now, if we replace the pronoun with the description "the comedian who composed the musical score for City Lights" and do not use the required Dthat() operator to rigidly fix its referent to Chaplin, the sentence will turn to be false, because a comedian who is capable of composing the musical score of City Lights would be *necessarily* multi-talented. It will no longer be a *contingent* truth. Salmon writes: "The second sentence here does not impute contingency to the fact that whichever comedian composed the music for *City Lights* was multi-talented. If it did, it would presumably be false. Instead it expresses that some comedian or other who scored *City Lights* is such that, although in fact multi-talented, he might not have been. This is very likely true of Chaplin." (15, pp. 24 – 25).

25- Evans would agree that in some examples analyzing the anaphoric pronoun as bound variable could give an acceptable result and that not every pronoun is E-Type, but unfortunately he thought that the text's syntactical form was an adequate criterion for deciding over this issue (7, p. 80).

26- Note that when (for example) I say, "I saw a man in the street. He was bald." It neither entails that I saw only one single man in the street nor does it entail that I saw one single bald man in the street. I might have seen 10 men 4 of which were bald. The fact that I'm talking about one of them doesn't entail that there were no others. Evans, however, was unreasonably denying this and insisting that the object's uniqueness can be inferred in such examples (7, p. 129)

27- However, we can also imagine an alternate scenario in which the stadium in question is still under construction and is usually empty and nobody normally expects to see many people there (you can extend the details of the scenario if needed). In such an alternate scenario, Evans's theory can render the correct analysis and will be preferable to the rival theory.

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