

The Interpretation of Corrections*

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Abstract

An account is given of the interpretation of corrections in dialogues in terms of anaphora resolution. It is assumed that the antecedent of the correction provides the information that is corrected by it. The resolution process is shown to be under control of the focus-background structure of the correction: the focus must be contrastive with a part of the antecedent and the background must be identified in the antecedent. In establishing these relations, (structural) parallelism of the correction and the antecedent plays an important role. The paper aims at showing the interaction of anaphora resolution, focus-background structure and parallelism with respect to the interpretation of corrections.

1 Introduction

The data under consideration in this paper are corrections in dialogues, of the kind exemplified in (1). Capitals indicate nuclear stress. The nuclear stress of the first utterance in the dialogue is not specified, since it is not relevant for the discussion in this paper.¹

- (1) – The journalists are interviewing Arafat.
– No, they're interviewing RABIN.

In this example, and in the ones that will follow, the first utterance provides the local context for the second. The second utterance is uttered by another

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¹We are not claiming that the intonation of the first utterance, or rather the implications of the intonation for its information structure, is in no sense relevant for the interpretation of the second utterance. However, due to its corrective character a corrective reply is not required to be information structurally congruent with the utterance it is a reply to, as is the case with answers to questions. In a global sense, the way in which the first utterance is anchored to its context – of which the information structure of that utterance is indicative – influences the anchoring of the correction that follows it.

speaker than the first one, and serves to correct the statement previously made. The correction in (1) says that, contrary to what was asserted previously, the person that is being interviewed by the journalists is Rabin. What is corrected is that the person who is being interviewed is Arafat. The second speaker provides an alternative for ‘Arafat’, namely ‘Rabin’. It is clearly not his or her intention to suggest that the journalists are *also* interviewing Rabin. In other words, the assertion and the correction describe the same situation, namely the one in which some person is being interviewed by the journalists, but the descriptions are incompatible.

The point of a correction is to reject certain contextual information and to offer an alternative for the rejected contextual information. If a participant in a conversation does not know what information is rejected by a correction, he cannot be said to fully understand the utterance. Thus, the interpretation of a correction crucially involves finding out what is corrected by it. In this paper we shall view the interpretation of a correction as an instance of anaphora resolution. We shall assume that a correction is an anaphor, and that its antecedent is the assertion to which it is a reply. The antecedent provides the contextual information that is corrected by the correction. The resolution process will bring out what the offensive information within the antecedent (the ‘correctum’) is.

Further, we shall assume that the resolution process is under control of the focus-background structure of the correction, that is, the focus-background structure of the correction restricts the relation between the correction and its antecedent. The information conveyed by the correction which is marked as background must be shared by the antecedent, and the information in focus must be contrastive with the correctum. Furthermore, we will investigate to what extent structural parallelism of the correction and its antecedent plays a role in the resolution process.

In short, the main purpose of the paper is to show how the interaction of anaphora resolution, parallelism and focus-background structure determines the interpretation of corrections. Further, we want to bring out what a treatment of corrections requires from the structure and representation of contextual information. In section 2 the concept of focus to be used in this paper will be defined. In section 3 the analysis of the interpretation of corrections in terms of anaphora resolution will be given. Parallelism, the role of the background and the role of the focus will be discussed in, respectively, section 3.1, section 3.2 and section 3.3. In section 4 we conclude, point out some problems and suggest future work.

2 Focus

A precondition for the discussion of corrections following below is that we make clear what the notion focus stands for in this paper. To begin, a distinction

must be made between focus-background structure and focus-background articulation. The focus-background structure of an utterance is a representation of the status of the information conveyed by the utterance in terms of focus and background. The focus-background articulation of an utterance brings out the relation between the focus-background structure of the utterance and its prosodic and syntactic features. In this paper we will not be concerned with focus-background articulation. We assume that some theory (e.g. along the lines of Gussenhoven (1992)) is available, which given the prosody and the syntax of an utterance delivers the set of its potential focus-background structures.

Now, what is focus and what is background? We shall use the term ‘focus’ in the information-structure sense, and not in the psychological sense of ‘focus of attention’. Information ‘in focus’ is information with a certain status in terms of the anchoring behaviour of the utterance that conveys the information. The focus of an utterance is its informative part relative to the context in which it is uttered. In opposition to information that serves to anchor the new utterance to the context, information in focus serves to effect an update of the contextual information.

We distinguish two kinds of focus, according to the type of update they effect. The first one commonly occurs in narrative discourses, and its update effect is a free expansion of the contextual information. The information in focus counts as new information and is freely added to the context. An example is given in (2).²

(2) Peter was tired of walking to his office. He [bought a BICYCLE]^F.

The second one typically occurs in answers to questions (as in (3) below) and in corrective or specificational replies. In these cases, the focus functions as the filler of a slot which is already present in the context.

(3) – What did John do to free himself of his daily walk to the office?
– He [bought a BICYCLE]^F.

(4) – Peter hit Michael.
– No, [MICHAEL]^F hit [PETER]^F.

As the correction in (4) illustrates, such a slot may already contain a filler in the context; the agent and patient slots of which ‘Michael’ and ‘Peter’ in the correction are fillers already contain the fillers ‘Peter’ and ‘Michael’ in the context. Note that the second type of focus cannot successfully be characterised as either new or contrastive information. The foci in the correction in (4) refer to discourse entities that are given in the local context. The foci could only be called new in the sense that they are new occupants of an existent slot. As for contrastiveness, although foci in corrections are contrastive, this is intuitively

²In Kálmán van Leusen (1993) this type of focus is called ‘a comment’.

not the case with foci in answers to questions and in specifications. Therefore we shall consider contrastiveness and focus as independent factors.

Obviously, only the second type of focus is relevant for this paper, so in what follows the term ‘focus’ will refer to focus of that type. The information in a correction that serves to anchor the correction to its context will be called ‘the background’. The background is the collection of the information conveyed by the correction that is not in focus and that is marked for ‘givenness’.³

3 The resolution process

Corrections will be treated as anaphors. Although the analysis will not be embedded in a formal theory of discourse interpretation in this paper, we have in mind a theory like DRT or File Change Semantics. It will be assumed that a correction introduces a discourse referent of eventuality-type, which, due to the anaphoric character of the correction, must be identified with a discourse referent of the same type that is already present in the context. Contrary to what is the custom with anaphora resolution, the correction provides conflicting information about the referent that is picked up. This has certain consequences for the desired output of the resolution process.

First, while the fact that both the correction and its antecedent give information about the same discourse referent must be represented, it must also be expressed that each of the two alternative descriptions in principle exhaustively fills one and the same contextual slot. The participants are committed to only one of the alternatives, or refrain from being committed to either one in case of doubt. This commitment split must also be represented. Second, the alternatives must be represented as accurately as possible, that is, no information that is shared by the correction and the antecedent, and that is independent from the conflicting information, should be included in the representation of the conflicting alternatives.

At this point, we can no longer talk about information in general: we must distinguish between discourse referents and what is predicated about them. Consider the example in (5).

- (5) – They gave Tim the blue kite.
- No, they gave Tim a [YELLOW]^F kite.

Intuitively, the correction can be paraphrased as “The colour of the kite they gave to Tim is yellow, not blue”, that is, the predicate ‘yellow’ is in focus. However, the correction can also be paraphrased as “The kite they gave to Tim is a yellow one, not the blue one”, which focuses on the identity of the

³Compare ‘open proposition’ in Vallduví (1990), section 3.1.4 and Prince (1986).

object that was given to Tim.⁴ We take up both intuitions, and assume that in this case, both the predicate yellow and the discourse referent that carries it are in focus. Note that the predicate ‘kite’ is still shared information, so this is not a case of spreading of the focus from the adjective to the dominating NP.

In what follows, we shall tentatively assume that this analysis holds for predicates and their carrier referents in general. To be precise, the assumption will be that if a predicate is in focus, then by default the discourse referent that carries it is also in focus. In case it is shared knowledge of the participants that the relevant discourse referent is given information the rule doesn't apply. The tentativeness of our assumption springs from the fact that the intuitions are much less clear when the focus and the correctum are both contained in an indefinite. Due to lack of space we cannot elaborate on this we believe however, that our default assumption is compatible with the interpretation of indefinites containing a focus.

To summarize, during the resolution process it must be determined at exactly which point the descriptions diverge and the commitments of the participants split up. It will be assumed by default that when a predicate is in focus, then the discourse referent that carries it is also in focus.

In the following sections, we will zoom in on some subtasks of the resolution process. We will indicate what role they play in obtaining the desired output as it was just described, and what special requirements they put on the representation of contextual information. We will start off at the point at which a potential antecedent has been selected. The resolution process presupposes a comparison between the potential antecedent and the information conveyed by the correction. In the next section we will show that that comparison is guided to a certain extent by structural parallelism. After that we will discuss the role of the background and of the focus in the resolution process, in respectively section 3.2 and section 3.3.

3.1 Parallelism

The information conveyed by the correction and the antecedent must be compared to each other, in order to find out whether the background is indeed given, and whether the focus is contrastive to some part of the antecedent. Can we make use of some sort of structural parallelism that determines which elements in the correction are to be compared to which elements in the antecedent?⁵ To formulate it differently: does the information conveyed by the

⁴In van Deemter (1993) the same distinction is made and termed ‘concept newness’ and ‘object newness’ respectively. However, van Deemter does not treat the kind of data we are discussing here and the question whether the analysis in this paper carries over to his data (or the other way around) awaits further research.

⁵Compare Prüst (1992), who considers parallelism to be a major factor in the anchoring process of new utterances, but who does not incorporate a full-fledged theory of focus interpretation in his discourse grammar.

correction and the antecedent share structure of any kind? Structural parallelism would give us units of comparison within the correction, that is, instead of comparing the information conveyed by the correction to the antecedent as a whole, we could compare the constituting parts to their parallel elements, and then check for givenness or for contrast.

Surface syntax is a candidate for structure sharing, that is, maybe the units of comparison are pairs of elements that have the same grammatical function. It turns out however, that there is no parallelism of the surface syntax. The following data are clearly counterexamples.

- (6) – **Peter** hit Michael.
 – No, [HENRY]^F was hit by **him**.
- (7) – They gave Peter **the new computer**.
 – No, [ANDREW]^F got **it**.

Pairs of parallel elements are indicated through underlining and the use of bold typeface. It can be found out what the parallel elements are by reasoning backwards from the interpretation of the correction and the marking of the elements for either givenness or focus. In (6) the focus and its parallel element are subject and direct object, and the parallel elements ‘him’ and ‘Peter’ are contained in an adjunct and the subject, respectively. In (7), though the direct object of the correction is mapped to an element with the same grammatical function, the subject of the correction is mapped to the indirect object of the antecedent.

The examples in (6) and (7) suggest a more promising candidate for structure sharing, namely the thematic structure of the correction and of the antecedent. In (6) him and Peter are both agent, and Henry and Michael are both theme. In (7) it and the new computer are both theme, and Andrew and Peter are both experiencer. The examples support the idea that when we compare the information conveyed by the correction and the antecedent, we can ‘map’ the predicate of the one to the predicate of the other and each argument to an argument with the same thematic role.

Some sort of parallelism also applies to modifiers, that is, it seems that each modifier in a correction must be mapped to a modifier of the same kind in the antecedent. This is illustrated in (8).

- (8) – Mary taught Peter Latin during last years holiday.
 a) – No, she taught him Latin [three years AGO]^F.
 b) # – No, she taught him Latin [at the BEACH]^F.

In (8a) a modifier specifying a period of time is in focus and is felicitously contrasted to a modifier of the same kind in the antecedent. The correction in (8b) is unfelicitous, because the modifier in the correction specifies a location and not a period in time, so the modifiers are not very well comparable to

each other. In contrast to parallelism of the thematic structure, the sort of parallelism exhibited in (8) is not structural. It is based on the type or sort of the modifier itself and it maps the modifier to an element of the same kind. We will assume that this type of parallelism also applies to arguments of the predicate, although it can be overruled by parallelism of the thematic structure.

Parallelism of the thematic structure breaks down when some element that controls the thematic structure is itself in focus.

- (9) – Peter hit **Michael**.
 – No, he [WAS]^F hit by **him**.
- (10) – Joe bought [a painting] [from Mary].
 – No, he bought [a painting] [[OF]^F Mary].
- (11) – Ella is having a fight with **Shirley**.
 – No, **Shirley** [is telling] her [how to DRESS]^F.

For example, in (9), the parallel elements ‘he’ and ‘Peter’ are theme and agent, and the parallel elements ‘him’ and ‘Michael’ are agent and theme. In (10), ‘Mary’ in the correction is the theme of ‘a painting’, but ‘Mary’ in the antecedent, which is its parallel element, functions as source of the predicate. The correction in (11) illustrates the point in a similar way. The data in (9), (10) and (11) also show that when the parallelism of the thematic structure breaks down, we cannot fall back on parallelism of the (surface) syntax. What is left over is parallelism of type or sort.

The fact that parallelism of the thematic structure breaks down in case the thematic roles ‘belong to’ the focus is not surprising. The focus is the information that is not shared with the antecedent, so if the thematic structure in any way depends on the focus, there is no longer any reason to assume that the thematic structure is shared with the antecedent. Thus, parallelism of the thematic structure only applies within the background.

To summarize: the resolution of a correction requires a comparison of a potential antecedent and the information conveyed by the correction. That comparison is guided by parallelism of the thematic structure and parallelism of type or sort. Parallelism of the thematic structure applies only within the background; as can be seen from example (8) this restriction does not hold for parallelism of type or sort.

We have silently assumed that the relevant units of comparison are predicates, arguments and modifiers. Assuming that discourse referents may also be of type eventuality, point or period in time, or location, all the elements in the correction that carry a discourse referent of their own can in principle be units of comparison. That they need not be in practice is illustrated in (12).

- (12) – Peter sent the letter to Tim.
 – No, [HENRY]^F sent it to Ella’s son.

In (12), ‘Ella’s son’ is parallel to ‘Tim’, but ‘Ella’, which carries a discourse referent, does not have a parallel element. The example suggests that parallelism of the thematic structure is not required to go deeper down than the level at which it is first activated, more research is needed to check this hypothesis, however.

A consequence of our assumption about the units of comparison is that a focus need not precisely cover a unit of comparison (although in a sense it does, since we assumed at the beginning of section 3 that when a predicate is in focus, then by default the discourse referent that carries it is also in focus). The example in (5) discussed above illustrates this point, ‘the blue kite’ and ‘the [YELLOW]^F kite’ being parallel elements. Within such a unit of comparison predicates marked for focus must find a contrastive parallel element, and predicates marked for background must be identified with a parallel element. As far as it is still explanatory to speak of parallelism at this level, this could be called conceptual parallelism.

3.2 The identification of the background within the antecedent

The information that is part of the background in the focus-background structure of the correction must be identified with some part of the antecedent. As we saw in the previous section, parallelism gives us pairs of parallel elements. The identification task is executed within these pairs, that is, a piece of background information must be identified with a piece of information within its parallel element (possibly the parallel element as a whole).

The identification task is complicated by the fact that the background information need not be strictly identical to the parallel information in the antecedent. The variation that is allowed can take the form of a change of perspective as it is expressed by for example passivisation, see the examples (6) and (7) again. It can also take the form of a subsumption relation, as illustrated in (13) and (14).

- (13) – John ate the spaghetti.
 – No, [MICHAEL]^F bolted it down.

- (14) – Tim owns the dog.
 – No, [his SISTER]^F owns their pet animal.

Finally, there are some puzzling cases in which either anaphoric links or referential information in the antecedent is disregarded in the correction; we shall turn to these at the end of this section.

How are these corrections interpreted? Even though the background may be partly new to the addressee, he or she will consider it to be given, because it is presented as such by the speaker. So in (13), the addressee of the correction will accommodate the information that the spaghetti was eaten quickly and unceremoniously. He or she will assume that this information was already part

of the antecedent when the correction was uttered. In (14), the accommodation is directed towards the correction: the addressee of the correction assumes that the speaker also accepts the information that the pet animal is a dog. In other words, the background inherits information from the antecedent.

With respect to the change of perspective cases it is less obvious that the divergent information is accommodated *into* the existing antecedent, that is, represented as a predication of the discourse referent of the antecedent. It may be more appropriate to assume that a new discourse referent is introduced to carry the accommodated material and to serve as antecedent. We set aside this issue and simply assume that the relevant information is accommodated in the context in which the correction is uttered in such a way that it successfully provides an antecedent for the correction. The data in (6), (7), (13) and (14) suggest that conceptual information can be accommodated as long as it does not necessarily change the identity of carrier discourse referents.

Note that it is not just conceptual information, but also complete arguments and modifiers plus their carrier discourse referents that can be inherited.

- (15) – Peter bought a record for Jane.
 – No, he bought [a BOOK]^F. (for Jane)
- (16) – Soon after twelve o'clock, everybody left.
 – Well, [MOST]^F people left. (soon after twelve o'clock).

These inheritance effects fit in very well with our account of corrections as anaphors. Since successful resolution will lead to the identification of the discourse referents of eventuality type carried by the correction and by the antecedent, predications of the antecedent's referent automatically apply to the correction's referent. Still, one would like to know for what predications inheritance is obligatory. Once again, more research is needed here.

To conclude, it is clear that an analysis of the interpretation of corrections cannot be given without an account of inheritance and accommodation, and an account of the requirements the accommodation process puts on the structure and accessibility of contextual information.

The interaction of focus-background structure, parallelism and anaphora resolution controls the resolution of pronouns within the background. For example, the pronoun 'it' in the correction in (13) above is mapped to 'the spaghetti' through parallelism of the thematic structure. Further, since it is part of the background, it must, if possible, be identified with its parallel element. Because the features of the pronoun are compatible with the potential antecedent resolution takes place, that is, the discourse referent of the pronoun is identified with the discourse referent of 'the spaghetti'.

Let's now turn to the puzzling cases mentioned above.

- (17) – Peter₁ loves himself₁.
 – No, [PAUL₂]^F loves him₁.

- (18) – Peter₁ brought [his₁ wife]₂ to the train station.
 a) – No, [PAUL₃]^F brought [his₃ wife]₄ to the train station.
 b) – No, [PAUL₃]^F brought [his₁ wife]₂ to the train station.

In (17) the pronoun ‘him’ resolves to its parallel element ‘himself’. However, the anaphoric relation between the reflexive and the subject in the antecedent is not inherited by the correction, since him in the correction does not refer to ‘Paul’. The independent restriction on pronouns which says that they may not find their antecedent within the same clause prohibits the inheritance of the anaphoric link.

In (18), two readings of the correction are possible, the so-called ‘sloppy’ and ‘strict’ reading ((18a) and (18b)). In both cases ‘his wife’ in the correction is parallel to ‘his wife’ in the antecedent, however in (18b) ‘his wife’ resolves to its parallel element, whereas in (18a) it introduces a new discourse referent. The reading in (18a) seems problematic for our account, because it contains an element which is part of the background, but whose discourse referent is not given and cannot be accommodated to be so.

How can this be explained? The corrections show that there is a trade off between the inheritance of the anaphoric link between the possessive and the agent, and the identity of the theme and its parallel element. When the anaphoric link is inherited, the discourse referent of the theme must be new (18a), and when the discourse referent of the theme is given, the anaphoric link cannot be inherited (18b). We assume that the requirement that discourse referents contained in the background must be given is simply overruled in cases like this.

We conclude that the resolution process of pronouns in the background is controlled by more than just parallelism and background status. Independent restrictions on anaphora resolution must be taken into account.

3.3 Contrastivity of the focus and the correctum

The last subtask of the interpretation process to be discussed is the mapping of the focus to its parallel element in the antecedent, the correctum. The focus must be contrastive with the correctum. The contrast can sometimes be traced back to an intrinsic contrast between basic concepts, as in (5), discussed in section 3, in which ‘blue’ and ‘yellow’ are contrastive concepts. Quite often however, we must have resource to accommodation to make the focus and the correctum into comparable elements. For example, in (19) the measure of Jim’s religiousness must be accommodated, that is, it must be accommodated that Jim is not religious at all. Given the accommodated material, the focus and the correctum are contrastive.

- (19) – Jim is an atheist.
 – No, he [is as religious as the Pope himSELF]^F.

Furthermore, in many cases the distinctness of the focus and the correctum is sufficient to satisfy the contrastivity requirement. This is illustrated in (20).

- (20) – They have invited Paul Carsons.
– No, they have invited [the SMITHS]^F.

In general, the participants will accommodate background knowledge that explains why in this specific situation the focus and the correctum are rival alternatives. They will construct a contextually relevant set of alternatives, of which the focus and the correction are distinct members. This does not make the focus and the correctum intrinsically contrastive, however.

Last, there is a class of corrections in which the contrast does not even reside in the content of the focus and the correctum. In these cases, it is some aspect of the form (i.e., prosody, morphology, syntax or style) that is contrasted. So for this kind of data it is necessary that we have access to prosodic, syntactic, and other non-content features of the correction and of the antecedent during the resolution process. An example is given in (21), see Horn (1989) chapter 6 for many more nice examples.

- (21) – Alan trapped the mongeese.
– He trapped [the monGOOSEs]^F, you mean.

The speaker of the correction in (21) intends to convey that the plural of the word mongoose is mongooses, and not mongeese. The utterance is not about the type or the identity of the animals that Alan trapped; there is no disagreement about the content of the first speaker's assertion. The addressee of the correction may not realise that a non-content correction is intended, though. He or she would then assume that there exist two different kinds of animals, namely mongoose and mongeeses, and would introduce (or rather, accommodate) a new discourse referent for the mongooses. The addressee will only look for a contrast outside the content, when he or she is certain that there is no contrast inside it. Thus, a contrast within the content has priority over a contrast in the form of the correction in the sense that a contrast of content is tried first by the interpreter.

To end, note that the interaction of parallelism, focus-background structure and anaphora resolution controls the resolution of pronouns in focus. Consider the example in (22).

- (22) – Peter hit **Michael**.
– No, [HE]^F hit [**HIM**]^F.

Due to parallelism of the thematic structure, the subject pronoun in the correction in (22) is parallel to 'Peter', and the object pronoun is parallel to 'Michael'. Since both pronouns are foci, they are required to be contrastive with their parallel elements. Therefore, they cannot resolve to their parallel elements, and they must choose another antecedent available in the local context. Other factors will further determine the resolution of these pronouns.

4 Conclusion

To summarize, the interpretation of corrections can be described as a resolution process which is controlled by the focus-background structure of the correction and which is further restrained by parallelism of the thematic structure and parallelism of type or sort. The predicate and its arguments and modifiers are assumed to be the units of comparison. It is further assumed that when a feature of a discourse referent is in focus, then by default the referent itself is also in focus. The resolution process must lead to a successful mapping of the focus to a contrastive parallel element, and of background material to ‘identical’ parallel elements in the antecedent. In general, the identity of the parallel elements takes the form of the identification of the respective discourse referents, but this can be overruled when the requirements on the resolution process of the correction are in conflict. The resolution of the correction to its antecedent determines to a great extent the resolution of pronouns in the correction. Given a successful mapping, it can be decided at exactly which point the commitments of the participants split up.

Furthermore, a complete analysis of the interpretation process cannot do without an account of accommodation. This in turn requires an account of the accessibility and activation of background knowledge. Finally, for the interpretation of non content corrections it is necessary to give an account of the accessibility of information about the form and style of the correction and its antecedent.

We are well aware of the fact that many issues that are relevant for an analysis of corrections as anaphors have not been discussed in this paper. For example, how is a potential antecedent selected from the context? What role does the update chronology of the context and the cohesion of the contextual information play in this? Further, how does the resolution process interact with requirements of specific kinds of anaphoric elements like VP anaphora? Furthermore, is there any interaction between the resolution process and discourse topics and discourse relations? And how do focus-background structure and parallelism interact with quantifiers and focusing adverbs? And last but not least, how are we going to specify the semantics of corrections; what ontology do we need to back up the account given in this paper?

Many of these questions will have to be answered before the account given in this paper can be implemented in a formal theory of discourse interpretation. Even apart from these issues, an implementation that rises above the level of a toy example will put heavy requirements on a formal theory of discourse interpretation. Such a theory must include an account of the anchoring process of anaphoric elements in general, and of all the different factors that through their interaction determine the resolution process. Further, since corrections induce a revision of the contextual information, it should be possible to represent a change of commitment of a participant towards a piece of contextual information. We conclude that the interpretation of corrections in

an ongoing discourse, as we envisage it, makes it unavoidable to assume a very rich representation of the contextual information, a representation that brings out the (fine) structure of information and that shows what kind of information is accessible at which point.

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