Overlaps In Maltese: A Comparison Between Map Task Dialogues And Multimodal Conversational Data

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Abstract

This paper deals with overlaps in spoken Maltese. Overlaps are studied in samples from two different corpora, one consisting of Map Task dialogues, and the other of free face-to-face conversations. The results show that the number and function of the overlaps vary with the presence or absence of pre-defined roles, the nature of the dialogue and the subjects' familiarity with the situation. Overlaps are used to achieve optimal information exchange in the Map Task dialogues, and are a sign of ease and familiarity in the free conversations.

Keywords: overlaps, MapTask dialogues, face-to-face conversations, Maltese

1   Background

The fact that spontaneous speech does not consist of neatly arranged and separated turns, and that speakers, on the contrary, speak over each other and interrupt each other, has been observed by many. In Schegloff (2000) it is recognised that overlaps play a role in what the author calls *talk-in-interaction*, in spite of the general view held by conversational analysts that overlaps are minimised in the turn-taking mechanism (Gardner et al, 2009). More recently, Campbell et al. (2010) have observed that in a free group conversation the number of short, often overlapping utterances, is much larger than the number of longer distinct ones. An interesting way to study overlaps is to examine their nature and function in different types of interaction. Examples are Cetin and Shriberg (2006), who analyse overlaps in a number of different corpora, and Adda-Decker M. et al. (2008), who introduce a framework to measure overlaps in political speech.

A general insight arising from the Cetin and Shriberg study which is directly relevant to the present paper, is the fact that whether or not the participants in a conversation have clearly defined roles plays a significant function in the amount of overlap one may observe. In particular in chaired meetings, in which the general interaction is controlled by the chair, there is little overlap. The effect of medium (whether the interaction happens face-to-face or takes place over the phone) is less important. Conversely, from the data analysed in the Campbell et al. paper, familiarity seems important, such that the more familiar people are with each other, the more overlap they produce when they talk.

This study presents a preliminary comparison between conversations taken from two different corpora of spoken Maltese with specific reference to the issue of overlap, thereby testing the hypothesis that overlaps are used to different degrees and for different purposes in different communicative situations.

The aims of the study are to see (i) how frequent overlaps are in the two corpora, (ii) what types of overlap occur, (iii) how overlaps are distributed between the speakers. In general, we are interested in investigating whether there are systematic differences in the two corpora due to different features such as the presence or absence of pre-defined roles, the different degrees of familiarity between the speakers, or the nature of the conversation.

2   Overlaps: definition and types

An overlap is a stretch of time of variable duration where two speakers talk over each other, and which may or may not result in a change of speaker (Fig. 1 and 2).
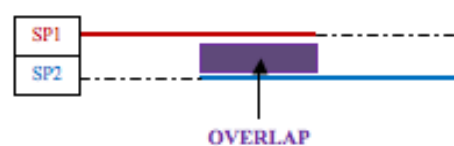

Figure 1: Overlap with speaker change

Figure 2: Overlap without speaker change

Different types of overlap may also be distinguished based on different functional categories which include:

1. Overlap in the context of *feedback* (also called Acknowledgement in Carletta et al., 1997): there is no competition for the floor and no change of speaker. This can be lexical (e.g. *orrajt/owkey* 'all right, okay', *sewwa/tajjeb* 'good') or quasi-lexical (e.g. *mhm/eħe*).

2. Overlap in the context of *questions* which require a yes or no answer (*Query-YN* in Carletta et al., 1997): the current speaker relinquishes the floor and a change of speaker is expected. (Preliminary scrutiny of the data suggests that overlap is less likely, though not impossible in the case of *wh*-questions – *Query-W* in Carletta et al., 1997).

3. Overlap involving *interruption*: the two speakers are competing for the floor. The current speaker can retain or relinquish the floor.

We will attempt to establish to what extent overlapping in our data can be characterised using these three functional types.

3 The corpora

3.1 The Maltese Map Task Dialogues

Figure 3: Example of Leader's map used in the Map Task dialogues for Maltese

The first corpus consists of eight Maltese Map Task dialogues which form part of the MalToBI corpus (Vella and Farrugia, 2006). The corpus was designed to be representative of spoken Standard Maltese, participants being carefully selected with a view to balance in terms of age, sex and educational background. The Maltese Map Task design is similar to that used for the HCRC Map Task corpus (Anderson et al., 1991). Two participants engage in a communication gap activity. The aim is for the participant in the Leader role to describe the route on the Leader Map to the participant in the Follower role, whose task is to draw the route in accordance with the information provided by the Leader. The Maps are not identical, thus necessitating an element of negotiation. The Maltese Map Task dialogues involve 16 speakers (8 females and 8 males): half the females fulfil the Leader role and the other half the Follower role, and similarly in the case of the male speakers.

3.2 The Multimodal Corpus of Maltese

The second collection is the multimodal corpus of Maltese MAMCO, which consists of twelve video-recorded first encounter conversations between pairs of Maltese speakers.

Figure 4: Screenshots from the MAMCO corpus. Total side view and split semi-frontal view.

Twelve speakers participated (6 females and 6 males), each taking part in two different short conversations that took place in a recording

studio. The setting and general organisation of the collection replicate those used in the Nordic NOMCO corpus (Paggio et al., 2010) so that it will be possible in future to use the corpora for inter-cultural comparisons. Contrary to other similar collections, in the Maltese Map Task corpus all participants could see each other. As a result, the Maltese Map Task data are directly comparable to the MAMCO data in that non-verbal as well as verbal means of communication were available to speakers for use (only audio recordings of the Maltese Map Task data are available, however).

3.3 The two corpora at a glance

In both corpora the speech has been or is being (in the case of MAMCO) transcribed using Praat (Boersma and Weenink, 2009) and following the guidelines described in Vella et al. (2010). An annotation of head movements is also planned for the multimodal corpus.

Table 1 below provides a comparison of the two corpora along a number of different parameters.

Map Task	MAMCO
Dialogues	Dialogues
Subjects sitting facing each other with two tables between them	Subjects standing at comfortable speaking distance
Unidirectional microphones	Lapel microphones
No cameras	Cameras
Can see each other (face and torso)	Can see each other (entire body)
Have to solve a task	Talk freely
Different roles	No predetermined role
Familiarity not an issue	Do not know each other

Table 1: Features of the two corpora

The most significant features from the point of view of the quantity and types of overlap to be expected from the subjects are the last three, which we shall discuss briefly.

First of all, the Map Task dialogues are task-oriented, while the MAMCO conversations are free face-to-face interchanges. The subjects are only instructed to try to get to know each other, but they are free to choose their own topics of conversation. We consider the MAMCO dialogues examples of *natural* conversation although they take place in a stu-

dio, and are *provoked* by the experimenter. So, how natural are they really? In order to investigate this aspect, subjects were presented with a post-experiment questionnaire in which they were required to assess each interaction with scores from 1 (lowest) to 5 (highest) along various parameters having to do with how comfortable they had felt during the conversations. Fig. 10 shows the average scores obtained for each parameter during the first and second recording (the two experiments each participant took place in were scheduled on separate days). For most of the parameters, the self-rated scores fall between 3.5 and 4.5, indicating that the interactions were judged by the participants themselves as reasonably natural. There is a significant increase in the ratings given on the second day as the subjects were more used to the situation and the setting (two-tailed paired t-test, p=0.0019).

As far as the role division is concerned, there is a clear distinction in the Map Task dialogues between the Leader, whose task it is to describe the route, and the Follower, whose task involves implementing the directions given. In MAMCO, on the contrary, the participants all have equal status from the point of view of the interaction.

Finally, although the participants did not in fact know each other, familiarity, or rather lack of such, is not really an issue in the Map Task corpus. By contrast, it is a pre-requisite in MAMCO, since the corpus is intended to represent first encounter situations.

3.4 Corpus features and overlaps

In both types of data, overlaps are defined as temporal segments in which the conversation participants speak at the same time. However, the degree and function of overlap are presumably quite different because of the different features of the corpora.

Based on the findings by Cetin and Shriberg (op. cit.), we would expect a greater degree of overlap in the MAMCO conversations because neither of the speakers has a predetermined leading role. In other words, both have to negotiate the floor. On the other hand, the relative discomfort of having to speak to a stranger standing in an artificial space, while being recorded, may inhibit the speakers from producing overlaps. Therefore, we would also expect overlaps to increase as the dialogue proceeds, as speakers get more comfortable with the situation and also more familiar with each other.

As for the functions of overlap in the Map Task dialogues, these include that of assuring the Leader, who gives the instructions, that an instruction has been understood (or the opposite) as well as of maintaining continuity with a view to task completion. Since one of the speakers has a leading role in the dialogue, we expect this person mostly to keep the turn at the end of an overlap. In the first encounter conversations, by contrast, the two participants' main objective is to break the ice and keep up the dialogue. There is therefore, at least based on the nature of the interaction, no reason to expect that one of the speakers should overlap more than the other. If there are differences between the speakers with respect to overlap, this may be due to different factors, e.g. personality traits.

These expectations were verified by extracting the overlaps in selected interactions and carrying out a (limited) quantitative and qualitative comparison across the two corpora.

4 Quantitative analysis

Only two videos have been analysed so far (one for each corpus), therefore the results reported here are tentative and require validation on the basis of an analysis of the rest of the corpus data. Note also that, since the two corpus samples are so small, it made no sense to carry out significance tests at this stage.

The first dimension along which we want to compare the two corpora is the degree of overlap. We looked at this in two different ways by measuring (i) the overlap time over the total talking time, (ii) the proportion of overlap time to approximately half way through the dialogue, and (iii) the proportion of overlap time in the rest of it. The three sets of measures are shown in Fig. 5. For each measurement, the bar on the left represents the Map Task, and the one on the right MAMCO.
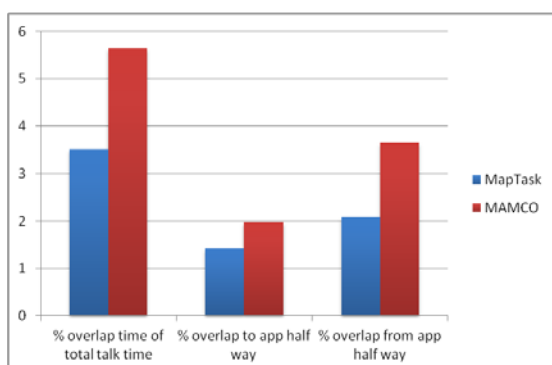

Figure 5: Proportion of overlaps in the two samples

The total length of the two samples is 223.97s for the Map Task file and 207.91s for the MAMCO one. The average overlap length is 0.36s with considerable variation (from 0.04s to 0.96s). As expected, the three measures show that there is substantially more overlap in the MAMCO sample, and also that the proportion of overlap time increases in the second part of the interaction in both samples and especially in MAMCO.

If we look at how the overlaps are distributed between the two speakers (Fig. 6 and 7), we can again observe differences between the two samples. Whereas in MAMCO there are no noticeable differences between the two speakers, in the Map Task sample the Follower (upper bar region) has more overlap time (Fig. 6), whilst the Leader (lower bar region) has a large number of (shorter) overlaps (Fig. 7) .
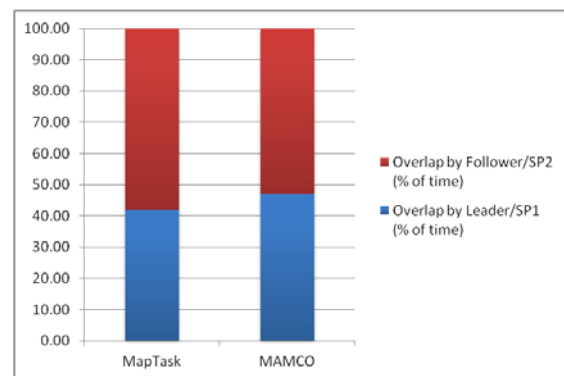

Figure 6: Distribution of overlaps between the two speakers (overlap time)
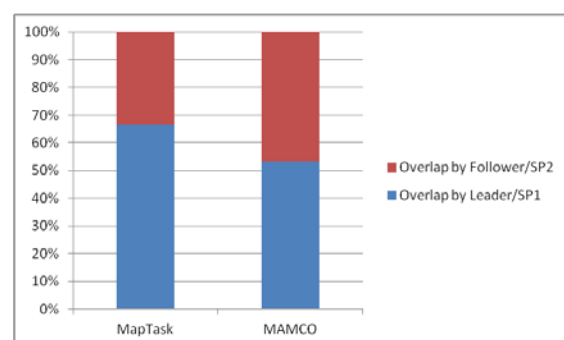

Figure 7: Distribution of overlaps between the two speakers (numbers of overlap)

The difference can be easily understood in terms of the different roles. When the Follower overlaps, the purpose is that of asking for ex-

planations and sometimes commenting on apparently incorrect instructions (type 2 or 3 in our list of functional types). By contrast, the Leader's overlaps are mostly of the feedback giving type (type 1) to answer questions and confirm expectations to then carry on with the instructions.

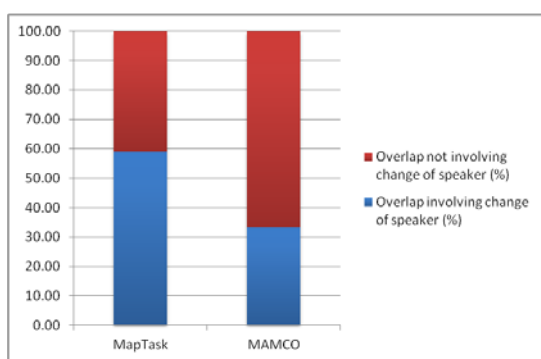Let us now look at how overlap relates to speaker change and turn taking.

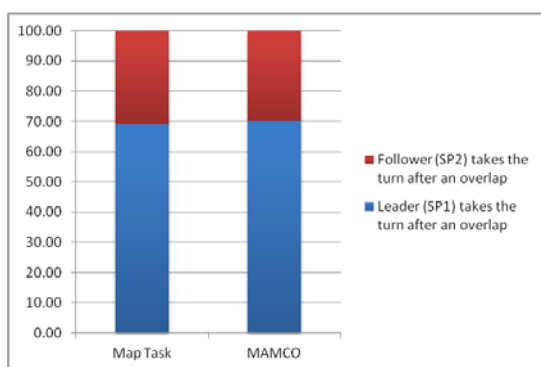Figure 8: Overlaps and change of speaker

Figure 9: Overlaps and turn taking

Fig. 8 shows what proportion of the overlaps in the two samples result in a change of speaker (lower bar region), while Fig. 9 illustrates which of the speakers takes the turn after the overlap if there is a change.

In the Map Task sample, 60% of the overlaps result in a change of speaker, while the proportion drops to only 30% in MAMCO. If there is a change, one of the speakers takes the turn more often than the other in both samples. In the Map Task, it is the Leader (lower bar region in Fig.9), exactly as we were expecting. The typical situation in which this change takes place is one in which the Follower asks a question to make sure they are doing the right thing, and the Leader answers (by overlapping) and then takes over. The reason why one of the speakers in the MAMCO sample mostly takes

the turn after having overlapped, on the other hand, is not caused by any intrinsic characteristic of the dialogue. Rather, it is probably due to the personality and engagement of the specific subject. It could be said that this subject is taking a leading role.

To sum up, the data we have from these small samples tentatively confirm our expectations of the fact that overlapping would be different in quantity and nature in the two corpora. In the following section, we look more closely at specific examples.

5   Qualitative analysis

Examples of the different types of overlap identified in section 2 are presented below.

The first is the type occuring in a context of *feedback*. This type of overlap can involve quasi-lexical as well as lexical elements. An example from the MAMCO corpus involving the use of quasi-lexical elements is the following:

SP1:   għandi z-zijiet minn hemmhekk.
        I have aunts from there.
SP2:   [Mhm.
        Mhm.
SP1:   In-nanna+] (.) minn Bormla.
        My grandmother is from Bormla.

In this and the examples that follow, square brackets are used to indicate the parts of the speakers' turns which overlap. Pauses internal to a turn are shown using (.). For this example, a printscreen of the View & Edit Praat object is also shown in Fig. 11. In the figure the overlap segment is clearly marked across the various annotation tiers. In the exchange, acknowledgement of the fact that the transfer of information has been successful is provided by the use of 'Mhm'. The current speaker continues speaking while the interlocuter gives this feedback, hence the overlap. There is, however, no competition for the floor and no change of speaker. Similar exchanges are also common in the Map Task corpus.

Feedback-related overlaps involving lexical feedback also occur in these data. An example from the Map Task is the following:

SP1:   jew Dar Millenia
        either Millenia House
SP2:   **Dar Millenia** [sewwa
        Millenia House, right
SP1:   jew] Vjal il-Mara
        or Lady Alley

SP1 is providing information on alternative possible routes. SP2 acknowledges receipt and understanding of the information given by SP1 by repeating the location and then adding the lexical element 'sewwa' *right*, to show that he had understood. Again, similar examples can be found in the MAMCO corpus. Note that competition for the floor is not in evidence in these cases, the overlap serving rather to acknowledge successful transfer of information. An interesting feature is the use of repetition of some element from the interlocuter's prior turn (indicated in bold above) in some part of the turn involved in the overlap.

Instances of the second type of overlap, that occuring in the context of *questions* which require a yes or no answer, also occur in both the Map Task and the MAMCO data.

In these examples the current speaker relinquishes the floor by virtue of the very fact of asking a question which requires an answer. A change of speaker is therefore expected. The overlap occurs as a result of a slightly earlier "entry" by the speaker taking the floor, and again not for reasons to do with competition, but rather in a show of cooperative behaviour.

For instance in an example from the Map Task corpus, SP1 provides the answer 'Ija' *yes* to the question 'Minn Triq Mannarino' *Through Mannarino Street?* whilst SP2 is still completing his question. In a similar example, SP1 anticipates the end of the question, in this case a tag question 'Imma s-sitt waħda teżi, hux veru?' *But the sixth one (=year) is a thesis, right?*, with her answer 'Eżatt.' *Exactly*.The third type of overlap identified involves *interruption* of some sort resulting from the two speakers competing for the floor. The current speaker can retain or relinquish floor. Relevant instances are found in both corpora. An example from the Map Task corpus is the following:

SP2: [hemm naqra bogħod
      it's rather far
SP1: Trid issib] (.)
      You need to find
SP2: biex ngħaddi
      to go
SP1: Eħe.
      Yes.
SP2: minnha.
      that way.

Here, SP1 makes an attempt at giving a new instruction, overlapping, in so doing, with SP2, who is commenting on the difficulty of carrying out an earlier instruction. After a brief pause, SP2 continues with his turn, however, managing to retain the floor to the extent that SP1 not only relinquishes the floor, but proceeds immediately to provide SP2 with feedback ('Eħe' *yes*) on the content he had been trying to transfer at the point when she attempted (and failed) to take the floor.

By contrast, the current speaker (SP1) in the following example from MAMCO relinquishes the floor:

SP1: Mela mill-Università [forsi ġieli rajt wiċċek.
      So it's from University that I may have seen your face
SP2: Imma+ ee] (.)
      But ee
      għandi z-zijiet hemmhekk. In-nanna+
      I have aunts from there. My grandmother

Here there is clear competition, each speaker continuing to develop their own separate thread, competing for the floor in the process. It is noteworthy that SP2 enhances his attempt at taking the floor by (i) lengthening the final syllable of 'imma' *but*, (ii) further holding on to his turn through the use of the filled pause 'ee', and (iii) pausing briefly before continuing to speak. These strategies achieve the desired effect: SP1 relinquishes the floor.

A final example will serve to illustrate the use of overlap for a purpose other than acknowledging that transfer of information has been successful, willingly relinquishing one's turn in order to get information required, or negotiating the floor (the three functional categories illustrated above). The following exchange is involved:

1SP1: [Dort ma' Triq l-Ewwel
       I went around the Street of the 1st
2 SP2: Nibqgħu sejrin] (.)
       We continue on
3 SP1: ta' [Mejju
       of May
4 SP2: għal] Triq l-Ewwel ta' Mejju
       1st May Street
5 SP1: u (.) għaddejt issa
       and I now passed
6 SP2: U għaddejna minn ee (.)
       And we've gone through FP
       Misraħ il-Lejl [issa
       Night Square now
7 SP1: Owkey.]
       Okay.

There are 3 overlaps in the above excerpt. The first of these, between 1 and 2, involves complete overlap. After a brief pause there is a second overlap involving SP1 completing transfer of information on the street name in question 'l-Ewwel **ta' Mejju**'; SP2, the Leader, completes the instruction he had been in the process of giving. At this point, the two speakers converge, with SP1 saying she had got to the location in question ('għaddejt issa'), and SP2 restating the current position ('u għaddejna minn'). The last overlap involves feedback on the part of SP1, who is now eager to give reassurance to SP2 that, following the earlier breakdown in communication, realignment has taken place.

6 Discussion and conclusion

Our expectations that overlaps would not be used in the same way in the two corpora have been confirmed, although the small size of the samples used in the analysis renders the results tentative.

As predicted, the lack of predetermined roles in MAMCO as opposed to the clear role division in the Map Task corpus, gives rise to more overlaps in the former. We also see that in both samples, the amount of overlap increases as the dialogue proceeds, showing that the frequency of overlap is dependent on subjects' familiarity with each other and with the situation. The importance of role assignment is also reflected in the fact that in the Map Task dialogues, the Leader mostly has the turn after an overlap involving a change of speaker. Interestingly, participants in free conversations can take on a leader role and show similar turn-taking behaviour.

In spite of the differences, however, there are also similarities in the two data sets, as shown by the qualitative analysis of a number of chosen examples. In particular, the view of overlaps that emerges from the analysis of both corpora is not one in which overlaps are used as an aggressive feature. Rather, overlaps can be seen as a means to achieve optimal information exchange in the map-oriented dialogues, or as a sign of familiarity and ease in free face-to-face conversations. In other words, the view that "optimal" conversation should manifest itself in smooth turn taking without overlap, and that overlaps are detrimental to an optimal exchange, does not capture what happens in either task-related or free dialogues.

In future, we intend to provide a more solid empirical foundation for our results by analysing the full range of recordings in the two corpora.

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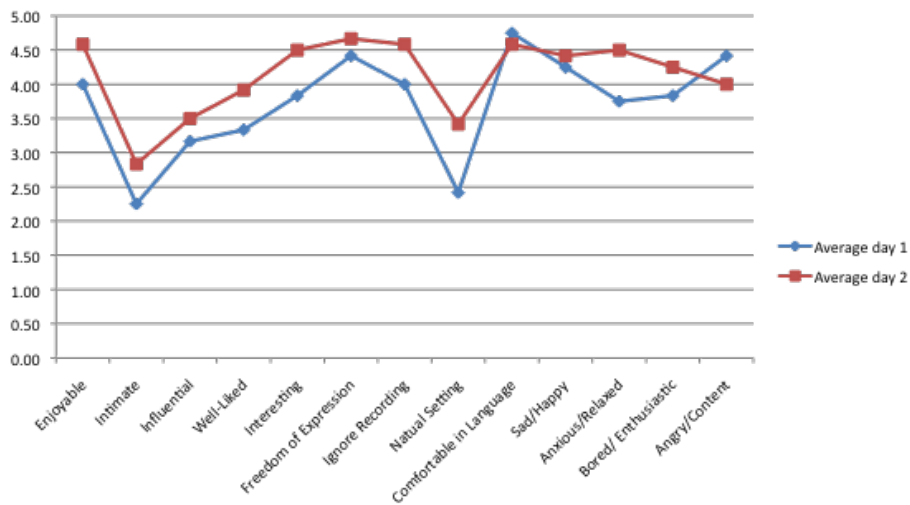
Figure 10: Questionnaire average scores, first and second conversation.
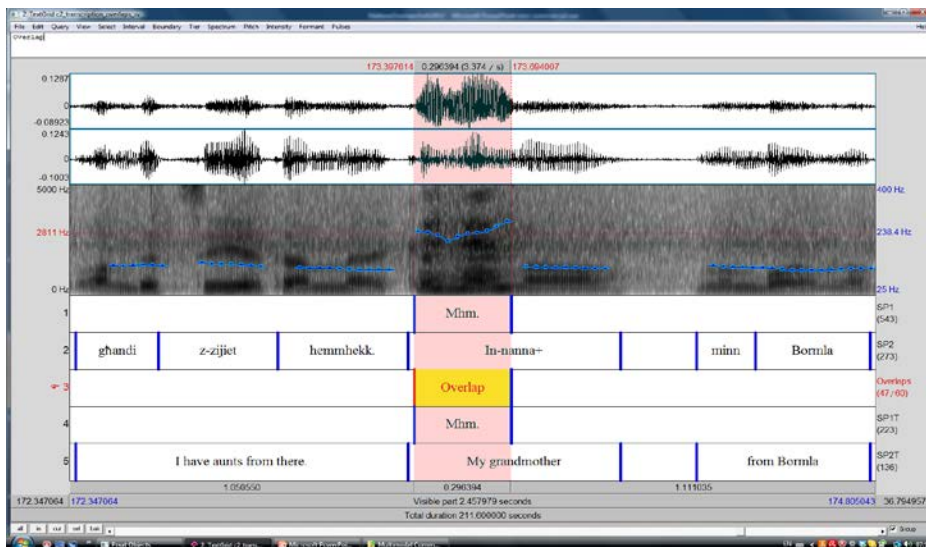

Figure 11: MAMCO example of overlap involving use of the quasi-lexical element *mhm*. The five annotation tiers from top to bottom are used for: transcription of SP1's speech (1), transcription of SP2's speech (2), overlap annotation (3), translation of SP1's speech (4), translation of SP2's speech (5).