



**A Research Study on the English Accents of Students in Two  
International College Campuses**

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*Have faith, people.*

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## Abstract

Scientific research to date has shown speakers' imitation in both laboratory and non-laboratory conditions. Still, the possibility of students being attracted by the accent of one speaker, physically present in international College campuses, had not been addressed before. Thus, the aims of this study were to investigate: 1) the likelihood of College students being attracted by the English accent of a single speaker within the same College, and 2) the extent to which the former might have accommodated their English accents towards that of the speaker's. Students in two international College campuses where English is the lingua franca were chosen, because there speakers interact daily and for more time than in the experimental conditions reported so far. One campus was in the Netherlands and one in Greece. In the Netherlands a survey asked 59 students to name a College person with whom they mostly interacted in English, one whose accent they mostly liked, one whose accent they mostly admired, one whose accent they mostly regarded as similar to theirs, and one whose accent they mostly wished they had had. Participants could name the same College person in all items. Results revealed an agent, very likely to be a student, whose accent was named most times as being liked, admired, regarded as similar, and wished to have. Because that agent was not included in the sample and the aim was to examine potential accent accommodation, an audible feature, a second cohort of subjects was recruited. Thus, a questionnaire asked 16 speakers, students of an international campus in Greece, to name one College person with whom they mostly interacted in English, one whose accent they mostly liked, one whose accent they mostly admired, and one whose accent they mostly wished they had had among other questions. Again the same College person could be named more than once. Speakers were additionally recorded in a controlled reading environment and in a spontaneous speech. Their 28 recordings were judged by 21 listeners, non-related to the speakers, for accent similarity between a speaker's recording (stimuli X) and either the agent who was named most times in the questionnaire (stimuli A) or a speaker who was named zero times (stimuli B). Results revealed that three agents were named most times, yet only one was included in the sample. That agent was a native Greek speaker and studied abroad, and her recordings were used as stimuli A in the listening test. Thus, the question about the existence of a single speaker whose accent was liked, admired and wished to have was answered positively. Also, four two-tailed chi-square tests of independence showed that the different stimuli X had a statistically significant effect on choosing A's or B's recordings. Regarding the possibility of speakers converging their accents to that of a single speaker's, and given that four speakers named the same agent most times, it was expected that listeners would perceive accent similarity between her and the four speakers who named her. Still, most listeners did not perceive it, and this result could be attributed to the four speakers' profound Greek accent while speaking English, as well as to the small number of both speakers and listeners.

*Keywords:* lingua franca, English, accent, speech accommodation

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# OVERVIEW

The organization of this experimental study is as follows: section **1** includes its research aims, a review of study cases on speakers' imitation both in laboratory and non-laboratory conditions, followed by the definition of *accent magnets* and of the potential accommodation process of *accent group-convergence*, as well as the research questions of this study. Section **2** presents in detail the two experiments conducted to answer the research questions here. A thorough discussion of the two experiments, possible explanations of the findings, as well as a number of weak points are found in section **3**. A proposed research mechanism for investigating *accent group-convergence* is also presented in that section. Final remarks are seen in section **4**.

# SECTION 1: INTRODUCTION

## 1.1 Aims

If speakers of different native languages find themselves in a situation where they need to communicate with each other, they may use English as a “lingua franca”, which, according to Holmes (2001), is “(...) a language serving as a regular means of communication between different linguistic groups in a multilingual speech community.” (p.78). An international College campus is such a speech community. The aims of the present study were: 1) to investigate the degree to which subjects in two international College campuses were attracted by the English accent of a single speaker, the *accent magnet's*, different for each campus, and 2) to support with experimental evidence the existence of the potential accommodation process of *accent group-convergence*, which describes the situation when speakers have accommodated their accents to that of a single speaker's, physically present among them (see, section 1.4.2 too).

In what follows, the theoretical context is presented first (section 1.2). Then, the state-of-the-art research topic is discussed (section 1.3). This Introduction ends with section 1.4, where two proposed sociolinguistic terms, and the research questions (Res.Qu.s) of the present study are presented.

## 1.2 Theoretical context of this study

Three main theories relevant to this study are addressed herein: **1.** the multiple-trace human memory theory, **2.** the speaker normalization hypothesis, and **3.** the communication accommodation theory (CAT).

According to the multiple-trace theory, all past experiences and episodes or events leave a unique trace in the long-term human memory. Specifically, it assumes, that (1) exemplars of a large amount of past experiences and episodes or events and (2) a much less amount of features like the location, all linked to (1) accordingly, are both saved as traces in the long-term memory. The multiple-trace theory further predicts that all traces stored in the long-term memory will be activated by every new experience called a ‘probe’ (Hintzman, 1986: 412). The

probe, while still active, is in the short-term memory. Then, an echo is sent from the long-term to the short-term memory, after the probe has simultaneously activated all traces saved in the former. This degree of activation in the long-term memory is contingent on the number of similar features shared between the probe in the short-term memory and the already saved traces in the long-term memory, while all features linked to the specific traces are activated in the long-term memory, independently of the amount of feature similarity between the echo and the probe. However, the more the similarity between the features of the probe and the features of the echo, the more intense these shared features are going to be in the echo. Thus, all features in the long-term memory, linked accordingly to traces, are activated simultaneously by the active probe, yet the most similar features to the traces of the probe are the ones emphasized more on the echo, which is sent back to the short-term memory. Therefore, the intensity of the traces in the echo is expected to depend on the degree of similar feature-sharing between the echo and the probe, and, as such, the echo is comprised of all the activated traces, saved in the long-term memory. The result of this activation in the long-term memory is that exemplars and episodes or events of new experiences will be associated to already stored exemplars of past experiences, and the latter are all stored in the long-term memory.

The second theory related to this study is the “speaker normalization hypothesis”. ‘Normalization’ is related to speech perception, and describes the situation when a listener is capable of perceiving speech, even if this speech is produced by various speakers (see, Strand & Johnson, 1996). Three research approaches have been said to affect the perception of a speaker’s speech by listeners (see, Johnson et al, 1999). Firstly, according to the “radical invariance” approach, the perception of a speaker’s speech by a listener may be affected by auditory, acoustical information, since auditory representations of vowels are assumed to exist independently of speakers. Secondly, perception of a speaker’s speech by listeners may also be affected by the perceived estimation of the speaker’s vocal-tract, which is, after all, slightly visible by the listener when facing the speaker. This is the “vocal-tract normalization” approach. Thirdly, the “talker normalization” refers to the perceived social identity of the speaker by the listener,

like the speaker's gender. Based on the "speaker normalization hypothesis", all perceptual knowledge will be deleted after a listener understands what a speaker has semantically said. Thus, increased exposure to the same speaker will not leave any memory of that speaker's voice properties, and, as such, that speaker will be normalized for the listener (see, Goldinger, 1998).

The third theory, the speech accommodation theory (SAT), later expanded to communication accommodation theory (CAT), was initiated by social psychologists to account for language behaviour, and specifically to explain why in social situations speakers vary their speech, as well as the implications that derive from such speech variations (see, Giles et al., 1991, Beebe & Giles, 1984, and for a more recent overview Shepard et al, 2001). Within accommodation theory, the processes of speech 'convergence' and speech 'divergence' have been highly emphasized. Convergence has been defined as a communication strategy used by a speaker when he chooses to approach his interlocutor and be more similar to him in linguistic or non verbal features, such as in pronunciation or pauses. Divergence has been defined as a communication strategy used by a speaker when he chooses to increase the distance between him and his interlocutor (see, Giles et al., 1991, Zuengler, 1991, Beebe & Giles, 1984, and Shepard et al., 2001). According to Beebe & Giles (1984), the aims of accommodation are: 1) for a speaker to gain social approval from his listener, 2) to achieve communication efficiency between interlocutors, and 3) for a speaker to be regarded positively by his interactant. For the first two aims in particular, accommodation theory predicts that a speaker will converge towards his interlocutor. Thus, according to the accommodation theory, if a speaker wishes to be socially approved, or to achieve communication (see, Coupland, 1984, where this hypothesis was verified too), as well as to increase similarity between him and his interactant, then this speaker is predicted to converge towards his addressee. The present study focuses on speech convergence in relation to accent change. It is for this reason that divergence has been little discussed here.

## **1.3 Review of literature**

Along with the theories in section 1.2, there have been experimental studies on speakers' imitation, in both laboratory and non-laboratory tasks. What follows now is a review of such research studies on subjects' accent imitation starting with laboratory, shadowing experiments.

### **1.3.1 Research with shadowing tasks**

For much of this research, shadowing tasks have been used. These tasks involve recording model speakers pronouncing stimuli-words, and then participants, aka 'shadowers', shadowing these stimuli-words. The aim of shadowing tasks is to examine, if there is imitation of the model speakers' words by shadowers. Goldinger (1996) addressed the speaker normalization hypothesis by using single monosyllabic, real English words, and found evidence against this hypothesis and in favour of the multiple-trace theory. In fact, in his study, voice was regarded as a 'stimulus' detail (see, p.1179) that has to do with perception (p.1167). In Goldinger (1998), the multiple-trace theory was simulated on a computer model, and the experimental tasks required participants to 'shadow' English, single words, both monosyllabic and bisyllabic, real and nonsense, while the perceived imitation was judged by listeners in an AXB task. In this task, listeners decided whether for the same shadower a stimulus X by a model speaker was more like a stimulus A this 'shadower' had produced in a baseline stage before shadowing, or more like a stimulus B the 'shadower' had produced during the actual shadowing stage. Similar to Goldinger (1996), results of Goldinger (1998) were again in favour of the multiple-trace theory because, when the model speaker remained the same, word shadowing imitation by shadowers was increased, even when the very same model speaker pronounced different stimuli words. Additionally, Goldinger & Azuma (2004) included an AXB, single-word, classification test. In that test, and for each participant, listeners compared a training word X to a participant's baseline word A and to the same participant's shadowing production B. Based on these judgments, there was again evidence in favour of the multiple-trace theory, only that, this time, bisyllabic, real

English words were used. Actually, the low frequency tokens had the biggest effect on perceived word imitation, meaning, that episodic traces must have been activated in the participants' memory between the experimental stages. Thus, the authors concluded in favour of the multiple-trace theory.

Shadowing experiments were conducted by Luce et al. (2000) as well, who used prime and target pairs of real English words and PARSYN, a processing model. Their results showed that the low frequent related pairs were produced slower than the high frequent related ones, independently of the presence or absence of noise. Furthermore, reaction times were faster for the high frequent related words, and speakers' responses were less accurate. Conversely, the low frequent related words were produced slower, yet there was no inhibitory priming effect on them, meaning that these words were produced more accurately. These results may further suggest that the low frequent words were produced more accurately since there were not many traces of these words in the speakers' memory. As such, imitation of the model speaker's words by shadowers may have been promoted.

Another single-word shadowing naming task was performed by Namy et al. (2002). They tested whether accommodation can occur even in non-social, experimental conditions, and whether there are differences between the two genders. Results of the authors' AXB listening test showed that female shadowers were perceived to accommodate more than the male shadowers, and that female listeners were found to perceive more accommodation than male listeners. This result, according to the authors, could be due to the females' increased social skills, or attributed to their increased focus on the shadowers' productions. Thus, it seems likely that the two genders set different accommodation goals when they interacted with other speakers. In addition, Babel (2009) focused on the imitation of vowels in monosyllabic, again real English, single-word, shadowing tasks. In her study, 173 participants of both genders participated in word shadowing tests with presentation of both a visual stimulus, namely an image of a black male or an image of a white male, and an audio stimulus, produced by both black and white, male model speakers. She found that female shadowers imitated more than male ones. Overall, Babel showed evidence in favour of the memory trace theory, because both male and female participants were found to imitate vowels embedded in words. Still,

there were acoustic differences within each gender category: females imitated more the vowels when there was visual stimulus too, while men imitated more in the no visual-stimulus condition. Also, between gender, females imitated more in the visual-stimulus condition.

Moreover, Dossey (2012) used real, monosyllabic, bisyllabic and trisyllabic, single shadowing words across regional American English dialects, focusing on the shadowers' productions of vowels. Shadowers were twenty native speakers of American English of three regional dialects: upper midwest, like the model speaker, lower midwest, and west. Babel reported a vowel imitation of the model speaker's vowels by shadowers. Also, both Babel and Dossey concluded that the episodic, multiple-trace theory could account for the vowel convergence towards the model speakers' vowels by shadowers, and in their experiments, these vowels were embedded in words.

Another shadowing experiment, this time with the uvular and the alveolar Dutch [r] in single nonsense words, was conducted by Mitterer & Ernestus (2008). Nine native speakers of Dutch who were used to pronouncing the uvular [r] and nine native speakers of Dutch who were used to pronouncing the alveolar [r] were tested. Stimuli-words were recorded by the same female native speaker of Dutch, who was able to produce both [r] variations equally well. The authors' results showed that only one out of the 18 speakers delayed in producing the word that contained the variation of the [r] he did not normally pronounce as a native Dutch speaker. The authors concluded that speech production and speech perception are connected, because the vast majority of speakers were able to understand the model speaker's productions of [r], and also produced them accurately. It further seems likely that the authors' result may be accounted within the multiple-trace theory: traces of the stored words were probably activated in the speakers' memory, leading subjects to pronounce the words like the model speaker was pronouncing them. Shockley et al. (2004) also conducted shadowing experiments, and the words they used were single, bisyllabic, real English ones. Their results also support the multiple-trace theory, because listeners in a follow-up AXB test perceived that speakers' shadowing productions imitated more the model speakers' productions compared to speakers' baseline productions.

To sum up, shadowing tasks have been conducted using either real English or nonsense English and Dutch words, monosyllabic, bisyllabic or trisyllabic, and evidence in favour of the multiple-trace theory was found. In addition, there has been investigation on the productions of segments, such as vowels in shadowing tasks. What follows is an overview of research cases on vowel change at a regional level of a language, both of English and of French.

### **1.3.2 Research on regional vowel variations**

Having described the multiple-trace theory and the speaker normalization hypothesis, and zooming in on regional, southern and northern variations of English, Evans & Iverson (2004) found evidence against the speaker normalization for accent.

They tested normalization for accent on behalf of listeners: if a southern listener or a northern listener selected vowels that were close to the southern or the northern accent respectively, then this would suggest speaker normalization for accent. Based on this normalization, a speaker of a particular regional variety of the same language, in this case British English, may choose vowels that are typical of a variety other than his, due to the speaker's exposure to various regional varieties. For instance, a northerner may be found to choose southern produced vowels, instead of the vowels of his own accent, or a southerner may choose vowels as sounding more like vowels of a northern variety. Thus, Evans & Iverson (2004) used 16 single monosyllabic-real English words recorded in two regional varieties, southern English and northern English, and had equal number of participants from both regional varieties in two experimental phases. In the first, 20 listeners, 10 from the north and 10 from the south, were chosen, and in the second, there were 12 northerners living in the English north. In the former phase, 16 words were being pronounced by the same male speaker, and each word was shown to them both audibly and visually so that listeners decided whether what they had just listened corresponded better to the pronunciation of the word projected on a computer screen, rating words on a 4-point scale as good examples of the variety they had just heard. In the second phase, the 12 northerners were asked to rate the words in the same way as listeners did in the first phase. Results of the first phase showed that

northern speakers normalized for the southern accent in two words, while the rest words were chosen as sounding more like the accent of each participant: northerners selected northern-style vowels, and southerners selected southern-style vowels. In the second phase, no speaker normalization for accent was found. Thus, in the vast majority of the experimental words participants selected vowels of their native regional English variation, namely their native vowels; in only two words, however, participants' vowels resembled that of the other accent, meaning the southern accent. After discussing the multiple-trace hypothesis (see, section **1.2**), these results could also be attributed to social factors, which could lead a speaker to decide whether he will continue to speak with his native accent or he will change towards the accent of his new social context. A detail that should be noted here is that in the experimental condition, the 20 listeners had all been living for at least 1 year in London, where many different variations of English can be heard. This may suggest that it was probably a matter of personal choice by the speakers not to phonetically converge towards the other, non-native regional English variation.

Evans & Iverson's 2007 study focused, again, on regional variations of the English language, northern and southern, and the way the vowels in 11 single monosyllabic, real English tokens were produced by native speakers of both these variations. The authors conducted this experiment to examine if changes in accent production were associated to changes in accent perception. The authors investigated whether 23 northern students, all students at a University where the southern variation is highly regarded, changed the way they pronounced vowels. Results showed that three out of the 23 participants were judged as having changed towards the southern variation. Even in a recognition task, where both northerners and southerners heard a northern model speaker, and a southern model speaker pronounced the tokens with the presence of noise, speakers who were rated as southerners recognized more words in the condition where a southern voice pronounced the words with noise. However, the authors indicated an alternative explanation: the results could be attributed to the northern model speaker's intonation, and to the participants-speakers' exposure to the southern variation through the media, which were accessible

to the students through their new study and living environment. Overall, Evans & Iverson (2007) concluded that production changes by participants-speakers were not found to coincide with the same speaker's perception of the new regional accent in the recognition task, probably due to experience of the new, southern, accent or because of personal decisions of participants-speakers.

Regarding French, Delvaux & Soquet (2007) investigated imitation of regional variations. Their eight adult participants of the French dialect *Mons* were found to be imitating the vowels embedded in real French words produced by a speaker of another regional dialect, the *Liege*. Authors concluded that the imitation they reported was probably an automatic, low cognitive process rather than a conscious one. They proposed that speakers phonetically imitate the most prominent speech around them, and this is done automatically, unless other factors interfere. Their results appear to be accounted for within the multiple-trace theory too, as it seems likely that traces of the model speaker's vowels were activated in the participants' memory.

In brief, there has been research on changes in vowel productions within the same language, and particularly by using English and French real words, as well as Dutch nonsense words. It should be noted here that both studies by Evans & Iverson (2004, 2007) additionally included ratings of words by listeners: listeners rated words as good examples of two regional English variations, either northern or southern (2004), and listeners rated words based on whether the word resembled more a southern or a northern variation (2007). Turning to studies involving ratings, an overview of research cases where accent was rated using scales follows next.

### **1.3.3 Research on accent ratings**

In Munro et al. (1999), 10 migrants from Canada, living in Alabama for 7.7 years on average, were rated both by naïve and by phonetically trained listeners on a scale from 1 to 9 and 1 to 5 respectively. Overall results showed that the group of Canadian Americans was rated as more American than Canadian. These results led the authors to conclude that changes in a speaker's speech production system can occur even in adulthood. A similar accent-rating design was included in Giles et al.

(1973), where English American speakers described a picture, knowing that French Canadians would listen to them and draw the picture; all speakers were University students. The authors concluded that accommodation, in addition to gaining social approval, and being regarded favourably, may depend on the context of interaction, as well.

Similar to Munro et al. (1999) who focused on migrants, Gallois & Callan (1991) examined feelings towards migrants taking into account that in a specific situation the accommodation theory predicts convergence when positive feelings are expressed and divergence when negative feelings are expressed. Moreover, depending on the social situation there are situational norms that lead speakers to perform in a certain way. These norms determine which behaviour is appropriate and which is not, like in a multicultural environment where migrant speakers are expected to adjust themselves to the new, dominant language. Australia is a good example of such a country with both native speakers and immigrants. Thus, the authors tested these predictions of accommodation theory by distributing questionnaires to 80 Anglo-Australians in Australia to express their feelings for the migrant group of Italian-Australians in a realistic situation, that of having an Italian lecturer distributing marked papers in a teaching context: participants were asked to say which behaviour would be appropriate and which would be non-appropriate after receiving positive remarks by the lecturer. The results were these: responses of the first group, that of the Anglo-Australians, showed positive feelings towards the Italian-Australian group, due to the long term migrant residence of the latter, though ethnic groups may feel threatened by the possibility of migrants gaining economic power. Thus, based on the study's situational teaching context, communication norms were not strongly exercised. The authors concluded that there was evidence in favour of the idea that, in informal contexts convergence is predicted to occur, and that this convergence is not an established pattern; instead, convergence varies when ethnic groups of different origins are investigated.

So far, the studies discussed were either shadowing or non-shadowing, inside a laboratory (for instance, see Dossey, 2009) or outside it (like in Willemyns et al., 2011, or Gallois & Callan, 1991 who involved attitudes towards migrants in a realistic situation in non-laboratory conditions after receiving positive criticism in a

teaching context). The overview of the studies that follows could be said to resemble more natural, communicative situations, at least compared to the laboratory shadowing conditions or the attitudes towards particular ethnic groups, which have both been described.

### **1.3.4 Research in non-laboratory shadowing conditions**

For instance, Pardo (2006) had a non-shadowing task in a laboratory setting, that of giving and receiving map directions using actual English words in a sentence. She investigated “phonetic convergence” (p. 2384), and in her study, twelve University students were divided in pairs of the same gender. She found that the male pairs of participants converged more than the female ones, even in a delayed, non-shadowing condition, contrary to previous accommodation studies (see, for instance, Namy et al., 2002). In her study, convergence was judged in an AXB perceived pronunciation similarity test. Since the multiple-trace theory, as tested in Goldinger 1998, had provided evidence against imitation in the delayed condition, Pardo attributed her results to the male speakers being more task focused compared to the female ones, rather than to the multiple-trace theory. Social interactions between a travel agency assistant and her clients were investigated in Coupland (1984); she examined the speech behaviour of a travel assistant when interacting with 51 local clients of various social classes. The author hypothesized, that the assistant will converge towards her clients, because the former wanted to be socially approved by the latter, and also to achieve communication: this speech convergence is predicted by the accommodation theory. After examining four English phonological variables of non-standard and standard English, produced by the assistant and her clients in one-to-one oral interactions, the author’s hypotheses were verified.

Overall, every day, real-life interactions, like between a travel assistant and her clients, in which the former was found to converge towards the latter, or between a policeman and citizens (Giles, et al., 2006), in which accommodation and non-accommodation behaviours were reported, have both been investigated. Accommodation between employees of different countries of origin, and particularly in the United Arab Emirates (UAE), has been investigated as well (Willemyns et al.,

2011). They found that non-native, non-Emirati employees were reported as non-outsiders by Emirati employees. Another experiment, this time including dyadic conversations both with and without visual contact between interlocutors, was reported by Natale (1975), who aimed at seeing if the need for social recognition leads to convergence by having pairs of two speakers converse, first without any visual contact between the two, and then by having the same pair discussing after one week had elapsed, and results confirmed this.

Another context for speech accommodation is the media environment, for example TV broadcasts, and Bell (1984) theorized that a speaker considers his addressee before he speaks in situations like between an employee and a customer, or in a “mass communication” context (p.171). In addition, he concluded that speakers adjust their speech to their audience. This theoretical framework is called the “Audience Design”, and Gregory and Webster (1996) investigated it. In their study, interlocutors’ social status was of particular importance. Specifically, the authors examined whether the well-known TV presenter, Larry King, accommodated his voice towards 24 guests of his. Additionally, the guests of low status were predicted to accommodate towards the presenter, and the guests of high status were predicted to be accommodated by the presenter: both predictions were confirmed. Associations between Bell (1984) and Gregory & Webster (1996) are made here, because, according to Bell’s framework, a speaker considers his audience before he speaks. Also, Bell’s audience design is predicted to occur in cases of a “mass communication” (Bell, 1984: 171), and in a service, employee-customer situation, as described in Coupland (1984). Quite similar to the TV context in Gregory & Webster (1996), Kalkhoff & Gregory (2008) also dealt with TV broadcastings, only that the latter investigated political debates before the 2008 American presidential election. Bell’s Audience Design theory can accommodate this study by Kalkhoff & Gregory too, because, according to the authors, Obama’s tendency to be non-verbal vocal dominant at the end of his speeches, while McCain was at the beginning and in the middle, could be explained if Obama was considered to use a strategy (“rope-a-dope”: p.47). In short, results of these studies in the media context suggest that a speaker adjusts his speech according to his audience, and such behaviour is captured by Bell’s framework.

To recapitulate previously conducted studies, there has been evidence for accommodation in both laboratory and non-laboratory settings, with shadowing (e.g., Goldinger, 1998; Dossey, 2012; Babel, 2009) or non-shadowing tasks (see, for instance, Gregory & Webster, 1996; Coupland, 1984; Gallois and Callan, 1991, though the corresponding media, customer service, and migrant – native speakers’ social circumstances seem to be quite diverse). Research on vowel variations across regions within the same language has also been conducted: in English (for example, see Evans & Iverson, 2004 and 2007), in Dutch (see, Mitterer & Ernestus, 2008), and in French (Delvaux & Soquet, 2007). Additionally, these studies have shown that speakers do converge towards each other, at least in terms of vowels embedded in words (e.g., Babel, 2009; Dossey, 2012, Delvaux & Soquet, 2007; Evans & Iverson, 2007), segments (like the alveolar and uvular Dutch [r] in Mitterer & Ernestus, 2008), or specific phonological, standard and non-standard, English variations (see, Coupland, 1984). What is more, accent ratings have been reported too (e.g., Munro, et al., 1999). Speech accommodation in the media context has been investigated as well, confirming that the guest speakers of low status accommodated towards the TV presenter, and the latter accommodated towards the guest speakers of high status (Gregory and Webster, 1996). The interlocutors’ status has also been investigated. For instance, in Azuma (1997) the late Japanese Emperor was reported by his chamberlains as accommodating towards civilians, which could be due to the post-war period Azuma focused on. Even speech behaviour by politicians in TV broadcasted political debates has been explored, leading the authors to conclude that probably the Acoustic Analysis Results (AAR) cannot show the dominance of a candidate in a political debate (Kalkhoff & Gregory, 2008). Accommodation among employees of different cultural and language backgrounds (Willemyns et al., 2011), or in a laboratory map task that could be said to resemble a real-life interaction (Pardo, 2006), have also been reported. Furthermore, differences between male and female participants in experiments have been investigated (for instance, see Babel, 2009; Pardo, 2006; Poire & Yoshimura, 1999; Namy et al., 2002). Some of the aforementioned scholars even showed imitation as perceived by listeners in AXB tasks (see, for instance, Babel, 2012; Goldinger, 1998; Goldinger & Azuma, 2004).

Overall, it appears that the vast majority of research studies on accent

imitation have been conducted in laboratory, task elicited conditions, and particularly in shadowing tasks, and these studies seem to outnumber the cases that involve the study of natural speech. Thus, the question raised at this point may concern accent accommodation in social environments where speakers interact with each other for a longer time than in both the laboratory and non-laboratory studies described above. According to the “speaker normalization hypothesis” (see, section **1.2**), increased exposure to certain speakers leads all voice properties, like speakers’ accents, to be deleted from the human memory. The normalization for accent thus seems to contradict the likelihood that the more time exposure to a real social environment, which is neither artificial nor laboratory produced, the more traces of a speaker’s accent may remain in speakers’ memory, even if that speaker’s accent has been continuously heard, and the more accent accommodation may be expected to be observed.

Furthermore, after contemplating the accommodation theory, a speaker will be found to converge if he wishes to gain social approval by his interlocutor and achieve communication between himself and his interactant. So, one is likely to expect accommodation in a social situation with a considerable time duration too. However, these predictions of the theory seem to be restrained when it comes to the duration of convergence. Also, the predictions for convergence (see, section **1.2**) do not seem to include the possibility that a speaker may only act as a listener, and still he may converge his accent towards another speaker’s accent. The present study, therefore, investigates, if in a social context where international accents are heard for a considerable time, speakers converge their accents towards the accent of a particular speaker. This study thus differs from previous studies on accent convergence because it is non-laboratory based, not elicited from a shadowing task, or immediately after a speaker has interacted with another speaker. Conversely, the present study investigates accent change that may occur over time within a College speech community, and specifically addresses the so-called sociolinguistic process of *accent group-convergence*. According to this process, a single speaker attracts in terms of his accent other speakers around him, and section **1.4** that follows presents this process as well as that of *accent magnets* in more detail.

## **1.4 Proposed sociolinguistic terms**

The terms ‘convergence’ and ‘divergence’ have already been described (see, section **1.2**), yet another term relevant to the aims of this study is ‘accent’. Accent has been defined as: “A particular way of pronouncing a language, seen as typical of an individual, a geographical region or a social group. Every speaker of a language necessarily speaks it with some accent or other (...)” (Trask, 2005: p.4). Similar to previous studies that revolved around English (e.g., Dossey, 2012; Babel, 2009; Evans and Iverson, 2004 and 2007), this study focuses on English too, and in fact on the English accents of students in two international campuses.

### **1.4.1 The potential sociolinguistic process of *accent group-convergence***

Having discussed the accommodation theory, the processes of ‘convergence’ and ‘divergence’, and due to the idea that a human learns the language of his new environment (see, Bell, 1984), one may expect language change to occur within speakers when immersed in a new speech community. In this way, accent changes within a speaker as well as within a group of speakers, combined with the accommodation theory, and particularly with the process of convergence, may lead to the potential accommodation processes of *accent group-convergence* and *accent self-divergence*; the present study investigates the existence of the former process. Because this process borrows its name from the already established accommodation process of ‘convergence’, it should be made clear, that the predictions of the accommodation theory presented in section **1.2** are not relevant to the present study. This is because the accommodation theory, as it currently stands, does not seem to predict long-term accommodation that may occur in an environment like the study and living social context of a College campus where individuals spend a lot of time together. In fact, so far the vast majority of the cases that have addressed speakers’ imitation involved speech production by participants that was time restrained and was based on particular situational contexts like the laboratory shadowing conditions in section **1.3.1**, the studies on regional vowel variations in section **1.3.2**, the cases on accent rating in section **1.3.3**, or even the non-laboratory conditions in section **1.3.4**.

It is also for these reasons that the present study aims at finding experimental evidence in favour of the existence of *accent magnets* (see, section 1.4.2), which go against a strong “speaker normalization hypothesis for accent” (see, section 1.2) that supports the idea that the more time exposure to a speaker, then this speaker will be normalized for the listener. Also, the accommodation process of *accent group-convergence*, as proposed here, is not restricted to the migrants’ need to adjust themselves to a new environment (see, Giles et al., 1991 for “group accommodation”: p.20) like in Munro et al. (1999) and Gallois & Callan (1991), and as such, it is not limited to the assumed desire of an ethnic migrant group to be accepted by the dominant group in a multinational country. Conversely, *accent group-convergence* may be said to include groups of international speakers, independently of their native languages or ethnic backgrounds, and one such an indicative population, distinguishable from the minority and majority ethnic groups, are the student populations of international Colleges. A primary definition of *accent magnets* and of *accent group-convergence* can be found next.

#### **1.4.2 Definition of *accent magnets* and of *accent group-convergence***

First is the definition of *accent magnets*, followed by the definition of the so-called *accent group-convergence*.

- ✚ *Accent magnets* are those speakers within a speech community whose accents are liked the most, admired the most, and wished to have the most. Their existence is investigated by the distribution of a naming questionnaire.
  
- ✚ *Accent group-convergence* describes the situation when speakers have accommodated their accents to that of single speaker’s, physically present among them, thus forming a unique accent group around him.

Regarding the first definition, an *accent magnet* could be identified if speakers from the same social context name him most times in accent-related

questions. Once such a magnet is identified, it may be possible to predict the initiation of *accent group-convergence* or observe its progress longitudinally. In short, an *accent magnet* may be found to attract other speakers around him in terms of his accent, and speakers of a language are potential members of an accent group shaped around an *accent magnet*.

Additionally, *accent magnets* and the result of *accent group-convergence* are independent: if an *accent magnet* is reported within a speech community, using a naming questionnaire as the research tool, then those speakers who named the *accent magnet* may have started to converge or have already converged their individual accents towards the *accent magnet's*. This means that on the one hand *accent magnets* can be found by means of a naming questionnaire, yet on the other hand to find evidence in favour of *accent group-convergence* such questionnaire does not suffice. As a result, an *accent magnet* may be reported even if no listening test on accent similarity is conducted, or even if it reveals no accent similarity between speakers and the *accent magnet*. If so, then this *accent magnet* will not be said to form a unique accent group around him, because no *accent group-convergence* will have been reported. In short, if the majority of participants name an agent in questionnaire items about accent liking, admiring and wishing to have, it will be possible to support the existence of *accent magnets*. Yet results of a listening experiment on perceived accent similarity may reveal no such similarity between subjects and the *accent magnet*. It is for these reasons that evidence for the existence of *accent group-convergence* cannot be reported without having listeners perceive accent similarity between speakers (see, for instance Pardo's 2006 AXB listening test, and Boley & Lester's 2009 ABX listening test).

It should be noted here that the existence of *accent magnets* had not been addressed before, at least not in linguistic studies. For example, Kuhl (2000) refers to a "magnet effect" (p.11853, but see p: 11854 for the "Native Language Magnet model") that concerns infants and the mapping of their perceptual understanding of token words in experiments for infants' speech perception. It thus seems that to date research had not yet addressed the existence of the so-called here *accent magnets*, nor the possibility that a speaker has *spread* his accent to that of other speakers resulting in the second accommodating their accents towards the *accent*

*magnet's*. Also, the possibility of existence of accent magnets seems to serve as evidence against a strong “speaker normalization hypothesis” (see, section 1.2), because there may exist a speaker whose accent is not only remembered, but also liked, admired and wished to have. Also, the individuals who feel attracted by the accent of an *accent magnet* may only act as listeners, meaning that they may be merely exposed to the accent of the *accent magnet* without interacting with him.

Thus, the two research questions of this study read as follows: A) do English *accent magnets* exist?, and B) is there any evidence of speech accommodation by means of accent change and in particular of the *accent group-convergence*? To answer both research questions (Res.Qu.s) subjects were recruited from two Colleges, where individuals converse more than in the studies already described in section 1.3. In fact, in multinational countries like the Netherlands and Greece there are international College campuses where the use of English is mandatory. This means that College students in these countries are assumed to interact in English within class hours to say the least. Thus, to examine the existence of *accent group-convergence* students were recruited both from the University College Utrecht (UCU) in the Netherlands and from the American College of Thessaloniki (ACT) in Greece. In the case of UCU no audio recordings of any of the participants was made. Still, analysis of results of a survey where participants named the College person whose English accent they liked the most, they admired the most, they regarded as similar to theirs the most, and they wished they had had the most, revealed a male speaker as the UCU *accent magnet*, and he was most likely from the student population. Because that speaker was not included in the sample, students of the ACT in Greece also answered a questionnaire about the ACT person whose English accent they mostly liked, mostly admired and, mostly wished they had had among other questions. The aim was to first find experimental evidence for the existence of *accent magnets* and of the *accent group-convergence* within ACT. To support the possibility of existence of the latter, speakers were recorded speaking in English in both controlled conditions and in a spontaneous speech. These recordings were later incorporated in a listening experiment to find perceived accent similarity between the speaker who was the *accent magnet* and the speakers who had named this *accent magnet*.

Concluding this Introduction, in section 2 that follows the UCU survey is presented first, followed by the ACT experiment (STAGES I & II). It should be noted that both the UCU and the ACT experiments were neither shadowing nor laboratory-based. Furthermore, neither experiment aimed at eliciting accent accommodation by having participants completing tasks like in previously conducted cases (see, for instance, Pardo, 2006), which could be said to be the contribution of this study.

## **SECTION 2: EXPERIMENTS**

### **EXPERIMENT 1: THE UCU SURVEY**

#### **1. METHODS**

##### **1.1 Participants**

Sixty UCU students participated, and fifty-nine were included in the data analysis. Out of the 44 who answered when they entered UCU, 6 were first-year students (14%), 24 were second-year students (55%), 8 were third-year students (18%), and 6 (14%) were fourth-year students. All participants were blind to the research aims of the survey.

##### **1.2 Materials**

A paper-and-pencil survey (Appendix A) was distributed to the participants. Apart from the photocopies, no other materials were used. The survey items requested participants to write their given name and surname, their date of entry at UCU, and then to name persons within campus with whom they interacted most frequently, and why, whose English accents they liked, admired, regarded as similar to theirs, and wished they had had. Finally, participants could add comments about the survey or the use of English in UCU.

##### **1.3 Procedure**

Subjects who were on campus either individually or in groups were asked by the experimenter if they were UCU students. If a subject answered positively, he was

given a photocopy of the survey. Recruitment was done in two sessions early and late in the afternoon within a single day, on June 11<sup>th</sup>, 2013. Participants' answers were transferred to a spreadsheet manually so to be analyzed.

## **2. RESULTS OF THE UCU SURVEY**

Analysis of the data showed that in all five items where participants named UCU persons, 168 agents were named, either with their first or with both first and last name. Also, out of the 59 participants 12 different participants mentioned the same agent a0 as the person within UCU whose English accent they liked, admired, regarded as similar to theirs, and wished they had had (Appendix B). Specifically a0, labelled here as the UCU *accent magnet*, was mentioned by seven different participants in the accent-liking item, by eight different participants in the accent-admiring, by one participant in the accent-similarity item, and by eight different participants in the accent-wishing item. Neither participant named him in all four accent-related items; conversely, he was mentioned at least in one item of these four items and at most in three of these four items. Also, there was another agent who was named by five different participants and thus was the second most named UCU agent in the sample. Like the UCU *accent magnet*, this second agent was not within participants either, and thus his year of entry at UCU was not known. None of the participants mentioned either a0 or the second most named agent as the UCU persons with whom they interacted most on a daily basis. Still, participants named agents as the ones with whom they communicated, and most participants attributed this frequent interaction of theirs to the shared use of English as the language of communication on campus.

## **3. DISCUSSION OF THE UCU SURVEY**

There was a UCU *accent magnet*, agent a0, because he was named most times in the four accent-related items. Also, participants and agents were all assumed to live and study within UCU because survey items requested the naming of only UCU people. Additionally, some agents might have been members of the teaching staff, yet questions about their profiles cannot be answered since no information about them

was requested. In the same way questions about the UCU *accent magnet's* profile, for instance his year of entry at the College, or his answers to the survey, cannot be reported here either, because he did not complete the survey; as such, only his name and surname were elicited. It should further be noted that no participants' recordings were performed. However, to provide evidence in favour of the existence of *accent group-convergence*, gathering names did not suffice because accent is an audible feature. Thus, a second experiment was conducted in Greece which, like the Netherlands, hosts international Colleges. The sample was recruited from the American College of Thessaloniki (ACT) in northern Greece. This is because both in UCU and the ACT English is the lingua franca. What follows now is the description of the ACT experiment, starting with ACT students' recordings and then their answers to a questionnaire. Both these can be seen in STAGE I. Additionally, STAGE II presents a listening experiment on perceived accent similarity based on these students' recordings.

## **EXPERIMENT 2: THE ACT EXPERIMENT**

### **STAGE I: ACT STUDENTS' RECORDINGS AND ANSWERS TO A QUESTIONNAIRE**

## **2. METHODS**

### **1.2.1 Participants**

Seventeen participants, hereafter speakers, were recruited from two ACT classes of the 2014 spring semester. One speaker self-reported deafness and, therefore, the actual number of speakers analyzed was 16: 6 were male (38%) and 10 were female (63%). Their mean age was 19.1 years, and all were ACT students, except for s10 who reported to study abroad. Ten speakers were native speakers of languages other than Greek (63%). These languages were Albanian, American English, Bulgarian, English, Serbian, and Macedonian. In fact, only six speakers reported Greek as their native language. Lastly, all speakers were blind to the Res.Qu.'s of this study.

## **I.2.2 Materials**

A short English paragraph, hereafter Stella text, from the speech accent archive (Weinberger, 2014) was used to record speakers' English accent in a controlled environment. Also, speakers were asked to briefly explain in English how they travelled to the ACT in different weather to add recordings of spontaneous speech. Lastly, they completed an online questionnaire (Appendix E) in which 23 items aimed at eliciting personal details, i.e. their full name, age, nationality, their native language, and whether they had speech or hearing disorders. Then, speakers answered items that revolved around their study life, meaning whether they were ACT students, their study major, and year of studies, and whether they lived in ACT student apartments, as well as the use of English: if they spoke in English outside classes, in which situation, and for how long. Afterwards, they were asked questions about accent, and specifically which English accent they thought they had, which English accent they wished they had had, the person within ACT with whom they frequently talked, their relation with that person as well as that person's country of origin, the person within ACT whose English accent they liked and that person's country of origin, the person within ACT whose English accent they admired and that person's country of origin, and lastly the person within ACT whose English accent they wished they had had, followed by that person's country of origin. The last item, 24, allowed speakers to write comments they may had. All questions were mandatory, and speakers could freely name the same College person in more than one item.

## **I.2.3 Procedure**

Each speaker individually met the experimenter in a quiet study room in the ACT library in two days, February 27<sup>th</sup> and 28<sup>th</sup>, 2014. Firstly, speakers signed consent forms (Appendix C). Then, to ensure that communication between them and the experimenter would be discouraged, participants were presented with written instructions of the three experimental phases (Appendix D): the first two required speakers to be recorded while speaking out loud in English. During these phases, all speakers wore a headset with microphone. Recordings were made in PRAAT

(Boersma & Weenink, 2014) mono sound at 44100 Hz. Apart from the microphone and a laptop, no other equipment was used. During phase three, speakers completed an online questionnaire at their own pace and without the experimenter’s intervention. Speakers’ recordings were saved as wav files, and the answers to the questionnaire were automatically stored in a spreadsheet so to be analyzed.

### 3. RESULTS OF STAGE I

Results showed that the 16 speakers answered all questions, except that s11 named nobody in item 22. Overall 21 agents were named, either with both given names and surnames or only given names. With respect to potential *accent magnets* and the accent-related items 18, 20 and 22, agent a1 was mentioned by 4 speakers: s1, s5, s6, who were male, and s13 who was female. Additionally, another agent, a2, was mentioned by 4 speakers: s7, who was male, and s8, s15 and s16 who were female. A third female agent a10 was mentioned again by 4 female speakers: these were s2, s9, s16 and s17 (Table 1). Since each of a1, a2 and a10 was mentioned by four different speakers, they could be seen as three *accent magnets* to the same extent. Both a1 and a2 were reported by speakers as members of the ACT teaching staff, and neither was included in the speakers’ sample, whereas a10 was.

All in all, data analysis of the ACT questionnaire revealed three *accent magnets*: a1, a2 and a10. Out of these three *accent magnets*, only a10 was included in the speakers’ sample.

Agents	Item 18	Item 20	Item 22
<b>a1 was named by:</b>	s1, s5, s6	s1, s5	s1, s5, s13
<b>a2 was named by:</b>	s15	s7, s8, s16	s7, s8, s15
<b>a10 was named by:</b>	s2, s9, s16, s17	s9, s17	s9, s16, s17

Table 1. Speakers who named the same three agents in the ACT experiment in the three accent-related items.

## 4. DISCUSSION OF STAGE I

Results of STAGE I showed that three ACT agents were mostly named, and that one of them was in the sample. Each agent was mentioned four times by four different speakers, and speakers overall named 21 agents with either agents' first names or full names. Also, each of the agents a1, a2 and a10 was named at most four times, while out of the 21 agents that were overall named, the majority was named only once. Additionally, speakers were shown to like, admire and wish they had agents' accents, because all except for one, s11, named agents in questions 18, 20 and 22 about accent liking, admiration and wishing respectively. Thus, concerning the Res.Qu.s (see, section 1.4.2), it could be said that question A about the existence of *accent magnets* was answered positively, because three *accent magnets* were found: a1, a2 and a10. It should be noted that agent a10 was ultimately labelled as the ACT *accent magnet*, because she was the only agent out of the three most named ACT agents included in the sample, and thus her recordings could be used as stimulus A in STAGE II

Turning to research question B about the potential accommodation process of *accent group-convergence*, results of STAGE I could neither support nor disprove the existence of this process. This is because there needed to be some evidence in favour of the possibility that speakers actually sounded like a single speaker, physically present among them (see, section 1.4.2 as well). Interestingly enough, one of the most named agents, a10, was included in the sample. This finding along with the naming of a10 by four different speakers were initially expected to yield proof in favour of the existence of *accent group-convergence*, especially once the recordings of these four speakers' were compared to that of a10's. Thus, it was feasible to follow up STAGE I with a listening experiment, and examine if there was perceived accent similarity between either a) the ACT *accent magnet's* a10's recordings or b) the recordings of a speaker in the ACT sample who was a *non-accent magnet*, i.e. she was mentioned by zero speakers, and c) the rest 14 ACT speakers. Also, the ACT *non-accent magnet*, who served as stimulus B in STAGE II, was chosen to match the ACT *accent magnet* a10 in gender, age, native language and year of studies. In this way listeners would focus exclusively on speakers' accent rather than their gender (see,

**STAGE II.2.2** as well), because such a distinguishable feature like a speaker's accent might have influenced listeners' judgments on accent similarity. STAGE II below describes the ACT listening experiment in detail.

## **STAGE II: THE ACT LISTENING EXPERIMENT ON PERCEIVED ACCENT SIMILARITY**

### **2. METHODS**

#### **II.2.1 Participants**

Thirty-eight participants opened the URL of the online listening experiment. All were blind to the Res.Qu.'s of this study, and were recruited by email mostly from classes within Utrecht Universiteit in the Netherlands and the National and Kapodistrian University of Athens in Greece. This was done to reduce the chances of listeners recognizing any of the ACT speakers. Twenty-one participants, henceforth listeners, completed the listening test, and were thus included in the analysis.

#### **II.2.2 Materials**

An online listening questionnaire (Leiner, 2014) with 34 items was created (Appendix G). In items 1-28 listeners selected either stimulus A or stimulus B as sounding more similar to the accent of a speaker X resulting in an 'XAB' format. Another similar type, the ABX, has been used in research where participants decide if a stimulus X is more similar to a stimulus A or a stimulus B (see, Boley & Lester, 2009). Additionally, in the ACT items 29, 31 and 32 listeners typed in their answers, either with numbers or letters; lastly, in items 30, 33 and 34 listeners clicked on the option that was true for them.

Firstly, a short introductory page stated the duration of the questionnaire, the consistency of speakers A and B, as well as the need for listeners to focus on speakers' accents rather than their gender. Then, 28 items required listeners' judgments on accent similarity between two speakers. In these items, ACT speakers' recordings were used as stimulus X, after being converted to mp3s at 128 kbit/s. Items 29 to 34 asked for listeners' age, gender, native language, the amount of hours

they spoke in English on a daily basis, whether they had any speech or hearing disorders, and if they knew that the Stella text was taken from an accent archive. Lastly, there was a “thank you” page, which included the researcher’s email. ‘Back’ and ‘next’ buttons were available throughout the questionnaire, yet all items were mandatory. Data collection finished within 8 days, from April 9<sup>th</sup> to 16<sup>th</sup>, 2014.

### II.2.3 Procedure

Listeners accessed the online questionnaire through their browsers. The first 28 items were in the ‘XAB’ format described in **STAGE II.2.2** above. For instance, if a speaker who read the Stella text or spoke spontaneously (stimulus X) was perceived as sounding more similar to A’s recording of the Stella text or of spontaneous speech, then listeners clicked on A; if this speaker was perceived as sounding more similar to B’s recording of the Stella text or of spontaneous speech, then listeners clicked on B, after listening to both A’s and B’s recordings. If neither A nor B was selected, listeners were advised to make a choice. This process was done for 28 recordings, 14 of the Stella text and 14 of spontaneous speech, of the 14 ACT speakers, placed in a random order (Appendix F). A and B were constant in all items: A was the ACT *accent magnet*, a10, and B was the ACT *non-accent magnet*, s11, yet listeners did not see any of these accent terms, only ‘A’ and ‘B’.

## 3. RESULTS OF STAGE II

Listeners’ mean age was 24.3 years. Regarding their native language 17 reported English (80%), 2 Dutch (10%), 1 Italian (5%), and 1 American English (5%). Two were male (10%) and 19 were female (90 %). The amount of hours listeners freely reported speaking in English ranged from “not at all” to “all the time”. None reported a speech or a hearing disorder. Additionally, none knew the Stella text or had heard it being read before.

Additionally, in 22 of the 28 items A was chosen more often as the speaker who sounded more similar to the different ACT speakers. Contrastingly, in 6 of the 28 items the ACT speakers’ recordings were perceived as sounding more similar to B’s recordings; in fact, in four out of these six items the recordings were of the Stella text. Items 11 and 18 showed that all listeners unanimously perceived s7’s accent as

sounding more similar to A's than B's in both s7's recordings (Appendix H).

A two-tailed chi-square test of independence with Yates' correction revealed that the relation between the two variables, i.e. 1) the type of recording, i.e. either the Stella text or spontaneous speech, and 2) the number of times A and B were chosen, was statistically significant:  $\chi^2(1, N=21) = 4.99, p < .05$ . This means that the recording type had a significant effect on listeners' choice between A and B. As Table 2 shows, 60% of the times listeners perceived speakers' recordings of the Stella text as sounding more similar to A's, while 40% of the times as more similar to B's.

Recording type	Number of times listeners selected A	Percentages	Number of times listeners selected B	Percentages	Total number of times
Stella text	175	60%	119	40%	294
Spontaneous speech	202	69%	92	31%	294
<b>Total</b>	<b>377</b>		<b>211</b>		<b>588</b>

Table 2. Contingency table for all the times the 21 listeners selected A and B shown per type of recording.

The difference between choosing A or B was greater when the speakers' recordings of spontaneous speech were compared to A's and B's: 69% of the times A was opted and 31% of the times B was chosen. Thus, listeners decided that across all 28 items A sounded more similar to each of the speaker's recordings, and this preference for A was stronger in the spontaneous speech (69%) compared to the Stella text (60%). Additionally, as already discussed, there were four speakers who named the ACT *accent magnet* a10 in the questionnaire (STAGE I, Table 1). These were speakers s2, s9, s16 and s17, and their recordings were randomly placed in items 2, 4, 13, 17, 24, 25, 27 and 28 of the questionnaire (Appendix F). Thus, it might have been reasonable to expect that these four speakers would be perceived as

sounding more like A, the ACT *accent magnet*, than B, the ACT *non-accent magnet*. This means that listeners could have been expected to choose A's recordings more times than B's, yet the observed results of the listening experiment did not confirm this. Contrastingly, results of STAGE II revealed that in these 10 items, B's recordings were chosen more times than A's in both types of recordings (Appendix H).

Three chi-square tests of independence were conducted for both recordings (Table 4.1) and separately per type of recording (Tables 4.2 and 4.3) to confirm the relation between the two variables, 1) type of speaker, and 2) the choice between A and B. What follows now is a detailed presentation of these tests.

So, a two-tailed chi-square test with Yates' correction first on both types of recordings combined showed that the relation between the two variables was significant:  $\chi^2 (1, N=21) = 95.00, p < .05$ . This finding means that there were indeed differences between choosing A and choosing B across the two speakers' categories, i.e. the ones who named the ACT *accent magnet* and the ones who did not, based on speakers' combined recordings, the recording type. As can be seen from Table 4.1, listeners perceived speakers' recordings as sounding more similar to B than A in both recording types, because 67% of the times listeners perceived speakers' s2, s9, s16 and s17 recordings as sounding more similar to B's, whereas 33% as more similar to A's. Thus, listeners judged that the majority of the speakers who named the ACT *accent magnet* actually sounded more like the ACT *non-accent magnet* than the former in both recording types. On the other hand, regarding the ten speakers who did not name the ACT *accent magnet*, results showed that 76% of the times these speakers' combined recordings were perceived as sounding more like A's compared to 24% times that B's was opted.

Because speakers were recorded twice, two additional chi-square tests were performed to answer in which type of recording, the Stella text or the spontaneous speech, the difference in listeners' choices between A and B was larger. Tables 4.2 and 4.3 show these cross-tabulated frequencies.

Thus, regarding the four speakers who named the ACT *accent magnet* and their recordings of the Stella text, most times (82%) listeners selected B's text than A's (18%) (Table 4.2). On the other hand, when comparing speakers' s1, s4, s5, s6, s7, s8, s12, s13, s14 and s15 to A's and B's Stella recordings, it was found that most

times (76%) listeners opted for A's recording of the text. Additionally, a chi-square test of independence with Yates' correction showed that speakers' recordings of the text had a significant effect on listeners' choices between A's and B's recordings of the text:  $\chi^2 (1, N=21) = 82.33, p < .05$ . Also, as it can be seen in Table 4.3, concerning the four speakers who named the ACT *accent magnet*, listeners chose B's spontaneous speech by 51% and 49% of the times A's spontaneous speech. Conversely, when listeners compared the spontaneous speech of speakers' s1, s4, s5, s6, s7, s8, s12, s13, s14, s15 to A's and B's, it was found that A's was opted most times, 77%, whereas B's was chosen 23% of the times. A chi-square test of independence with Yates' correction (Table 4.3) further showed that speakers' spontaneous speech again had a statistically significant effect on listeners' choices between A's and B's spontaneous speech:  $\chi^2 (1, N=21) = 20.38, p < .05$ . This means that speakers' spontaneous recordings too had a statistically significant effect on listeners' choices between A's and B's spontaneous speech, similar to the significant effects of the Stella recordings (Table 4.2) and of the combined recording types (Table 4.1) on listeners' choices between A and B.

Type of speaker	Number of times listeners selected		Percentages		Total number of times
	A	B	A	B	
<b>4.1</b>					
s4*	56	112	33%	67%	168
s10*	321	99	76%	24%	420
<b>Total</b>	<b>377</b>	<b>211</b>			<b>588</b>
<b>4.2</b>					
s4*	15	69	18%	82%	84
s10*	160	50	76%	24%	210
<b>Total</b>	<b>175</b>	<b>119</b>			<b>294</b>

<b>4.3</b>					
<b>s4*</b>	41	49%	43	51%	84
<b>s10*</b>	161	77%	49	23%	210
<b>Total</b>	202		92		294

Table 4. Contingency table for speakers s4\* who named the ACT *accent magnet* and s10\* who did not, shown: per combined speakers' recordings (4.1), per speakers' recordings of the Stella text (4.2), and per speakers' spontaneous speech (4.3).

So, there was a contradiction between what was anticipated and the observed findings, because it had been expected that the four speakers who in STAGE I named the ACT *accent magnet* a10 would also be perceived in STAGE II as sounding more like her, after being compared to the ACT *non-accent magnet*. Possible explanations why these were the findings are presented in section 3.

## 4. DISCUSSION OF STAGE II

Regarding research question B about the possibility of existence of *accent group-convergence* (see, section 1.4.2), it was reasonable enough to speculate that there might have been ACT speakers who were attracted by agent's a10 accent, the ACT *accent magnet's*, and thus formed a unique accent group around her. In fact, the ACT *accent magnet* was found because four speakers had named her in STAGE I, thus answering research question A positively. However, if research question B had been verified, then the majority of the 21 listeners, all blind to the present study, would have decided that these four speakers' recordings sounded more similar to A, the ACT *accent magnet*, than to B, the ACT *non-accent magnet*, especially after comparing A's recordings to B's. Findings of STAGE II showed that, on the contrary, the recordings of the four speakers who named the ACT *accent magnet* in STAGE I, were perceived as more similar to the ACT *non-accent magnet* B than the ACT *accent magnet* A, whereas the ten speakers who did not name the ACT *accent magnet* were perceived as sounding more similar to her compared to the ACT *non-accent magnet*. Thus, there was not any perceived accent similarity found between speakers s2, s9,

s16 and s17 and the ACT *accent magnet* A in either the combined recordings (Table 4.1) or any of the analyses of each recording type (see, Table 4.2 for the Stella text and Table 4.3 for the spontaneous speech). All in all, research question B about the possibility of existence of *accent group-convergence* was not answered positively.

## SECTION 3: GENERAL DISCUSSION

What follows now is a more general discussion of the UCU survey and the ACT experiment, both of which were conducted in a study and living environment where speakers interact for more time than in laboratory conditions, as opposed to previously conducted studies on speakers' imitation.

The findings of this study overall revealed four agents who were named most times by subjects: one was in UCU in the Netherlands and three in the ACT in Greece (see, section 2). For the ACT case in particular, only one of the three most named agents was ultimately labelled as the ACT *accent magnet*, because she was included in the sample and was thus used in STAGE II as stimulus A. Concerning the *accent magnets'* profiles, in the case of the UCU *accent magnet* agent a0, his name and surname were the only personal details known. As for the ACT *accent magnet* a10, she was 19, native Greek speaker with an American nationality, and most likely a student on exchange. Such identification of *accent magnets* in STAGE I answered positively research question A, and seems to serve as evidence against a strong "speaker normalization hypothesis" for accent (see, section 1.2). This is because it was shown that there were subjects within the same study environment who liked, admired, regarded as similar to theirs, and wished they had had the English accent of particular speakers among them, contrary to the idea that the more exposure to a speaker's accent, then his accent would not be remembered. Such findings on the existence of *accent magnets* had not been reported in linguistic studies before.

Additionally, data analysis in STAGE II revealed a contradiction between the expected and the observed results of the listening experiment (see, **STAGE II.3**). This could be due the fact that the four speakers who named the ACT *accent magnet*, all native Greek speakers, had a strong foreign accent when speaking in English, which must have led listeners to perceive them as sounding more like the ACT *non-accent magnet*, a native Greek speaker, than the ACT *accent magnet*, a native Greek speaker who also studied abroad. In fact, speakers' Greek accent was audible even to the experimenter, and, as such, listeners in STAGE II decided that there was not any *accent group-convergence* among the four speakers who named the ACT *accent magnet* in STAGE I and the ACT *accent magnet* herself. Because the four speakers

who named this *accent magnet* were in fact not perceived as sounding like her, research question B about the possibility of existence of *accent group-convergence* was not answered positively. A potential account for this may be that speakers have not yet started to accommodate their accents to that of the *accent magnet's*. It is also likely that because the ACT *accent magnet* studied abroad, her speech rhythm had changed towards that of the native speakers of the country where she studied. This was verified by the experimenter after listening to her recording and comparing it to the speech rhythm of the four native Greek speakers'. Such possibility cannot be overlooked, though the ACT *accent magnet* was not requested to yield any additional information about the country where she studied. There is also the likelihood that the ACT *accent magnet* a10 had an attractive voice which led the four speakers, a2, a9, a16 and a17 to name her in STAGE I. If so, then listeners could not have possibly detected any accent similarity between each of these four speakers and a10, because the former may only feel attracted to a10's accent and thus did not sound like her. After all, the two proposed sociolinguistic terms, *accent magnets* and *accent group-convergence*, have been said here to be independent from one another (see, section 1.4.2 too). Additionally, had the other two agents, a1 and a2, been included in the speakers' sample, results of STAGE I and listeners' choices in STAGE II would probably have been different from the ones reported in this study, yet this cannot be proven here. Some weak points in the experiments are seen below in section 3.1.

### **3.1 Weak points in both experiments**

Both the UCU survey and the ACT experiment overall exhibited some weaknesses. Concerning first the UCU survey, more personal details could have been requested, such as students' age and native language to create their profiles. As for the ACT experiment, a number of drawbacks are discussed next.

To begin with, the sample in STAGE I was rather small because 16 speakers were included in the analysis, while 21 listeners participated in STAGE II. Another limitation might be the possibility that between sessions ACT speakers communicated and pre-decided their answers, or there could be chances of speakers

having typed in agents' names incorrectly. Yet all speakers' answers were regarded as valid. In addition, phonetically trained students or native English speakers could have been recruited, and thus the results in STAGE II might have been different from the ones presented in this study, if the group of listeners had been consisted of students who majored in Phonetics. This suggests that the possibility of existence of *accent group convergence* might have been answered positively if a different cohort of listeners had completed the listening test.

Additionally, 2 listeners mentioned in item 32 that they did not speak in English at all, still they were not excluded from data analysis. This was done because it was assumed that all listeners were competent enough to complete the questionnaire. It should further be noted that in STAGE II listeners necessarily chose one of the two options, A or B. This clearly shows that listeners were not offered a 'neither' option which in some cases might have been true. The possibility that the speakers in the ACT sample had just started to converge their accents to that of the ACT *accent magnet's* a10 during sampling cannot be overlooked either. If so, the listening experiment could not possibly have captured any *accent group-convergence* towards the accent of the ACT *accent magnet*. What follows now is a presentation of a research mechanism for conducting research on *accent group-convergence*, which has its basis on the methodology of this study with slight alterations.

### **3.2. Proposed research mechanism**

To date there had not been a research mechanism for investigating accent convergence towards a single speaker. Conversely, the present study presented a binary mechanism which can be applied with some amendments in experimental studies that aim at exploring accent accommodation in contexts where individuals converse for a considerable time.

Specifically, it was shown here that for the four speakers who named the ACT *accent magnet* in STAGE I, the difference between choosing A and B in their recordings of spontaneous speech was 2%, which was smaller than the difference, 64%, between choosing A and B in their Stella text recordings (cf. the frequencies for

s4\* in Tables 4.2 and 4.3). This finding could be due to the short duration of the spontaneous speech compared to the increased duration of the Stella text, because listeners probably had more time to perceive the non-native accent of the four speakers' in their Stella recordings than in their spontaneous speech. In fact, out of the 22 items in which speakers' recordings were found to be more similar to the ACT *accent magnet* than the ACT *non-accent magnet*, 10 items were recordings of the Stella text, and the remaining 12 were of spontaneous speech (Appendix H). Thus, this result suggests that the controlled environment, that of the Stella text, led listeners to decide against the possibility of existence of accent similarity between the ACT *accent magnet* who studied abroad and the four speakers who were most profoundly native Greek speakers. It also seems that in a reading environment where the text will not be as long as the Stella text, the possibilities of identifying accent similarity between two speakers might increase. Along with the fact that in the ACT experiment speakers' sample was rather small, a follow-up research would better include two stages like the present study's, and two conditions should be satisfied as well: the first regards the sample size of both speakers' (STAGE I) and listeners' (STAGE II) which could be larger than this study's, and the second concerns the length of the text in STAGE I which could be either shorter than the Stella text or speakers can be recorded reading half of it. Lastly, because STAGE II depends entirely on listeners' judgments, to increase the validity of the listening experiment two cohorts of listeners should be recruited, one with naive and one phonetically trained listeners, much like in Munro et al. (1999) (see, section 1.3.3), and all must be blind to the research aims. Concluding remarks that end this study are found in section 4 that follows.

## SECTION 4: CONCLUDING REMARKS

This study did not involve shadowing or any other laboratory task for eliciting speech imitation, as opposed to previously conducted research (see, section 1.3). Still, the reported results showed that English *accent magnets* may exist, because in accent-related items there were four agents named most of the times: one was found in UCU and three in the ACT. Also, none of the agents who named the accent magnets mentioned them as the persons with whom they interacted most frequently (see, section 1.4.2 as well). Though the possibility of existence of *accent group-convergence* was not verified in STAGE II of the ACT experiment, the findings presented herein could serve as evidence against a strong “speaker normalization hypothesis” (see, section 1.2), which supports that the more time exposure to a speaker’s accent, then this speaker will be normalized for the listener.

Additionally, speakers s2, s9, s16 and s17 who named the ACT *accent magnet* in STAGE I were actually found not to sound like her in STAGE II, contrary to what might have been expected (see, also section 1.4.2). This result was probably due to the audible foreign accent of the ACT *non-accent magnet* compared to the ACT *accent magnet* a10 who studied outside Greece. As a result, if the present study were to be repeated, there could be evidence in favour of the existence of *accent-group convergence*, depending on the number of *accent magnets* and their native languages, as well as on listeners’ judgments.

All in all, the present study could be said to pave the way to similar experimental types of linguistic research, yet larger samples of both speakers’ and listeners’ are required to support the existence of the *accent magnets* and the potential accommodation process of *accent group-convergence*.

## REFERENCES

Azuma, S. (1997). Speech accommodation and Japanese emperor Hirohito. *Discourse & Society*, 8 (2), 189-202.

Babel, M. (2009). *Selective vowel imitation in spontaneous phonetic accommodation*. UC Berkeley Phonology Lab Annual Report (163-194). University of California, Berkeley.

Retrieved from:

[http://linguistics.berkeley.edu/phonlab/annual\\_report/documents/2009/Babel\\_labreport.pdf](http://linguistics.berkeley.edu/phonlab/annual_report/documents/2009/Babel_labreport.pdf)

Beebe, L. M., & Giles, H. (1984). Speech-accommodation theories: a discussion in terms of second-language acquisition. *International Journal of the Sociology of Language*, 46, 5-32.

Bell, A. (1984). Language style as audience design. *Language in Society*, 13, 145-204.

Boersma, P., & Weenink, D. (2014). PRAAT: doing phonetics by computer [Computer program]. Version 5.3.11. Available from: <http://www.praat.org>

Boley, J., & Lester, M. (2009). *Statistical analysis of ABX results using signal detection theory*. Paper presented at the 127<sup>th</sup> Convention of the Audio Engineering Society (AES), New York, USA.

Coupland, N. (1984). Accommodation at work: some phonological data and their implications. *International Journal of the Sociology of Language*, 46, 49-70.

Delvaux, V., & Soquet, A. (2007). The influence of ambient speech on adult speech productions through unintentional imitation. *Phonetica*, 64, 145-173.

Dossey, E.E. (2012). Spontaneous phonetic imitation across regional dialects. Linguistics Honors Project. Macalester College. Retrieved from: [http://digitalcommons.macalester.edu/ling\\_honors/8/](http://digitalcommons.macalester.edu/ling_honors/8/)

Evans, B. G., & Iverson, P. (2004). Vowel normalization for accent: an investigation of best exemplar locations in northern and southern British English sentences. *Journal of the Acoustical Society of America*, 115 (1), 352-361.

Evans, B. G., & Iverson, P. (2007). Plasticity in vowel perception and production: a study of accent change in young adults. *Journal of the Acoustical Society of America*, 121 (6), 3814-3826.

Gallois, C., & Callan, V. J. (1991). Interethnic accommodation: the role of norms. In Giles, H., Coupland, J., & Coupland, N. (Eds.), *Contexts of Accommodation: Developments in Applied Sociolinguistics* (245-269). Cambridge: Cambridge University Press. Chapter DOI: <http://dx.doi.org/10.1017/CBO9780511663673.008>

Giles, H., Coupland, N., & Coupland, J. (1991). Accommodation theory: communication, context, and consequence. In Giles, H., Coupland, J., & Coupland, N. (Eds.), *Contexts of Accommodation: Developments in Applied Sociolinguistics* (1-68). Cambridge: Cambridge University Press. Chapter DOI: <http://dx.doi.org/10.1017/CBO9780511663673.001>

Giles, H., Taylor, D. M., & Bourhis, R. (1973). Towards a theory of interpersonal accommodation through language: some Canadian data. *Language in Society*, 2(2), 177-192.

Giles, H., Willems, M., Gallois, C., & Anderson, M. C. (2006). Accommodating a new frontier: the context of law enforcement. In Fiedler, K. (Ed.), *Social Communication* (129-162). New York: Psychology Press. Retrieved from: <http://escholarship.org/uc/item/8599410c>

Goldinger, S.D. (1996). Words and voices: episodic traces in spoken word identification and recognition memory. *Journal of Experimental Psychology*, 22 (5), 1166-1183.

Goldinger, S.D. (1998). Echoes of echoes? An episodic theory of lexical access. *Psychological Review*, 105 (2), 251-279.

Goldinger, S. D., & Azuma, T. (2004). Episodic memory reflected in printed word naming. *Psychonomic Bulletin & Review*, 11 (4), 716-722.

Gregory, S.W. Jr., & Webster, S. (1996). A nonverbal signal in voices of interview partners effectively predicts communication accommodation and social status perceptions. *Journal of Personality and Social Psychology*, 70 (6), 1231-1240.

Hintzman, D.L. (1986). "Schema Abstraction" in a multiple-trace memory model. *Psychological Review*, 93 (4), 411-428.

Holmes, J. (2001). *An Introduction to Sociolinguistics*. Essex: Longman.

Johnson, K., Strand, E. A., & D'Imperio, M. (1999). Auditory-visual integration of talker gender in vowel perception. *Journal of Phonetics*, 27, 359-384. Retrieved from: [http://www.utdallas.edu/~assmann/hcs6367/johnson\\_strand\\_dimperio99.pdf](http://www.utdallas.edu/~assmann/hcs6367/johnson_strand_dimperio99.pdf)

Kalkhoff, W., & Gregory, S.W.Jr. (2008). Beyond the issues: nonverbal vocal communication, power rituals, and "rope-a -dopes" in the 2008 presidential debates. *Current Research in Social Psychology*, 14 (3), 39-51.

Kuhl, P.K. (2000). A new view of language acquisition. *Proceedings of the National Academy of Science*, 97 (22), 11850-11857.

Leiner, D. J. (2014). SoSci Survey (Version 2.4.00-i) [Computer Software]. Available from: <http://www.soscisurvey.com>

Luce, P. A., Goldinger, S.D., Auer, E.T. Jr., & Vitevitch, M.S. (2000). Phonetic priming, neighborhood activation, and PARSYN. *Perception & Psychophysics*, 62 (3), 615-625.

Mitterer, H., & Ernestus, M. (2008). The link between speech perception and production is phonological and abstract: evidence from the shadowing task. *Cognition*, 109, 168-173.

Munro, M. J., Derwing, T. M., & Flege, J. E. (1999). Canadians in Alabama: a perceptual study of dialect acquisition in adults. *Journal of Phonetics*, 27, 385-403.

Namy, L. L., Nygaard, L. C., & Sauerteig, D. (2002). Gender differences in vocal accommodation: the role of perception. *Journal of Language and Social Psychology*, 21 (4), 422-432.

Natale, M. (1975). Social desirability as related to convergence of temporal speech patterns. *Perceptual and Motor Skills*, 40, 827-830.

Pardo, J. S. (2006). On phonetic convergence during conversational interaction. *Journal of the Acoustical Society of America*, 119 (4), 2382-2393.

Shepard, C. A., Giles, H., & Le Poire, B.A. (2001). Communication accommodation theory. In Robinson, W. P., & Giles, H. (Eds.), *The New Handbook of Language and Social Psychology* (33-56). West Sussex, England: Wiley.

Shockley, K., Sabadini, L., & Fowler, C.A. (2004). Imitation in shadowing words. *Perception & Psychophysics*, 66 (3), 422-429.

Strand, E. A., & Johnson, K. (1996). Gradient and visual speaker normalization in the perception of fricatives. In Gibbon, D. (Ed.), *Natural Language Processing and Speech Technology: Results of the 3<sup>rd</sup> KONVENS Conference* (14-26). Berlin: Mouton de Gruyter. Retrieved from:  
<http://www.lel.ed.ac.uk/~sssocio/SSS2010/readings/Rob/strand%20and%20johnson%201996-1.pdf>

Trask, R.L. (2005). *Dictionary of Phonetics and Phonology*. London: Routledge. Retrieved from: <http://data.ulis.vnu.edu.vn/jspui/bitstream/123456789/2931/1/077%20-%20%20A%20Dictionary%20of%20Phonetics%20and%20Phonology.pdf>

Weinberger, H. S. (2014). Speech Accent Archive (the). George Mason University, Fairfax. Retrieved from: <http://accent.gmu.edu/>

Willemys, M., Hosie, P., & Lehaney, B. (2011). Communication and social identity dynamics in UAE organizations. *International Review of Business Research Papers*, 7 (2), 245-256.

Zuengler, J. (1991). Accommodation in native-nonnative interactions: going beyond the “what” to the “why” in second-language research. In Giles, H., Coupland, J., & Coupland, N. (Eds.), *Contexts of Accommodation: Developments in Applied Sociolinguistics* (233-244). Cambridge: Cambridge University Press. Chapter DOI: <http://dx.doi.org/10.1017/CBO9780511663673.007>

## APPENDICES

### Appendix A

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#### UCU English Accent Project: Social Survey- June, 2013

*My name is Maria Koutiva, and I am a research MA student at the UU. You may have seen me working on the UCU English Accents Project. For my thesis, I am analyzing current social relations formed on campus, and their possible effects on UCU English accents.*

*The present social survey requires approximately 5 minutes to fill in, and is related to the UCU English Accent Project which focuses on different English accents of UCU students. I would be grateful if you could complete **all** 5 sentences that follow, using for each blank the full name of **one** person. You may respond with the **same** name repeatedly, or use **different** names for **different** responses, as you think appropriate.*

*Your answers will be collected and analyzed for my thesis, and will remain strictly confidential, and anonymous in any reports of this survey.*

*All fields are required*

ID [please leave blank]:

Given name:

Surname:

Date of entry at UCU (date/ month/ year):

1. Out of all the people I have met so far on campus, on a daily basis...
  - a) I speak in English mostly with [Please provide given name and surname of only one person]:
  - b) because [Please feel free to elaborate on the reason you chose to mention the person in item 1 above]:
2. Out of all the people I have met so far on campus, I like the way this person speaks in English [Please provide given name and surname of only one person. May be different from your answer to Q1 above]:
3. Out of all the people I have met so far on campus, I admire the way this person speaks in English [please provide given name and surname of only one person. May be different from your answer to Q1 and Q2 above]:
4. Out of all the people I have met so far on campus, I think this person's English accent is most similar to mine [please provide given name and surname of only one person. May be different from your answer to Q1, Q2 and Q3 above]:

5. Out of all the people I have met so far on campus, I wish I spoke English with the same English accent as this person [please provide given name and surname of only one person. May be different from your answer to Q1, Q2, Q3 and Q4 above]:

Do you have any comments or suggestions?

(About this survey, or in general about English on UCU)

Thank you for your time and consideration! ☺

## Appendix B

Participants ‘p’ who mentioned the UCU agent a0, labelled here as the UCU *accent magnet*, in the four accent-related items.

Participants	accent -liking	accent- admiring	accent- similarity	accent- wishing
p1		a0		a0
p2	a0	a0		a0
p3	a0	a0		
p4		a0		a0
p5			a0	a0
p6	a0	a0		a0
p7				a0
p8	a0	a0		a0
p9	a0			
p10	a0			
p11	a0	a0		a0
p12		a0		

## Appendix C

### A) Consent form\_ ALL PARTICIPANTS

I hereby confirm that I consent to participate in the linguistic experiment run by research MA student Maria Koutiva (University of Utrecht, The Netherlands), which includes the completion of an online questionnaire and a short audio recording. None of the names, including mine, will ever be published, and all gathered data will be used **only** for research purposes. I do not expect any reward for my contribution. I agree and sign with today's date (please, use **CAPITAL LETTERS**):

Name	Surname	Date	Signature
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
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22.			
23.			

## B) Consent form \_ EACH PARTICIPANT

I hereby confirm that I consent to participate in the linguistic experiment run by research MA student Maria Koutiva (University of Utrecht, The Netherlands), which includes the completion of an online questionnaire and a short audio recording. None of the names, including mine, will ever be published, and all gathered data will be used **only** for research purposes. I do not expect any reward for my contribution. I agree and sign with today's date (please, use **CAPITAL LETTERS**):

Name	Surname	Date	Signature

The experimenter,

## Appendix D

INSTRUCTIONS

ANATOLIA 2014 (February 27<sup>th</sup> & 28<sup>th</sup>, 2014)

### PHASE 1:

You should read the following text at your ease while being recorded. Before we start the recording, please read the text silently; if there are words you do not know, you may ask the experimenter. **If you are ready to record, say to the experimenter: "I am ready!"**

### READING TEXT

Please call Stella. Ask her to bring these things with her from the store: Six spoons of fresh snow peas, five thick slabs of blue cheese, and maybe a snack for her brother Bob. We also need a small plastic snake and a big toy frog for the kids. She can scoop these things into three red bags, and we will go meet her Wednesday at the train station.

slab= a large, thick, flat piece of something (in our case, cheese)

**Now, please turn the page.**

INSTRUCTIONS

ANATOLIA 2014 (February 27<sup>th</sup> & 28<sup>th</sup>, 2014)

### PHASE 2:

You will be recorded answering this question:

*How do you travel to Anatolia when it rains and when it is a sunny day?*

(Hints: you do not need to say much; for instance, say whether you drive your car, or use any of the public means of transport.)

**If you are ready to record, say to the experimenter: “I am ready!”**

**Now, please turn the page.**

INSTRUCTIONS

ANATOLIA 2014 (February 27<sup>th</sup> & 28<sup>th</sup>, 2014)

**PHASE 3:**

Please, look at the computer screen. Read **carefully** the introductory part of **each** question before typing in any answers. Make sure whatever you type is **true**. Once you are done, you may exit the room. Thank you very much in advance!

## Appendix E

### Questionnaire (ACT), 2014

Dear ACT student,

Feel free to email me, if you have any questions or you would like to know the results of my experiment:  
[m.koutiva@students.uu.nl](mailto:m.koutiva@students.uu.nl).

Thank you for your time, and best of luck with your studies!

\*Required

#### Participant's ID

Please, leave blank.

#### 1) What is your name? \*

Please, type in your full name, including first name and surname (for instance, Μαρία Κουτίβα).

#### 2) How old are you? \*

(for instance, 21).

#### 3) What is your nationality? \*

(for instance, Greek).

#### 4) What is your native language? \*

(for instance, English).

**5) Have you got any speech or hearing disorders? \***

(for instance, deafness).

**6) Are you currently an ACT student? \***

Please, choose Yes if you are indeed an ACT student and No if otherwise. If you are not an enrolled student, please specify your status in the space next to the 'other' option.

- Yes
- No
- Other:

**7) What is your study major? \***

(for instance, linguistics. If you have not decided yet, please type in your preferable major).

**8) In which year of your studies are you now? \***

(for instance, first).

**9) Do you currently live in the student apartments offered by ACT? \***

Please, choose Yes if you live in student residences and No if otherwise.

- Yes
- No

**10) Do you SPEAK in ENGLISH outside classes, too? \***

Please, choose Yes if you SPEAK in ENGLISH both in your classes AND elsewhere, and No if otherwise.

- Yes
- No

**11) If you answered Yes in question 10 above, could you please specify where else you SPEAK in ENGLISH? \***

(for instance, at home with my parents).

**12) If you answered Yes in question 10 above, could you please specify how often you SPEAK in ENGLISH on a daily basis? \***

(for instance, more than 3 hours every day).

**13) Which English accent do you think you have? \***

(for instance, American English).

**14) Which English accent do you wish you had? \***

(for instance, American English).

**15) Out of all the people you know so far in ACT, with whom do you mostly SPEAK in ENGLISH on a daily basis? \***

Please, type in only ONE name. You need to SPEAK in ENGLISH with that person within ACT.

**16) Could you please specify the relation between you and the person you mentioned in question 15 above? \***

(for instance, we are best friends or we follow the same courses together).

**17) Regarding the person you mentioned in question 15 above, where is he or she from? \***

Please, type in that person's country of origin. If you are unsure or you do not know, please type in either "I am not sure" or "I do not know".

**18) Out of all the people you know so far from ACT, whose ENGLISH accent do you like the most? \***

Please, type in only ONE name. It may be the same name as in question 15 above.

**19) Could you please specify the relation between you and the person you mentioned in question 18 above? \***

Write whatever is close to truth; for instance, "She is my best friend", "I don't know him that well" or "I have only heard her speak once".

**20) Out of all the people you know so far from ACT, whose ENGLISH accent do you admire the most? \***

Please, type in only ONE name. It may be the same name as in questions 15 or 18 above.

**21) Could you please specify the relation between you and the person you mentioned in question 20 above? \***

Write whatever is close to truth; for instance, "She is my best friend", "I don't know him that well" or "I have only heard her speak once".

**22) Out of all the people you know so far from ACT, whose ENGLISH accent do you wish you had? \***

Please, type in only ONE name. It may be the same name as in questions 15, 18 or 20 above.

**23) Could you please specify the relation between you and the person you mentioned in question 22 above? \***

Write whatever is close to truth; for instance, "She is my best friend", "I don't know him that well" or "I have only heard her speak once".

**24) Have you got any remarks or comments?**

Please, type in anything that could, also, help us improve this questionnaire. Otherwise, you may leave blank.

Submit

100%: You made it.

Never submit passwords through Google Forms.

## Appendix F

- 1)  $s_1 = 1$
- 2)  $s_{17a} = 2$
- 3)  $s_{5a} = 3$
- 4)  $s_{2a} = 4$
- 5)  $s_4 = 5$
- 6)  $s_{14a} = 6$
- 7)  $s_6 = 7$
- 8)  $s_{1a} = 8$
- 9)  $s_{12} = 9$
- 10)  $s_{6a} = 10$
- 11)  $s_7 = 11$
- 12)  $s_{12a} = 12$
- 13)  $s_{9a} = 13$
- 14)  $s_{8a} = 14$
  
- 15)  $s_{13a} = 15$
- 16)  $s_5 = 16$
- 17)  $s_{16a} = 17$
- 18)  $s_{7a} = 18$
- 19)  $s_{13} = 19$
- 20)  $s_{15a} = 20$
- 21)  $s_{14} = 21$
- 22)  $s_{4a} = 22$

- 23) s15 = 23
- 24) s9 = 24
- 25) s16 = 25
- 26) s8 = 26
- 27) s17 = 27
- 28) s2 = 28

**Note that 's' stands for speaker, followed by participation number. If there is no 'a', then the recording is of the "Please call Stella" text. If there is an 'a', it is the recording of spontaneous speech about travelling means.**

## Appendix G

Dear UU student, you need less than 15' for this experiment. There are two types of sound recordings: the one is a short English text that starts with "Please call Stella", and the other is spontaneous speech about travelling means. Also, speakers A and B are constant. Please, listen to the three (3) audio files in each question only once, and focus on speakers' ACCENT and not on their gender. If you have headphones, wear them now. Otherwise, make sure there is the least possible noise around you. Thank you in advance!

Next

1) Above is speaker's 1 English accent: does it sound more similar to A's English accent or to B's English accent?



A's English accent



B's English accent

Back

Next

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Note that question 1 above was duplicated for all 28 recordings (**Appendix F**), and questions 1-6 below were numbered as 29-34 respectively.

### 1. How old are you?

You can type either letters or numbers, as you wish (for instance, "23" or "twenty three").

Back

Next

### 2. Please, select your gender.



male



female

Back

Next

**3. What is your native language?**

Back

Next

**4. On average, how often do you speak in English daily?**

You can type either letters or numbers, as you wish (for instance, "two hours" or "2 hours").

Back

Next

**5. Have you got any speech or hearing disorders?**

- yes, I have got a speech disorder.
- yes, I have got a listening disorder.
- I have neither a speech nor a hearing disorder.

Back

Next

**6. Did you know that the text you have just heard, "Please call Stella", was taken from a speech accent archive, accessible online both in written and oral form?**



yes, I had seen the text before.



yes, I had heard the text being read in the speech accent archive.



I had neither seen nor heard the text being read before.

Back

Next

## Thank you for completing this questionnaire!

We would like to thank you very much for helping us.

If you would like to know the results of the experiment, or if you have any questions, email the researcher at [m.koutiva@students.uu.nl](mailto:m.koutiva@students.uu.nl)

Your answers were transmitted, you may close the browser window or tab now.

## Appendix H

ITEM	Speaker's ID	Recording	Number of times listeners selected the ACT <i>accent- magnet, A.</i>	Number of times listeners selected the ACT <i>non- accent magnet, B.</i>
1.	s1	Stella text	16	5
2.	s17	Spontaneous speech	8	13
3.	s5	Spontaneous speech	14	7
4.	s2	Spontaneous speech	10	11
5.	s4	Stella text	14	7
6.	s14	Spontaneous speech	20	1
7.	s6	Stella text	12	9
8.	s1	Spontaneous speech	19	2
9.	s12	Stella text	17	4
10.	s6	Spontaneous speech	15	6
11.	s7	Stella text	21	none
12.	s12	Spontaneous speech	13	8
13.	s9	Spontaneous speech	11	10
14.	s8	Spontaneous speech	20	1
15.	s13	Spontaneous speech	11	10
16.	s5	Stella text	13	8
17.	s16	Spontaneous speech	12	9
18.	s7	Spontaneous speech	21	none
19.	s13	Stella text	13	8
20.	s15	Spontaneous speech	14	7
21.	s14	Stella text	19	2
22.	s4	Spontaneous speech	14	7
23.	s15	Stella text	15	6
24.	s9	Stella text	3	18
25.	s16	Stella text	7	14
26.	s8	Stella text	20	1
27.	s17	Stella text	4	17
28.	s2	Stella text	1	20

Table 3. Number of times listeners selected either A or B as sounding more similar to each recording of the 14 ACT speakers in items 1–28 of the listening experiment, which refer to the order of presentation in the listening test.