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The perception of rhetorical questions in English by Italian native speakers

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LIST OF ABBREVIATIONS

L1 – First Language.

L2 – Second Language.

RQ – Rhetorical Question.

ISQ – Information-seeking Question.

SLA – Second Language Acquisition.

SLM – Speech Learning Model.

OR – Odds Ratios.

CI – Confidence Intervals.

Ho – Null Hypothesis.

Ha – Alternative Hypothesis.

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Введение на русском языке

Данная дипломная работа посвящена проведению эксперимента по восприятию риторических вопросов в английском языке носителями итальянского языка.

В современной литературе существует множество исследований, касающихся произношения риторических вопросов (далее – *RQs*) и проводившихся в основном на материале английского языка. Одним из актуальных исследований на эту тему является работа Н. Дехе и др. (2022). По мнению исследователей, существует разница между синтаксическим уровнем риторических вопросов и другими их функциями, по сравнению с остальными типами вопросов. Несмотря на то что риторические вопросы имеют те же семантические и синтаксические элементы, как и другие типы вопросов, они все же разительно отличаются тем, что не требуют ответа. По этой причине на риторический вопрос собеседник может отвечать по своему усмотрению. В качестве основных функций риторических вопросов можно выделить сатирические, иронические и дружеские; они могут использоваться, чтобы достичь соответствующих прагматических целей. Большинство исследований занимаются изучением канадского и американского вариантов английского, в то время как основное внимание настоящего исследования уделяется варианту английского, на котором говорят в Дублине, в Ирландии. Причиной такого решения стало желание расширить количество вариантов английского, проанализированных в рамках экспериментов по восприятию риторических вопросов. В связи с тем, что существует малое количество исследований, посвященных восприятию риторических вопросов на английском языке

итальянцами, изучающими английский язык как иностранный (L2), целью настоящей дипломной работы было также заполнить эту лакуну.

Данная дипломная работа состоит из введения, четырех глав и заключения. После краткого введения, содержащего обзор исследования и проведенного эксперимента, в первой главе этой работы речь пойдет о функциях и просодических структурах риторических вопросов в английском и в итальянском языках. Кроме того, в этой части говорится о интерференции родного языка (L1) при произношении и восприятии риторических вопросов в L2. Вторая часть первой главы посвящена сравнению недавних экспериментов, посвященных риторическим вопросам в различных языках. Далее особое внимание будет уделено английскому и итальянскому языкам.

Во второй главе описывается структура эксперимента и его участники. В частности, будет представлено описание стимулов и филлеров, использовавшихся в эксперименте. В этом исследовании я стремилась выяснить, будут ли итальянцы успешно отличать риторические вопросы от информационных (далее – *ISQs*) и некоторых других филлеров без какого-либо пояснительного контекста. Чтобы проанализировать восприятие риторических вопросов на английском языке итальянцами, были созданы и записаны 20 одинаковых пар частных и общих риторических и информационных вопросов. Кроме того, были включены в число стимулов и записаны 6 филлеров, задачей которых было контролировать порог внимания участников во время эксперимента. Филлеры эксперимента были разделены на две группы: восклицательные филлеры (*wh-exclamative fillers*) и повелительные филлеры (*imperative fillers*). Далее в работе говорится о пояснительных контекстах эксперимента. Стимулы были записаны в программе PRAAT в виде аутентичных произнесений трех носителей английского языка, которые родились и выросли в Дублине и, как результат, говорят на ирландской версии английского.

Для сбора данных я решила использовать программу *Google Forms*, в которую я добавила все аудио-стимулы, потому что она позволяет создавать опросы с легкостью и быстро анализировать их результаты. Важно подчеркнуть, что в то время как носители английского языка, произносившие стимулы, имели возможность ознакомиться с пояснительными контекстами для соответствующих вопросов и филлеров, в анкете эксперимента данные пояснительные контексты отсутствовали, так как цель эксперимента состояла в том, чтобы понять, смогут ли опрошенные правильно воспринимать стимулы без пояснительного контекста. Во время эксперимента каждый участник должен был прослушать короткий фрагмент аудио и указать один ответ из списка, выбрав между риторическим вопросом (*rhetorical question*), информативным вопросом (*information-seeking question*) и вариантом «ни то, ни другое» (*none of the above*).

Что касается участников, в эксперименте приняли участие 13 англоговорящих и 64 итальянца. Из 13 англоговорящих трое произносили стимулы, а остальные 10 носителей английского языка стали контрольной группой (*control group*), чья роль заключалась в проверке аутентичности аудиофайлов. Набор участников проходил в Дублинском университете, а также через приложения для обмена мгновенными сообщениями (среди итальянцев). Поскольку еще одной целью этой работы являлось понять, смогут ли итальянцы воспринимать риторические вопросы как носители L1, были созданы две анкеты: первая для контрольной группы, а вторая для носителей L2. После того как контрольная группа получила ссылку на эксперимент, он был отправлен итальянцам. Важно заметить, что все ответы анкеты были анонимными. Что касается сроков проведения проекта, данный эксперимент длился с марта 2023 до июня 2023.

Перед тем как сосредоточить внимание на следующей главе данной работы, стоит упомянуть о третьей цели исследования. Еще один вопрос исследования

заключался в том, может ли уровень владения английским языком и потенциальный опыт нахождения итальянцев в любой англоязычной стране повлиять на способность точного распознавания риторических вопросов. Еще одна задача состояла в том, чтобы понять, может ли тип вопросов (частный или общий) влиять на процесс восприятия риторических вопросов. В начале эксперимента выдвигалась гипотеза о том, что уровень английского языка, опыт за границей и тип вопроса могли оказывать влияние на процесс правильного восприятия риторических вопросов.

Чтобы проверить данные гипотезы и сделать выводы, в следующей главе результаты были рассмотрены с использованием методов статистического анализа. Таким образом, в основе третьей главы лежит подробное описание результатов контрольной и экспериментальной групп с помощью графиков, процентных соотношений, а также использования статистической модели логистической регрессии, используемой для определения взаимосвязи между независимыми переменными (уровень владения английским языком, опыт проживания за границей и тип вопроса) и одной зависимой переменной (правильный или неправильный ответ). Статистический анализ данных был проведен в программе *R* с использованием смешанной регрессионной модели. Первый подраздел третьей главы посвящен результатам двух анкет, разосланных десяти носителям английского. Для представления результатов анализа использовались диаграммы, представляющие процентное соотношение, с которым носители языка верно идентифицировали *ISQs*, *RQs* и филлеры анкет 1 и 2. Второй подраздел третьей главы аналогичным образом представляет результаты 64 носителей итальянского языка.

Четвертая глава дипломной работы посвящена обсуждению полученных результатов. Эта часть разделена на два подраздела: первый посвящен ограничениям методологии исследования, а второй – выводам, сделанным на основе эксперимента.

Благодаря анализу и изучению данных, собранных во время эксперимента с носителями английского и итальянского языков, выяснилось, что не только носители L2, но и носители L1 испытывали трудности при различении риторических вопросов, информационных вопросов и филлеров. Кроме того, изначально предполагалось, что чем выше уровень владения английским, тем выше вероятность правильного восприятия стимулов. Однако анализ данных показал, что уровень владения иностранным языком, а также опыт практики языка за границей и тип вопросов (частные или общие) не играют значимой роли в процессе восприятия риторических вопросов.

Наконец, в заключительной главе обсуждается последний вопрос исследования, касающийся возможности носителей итальянского языка воспринимать риторические вопросы так, как их воспринимают носители английского языка. Данные показали, что не только итальянцы испытывают трудности с восприятием риторических вопросов в отсутствие поясняющего контекста, но и сами англичане. Таким образом, можно считать, что отсутствие поясняющего контекста до прослушивания записи может затруднить восприятие риторических вопросов. Высказывается предположение о том, что без достаточного контекста слушатели могут пользоваться универсальными паралингвистическими средствами маркирования риторических вопросов. Однако роль этих универсальных аспектов не была подвержена глубокому анализу, так как это не было главной целью данной работы. Таким образом, чтобы получить более полную и исчерпывающую картину того, как *RQs* воспринимаются в L1 и L2 и как носители того или иного языка могут пользоваться универсальными средствами маркирования риторических вопросов, рекомендуется провести дальнейшие исследования, углубляющие данный аспект.

INTRODUCTION

"The speech signal is the end point for speaking and the starting point of listening"

(Pisoni & Remez, 2005, p.7)

In the current literature of linguistics, there are few studies focused on the perception of rhetorical questions in comparison to those devoted to the investigation of their production. Despite rhetorical questions being widely examined in English, little is still known about their perception in other languages. This thesis seeks to offer a new perspective on this matter by means of employing two languages which are English and Italian, respectively. Indeed, this present study is an attempt to bridge the gap between the sheer amount of research on the production of rhetorical questions in English and the restricted field of research on their perception by Italians who are studying or have studied English as L2. What emerged from recent experiments on this field of study is that the American and the Canadian variety of English are one the most frequent varieties to be considered and investigated. In order to broaden the number of English varieties taken into account in this type of studies, it has been decided to put at the core of this thesis the one spoken in Dublin, Ireland. This choice of focusing on the Irish version of English can offer an additional value to the research since it is not a variety tendentially familiar to Italian speakers. Furthermore, its adoption is not accidental since it is the product of a five-month direct experience in Ireland. For the purpose of the research, an *ad-hoc* experiment encompassing the use of the software Google Forms and the involvement of 64 Italian native speakers and 13 English native speakers has been designed.

The reason behind the adoption of this software is represented by its manageability since it enables researchers to obtain numerous answers in a short amount of time through the possibility of incorporating into questionnaires several audio inputs which can be identified via multiple-choice options. The experiment has been carried out through a multi-step process which included the initial recording of three English native speakers *in loco*. In order to provide an in-depth investigation on the perception of polar and *wh*- rhetorical questions in English by Italians while answering the research questions, 20 string-identical pairs of *wh*- / polar rhetorical and information-seeking questions as well as six fillers have been created and inserted later in the experimental questionnaires. In this study, it has been opted for the introduction of six fillers, divided into *wh*- exlamative and imperative fillers for controlling participants' threshold of attention during the whole experiment. In order to provide the listeners with stimuli which are natural in their realisation, the experiment has been designed so that to comprehend five explicatory contexts related to the *wh*- /polar rhetorical and information-seeking questions which were read and used only by the English native-speakers while being recorded. Since it is fundamental to obtain natural audio inputs for the purpose of the study, these aforementioned explicatory contexts have been created to reflect real life situations. On the other hand, fillers' explicatory contexts do not possess the same topics of the rhetorical and information-seeking questions despite being related always to real life situations.

Behind this multi-step process, there is the need for determining to what extent L2 speakers – in this scenario the experimental group represented by the Italian native speakers– can perceive correctly some *wh*- and polar rhetorical questions uttered by three English native speakers among other information-seeking questions and fillers without the aid of any contextual reference attached to each question and filler. Another aspect which will be delineated along the lines of this thesis is whether Italians' level of proficiency in English and their potential experiences in any Anglophone-Country might have an impact on the process

or recognising accurately the given rhetorical questions. Since rhetorical questions are still motivating much debate within the field of linguistics, it has been decided to investigate whether a control group made up of ten English native speakers might distinguish the given acoustic inputs in the same way as the experimental group does by means of adopting the software PRAAT to examine the waveforms, spectrograms and pitch curves of the target stimuli. For the analysis of the final results obtained from the experiment, it has been opted for using the Logistic Regression Model which offers the possibility of understanding the relation between the dependent variable of the thesis (i.e., right or wrong answers of the target stimuli) and the independent variables (i.e., the predictors of the level of proficiency in English, the experiences abroad and the type of questions).

The entire thesis develops into four chapters. The first chapter will be dedicated to the functions of rhetorical questions and their prosodic structure with a major focus on English and Italian. Subsequently, after the presentation of these details relative to rhetorical questions' main features, particular attention will be given to the interference in L2 production and perception. As regards the latter, the reader will be provided with a panoramic view on major discoveries on L2 perception beginning with the Speech Learning Model by Fledge (1995) and the Perceptual Assimilation Model by Best (1995) to the recent contribute of researchers condensed by Wayland (2019) and Sebastián-Gallés (2005). Attention will be then dedicated to a cross-language comparison between studies on rhetorical questions, diverging only later to those concerning English and Italian. The second chapter will offer an in-depth description of the experiment prioritizing the presentation of the stimuli with the items and fillers and the related explicatory contexts. The second subchapter will provide a comprehensive view on the participants involved in the experiment – starting with a description of the recorded group which consisted of three English native speakers, moving further to the control group made up of other ten English native speakers and the experimental group represented by 64 Italians. The

following subchapters will analyse the structure of the questionnaires for both the control and experimental group, concluding with an explanation of the survey methodology. The third chapter will deal with the results as well as the descriptive and statistical analysis of the experimental data while providing details on both the control and experimental groups' results. Furthermore, this third chapter will also aim at describing the Logistic Regression Model adopted for the statistical analysis. As ultimate, the fourth chapter will concentrate on the discussion of the experimental results, providing a portrait of the limitations of the study together with the report of the main findings and implication of the study.

CHAPTER 1

THE FUNCTIONS OF RHETORICAL QUESTIONS AND THEIR PROSODIC STRUCTURE IN ENGLISH AND ITALIAN

Speech is like a mirror where emotions, knowledge and thoughts can be reflected vividly. It can either have the force of transmitting information and knowledge or the power of persuading interlocutors while conveying speakers' ideals. The most salient characteristic of speech is indeed its complexity. While interacting, people realise different speech acts whose function is highly dependent on interlocutors' intentions. These speech acts range from being a mere realisation of sounds and sentences (i.e., locutionary acts), to illocutionary acts represented by orders, questions and promises or perlocutionary acts where speakers strive for having an impact on interlocutors' ideas. Ultimately, there is another act (i.e., propositional act) which refers to precise entities or proprieties. This latter is the only speech act which can be omitted while talking (Graffi & Scalise, 2002). However, despite speech being a distinctive feature of humanity that echoes humans' inclinations, its phonetic and phonological representation is not universal and can be perceived differently among all the languages in the world. In this thesis, the focus will be placed on a particular niche of linguistics which is represented by the investigation on the perception of rhetorical questions in English by Italian speakers. Giving resonance to the peculiarities and difficulties of producing and perceiving speech in a second language (henceforth, L2) while highlighting the prosodic structure and functions of rhetorical questions is the main aim of this Chapter. This first part will be therefore dedicated to essential information that provides the reader with preliminary details on the functions and prosodic features of rhetorical questions as well as a thorough description of the difficulties that might occur while producing and perceiving speech in L2. Both at the level of production and perception, learners might encounter difficulties in maintaining separated their first language

(henceforth, L1) and L2 intonation contours, especially at the beginning of their process of acquiring a second language. These potential discrepancies between L1 and L2 prosody is what allows me to narrow the search on the perception of one specific type of question (i.e., rhetorical question) among information-seeking questions and fillers in English by Italians who are studying or have studied it during their lives, focusing mostly on suprasegmental features. Therefore, English and Italian will be placed at the core as they will be the main languages taken into consideration throughout the lines of this thesis. An analysis of the features and functions of rhetorical questions in these aforementioned languages will be thus provided and offered to the reader as a preparation to the following Chapters that will be dedicated to the experiment.

1.1. The functions of rhetorical questions

Rhetorical questions (henceforth, RQs) have been defined in linguistics as questions which are properly (i.e., at syntactic and semantic level) interrogatives but with a dissimilar speech function. What has been pointed out so far is the fact that the most salient characteristic of RQs is the absence of an expected answer which led to the conclusion that RQs might be answered at one's discretion (Dehé & Braun, 2020). Indeed, RQs "have the feel of an assertion" (ibid., p. 608) despite not being themselves assertive. Yet an answer can be returned given their interrogative structure (Dehé et al., 2022). These characteristics, typical of RQs, might not be relegated only to one language, such as English, but can be broadened to other languages. Taking into account the Italian language, Sorianello (2018) pointed out that there are also cues to RQs which are similar to those in English. Thus, NPIs (negative polarity items) can be detected also in this latter language. In English it is frequent to use strong NPIs (e.g., after all, at all, budge an inch, lift a finger) and weak NPIs (e.g., ever, anything, anybody), as well as in

Italian where it is possible to notice the same pattern in items such as *"alzare un dito, forse, mica, dopotutto"* (Sorianello, 2018, p. 41).

However, while strong NPIs can be considered as powerful detectors of rhetorical interpretations, weak NPIs could lead to ambivalence and misinterpretation which can be sorted out only through prosody (ibid.). The following example (1) illustrates concisely this matter:

(1) *Who lifted a finger to help Mary?* (Han, 2002, p. 223)

The implied meaning of this question indicates that nobody helped Mary; the NPI "lift a finger" is what exemplifies the process of discrimination between a RQ and an information-seeking question (henceforth, ISQ). Similar to what has been claimed above, in Italian the same structure and the adoption of NPIs can be noticed. In the following sentence (2), which is the literal translation of the previous English sentence by Han (2002), the rhetorical interpretation can be recognised as equivalent to the English one:

(2) *Chi ha alzato un dito per aiutare Mary?* (Sorianello, 2018, p. 41)

Likewise, in this case the NPI "*alzare un dito*" helps the reader to identify the question as rhetorical due to the implied meaning that reveals how "*nessuno*" is willing to help Mary.

If we shift the focus on the speech function of a RQ, it is worth mentioning that its major function exploits the possibility of expressing personal beliefs as well as restate the obviousness of a matter. Therefore, RQs are not ordinary questions as they have the potential to achieve communicative aims by means of persuading and making people ponder over a circumstance. As it has been highlighted, RQs in English can be compared to speech expedients as they can have an influence on interlocutors' point of view and ideals (Sorianello, 2018).

Another aspect which is crucial to consider when discussing the qualities of RQs regards the pivotal role of speakers compared to the one of receivers. Indeed,

> the assumption that Speaker's and Addressee's Beliefs are shared in regard to a specific RQ is taken by the Speaker. […] the Speaker may just pretend or presume that something is a part of the Common Ground when it is not. In the case of RQs, it means that the implied answer is just presented as obvious by the Speaker, whether it is a part of the Addressee's Beliefs or not. (Špago, 2020, p.73)

RQs are therefore used with precise goals by speakers. In fact, RQs can be divided into categories whose functions can range from being employed for prominence and critics to friendly exchanges. With regards to the first option, aggressive RQs are used in case a speaker needs to condemn receivers' actions or emotions. It has been noticed that these aggressive RQs are usually used in political discourses and in social media forums (Špago, 2020). Further research, which supports this line of argument, took into consideration the role of RQs within court trials in *American Closing Arguments for Defence*– RQs in court present specific features which are used to induce a reaction to a specific input (Osetrova, 2020, p. 208). According to the researcher,

> коммуникативный персуазивный процесс может быть представлен такими ситуациями, в которых говорящие сознательно продуцируют сообщения,

нацеленные на то, чтобы вызвать определенную реакцию у реципиента или повлиять на его точку зрения. (Osetrova, 2020, p. 209) [1]

Thus, RQs can be associated with negative and persuasive feelings since a speaker is capable of diverging addressees' ideas and thoughts. However, RQs should not be only referred to these negative emotions because researchers revealed that they can be also employed in friendly communicative acts. Within this area, speakers behave politely with a neutral tone to the speech. If we consider an example taken from several American movies by Špago (2020), it is possible to perceive this positivity between the lines of the script which reveals the neutrality of the communicative act by the speaker. In the following example (3) taken from the film *Shawshank Redemption*, it is possible to state that the RQ is used to calm the interlocutor rather than accusing and being aggressive towards him.

(3) *Relax. What are you so nervous about? She's just a woman*. (Špago, 2020, p. 75)

Ultimately, RQs can be employed to express satire as well as irony with both aggressive and friendly connotations. Considering the following example (4) taken from *Absolute Power* and used by Špago (2020), it is clear that the RQ here stands for an interrogative which is used by the speaker to ironize on the expertise of the interlocutor with a friendly undertone. RQs, therefore, possess forceful and influential characteristics which can be employed for specific speakers' purposes and can be used to either determine or express specific feelings.

[1] Translation in English provided: The communicative and persuasive process can be represented by these situations in which the speakers consciously create messages aimed at either triggering specific reactions in the receivers or influencing their point of view.

(4) *When did you become such an expert, Bill?* (ibid., p. 76)

However, RQs possess unique and distinctive functions which distinguish them from information-seeking questions. ISQs require an answer and their aim is to collect information from the addressees. Contrastingly to RQs, ISQs usually are not pragmatically loaded since their goal is to obtain data from a particular request. Their function, thus, is neither directed towards persuading receivers nor towards influencing their state-of-mind, but rather on seeking information which are essential to speakers (Dehé & Braun, 2020).

What is worth mentioning is the fact that both RQs and ISQs questions can be divided into two separate categories, namely polar and *wh*- questions. Whereas polar questions "request an answer that specifies whether the proposition expressed by their sentence radical holds or does not hold" (Krifka, 2011, p. 1747) and therefore they can be answered with a *no* or *yes*; the *wh*- questions "create an open proposition by leaving parts of the description of the proposition unspecified" (ibid., p. 1744). What is worth mentioning is that despite RQs and ISQs possessing both *wh*- and polar structures and have this feature in common, they do not share the same functions and their prosodic structures differ consistently.

1.2. The prosodic structure of rhetorical questions

In this thesis, two types of RQs in English will be analysed. Particular attention will be placed on *wh*- questions and polar questions. Despite not taking into account all the existing *wh*- words which are *what*, *where*, *when*, *who*, *whom*, *which*, *whose*, *why*, *how*, in this experiment only *what* and *who* will be accounted for. When analysing the prosodic structure of RQs, it is possible to see that in English *wh*- questions have tendentially a final fall, whereas *wh*- ISQs are uttered with a nuclear high-fall contour labelled H* L-L% in the Autosegmental-metrical

phonology system (Dehé et al., 2022). On the other hand, polar RQs and ISQs show different outcomes. With regards to polar ISQs, there is a tendency towards a low rise whereas polar RQs "have the intonational contour of an assertion, and are thus realised with falling intonation, like declaratives expressing assertions, but unlike polar ISQs" (Dehé & Braun, 2020, p. 611).

What has been considered as a further element which could make a difference in the distinction between RQs and ISQs in the English language is the analysis of nuclear accents. On account of this, studies revealed that in essence, "a nuclear accent early on in the utterance, unless due to information structure, hints to rhetorical interpretation" (Dehé et. al, 2022, p. 15).

At the level of phonetics, however, it is crucial to consider three other parameters when it comes to comparing *wh-*/ polar RQs and ISQs which are relatively voice quality, duration and pitch height (i.e., scaling). The parameter of voice quality defines the type of voice which can exist. For instance, once the voice is breathy, "the vocal folds are vibrating while remaining apart" (Wayland, 2019, p. 42). Moreover, the voice can be creaky in case "the posterior portion of the vocal folds held tightly together while the anterior section is slack and vibrating at a very slow rate" (ibid., p. 43). Another feature which characterises the voice quality is exemplified by the modal voice, when "voiced sounds are produced with normal phonation or voicing with the vocal folds vibrating along most or all of their entire length" (ibid., p. 42). Lastly, whenever there is an absence of vocal fold vibration, the voice is recognised as voiceless (ibid.). The duration, or length, refers to the suprasegmental phonetics and indicates the duration of vocals and consonants in a speech and these lengths are extremely dependent on the speech rate at which they are uttered (Leoni & Maturi, 2002). The last parameter, which is expressed by the scaling or pitch height, represents, on the contrary, the f0 value (Mennen, 2007). In the production experiment carried out by Dehé & Braun (2020), it has been discovered that these two types of questions differ in their prosody and in the aforementioned parameters. In the voice quality category, they recognised that *wh-* RQs presented a larger share of breathy voice

than ISQs, whereas for what concerns the pitch in polar questions it has been registered an increased number of RQs with a first pitch accent on the subject "anyone" compared to ISQs; as for the *wh*-questions, they noticed that there was not a dissimilarity in the illocution category (i.e., questions vs. statements). Ultimately, the duration of both *wh*- and Polar RQs has been described as considerably longer than ISQs.

The case of Italian, however, differs from English. The first issue that researchers had to cope with is related to the huge variety of dialects which are spoken all around Italy. Up to now, the only variety that has been studied, with regards to RQs and ISQs, is the one used in Bari (Puglia). Other varieties of Italian, therefore, have not been taken into account and investigated extensively. In the Bari variety it is shown that both in polar ISQs and RQs there is a tendency towards L+ H*, while in *wh*-ISQs there is H+L* and in *wh*-RQs there is also H+L* and L+H* (Dehé et. al., 2022, p. 20). Another interesting discovery encompasses the fact that when a RQ "mitigate the assertion" (ibid., p. 20), it is possible to find an ending H% boundary tone, whereas in case of supporting personal beliefs it is more likely to detect a L% falling boundary tone (ibid.). What is worth mentioning is that the only factor which appears to be utterly relevant for the distinction between RQs and ISQs in Italian is the duration which is longer in the case of RQs but only at accented vowel level not at the sentence-level like in English. (ibid.)

1.3. Interferences in L2 production

Mastering a foreign language might be a non-trivial process as it involves honing communicative skills as well as achieving proficiency by means of acquiring phonological and phonetic patterns of L2 intonation. Being able to produce the correct intonation which could differentiate a rhetorical question from an information-seeking question could be crucial when it comes to convey a specific communicative act or message. In the last decades, particular

attention has been given to the importance of suprasegmental properties and their impact within the field of Second Language Acquisition (henceforth, SLA). In literature, there has been a great shift from the study of segments, specifically vowels and consonants, towards the examination of suprasegmental features such as stress, lexical tone, length and intonation (Wayland, 2019). When interacting with people, individuals are manipulating these elements to change and convey specific meanings through dialogues and prosody. Prosody, which counts on these elements, is "the linguistic structure which determines the suprasegmental properties of utterances" (Cutler et. al., 1997, p. 142) and exists in each language but differs from language to language in for different directions labelled "dimensions" in Mennen & De Leeuw (2014). The first category, named as "systemic dimension", deals with structural elements such as pitch accents and boundary contours. Another category which is essential is called "functional" as it classifies the nature of an utterance (e.g., whether it is an interrogative or not). The "distributional dimension", on the other hand, takes into account the way in which the aforementioned structural elements are put together. Ultimately, the "realisational dimension" is dedicated to the phonetic realisation of systemic elements. Since human exchange of speech and information is based on prosody, it is uncontroversial to state that it plays a crucial role in our daily communicative acts. Suprasegmental features, thus, are essential when it comes to give prominence to our emotional state and our communicative intentions, because by combining and adopting intonation with the speed of speech it is possible to emphasise salient emotions and state of mind (Leoni & Maturi, 2002). However, given its complex nature, it is notoriously difficult to learn and separate between the prosody of L1 and L2 (Mennen & De Leeuw, 2014) since this process of learning prosody is not straightforward and can be compared to a hierarchical system where

> learners may go through different stages in the learning process and may first acquire phonological patterns of L2 intonation before they acquire the correct phonetic implementation of these patterns. (Mennen, 2007, p. 71)

Therefore, mastering L2 prosody without interfering with L1 is arduous and treacherous for L2 learners. What has been highlighted so far within the field of linguistics is that during the process of acquiring a second language, students are more likely to face difficulties in avoiding interferences in the intonation contour between their L1 and L2 (Zahner et al., 2022). The consequence of this lack of control over this interference, is what might lead to a disruption of intelligibility between learners and native speakers (Wang, 2020). For instance, Mennen (2015) suggests that students of English from different linguistic backgrounds cope with problems related to alignment and scaling of pitch accents whereas Italians, according to her, do not possess complex pitch accents which can be represented through the Autosegmental-Metrical framework (AM) as "H* LH and L* HL" (ibid., p. 176).

Moreover, what has been discovered recently is that "the same phonological category may be realised (aligned) differently in different languages or dialects" (Mennen, 2007, p. 58). For instance, if we switch the focus from learners of English to English (or German) native speakers learning Italian, it is possible to see that these aforementioned languages have a specific fall in common which has been defined by Ladd (1996) as "a local peak associated with the accented syllable, followed by a rapid fall to low in the speaking range, followed by a more gradual fall to the end of the phrase or utterance" (p.128). However, the realisation of this fall differs drastically among these aforementioned native speakers. Indeed, the peak in the English language would be later than the one in Italian, as reported in figure (1) with the Italian word "*Mantova"* taken from the example by Mennen (2007). Whereas in the first example of

"*Mantova"* the peak by English native speakers is placed later, in the second one it is possible to see that Italians place the peak earlier than English native speakers (ibid.).

Figure (1). representation of the differences in the alignment between English native speakers and Italians with the word 'Mantova'. Example taken from Mennen (2007, p. 59).

Indeed,

> The following rapid fall in English (or German) takes place between the stressed and following unstressed syllable, whereas in Italian the fall starts well before the following syllable. As a consequence, English or German learners of Italian may use their native alignment pattern when producing an Italian falling tune. (ibid., pp. 58-59)

However, despite the potential absence or difference of prosody between L1 and L2, the more learners are exposed to L2 input, the better the linguistic performances will be (Mennen, 2015). Studies pointed out that there is another factor which can potentially contribute to the enhancement of performances, that is age. It has been revealed that when the age of acquisition of a specific language is relatively early, the chances of obtaining "accurate peak alignment in nuclear pitch accent" (ibid., p. 180) are higher. Exposure and age, therefore, might be

considered as powerful tools which can potentially bridge the gap between the divergences in the L1 and L2 intonation (ibid.).

In this thesis, these aspects related to production in L2 will not be extensively considered since the perception of RQs in English by Italians who have learnt or are learning this language will be prioritised. However, the importance of providing a global overview of the interferences in the production in L2 is undoubtedly fundamental for a better understanding of the difficulties which learners of foreign languages can encounter while acquiring new or similar phonologic and phonetic structures.

1.4. Difficulties in L2 perception

Producing speech requires different skills compared to perceiving speech. At the end of the 20th century, two main models for the perception of speech were developed. These models were not an end in themselves as they have been a priceless value for the study of cross-language perception. The first archetype to be mentioned is the Speech Learning Model (henceforth, SLM) by Fledge (1995). At the basis of this model, there is the assumption that, whenever a person perceives sounds in L2 as analogous to those of their own L1, the new categories of sounds will not be created effortlessly but with a complicated process due to the equivalence of sounds. On the other hand, another model which had resonance within the field of linguistics and cross-language perception is the Perceptual Assimilation Model by Best (1995). According to his definition,

> PAM predicts that learners will have the most trouble distinguishing between two L2 sounds that are assimilated to a single L1 sound category. [...] Discrimination will be easiest when two L2 sounds are considered good exemplars of two different L1 categories. (Wayland, 2019, p. 245)

Thus, L1 sound classifications contribute to dictating the extent to which speech learning can be successful or not. According to these two main models, the more the L1 categories are differentiated and divergent from L2 classifications, the easier the perception should be (ibid.).

Perception of L2 is therefore a broad field which encompasses the necessity to give particular attention to both segmental and suprasegmental elements. Indeed, it is possible to claim that speech perception is a complicated process that entails retrieving speakers' acoustic message and examining it through the receivers' auditory system. Moreover, it has been suggested that speech perception depends also on the intrinsic qualities of speakers which contribute to a variation in the acoustic perception (Wayland, 2019). Indeed, recent research suggested that the age and gender of speakers might have an influence not only on the way a specific sound input is produced, but also perceived. This is attributable to the different length of the vocal tract as well as to the type of formants of the vowel, which may massively vary from male and female adults to children and can have an impact on the perception of the acoustic input by the listener (ibid.). Moreover, another interesting factor which can contribute to a variation in the source of an acoustic input is the rate at which speakers talk. It has been suggested that the consequence of changing the tempo in speech can change the duration of vowels and consonants, leading eventually to a different perception of them within an utterance. In fact, the faster the tempo is, the shorter the segments and lower the f0 are and vice versa (ibid.). Ultimately, Wayland (2019) asserts that, at the level of phonetics, the context plays a crucial part in differentiating the perception of speech. Indeed, "due to coarticulation, both the preceding and following segments exert an influence on the production of a target vowel or consonant" (ibid., p. 233). Notwithstanding, the intrinsic nature of vowels and consonants may also play a huge role in the perception of speech. In fact, vowels are notoriously uttered with longer timing and more prominence compared to consonants which

are complicated to perceive because of the aforementioned sources of acoustic variation and their different categorization into plosives, fricatives, liquids and their glides and voicing (ibid.).

Moreover, if we shift the focus from speakers to listeners it can be noticed that, when listening to foreign languages, several different speech illusions can occur. By considering the classification of speech illusions provided by Sebastián-Gallés (2005), it can be seen that there are three main categories of situations, which are relatively:

1. *Deafness* (i.e., the listeners could not perceive and hear any difference in terms of sounds);
2. *Mirage* (i.e., the listeners add new information that is not in the original input);
3. *Mutation* (i.e., the transformation of sounds by the listeners).

(ibid., pp. 547-548)

With respect to the first category, Japanese is the most representative example of this deafness illusion since Japanese native speakers struggle with perceiving different sounds such as /r/ and /l/, like in "road and load" (ibid., p. 547). Whereas for the second classification, Spanish native speakers tend to put the "epenthetic vowels that (e)Spanish (e)speakers add at the beginning of English words" (ibidem, p. 547). Lastly, the last category can be exemplified by French native speakers who could change the perception of sound /tl/ into /tr/ or /kr/ (ibid., p. 548).

Moreover, as mentioned before, the other valuable element which can intervene in the interpretation and perception of speech is age. Adults strive for differentiating "sound categories that are not contrastive in their native language" (Wayland, 2019, p.243) and fail to do it with ease. Children, up to 5-7 years old can acquire these contrastive sounds quite effortlessly (ibid.).

The same happens with suprasegmental elements where "sensitivity to native-language prosodic patterns begins very early in life" (ibid., p. 247). A compelling discovery revealed that four-day old newborn infants are able to discriminate between sentences which are uttered in their native language and those uttered in another foreign language. Babies and toddlers are, therefore, sensitive to sound and suprasegmental changes compared to adults who are approaching the study of a foreign language who make notoriously more effort to reach a native speaker intonation level (ibid.).

An analogous situation occurs with bilinguals. Indeed, another piece of research which confirms this essential role of age in the correct perception and classification of stimuli is the experiment carried out by Geiss et. al. (2023) which investigates the perception of rhetorical questions in both German and Italian by bilinguals who use Italian as their heritage language and German as their majority language. When referring to a heritage language, specialists in the field of SLA refer to a language which is mainly used in family environments which is different from the major language spoken in a specific surrounding context and Country (Otwinowska et. al, 2021). What has been discovered through this study is that age plays a crucial role in perceiving correctly the RQs in both the heritage and majority language – the older the child is, the greater the chances of perceiving correctly the RQs are.

However, little is known about the process through which Italian speakers perceive both *wh*- and polar RQs in English and discriminate them from ISQs. In this thesis, perception will be prioritised over production and suprasegmental parameters will be taken into account while focussing on the specific case of polar and *wh*- rhetorical questions compared to information-seeking questions by analysing the results of the experiment in Chapter 3.

1.5. Experimental studies on RQs

Before presenting the methodology and the results of this experiment, it is important to mention the current state of research on the RQs. This section of the thesis will be dedicated to literature review of experimental studies on the prosody of *wh*- and polar RQs in different languages. I will first attempt to provide the reader with an overview of the most recent studies within this sector, shifting later the attention on the comparison between the experiments on the English and Italian languages.

1.5.1. Cross-language comparison between studies on RQs

The contrasting features between the functions of RQs and ISQs have been investigated in a great number of languages. Detecting the difference between these two questions goes at the same pace with their prosodic analysis, a crucial step for the majority of languages. If we begin with the research carried out by Ozerov (2019), it is possible to notice that in Hebrew the distinction between RQs and ISQs can be obtained by focussing on specific prosodic markers. In this particular case, not only is it essential to take into account the prosodic markers of these specific interrogatives, but it is also important to give resonance to the different functions that they can perform (i.e., gapping the bridge of information, being appealing to the interlocutors). Overwhelmingly, what has been discovered is that in Hebrew *wh*- ISQs have a tendency in configuring a final rising tone, unlike in English. On the contrary, *wh*-RQs in Hebrew end with a falling intonation. Another compelling aspect of this analysis is that the researcher opted for operating with natural and everyday Hebrew speech, and not, therefore, with a controlled language created *ad hoc* for experiments (Ozerov, 2019).

In German, the research conducted by Repp (2019) revealed that *wh*-questions can be distinguished from *wh*-exclamatives by prosodic means. The overall experimental dynamic was centred in the creation of a semi-natural conversation for the participants who were asked to be recorded while uttering several questions and exclamations. The researcher yielded two

specific experiments which displayed that with *wh*-exclamatives there is a tendency towards an ending fall, whereas with *wh*-questions there are more falls than rises. In order to detect these variances, several parameters had been taken into account: duration, intonational contour, intensity and pitch (Repp, 2019). Moreover, another piece of research conducted by Braun et al. (2019) in German showed that ISQs and RQs, both polar and *wh*-, possess different prosodic characteristics. While dealing with polar RQs, it is possible to notice a high-plateau, whereas in *wh*-RQs there is a low edge tone. When considering polar ISQs, on the other hand, it can be detected a high-rise configuration which is different from *wh*-ISQs since these latter questions present a varied tonal configuration that can be ranged from being "L-%, L-H% to H-^%" (Braun, 2019, p. 796). Furthermore, RQs have a breathier voice and longer durations (ibid.).

Some similarities can be detected between Icelandic and these two aforementioned languages. Indeed, it has been discovered that in Icelandic RQs possess longer durations than ISQs, similar to English and German. However, despite Icelandic being a SVO language like English, in order to create polar questions, it does not involve the use of an auxiliary and for *wh*-questions an initial pronoun is required. Unlike English and German, the distinction between RQs and ISQs cannot be determined by the analysis of the boundary tones. What makes the difference is the pitch accent classification (Dehé et al., 2022). As it has been noticed,

> Within *wh*-questions, ISQs typically have (monotonal) peak accents (H*/!H*/^H*), while RQs, similarly to polar RQs and declaratives, have (bitonal) rising accents with the peak aligned in the stressed syllable (L+H*/L+!H*/L+^H*). (ibid., p. 17)

French, on the other hand, possesses a different status. In order to create polar questions, it is necessary to use the particle *est-ce que,* whereas for *wh*-questions it is compulsory to employ

the particle *qui*. For polar ISQs it has been discovered that there is a tendency towards having a nuclear rise, while for *wh*- ISQs a rise or an ending plateau can be detected. The overall situation of RQs, on the other hand, is utterly variable. (ibid.) Polar RQs can have either a rising-falling or rising and falling contour, as well as possessing a plateau contour, unlike *wh*-RQs which can end more frequently with a rise or plateau. However, a characteristic which is in common with the aforementioned languages regards the duration of the RQs – RQs have longer durations than ISQs. (ibid., p. 30)

1.5. 2. Experimental studies on RQs in English and Italian

The first article which is worth considering when it comes to take into account the English language is the research on the prosody of RQs in the Canadian variety of English by Dehé and Braun (2020). The main peculiarity of this study is that it gave a distinguishable contribution to the investigation of the production of string-identical English RQs and ISQs. Indeed, not only did they limit their study to the intonational realisation of the last section of a sentence, but they also devoted their attention to several phonetics and phonological elements which range from pitch accents, to the duration of utterances and voice quality. These prosodic elements are, thus, at the core of their research. In order to study thoroughly this matter and obtain data while investigating the parameters of RQs and ISQs questions, 21 contexts were created. For each main context there were two different contextual variations, one meant to cause an information-seeking interpretation (with both *wh*- and polar), and a second for a rhetorical one. Two tables related to triggering polar ISQ and RQ interpretations and *wh*- ISQ and RQ interpretations were thus created. For instance, in one particular context of this experiment, the researchers opted for inserting the Limburger cheese, a particular stinky cheese, to trigger both rhetorical and information-seeking interpretations from the participants who were about to be recorded. However, despite both dealing with the Limburger cheese, the

illocution results were different. Indeed, the first context for ISQs illustrates a garden party and, in this particular case, some linguistic items such as modals (e.g., would like to) have been added in order to cause an information-seeking interpretation. On the other hand, for the context of RQs, they opted for another linguistic item (i.e., it is well known that) which helps trigger a rhetorical interpretation. After providing the contexts, the two polar and *wh*- questions were added. With regards to the Limburger example, the researchers inserted these two following questions:

(1) *Does anyone eat Limburger*? (Polar question)

(2) *Who eats Limburger*? (*Wh*- question)

(Dehé & Braun, 2020, p. 614)

In order to study the difference between the prosody of RQs and ISQs in English, they started by hypothesising that the prosodic manner through which polar and *wh*-RQs and ISQs are realised was not similar. Whereas ISQ polar questions can be represented by a rising H-H% scheme defined as a "rise to a high level in the speaker's range" (Dehè & Braun, 2020, p. 629), in polar RQs it can be possible to see a "rise only to a mid-level resulting in a plateau" (ibid., p. 629) scheme. Moreover, both ISQ and RQ *wh*-questions are tendentially falling with a L-L% scheme. Therefore, their first discovery highlighted that, in order to differentiate RQs from ISQs, it is crucial not to either focus only on the boundary tone or just on the edge tone, but rather on a combination of them. As they asserted,

> Within polar questions, it is the upstepped rise vs the mid-level plateau, which distinguishes between ISQs and RQs. Crucially, this is very different from simply distinguishing between phrase-final rising and falling intonation. (ibid., p. 629)

Another interesting discovery regards the nuclear accent. While for *wh*-questions it contributes actively to the distinction between RQs and ISQs with a L+!H* for RQs and H* or !H* for ISQs, for polar questions their location is what makes a difference (ibid., p. 630).

As regards the phonetic parameters, the researchers discovered that RQs possess longer duration than ISQs without a distinction between *wh*- or polar questions. Ultimately, what has been stated is that voice quality is a parameter which is distinctive only for *wh*-questions and not for polar questions. Moreover, in rhetorical *wh*-questions, there is a larger share of breathy voice than in ISQs (ibid.).

However, in 2022 this study on RQs was broadened and expanded to several other languages, including Italian, German, Icelandic, Standard Chinese, Cantonese, Japanese and French (Dehé et al., 2022). The most valuable discovery is that these languages, which are utterly different one from the other at both word and sentence level, do not share the same prosodic parameters. Relatively, when it comes to differentiate RQs and ISQs in these languages the following parameters differ:

> (i) F0-features (e.g., position and type of pitch accent, type of boundary tone, as well as more global f0-parameters, depending on language type);
> (ii) duration / speaking rate (rhetorical questions are typically longer / produced with slower speaking rate than information-seeking questions).
>
> (ibid., p.1)

If we dive deeper into the Italian language, it can be stated that the absence of a standardised version is what led researchers to the conclusion that narrowing the field to specific varieties of Italian would make the process of investigating the functioning and perception of RQs more

straightforward and efficient. Indeed, Sorianello (2018) carried out a piece of research on the production of RQs and ISQs within the Bari variety of Italian. Out of 20 pairs of -*wh* and polar RQs and ISQs, it was found that the major element of distinction between these two questions was their duration (i.e., RQs are longer than ISQs). Another interesting finding concerned the final contour which appeared to be tendentially falling for both polar (62%) and *wh*- RQs (56%), as opposed to the patterns of ISQs.

The following year, a further experiment on the functions of RQs in Italian was conducted by Sorianello (2019). What has been discovered is that out of 260 semi-spontaneous RQs uttered by Italian native speakers, 60.8% of RQs were labelled as "amplifiers", whereas 39.2% as "mitigators". Indeed, according to her, whenever a RQ is employed to emphasise and thus amplify speakers' opinion, the engagement between speakers and receivers will be reduced, leading to a "face-threatening act" (Sorianello, 2019, p. 105) where these two interlocutors end up in disagreement (ibid.). The following example (1) exemplifies this matter:

(1) *Non potevi stare più attento?* (ibid., p.105)

As a consequence, in this case, speakers are placed in a superior position with respect to the listeners since their aim is to prevaricate and sustain their ideals over the listeners. On the other hand, when a RQ is considered a "mitigator", the distance between speakers and listeners will always be reduced and an agreement can be found. Yet, negotiating is still needed because there is the necessity to reach a deal in which nobody's ideals are placed above others. For instance,

(2) *Non dovevi già essere a casa?* (ibid., p. 105)

The RQ here is called “face-saving act” since no aggressions towards listeners can be found but a balance between the interlocutors (ibid.).

However, what is more relevant to the topic of this thesis is her following research based on an experimental study on the perception of polar RQs and ISQs. The Bari variety of Italian was one more time at the core of her research. The researcher opted for an online experiment where participants were asked to take part in two tests. The first test consisted of only natural stimuli which were not altered with PRAAT. On the other hand, in the second test the stimuli were modified through the aforementioned phonetic software. At this point of this thesis, only the first experiment will be taken into consideration. Firstly, participants were required to listen to natural acoustic inputs which were deprived from contexts, which could potentially give hints on the pragmatic recognition of the questions. The results of this research revealed that,

> Estratti dalla loro cornice testuale, gli stimoli perdono quell’indispensabile aggancio contestuale che, sebbene costruito artificialmente, è comunque adeguato alla trasmissione del loro contenuto pragmatico. (Sorianello, 2020, p. 356)[2]

Indeed, providing contexts might foster and facilitate the correct perception of RQs and ISQs. What has been found is that while perceiving the RQs and ISQs, participants were more likely to perceive the ISQs more accurately than the RQs. However, despite the absence of a context and this tendency towards recognising correctly only the ISQs, several RQs were recognised in any case correctly (ibid.).

[2] Translation in English provided: Removed from their textual framework, the stimuli lose that essential contextual link which, despite being created artificially, is nonetheless adequate for the transmission of their pragmatic content.

1.6. Hypothesis and research questions

The experiment by Dehé & Braun and the study by Sorianello advanced significantly the investigation of the role of RQs compared to those of ISQs in English and Italian. However, as it can be noticed, there are few studies focussed only on the perception of these types of interrogatives in the aforementioned languages, leading to a trend-line which encompasses the analysis of the parameters of RQs and ISQs in production rather than research lingering on the perception of them. This thesis is an attempt to bridge the gap in the current literature between the sheer amount of research on the production of RQs in English and the restricted field of research on their perception by Italians who are studying or have studied English as L2. The peculiarity of this experiment is the fact that neither the Canadian nor the American variety of English has been adopted, but the English variety spoken in Ireland has been prioritised. This approach could give new perspectives, since it promotes the comparison between the production of RQs in the Irish variety of English and their perception by Italian speakers who come from different regions of Italy. The absence of explicatory contexts and the necessity of relying only on prosodic elements is what characterises this experiment, while the heterogeneity within the Italian participants is what could make it more inclusive since it goes beyond the niche of the Bari variety of Italian. The starting point of this research is determining to what extent L2 speakers – in this case Italian speakers – can perceive correctly the RQs in English without any given context. It is well known in the literature of SLA that production in L2 is a complex process which requires several skills and steps to achieve proficiency. However, production is not the only factor which can have an impact on the quality of second language acquisition. For this reason, I decided to explore another important section of L2 learning which is its perception by speakers with different scholastic backgrounds. The research questions which I attempt to answer are:

1) Can Italians perceive and identify RQs in English correctly among ISQs and several fillers?
2) Can their level of proficiency in English impact the outcomes?
3) Can Italians distinguish the given acoustic inputs in the same ways as the native speakers do?

The first hypothesis (H1) is that Italians can experience difficulties while identifying correctly the RQs among ISQs and fillers since the Italian prosodic system differs from the English one. Moreover, I expect that their level of knowledge of English can have a role in the identification of the RQs. I presume that the higher the level of competence in English is, the better are the chances of identifying the RQs correctly. The second hypothesis (H2) is that in case Italians do not possess an advanced level of English, an interference between L1 and L2 prosody might easily occur. Throughout these lines, I will attempt to see to what extent an interference between L1 and L2 can take place. As far as the third hypothesis is concerned (H3), I expect that Italians and English native speakers identify the RQs and ISQs differently. However, the absence of a previous explicatory context could have an effect on the identification of RQs by English native speakers as well. Therefore, I hypothesise that not providing a context before listening to the RQs and ISQs can pose problems also to English native speakers because the context could be exploited as a means to convey additional information on speakers' intentions.

CHAPTER 2

THE EXPERIMENT ON THE PERCEPTION OF RQs

One of the most suitable and effective methods to explore the perception of RQs by non-native speakers might be the creation of questionnaires incorporating numerous audio inputs that have to be identified via multiple-choice options. Given the manageability of answering through multiple selections, the number of responses and the time spent on the study can be utterly affected since questionnaires offer the possibility of obtaining numerous answers in a relatively short amount of time. In order to delve into the perception of polar and *wh*-RQs in English by Italians and answer the research questions, this study was conducted through a multi-step process. The recording of English native speakers *in loco* has been an opening and fundamental step in this research as it exerted a great influence on the entire evolution of the study. This shift of focus to the Irish variety of English with a homogeneous Irish group of recorded participants from Dublin offered an additional value to the research since it is a variety of English that Italians are tendentially not familiar with – Italians were thus supposed to determine the type of questions by listening to these audio files taken directly from these Dubliners.

In this Chapter, the reader will be provided with a description of the experiment and its methodology. The structure of the questionnaires used in the experiment will be thoroughly delineated, while addressing the attention to the description of the sections and the variety of stimuli presented. A comprehensive depiction of the participants involved in the experiment will be ultimately offered taking into account potential experiences abroad and the relative span of time spent studying English.

2.1. Stimuli

The experimental materials can be divided into two groups. The first category named target stimuli is made up of 20 string-identical pairs of *wh*- and polar RQs and ISQs (e.g., *Who is going to eat insects? Does anyone want to eat insects?*) which were divided into 10 target stimuli for group 1 and 10 target stimuli for group 2. This first categorization into target stimuli is crucial for the aim of the research since it includes the object of investigation (i.e., the perception of RQs). On the other hand, the second category consists of 6 fillers whose goal is to verify participants' attention span while operating like distractors (e.g., *What a beautiful view*). In order to provide the listeners with stimuli which are authentic and natural in their realisation, it has been opted for the creation of five explicatory contexts which were read and used only by the English native-speakers while being recorded. These explicatory contexts were created to induce both a rhetorical and information-seeking natural interpretation for each pair of questions. However, since the experiment deals with the perception of RQs by Italians, the explicatory contexts have been removed from the questionnaires, maintaining only the string-identical pairs of *wh*- and polar RQs and ISQs with the 6 fillers for each group. For instance, as reported in the following extract of Table (1) taken from the first questionnaire, the six beginning audio inputs were relatively a *wh*-RQ, a polar ISQ, a *wh*-ISQ, a filler, a following *wh*-ISQ and a final *wh*-RQ. The organisation of these stimuli, together with the following 10 other stimuli, has been fixed and all the participants from each questionnaire could listen to the same ordered list of audio inputs with the relative transcription. The entire list of stimuli for each questionnaire can be found in the Appendix (1) and Appendix (2) respectively. The second extract of Table (2), on the other hand, begins with different stimuli compared to those of questionnaire 1 – its ordering is always fixed and not modifiable. By focussing on the first

questionnaire, it can be seen that it offers these six initial audio inputs which are put in the following extract in Table (1).

(1)

1) Who wants to buy a tractor that is on sale;
2) Does anyone want to eat insects;
3) Who is going to watch this curling match;
4) Do me a favour and buy me a drink;
5) Who is going to eat insects;
6) Who drinks carrot juice for an energy boost.

Table (1). Six initial audio inputs from questionnaire 1.

What is worth stating is that all the audio inputs were recorded through the software PRAAT which provides an analysis of the waveforms and the several proprieties of the audio inputs used in this experiment. For instance, observing the following Figure (2) representing the first rhetorical question of questionnaire 1 (i.e., *who wants to buy a tractor that is on sale*), it can be noticed that it is possible to visualise the waveform and the narrow-band spectrogram to get information on the timeline (illustrated on the horizonal axis), on the frequency (represented on the vertical axis), on the intensity (yellow notations), on the voice pitch signal (blue notations) of the audio input. What is relevant is that the darker the sections are, the more intense the frequency component is (Wayland, 2019). Moreover, another important characteristic is that through the software PRAAT, it is possible to add the transcription of the audio file directly on the programme, visualising the transcription, the wave form and the spectrogram simultaneously.

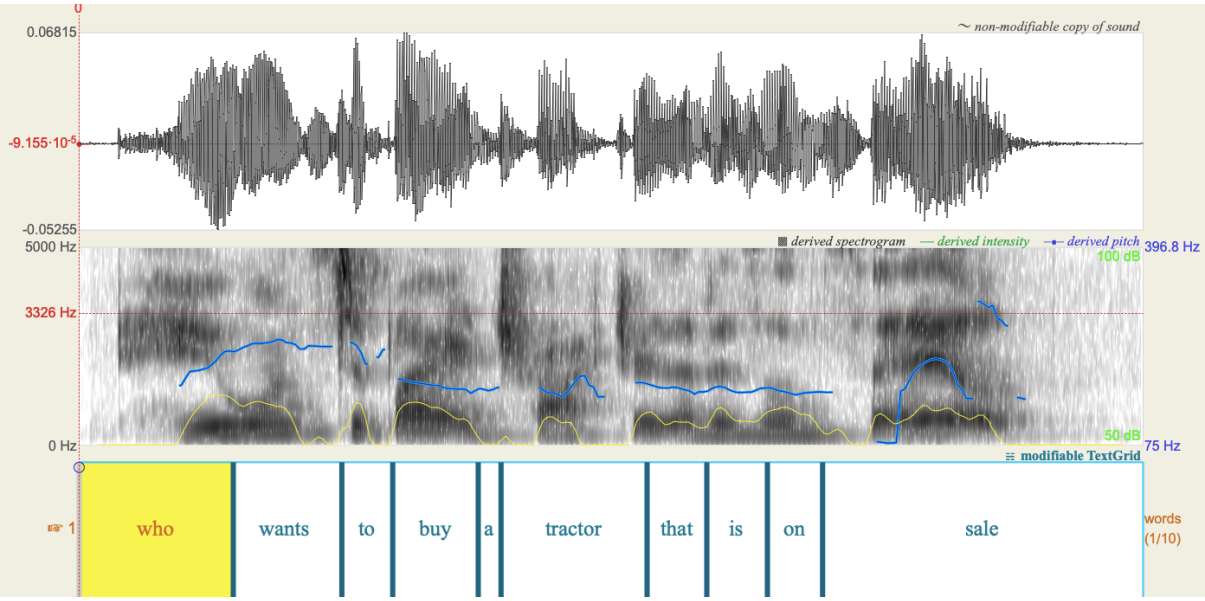

Figure (2). First audio file of questionnaire 1 annotated in PRAAT.

On the other hand, the second questionnaire presents these following six initial audio inputs put in the following extract in Table (2).

(2)

1) Does anyone drink carrot juice for an energy boost;
2) Does anyone want to buy a tractor that is on sale;
3) Does anyone want to eat insects;
4) Do me a favour and buy me a drink;
5) Who knows her surname;
6) Who is going to watch this curling match.

Table (2). Six initial audio inputs from questionnaire 2.

What is relevant to mention is that the randomisation of the stimuli occurred only once at the beginning of the creation of each questionnaire so that to obtain a homogeneous sample of RQs, ISQs and fillers. Therefore, participants were provided with the same two ordered lists of stimuli for group 1 and group 2. Another pivotal point to be illustrated regards the absence of

punctuation in the transcription of all the stimuli. Indeed, it has been opted to remove any punctuation to avoid influencing the participants' responses.

2.1.1. Items and the explicatory contexts

Initially, in the production part of the experiment, each stimulus was accompanied by an explicatory context which helped obtain a better understanding of the circumstances in which the audio input took place. The five explicatory contexts were designed to be the reflection of real-life situations. The contexts have been classified into five main categories which are relatively:

1. Considering insects as a possible food source;
2. The willingness to watch a curling match;
3. The possibility of drinking carrot juice as an energy boost;
4. The possibility of buying a tractor on sale;
5. Questioning the surname of the singer Adele.

Each context can be divided into two tables – one dedicated to polar interrogatives, the other to *wh*-questions. For instance, these two tables named Table (3) and Table (4) express two contexts, one for eliciting a rhetorical interpretation, the other for an information-seeking one. For this part of the experiment, the research by Dehé & Braun (2020) has been taken as a reference. Following their steps, to induce an information-seeking interpretation based on the necessity of acquiring knowledge, it has been opted for including some sentences like "you would like to know" in the description of the contexts. On the other hand, since rhetorical questions are not aimed at obtaining information and the answer is obvious, it has been decided to add another sentence which is relatively "it is well known that". Moreover, as it can be seen

in Table (3) and Table (4), all the polar RQs and ISQs possess the word “anyone”, unlike the *wh*- ISQs and RQs which start with the word “who”.

Table (3). Context and target polar interrogatives.

Context for ISQ	Context for RQ
At University there is a lecture with a special guest discussing insects as a food source. You would like to know whether other colleagues of yours are ready to try them or not. You say:	At University there is a lecture with a special guest discussing insects as a food source. It is well known that all of your colleagues are disgusted by the possibility of eating stinky insects. You say:
Target Q: Does anyone want to eat insects?	Target Q: Does anyone want to eat insects?

Table (4). Contexts and target wh- questions.

Context for ISQ	Context for RQ
At University there is a lecture with a special guest discussing insects as a food source. You would like to know whether other colleagues of yours are ready to try them or not. You say:	At University there is a lecture with a special guest discussing insects as a food source. It is well known that all of your colleagues are disgusted by the possibility of eating stinky insects. You say:
Target Q: Who is going to eat insects?	Target Q: Who is going to eat insects?

2.1.2. Fillers

As regards the fillers created, it is possible to divide them into six topic categories. Fillers' topics are always related to real-life situations, but they do not possess features in common with the context for the RQs and ISQs. They can be separated into these following sections:

1. A birthday party;
2. A beautiful view after a hiking;
3. A description of a stressful day and the need for a drink;
4. New phone features;
5. Binge watching;
6. A terrible idea of adding wasabi to ramen.

For these fillers, six explicatory contexts have been also created. For instance, as represented in Table (5), it can be noticed that the way in which contexts for fillers were introduced is identical to the one for the explicatory contexts of RQs and ISQs.

Table (5). Context for filler 1.

Context for filler 1
You are organising a birthday party for a friend. Since she is fond of flowers, you are discussing what kind of flower decoration might suit her best. You suggest brightening up the room with fresh flowers. Your friends do not seem to care about it and disagree. You therefore say:
Filler: Please tell me what you want to put!

Moreover, what is worth mentioning is that the fillers selected for the experiment possess specific features and can be divided into two main categories which are *wh*- exclamative and imperative fillers, relatively:

- Wh-exclamative fillers: *What a beautiful view, What a terrible idea, How interesting this is;*
- Imperative fillers: *Do me a favour and buy me a drink; Please tell me what you want to watch; Please tell me what you want to put.*

2.2. Participants

The participants of this experiment can be separated into three main groups: the recorded, the control and the experimental group. The first category is composed by three recorded English native speakers. The second category is represented by ten other English native speakers who were asked to take part in the experiment to control the validity of the stimuli provided. Moreover, the third classification refers to the Italian native speakers who were asked to prove their capability of differentiating rhetorical from information-seeking questions and fillers while discriminating the audio inputs provided.

2.2.1. Recorded group

The first group consisted of three recorded English speakers who were born and raised in Dublin, Ireland. This sample of participants is composed of one male and two females in their mid-twenties. The criteria for the selection of this sample underlies the necessity to avoid listening to the same repetitive voice tone throughout the experiment and offer a variety of voices which could prevent Italian participants from being distracted and diverting their

attention from the goal of the experiment. In order to obtain meaningful and appropriate results, this group has been informed of the aim of the experiment before being recorded.

2.2.2. Control group

The second group is the control group which is composed of ten English native speakers whose aim was to control whether the stimuli targeted to the Italian participants could be appropriate and discernible. This sample has been selected among some university students currently enrolled in a college in Ireland and it is composed of ten participants whose age range from 20 to 22 years old. What is worth mentioning is that this second group is not composed of only Dubliners but also participants from other regions of Ireland and England. This control group was asked to fill out two different modules on Google forms provided with the same acoustic items to be discerned subsequently by the Italian participants. Four participants filled in the first module, whereas six people took part in the second module. This control group was informed of the goal of the entire experiment and their role in it and has been provided with all the needed information to get acquainted with the difference between a rhetorical and an information-seeking question.

2.2.3. Experimental group

The experimental group is composed of 64 Italian native speakers who are studying or have studied English with a minimum of B1 level in the Common European Framework of Reference (CEFR). The experimental group were divided into two main groups which are the direct consequence of the division of the experiment into two questionnaires according to the season in which they were born (i.e., if they were born in autumn or spring, they should have participated in the first questionnaire and vice versa). In the first module, 30 Italian native speakers took part in the experiment, whereas 34 participants answered the second

questionnaire. What has been relevant to the outcome of the experiment is the information that none of the participants studied English as a second language for less than a year, resulting in a majority of people that have been studying it for more than ten years. Indeed, this parameter, which investigates the time frame spent studying English, has been introduced in the questionnaire since it can give the researcher a great deal of information about participants' background and level of proficiency in English. Another aspect which has been inserted into the Google forms was represented by potential past experiences abroad in an Anglophone Country, a variable that has been included to verify the participants' exposure to real English language. For the purposes of this study, the investigation on the past experiences abroad and the time span of studying English has been prioritised over participants' age and gender identification.

2.3. The structure of the questionnaires for the experimental group

The research has been created through the online software Google Forms and it consisted of two questionnaires divided into three main sections. The first part of each Google Form was dedicated to the background information of the participants, ranging from their level of proficiency in English to potential experiences in any English-speaking Country. Since the aim of this study is to verify whether Italians are able to perceive correctly the RQs in English, a confirmation of their mother tongue was required. Moreover, given that participants' level of English can have a great impact on the outcomes of the research, the duration of their period of studying English has been incorporated in the questionnaire. In order to manage efficiently this great deal of relevant information, multiple-choice options have been included.

The second section was not aimed at collecting information but rather ensuring that participants, before proceeding with the experiment, were aware of the difference between RQs and ISQs. In order to achieve this, it has been opted for including an example taken from the

research carried out by Dehé & Braun (2020) followed by a formal explanation, as it can be seen in Figure (3). By dividing the example into rhetorical and information-seeking question, it was possible to highlight how rhetorical questions are not usually used to elicit information but rather confirm the obviousness of the answer, unlike ISQs. The inclusion of both an example and an explanation of the difference between RQs and ISQs supported by images enabled participants to continue with the questionnaire.

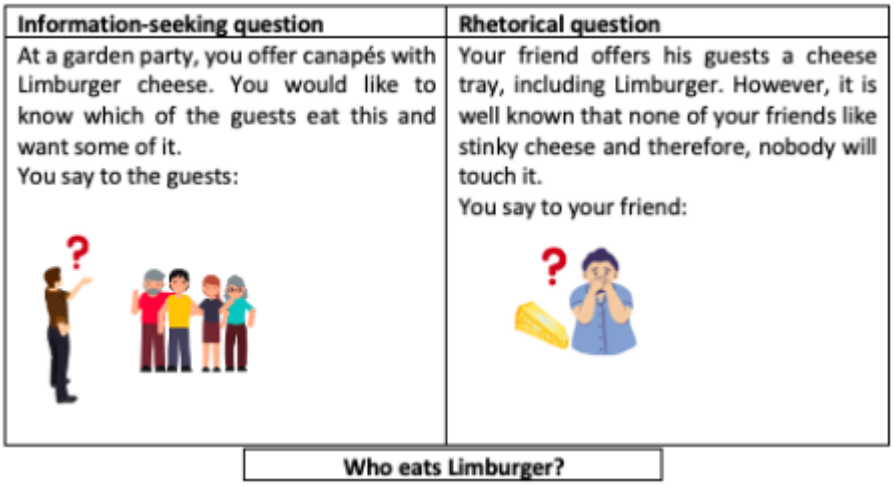

Figure (3). Example taken from Dehé & Braun (2020, p .614)

The third part was the core section of the experiment. Participants were provided with 16 audio recordings (10 target stimuli and 6 fillers) for each questionnaire, resulting in a total of 26 stimuli with 6 fillers in common among the two questionnaires. Participants were given a transcription of all the audio inputs of the questionnaires. However, as it has been already mentioned, no punctuation has been added to avoid influencing participants' perception of the audio inputs. Each audio input was followed by a multiple-choice option. Participants were required to select between three alternatives which are: rhetorical question, information-seeking question and none of the above, as represented in the following Figure (4). All the

answers were stored anonymously and were taken into account for research purposes only. The estimated time per questionnaire has been approximately fixed to ten minutes.

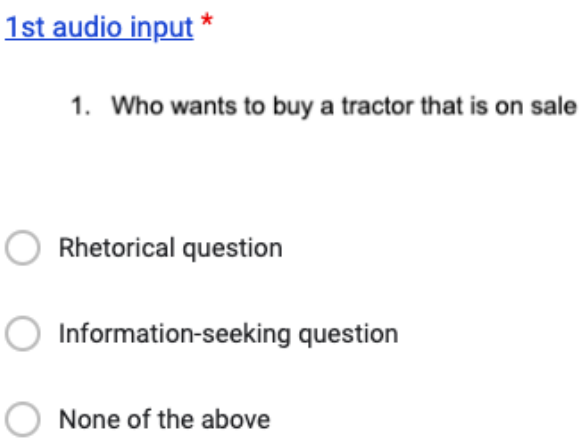

Figure (4). Example of audio input taken from the first questionnaire.

2.4. The structure of the pilot questionnaires for the control group

In order to verify the validity and the reliability of the experiment and the stimuli, the two questionnaires have been shared firstly with 10 English native speakers. As mentioned previously, two groups have been created: control group 1 (made up of 4 participants) and control group 2 (made up of 6 participants). Some prior information has been given to the control group in order to help the process of filling the questionnaire out. After presenting the research and the functioning of Google Forms, the control group has been informed about the time management. It has been suggested that the average expected time for filling in should be around 5 minutes, unlike the questionnaires for Italians which were supposed to last twice the amount of time. The same stimuli offered to the experimental group has been given to the control group, except for not having pictures provided. These two pilot questionnaires were therefore unaltered at the level of stimuli and completely identical to those of the experimental group.

2.5. Survey Methodology

Given the objective of the research and the attempt of providing a contribution to the current literature on this matter, the first step taken was gathering three English native speakers willing to be recorded for the purpose of the experiment. All the needed information about the experiment and its goal has been given to this sample of English native speakers prior to the beginning of the recording in order to facilitate the process of obtaining authentic and valid data. Once informed about the methodology and the aim of the research, the recordings took place in a quiet environment in such a way that background noises were minimised. The audio files were recorded using the software PRAAT with the aid of a laptop. English native speakers were then required to read each explicatory context and the related question or filler as naturally as possible. After completing the recordings, which took a couple of hours in total, the explicatory contexts were removed to give room to the perception of only the questions and fillers.

The second step of the experiment consisted in creating a Google drive fold in which all the audio recordings were added. Consequently, two Google forms were designed adopting the aforementioned structure while the audio inputs could be accessed by means of clicking the hyperlink connected to the Google drive fold provided for each audio input. Firstly, the two questionnaires were forwarded to the control group as a form of verification of the validity of the audio inputs. Subsequently, the experimental group received the two questionnaires to be filled in. The peculiarity of this study is that the questionnaires have not been open for a long period of time – participants could fill them out for a time span of three weeks. In order to obtain data and broaden the possibility of increasing the number of potential participants, it has been decided to submit the Google forms via both email and broadcast lists on instant messaging apps. Participants from the very beginning were informed about the treatment of

their data obtained through the questionnaires. It has been then assured that all the participants were aware of the anonymity of the answers and the fact that the data will be kept confidential to the full extent of the study.

Once received the link to the experiment, participants were welcomed to click on it, express the informed consent and complete the questionnaire in around 10-15 minutes. The hard data collected over time was later converted into statistical charts and boxes in order to facilitate the process of analysing the results and outcomes of the study. Since no open questions and qualitative data were collected, the only parameter for the examination of the results was the statistical analysis based on quantitative data acquired from the questionnaires. The entire experiment, from the recordings to the submission of the two Google forms, lasted 4 months from March 2023 to June 2023.

CHAPTER 3

THE RESULTS AND THE DESCRIPTIVE AND STATISTICAL ANALYSIS OF THE EXPERIMENTAL DATA

At the core of this section of the thesis there will be an extensive description of the results of the control and experimental groups by means of providing charts, percentages as well as adopting the statistic model named logistic regression model to determine the relation between the independent variables (e.g., participants' level of English, abroad experiences, question type) and the dependent variable (i.e., the correct or wrong given answer). What is crucial to mention is that this chapter will be initially dedicated to the descriptive analysis of the data from the questionnaires of either the control group or the experimental group, moving forward subsequently to a detailed presentation of the statistical analysis. The outcomes of the two questionnaires given to the ten English native speakers will be firstly analysed by presenting several charts which represent the percentages at which the native speakers detect and identify the ISQs, RQs and fillers among the various stimuli of questionnaire 1 and 2. The description of the results of the 64 Italian native speakers divided into group 1 and group 2 will be provided later with a focus on the difference in their background information and their answers to the questionnaires. Outlining the overall number of participants for the statistics (64 Italian native speakers and ten English native speakers) while providing an all-encompassing examination of the different outcomes will be therefore the priority and major aim of this section of the thesis.

3.1. Control group results

Unlike the experimental group questionnaires, the questionnaires designed for the control group did not include the section dedicated to participants' background information (i.e., time

span learning English, level of proficiency, abroad experiences). Therefore, this section dedicated to English native speaker results will present only the outcomes of the main part of the experiment focused on the identification of RQs, ISQs and fillers.

By focussing on the first control group, it can be noticed that the RQs have been identified correctly most of the times, as reported in Table (6). Indeed, despite the first RQ "Who wants to buy a tractor that is on sale" being identified as a RQ by 3 out of 4 participants (75%) and the remaining 25% as an ISQ, the rest of RQs of questionnaire 1 have been perceived correctly by 4 out of 4 participants (100%). The only exception is represented by the 10th RQ "Who knows her surname" which will be discussed separately in the following Chapter as it was perceived by 100% of participants as an ISQ.

Table (6). First control group: RQ results.

1st RQ "Who wants to buy a tractor that is on sale"	75%
6th RQ" Who drinks carrot juice for an energy boost"	100%
10th RQ "Who knows her surname"	0%
13th RQ "Does anyone know her surname"	100%
15th RQ "Does anyone want to watch this curling match"	100%

Analogously to the RQs, the ISQs in the first control group have been identified correctly the majority of times – despite the 2nd, 3rd and 5th ISQs which have been considered as such by 75% of cases, the remaining ISQs have been identified correctly by 100% of participants.

Shifting the attention to the identification of the RQs by the second control group, it can be stated that the percentages at which they have been recognised correctly range from 66.7 % to 100%, as it can be seen in Table (7). Indeed, the 3rd RQ "Does anyone want to eat insects" has been recognised correctly by 5 participants out of 6 (83.3%) whereas only one identified it

as an ISQ (16.7%). On the other hand, the 6th RQ "Who is going to watch this curling match" have been considered by 66.7% of participants as a RQ, whereas by 16.7 % as an ISQ and the remaining 16.7% as "none of the above". Moving on to the 8th RQ "Who is going to eat insects" it can be stated that 66.7% identified it as a RQ, whereas 33.3% as an ISQ. Moreover, the 10th RQ "Does anyone want to buy a tractor that is on sale" has been recognised as such by 100% of participants, whereas the 13th RQ "Does anyone drink carrot juice for an energy boost" presented the same outcomes of the RQ number 6 since it has been perceived as a RQ by 66.7% and 16.7% as a ISQ and the other 16.7% as "none of the above".

Table (7). Second control group: RQ results.

3rd RQ "Does anyone want to eat insects"	83.3%
6th RQ" Who is going to watch this curling match"	66.7%
8th RQ "Who is going to eat insects"	66.7%
10th RQ "Does anyone want to buy a tractor that is on sale"	100%
13th RQ "Does anyone drink carrot juice for an energy boost"	66.7%

As regards the ISQs within the second questionnaire, it is possible to see that the percentages at which the English native speakers identified them range, similarly to the RQs, from 66.7% to 100%. More specifically, whereas 66.7% of participants identified the 15th ISQ "Does anyone want to watch this curling match" as an ISQ, 33.3% categorised it as a RQ. The 1st ISQ "Does anyone drink carrot juice for an energy boost" has been identified as such by 83.3% of participants, while 16.7% identified it as a RQ. The same percentages occurred with the 12th "Does anyone know her surname". To conclude, the 2nd ISQ "Does anyone want to buy a tractor that is on sale" and 5th ISQ "Who knows her surname" have been identified correctly by 100% of participants.

By moving forward to the fillers in both questionnaire 1 and 2, it is possible to notice that their identification has posed some difficulties. Indeed, as represented in Figure (5), if we consider the 4th filler "Do me a favour and buy me a drink" it can be stated that in group 1 only one out of four participants (25%) identified it as a "non-interrogative", while the other 25% identified it as an ISQ and 50% as a RQ.

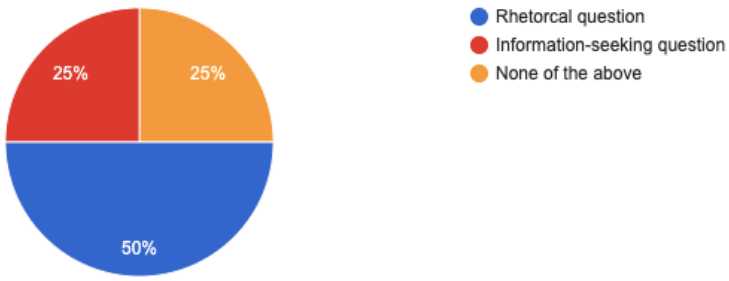

Figure (5). First control group results:4th filler "Do me a favour and buy me a drink".

Group 2, on the other hand, presented dissimilar results from group 1. This 4th filler "Do me a favour and buy me a drink" has been identified correctly by four out of six participants (66,7 %) and just 33.3 % as a RQ as represented in Figure (6).

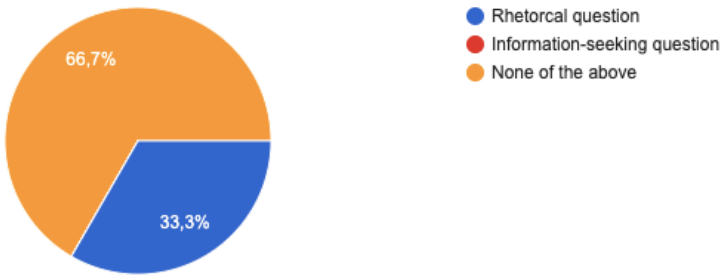

Figure (6). Second control group results:4th filler "Do me a favour and buy me a drink".

Moving on to the 7th audio input, it can be said that in group 1 this 7th filler "What a beautiful view", has been identified correctly as a "non-interrogative" by 75% of participants, whereas

25% considered it as an ISQ. Group 2 identified it correctly with a rate of four out of six participants (66,7 %) and just 33.3 % as a RQ. The 9th filler "Please tell me what you want to put" presented dissimilar outcomes – whereas in the first group 50% of participants considered it as an ISQ, the remaining 25% identified it as a filler and the other 25% as a RQ; within the second group 50% perceived it as an ISQ, whereas 33.3 % as a filler and the remaining 16.7% as a RQ. As regards the 11th filler "How interesting is this", it has been categorised as such by 1 out of 4 participants (25%), as an ISQ by 25% and as a RQ by 50% in group 1, whereas it can be noticed that it has been perceived as a RQ by 50% of participants whereas only 16.7 % as a filler and 33.3% as an ISQ in group 2. On the other hand, with the 14th filler "Please tell me what you want to watch", it is possible to notice that 75% perceived it as an ISQ whereas 25% as a filler in group 1, whereas it has been considered by 50% as an ISQ, by 33.3 % as a filler and by the remaining 16.7% as a RQ in group 2. Lastly, the 16th filler "What a terrible idea" has been identified correctly by 2 out of 4 participants of group 1 (50%) whereas 25% considered it as an ISQ and the other 25% as a RQ. As regards the second group, 50% identified the last filler "What a terrible idea" as a filler and the other 50% as a RQ.

3.2. Experimental group results

This section is fully dedicated to the report of the experimental data obtained from questionnaire 1 and 2 aimed at the 30 Italian native speakers of questionnaire 1 and 34 of questionnaire 2. Since the design of these questionnaires differs from the English native speaker model, it has been opted for an initial description of the whole collection of data dedicated to the background information of the participants, and a second following report of the remaining collection of experimental data of group 1 and group 2.

3.2.1. Description of the results within the background information section

The analysis of the data obtained from the section of questionnaire 1 and 2 dedicated to participants' background information reveals that the majority of Italian native speakers have been studying English for an extensive period of time which results in a preference for the "5-10 years" and "more than 10 years" options as shown in Table (8). More specifically, if we take into consideration the answers from questionnaire 1, it is possible to see that 23 participants out of 30 (76.7%) have been studying English for more than 10 years, while 7 Italians out of 30 have been learning it for a time span of 5-10 years (23.3%). Within the first questionnaire, none of the participants selected the options "less than a year", "1-2 years" or "2-5 years". Comparing the same section dedicated to the period of time spent studying English of questionnaire 1 to questionnaire 2, it can be stated that similar outcomes can be noticed. Indeed, whereas 76.5% of participants from questionnaire 2 admitted that they have been learning it for more than 10 years, only 17.6% selected the "5-10 years". However, contrary to questionnaire 1, in questionnaire 2 it is possible to see another value which is represented by the sample of 2 participants out of 34 (5.9%) who have been learning English for 2-5 years.

Table (8). Experimental group: results of the Background Information. "How long have you been studying English?" section.

"How long have you been studying English?"	Questionnaire 1	Questionnaire 2
Less than a year	0%	0%
1-2 years	0%	0%
2-5 years	0%	5.9 % (2/34)
5-10 years	23.3% (7/30)	17.6 % (6/34)
More than 10 years	76.7 % (23/30)	76.5 % (26/34)

Moving forward to the section dedicated to the level of proficiency in English, it can be stated that among the two groups of Italian native speakers different values can be detected. As represented in Table (9), since the threshold for taking part in the experiment was B1, none of the participants selected the option "A1/A2" level of English. In the first questionnaire, 9 participants out of 30 stated that they possess a B1/B2 level (30%), whereas just 5 participants out of 34 (14.7%) declared to possess the same level in questionnaire 2. As regards the following level which is "B2/C1", it can be stated that 12 out of 30 (40%) in questionnaire 1 selected this option compared to 17 out of 34 participants (50%) of questionnaire 2. The results for the "C1/C2" option are analogous – 11 out of 34 (32.4%) in questionnaire 2, whereas 9 out of 30 (30%) in questionnaire 1. The only value which is absent in questionnaire 1 is the "native speaker" selection which has been chosen once by only one participant in questionnaire 2 (2.9%). To summarise, taking into account the whole sample of Italian native speakers, it can be stated that 14 people possess a B1/B2 level, 29 people have a B1/C1 level, 20 Italians affirmed to possess a C1/C2 level of proficiency and only one claimed having a native speaker level.

Table (9). Experimental group: results of the Background Information. "What is your level of proficiency in English" section.

"What is your level of proficiency in English" section	Questionnaire 1	Questionnaire 2
A1/A2	0%	0%
B1/B2	30% (9/30)	14.7 % (5/34)
B2/C1	40% (12/30)	50 % (17/34)
C1/C2	30% (9/30)	32.4 % (11/34)

Native speaker	0%	2.9 % (1/34)

As regards the last section dedicated to the background information of the Italian native speakers, it can be noticed that the majority of the participants have never lived in an Anglophone Country. Indeed, as illustrated in Table (10), in the first questionnaire 23 out of 30 (76.7%) stated that they have never lived in such a Country whereas only 2 out of 30 (6.7%) mentioned to have lived there short-term and 5 out of 30 participants (16.7 %) stated to have lived there long-term. Similarly, in questionnaire 2 only 11.8% lived short-term and 8.8% long term, whereas 79.4% of participants have never lived in an Anglophone Country. In total, 50 Italians have never lived in an Anglophone Country, whereas 14 admitted having experienced this permanence abroad.

Table (10). Experimental group: results of the Background Information. "Have you ever lived in an Anglophone Country" section.

"Have you ever lived in an Anglophone Country" section.	Questionnaire 1	Questionnaire 2
No	76.7 % (23/30)	79.4 % (27/34)
Yes, short-term	6.7% (2/30)	11.8 % (4/34)
Yes, long- term	16.7 % (5/30)	8.8 % (3/34)

Overall, these previous tables have been introduced to offer a visual representation of the overall time spent studying English, the potential experiences abroad as well as the actual level of English proficiency by all the Italian participants who participated in this experiment. From these tables, it is possible to notice that, although the participants were assigned to the two groups arbitrary, the general level and experiences by the Italians were almost analogous and not divergent.

3.2.2. Description of the results within the experimental section

This section dedicated to the experimental section will be divided into two parts – one devoted to the outcomes of the Italian native speakers of group 1 and the other to the results of the remaining group 2. Moreover, an in-depth analysis of fillers will be provided after the exposition of the descriptive analysis of the whole collection of data.

By scrutinising separately each audio input of group 1, it can be stated that the threshold of recognition of ISQs and RQs is not always particularly high. Indeed, if we address our attention to the way in which RQs of questionnaire 1 were perceived, it can be noticed that only 2 out of a total of 6 RQs were recognised correctly with a percentage higher than 80%. More specifically, as reported in Figure (7) the first *wh*- RQ "Who wants to buy a tractor that is on sale" has been perceived correctly by 26 participants out of 30 (86.7%) whereas just 3 participants (10%) considered it as an ISQ and one (3.3%) as "none of the above".

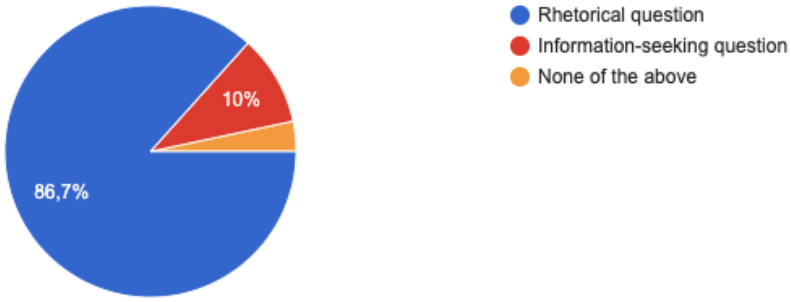

Figure (7). First experimental group results: 1st RQ "Who wants to buy a tractor that is on sale".

The case of the 6th RQ is practically equal, as it can be seen in Figure (8). Indeed, the *wh*-RQ "Who drinks carrot juice for an energy boost" has been recognised correctly by 26 out of 30 (86.7%) and the remaining 6.7% and 6.7% identified it as an ISQ and "none of the above", respectively.

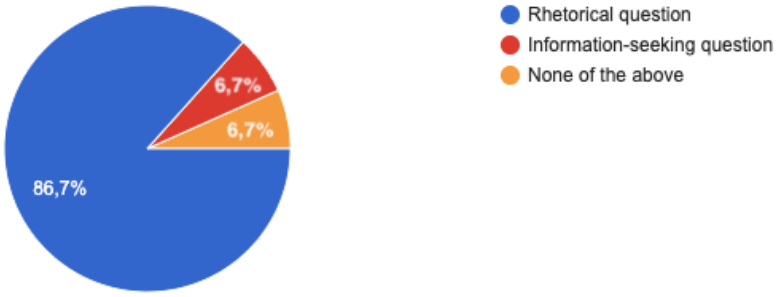

Figure (8). First experimental group results:6th RQ "Who drinks carrot juice for an energy boost".

Different is the outcome of the 10th RQ. What is worth mentioning is that this *wh*-RQ "Who knows her surname" posed some difficulties in its recognition. Indeed, only 19 out of 30 (63.3%) recognised it correctly, while 33.3% identified it as an ISQ and the remaining 3.3% as "none of the above". Moreover, the 13th polar RQ "Does anyone know her surname" has been identified as a RQ only by 13 participants (43.3%), whereas 53.3% considered it as an ISQ and the 3.3% as a "none of the above". Lastly, the 15th polar RQ "Does anyone want to watch this curling match" has been identified as a RQ by 22 out of 30 (73.3%), whereas 23.3% as an ISQ and 3.3 % as "none of the above".

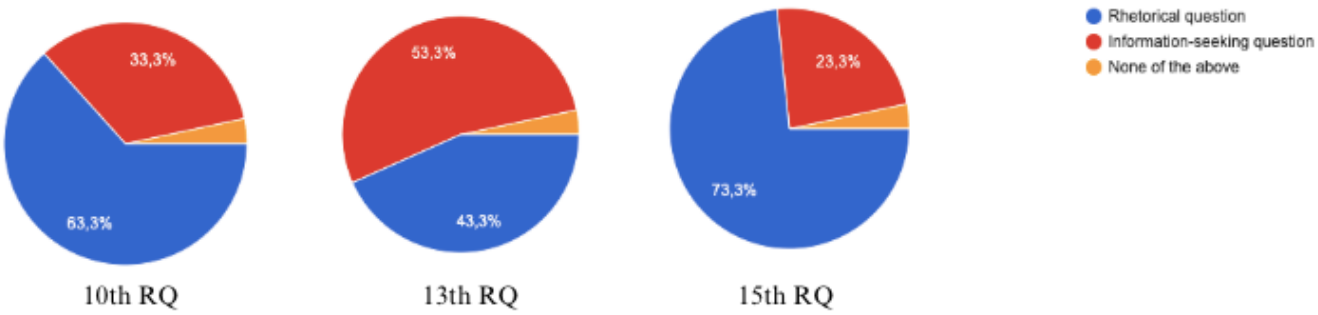

Figure (9). First experimental group results: 10th, 13th and 15th RQs.

If we consider the remaining ISQs in questionnaire 1, it is possible to notice that they were recognised correctly with span which ranges from 40% to 86.7%, as reported in Figure (10). More precisely, whereas the 2nd polar ISQ "Does anyone want to eat insects" has been identified as such by 63.3% of participants while the remaining 33.3% as a RQ and 3.3% as "none of the above"; the following 3rd *wh*-ISQ "Who is going to watch this curling match" has been recognised correctly with a higher percentage which is 80% as an ISQ, 10% as a RQ and the other 10% as "none of the above". Furthermore, the 5th *wh*-ISQ "Who is going to eat insects" presented unusual percentages as it obtained a 56.7 % of participants who recognised it as a RQ and only a 40% as an ISQ with a remaining 3.3% as "none of the above". On the contrary, the 8th *wh*-ISQ "Who wants to buy a tractor that is on sale" has a percentage of 86.7% of participants who categorised it as an ISQ and the other 13.3% as a RQ. Lastly, the 12th *wh*-ISQ "Who drinks carrot juice for an energy boost" has been recognised as an ISQ by 66.7 % of participants with 30% of Italians who considered it as a RQ and 3.3% as "none of the above".

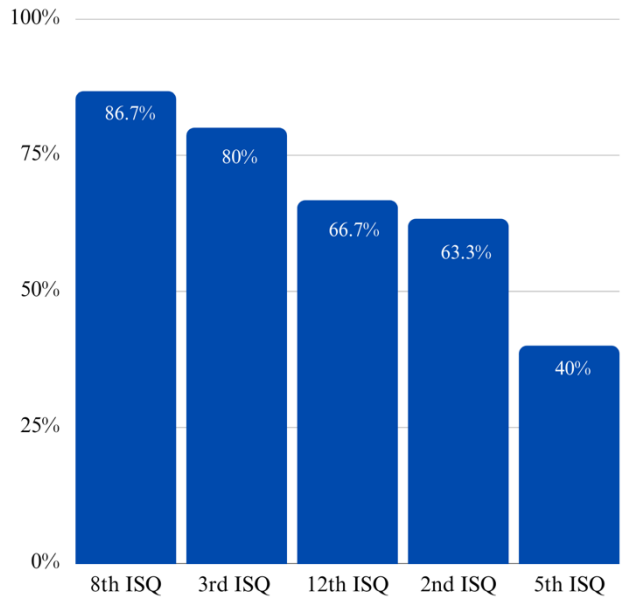

Figure (10). Percentages of correct recognition of ISQs by the first experimental group.

If we proceed with the analysis of group 2 results, it is possible to claim that divergent outcomes can be found. Indeed, the rate at which RQs were correctly identified is sharply higher, ranging from 88.2% as a maximum to a minimum of 61.8%. As reported in Figure (11), if we inspect the 3rd polar RQ "Does anyone want to eat insects", it can be seen that 27 out of 34 participants (79.4%) considered it as a RQ, whereas 6 participants (17.6%) as an ISQ and one remaining participant (2.9 %) as "none of the above". Furthermore, while the 6th *wh*-RQ "Who is going to watch this curling match" received an overall 88.2% of participants identifying it as a RQ and 5.9% as an ISQ while the 5.9% as "none of the above"; the 8th *wh*-RQ "Who is going to eat insects" obtained the same 88.2% of Italians who categorised it as a RQ with an 8.8% of participants who considered it as an ISQ and a 2.9% as "none of the above".

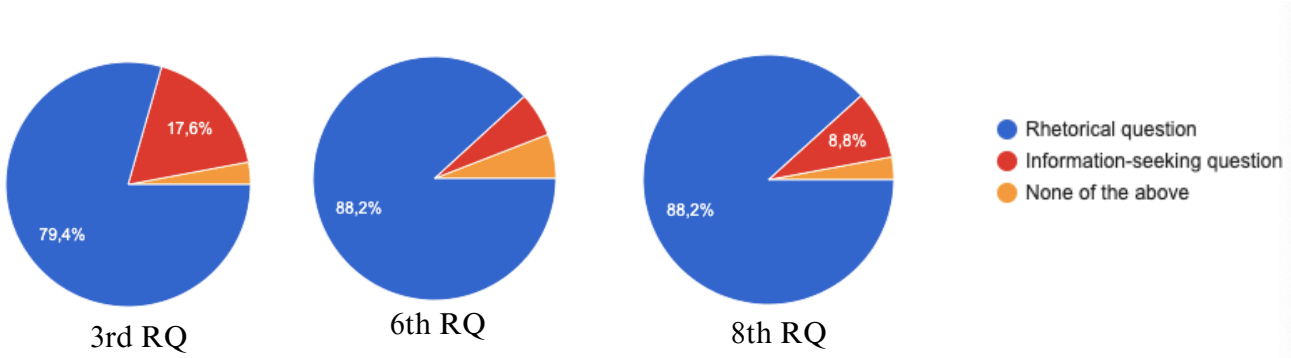

Figure (11). Second experimental group results: 3rd, 6th and 8th RQs.

On the other hand, as it can be seen in Figure (12), the 10th polar RQ "Does anyone want to buy a tractor that is on sale" has been recognised as such by 21 out of 34 participants (61.8%) and as an ISQ by 32.4%, while 5.9% put "none of the above". Lastly, the 13th "Does anyone drink carrot juice for an energy boost" obtained 73.5% of participants perceiving it as a RQ, whereas 26.5% as an ISQ.

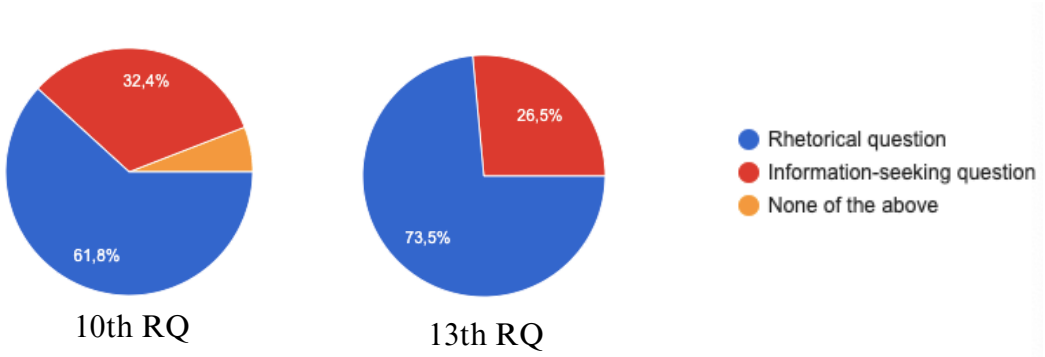

Figure (12). Second experimental group results: 10th, 13th RQs.

As regards the results concerning the ISQs identified by group 2, it can be stated that, as represented in Figure (13), the rate at which they have been selected ranges from 94.1 % to a minimum of 64.7%. More precisely, the first polar ISQ "Does anyone drink carrot juice for an energy boost" has been identified correctly by 26 out of 34 participants (76.5%), while 20.6% considered it as a RQ and a small percentage of participants (2.9%) as "none of the above". On the other hand, the second polar ISQ "Does anyone want to buy a tractor that is on sale" has been categorised as such by 73.5% of participants, whereas 20.6% considered it as a RQ and the remaining 5.9% as "none of the above". A smaller percentage of participants (64.7%) categorised correctly the 5th *wh*-ISQ "Who knows her surname", while the remaining 35.3% identified it as a RQ. The 12th ISQ "Does anyone know her surname" presented a significant percentage of participants (94.1%) who recognised it correctly, with only 2 Italians out of 34 (5.9%) who perceived it as a RQ. The last 15th polar ISQ "Does anyone want to watch this curling match", on the other hand, is composed of 67.6% of people who perceived it correctly and 29.4% of participants who considered it as a RQ with a remaining 2.9% as "none of the above".

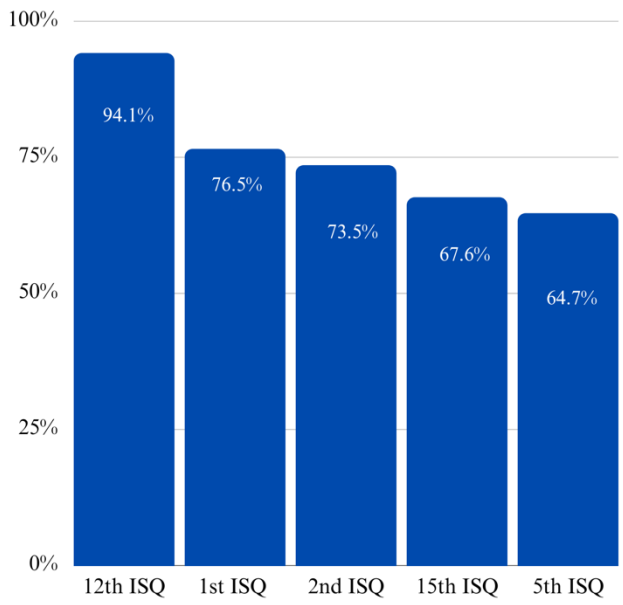

Figure (13). Percentages of correct recognition of ISQs by the second experimental group.

Switching now the attention to the fillers employed in group 1 and 2, it is possible to notice that, as represented in Figure (14), the minimum rate at which they have been identified correctly is around 20%, whereas the maximum range between these groups is approximately 80%. What is worth mentioning is that the results of the six same filler inputs were considerably analogous. For instance, the 4th filler "Do me a favour and buy me a drink" obtained similar percentages in terms of correct recognition between group 1 and 2 –while 80% of participants from group 1 categorised it as a filler and 13.3% as a RQ with a remaining 6.7% as an ISQ, 79.4% of participants from group 2 identified it as a filler, 14.7% as an ISQ and 5.9% as a RQ. The same occurred with the 7th filler "What a beautiful view" where within the first experimental group 83.3% considered it a filler, 10% as a RQ and 6.7% as an ISQ, whereas in the second group a slightly smaller percentage (76.5%) identified it as a filler, 14.7% as an ISQ and the other 8.8% as a RQ. The most unforeseen result is represented by the 9th filler "Please tell me what you want to put" since it has the lowest rate of correct identification of which is around 20% in both group 1 and 2. More specifically, only 6 out of 30 participants of group 1 (20%) considered it as a filler, whereas 70% as an ISQ and 10% as a RQ. On the other hand,

only 29.4% of participants from group 2 categorised it as a filler, with 64.7% of participants who considered it as an ISQ and the remaining 5.9% as a RQ. Moving further to the 11th filler "How interesting is this" it can be stated that within the first experimental group 33.3% identified it as a filler, while 30% as an ISQ and the other 36.7% as a RQ. As similar percentage of correct recognition has been obtained from group 2 where 41.2% considered it as a filler, 50% as a RQ and the other 8.8% as an ISQ. Moreover, a small proportion of participants from both group 1 and 2 identified correctly filler number 14 "Please tell me what you want to watch". More precisely, 33.3% of participants from group 1 perceived it as a filler, while 56.7% as an ISQ and the other 10% as a RQ, whereas 26.5% of Italians from group 1 perceived it as a filler, 61.8% as an ISQ and the other 11.8% as a RQ. Ultimately, the 16th filler has been categorized correctly with a rate which range from 76.7% of group 1 and 79.4% of group 2. More specifically, in the first group the remaining 10% considered it as an ISQ and 13.3% as a RQ, whereas in the second group 5.9% perceived it as an ISQ and the other 14.7% as a RQ.

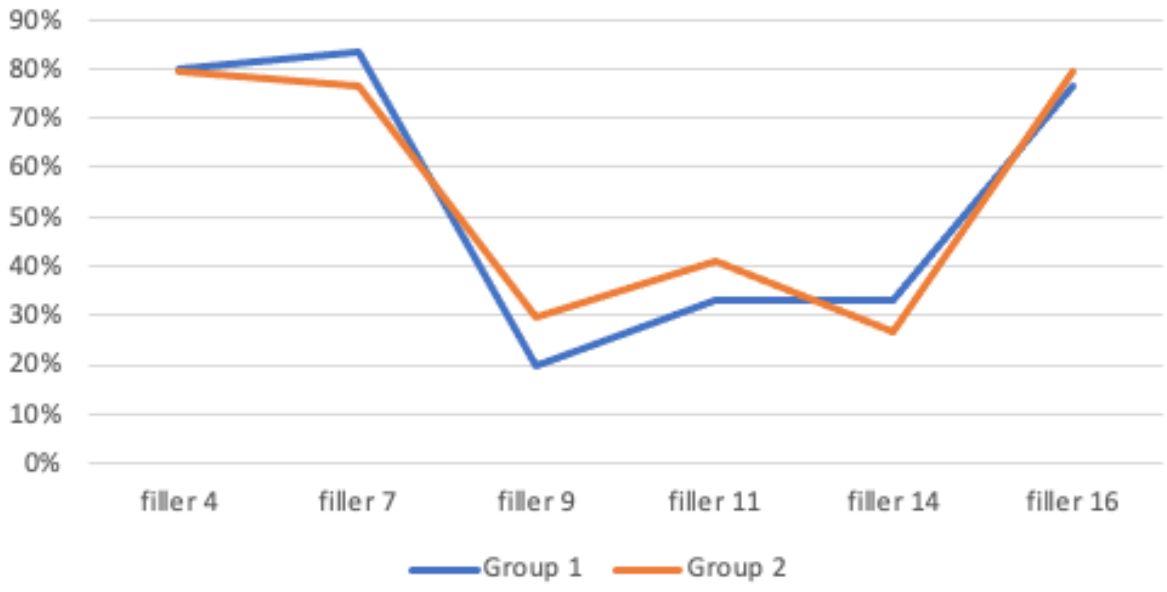

Figure (14). Experimental group results: comparison of the fluctuation of the filler recognition rate in group 1 and 2.

3.3. The Logistic Regression Model and the statistical analysis

Understanding the relation between the dependent variable of this thesis (i.e., right or wrong answers of the target stimuli) and the independent variables (i.e., the predictors of the level of proficiency in English, the experiences abroad and the type of questions) can help draw the conclusions of this experiment. These aforementioned factors can be studied through the Logistic Regression Model which offers a statistical analysis of the relation between a dependent variable, which need to be binary and dichotomic (i.e., the value can be 0 or 1), and independent variables. What is worth mentioning is that this level of dependence is represented by the Odd Ratios (henceforth, OR) which can be:

- OR > 1. Whenever the OR is above one there is a great level of dependence between the two variables;
- OR < 1. In case the OR is negative, there is a negative association between the two variables and the probability of influencing each other is low;
- OR = 1. Whenever the OR is equal to one, there is an absence of association between the variables.

(Osborne, 2006)

For the statistical analysis of this thesis, the software "R" has been adopted (R Core Team, 2021). In this thesis the dependent variable is represented by the factor of "correctness", whereas the independent variables are the "predictors". The Logistic Regression Model offers also the possibility of taking into account the Confidence Intervals (henceforth, CI) and the p-values as factors of correctness, whereas the intercepts for the predictors are the proficiency of the English language by Italians, the experiences abroad and the question type (*wh*- vs. polar).

At the basis of this statistical model there is the fact that the variables should be binary and dichotomic, thus, in this experiment whenever the answer of a participant is correct, the value associated to it is 1. On the other hand, in case the answer is wrong, the dependent variable is 0. If we focus on the importance of this regression model, it can be stated that it exerted an important role in determining whether the students with higher proficiency levels are more successful at detecting the RQs and if the experiences abroad can have an impact on the identification of them. Lastly, this statistical model contributed to state which question is identified more correctly as (non-) rhetorical between polar and -*wh*.

The following Figure (15) summarises the parameter of Correctness (i.e., Odds Ratios, CI, p-values) derived from the statistical analysis. What is worth mentioning is that the tables related to the Logistic Regression Model were created using the R package sjPlot (Lüdecke, 2023). If we inspect these parameters, it can be seen that the most important column for the purposes of the study is represented by the p-value section which is higher than the significance level fixed at 0.05 for all the predictors. This led to the conclusion that none of these variables (i.e., proficiency of the English language by Italians, the experiences abroad and the question type) affect significantly the success rate of RQ identification.

	Correctness		
Predictors	*Odds Ratios*	*CI*	*p*
(Intercept)	0.35	0.20 – 0.62	**<0.001**
factor_Proficiency [linear]	0.87	0.54 – 1.42	0.589
factor_Proficiency [quadratic]	0.99	0.68 – 1.44	0.952
Abroad [Yes]	0.74	0.40 – 1.37	0.342
Qtype [wh]	0.66	0.31 – 1.43	0.295

Figure (15). Results from the Logistic Regression Model of the target stimuli.

Moreover, the Logistic Regression Model offered also the possibility of obtaining random intercepts, named "effects", from the speakers and stimuli, as reported in Figure (16).

Random Effects	
σ^2	3.29
$\tau_{00\ Subject}$	0.23
$\tau_{00\ StimulusCode}$	0.54
ICC	0.19
$N_{\ Subject}$	64
$N_{\ StimulusCode}$	20
Observations	618
Marginal R^2 / Conditional R^2	0.017 / 0.204

Figure (16). Random Effects from the Logistic Regression Model.

However, before moving further to the following chapter of the thesis dedicated to the discussion of these aforementioned data obtained from this study, it is important to shed lights on the total observations of the experiment. It is essential to mention that the overall number of question type is 1024, which can be divided among the two groups of Italian native speakers into 384 fillers, 328 polar questions and 312 *wh*- questions. However, if we consider how these 64 participants perceived only the target stimuli (polar and *wh*-), the number of observations drops from 640 (238 polar questions + 312 *wh*- questions) to 618 since 10 polar questions and 12 *wh*- questions have been categorised by the Italian participants as "none of the above", that is, non-interrogatives. Therefore, these 22 questions were classified as <NA> and were removed from the statistical analysis, reducing the total from 640 to 618. In the following Table (11), the values of correct, wrong and <NA> classification can be found.

Table (11). Question type (polar/wh-) classification.

	Polar questions	*Wh*- questions
Correct	233	235
Wrong	85	65
<NA>	10	12

As it has been reported, 233 polar and 235 *wh*- questions have been recognised correctly, 85 polar and 65 wrongly, whereas 10 polar and 12 -*wh* have been classified as <NA>. These results are in line with the outcomes of the statistical analysis which demonstrate that the success rate for polar and *wh*- questions was almost analogous.

CHAPTER 4

THE DISCUSSION OF THE EXPERIMENTAL RESULTS

This section of the thesis will be dedicated to the discussion of the key findings of this study devoted to the investigation of the perception of rhetorical questions in English by Italian speakers. Thus far we analysed the structure of the experiment, the participants involved (see Chapter 2) as well as the statistical analysis with its outcomes (see Chapter 3). Along with the discussion of the results and implications of the findings, in this Chapter space will be also given to the limitations of the study and to answer the research questions by means of either using supporting data from the statistical analysis or stating the implications of the study while delineating the role that some acoustic cues might have played in the identification process.

4.1. Discussion of the limitations of the study

Before discussing the main findings of the research, it is essential to give space to the discussion of the limitations of the study. In the previous Chapters, it has been mentioned the methodology of the experiment and the software employed in the study. Now it is time for giving particular attention to the limitations of the experiment due to Google Forms for future studies and research on the matter.

The first issue to be discussed concerns the software used to carry out the experiment. On the one hand, Google Form offered the possibility of obtaining information from the participants with the incorporation of the section dedicated to the background information to the main section of the study devoted to the recognition of RQs among all the experimental stimuli. Moreover, another positive attribute related to Google Forms is that both the control

and experimental groups were well acquainted with its functioning and characteristics, thus, prior training was not necessary. On the other hand, Google Forms lacked effective and strict control over participants' answers. The main issue of Google Forms in this experiment was that participants were freed from any limitation in terms of movement along all the acoustic inputs. More specifically, there was neither a concrete control over how many times the participants listened to one specific audio nor on the order through which they listened to the entire list of acoustic inputs. Another aspect which is worth mentioning is that Google Forms did not allow any randomization of the stimuli, resulting in a fixed and not modifiable order of presentation.

Lastly, an additional limitation of the study design concerns the *wh*- exclamative fillers used in the experiment. Indeed, despite the presence of the indicator of politeness "please", the existence of "what" in the same utterance might have caused difficulties in process of discerning the fillers from the *wh*- ISQs or *wh*-RQs, as it will be further explained in the following subchapter.

Despite these limitations due to the functionality of Google Forms, it can be said that this experiment sought to bring nevertheless new knowledge within this field of linguistics providing new perspectives on the process of recognising RQs in English, more specifically in the Irish variety of English by Italian speakers, which will be listed later on in the Chapter.

4.2. Discussion of the main findings and implications of the study

At the beginning of the study, it has been questioned whether Italians could perceive and identify RQs in English correctly among several ISQs and fillers and if their level of proficiency in English and their potential experiences in any Anglophone-Country might have had an impact on the correct recognition of RQs. The results emerged from the statistical

analysis reveal and support the first hypothesis (H1) that Italians experienced some difficulties in identifying correctly the RQs used in the experiment – the percentages related to the correct recognition of RQs ranged from 43.3% to 86.7% (group 1), whereas in group 2 the percentages ranged from 61.8% to 88.2 %. However, before shifting the attention to the RQs which have been recognised with more difficulties, it is essential, for the purpose of the study and answering the research questions, to provide the reader with two summative tables, named Table (12) and Table (13), which represent the percentage of recognition for each stimulus between native and L2 speakers in questionnaire 1 and 2.

Table (12). Percentages of RQ and ISQ recognition between Italians and English native speakers from questionnaire 1.

	RQ	
	English native speakers (4 participants)	Italian native speakers (30 participants)
1st RQ "Who wants to buy a tractor that is on sale"	75%	86.7%
6th RQ" Who drinks carrot juice for an energy boost"	100%	86.7%
10th RQ "Who knows her surname"	0%	63.3%
13th RQ "Does anyone know her surname"	100%	43.3%
15th RQ "Does anyone want to watch this curling match"	100%	73.3%
	ISQ	
	English native speakers (4 participants)	Italian native speakers (30 participants)
2nd ISQ "Does anyone want to eat insects"	75%	66.7%
3rd ISQ" Who is going to watch this curling match"	75%	50%
5th ISQ "Who is going to eat insects"	75%	40%
8th ISQ "Who wants to buy a tractor that is on sale"	100%	86.7%
12th ISQ "Who drinks carrot juice for an energy boost"	100%	66.7%

Table (13). Percentages of RQ and ISQ recognition between Italians and English native speakers from questionnaire 2.

	RQ	
	English native speakers (6 participants)	Italian native speakers (34 participants)
3rd RQ "Does anyone want to eat insects"	83.3%	79.4%
6th RQ" Who is going to watch this curling match"	66.7%	88.2%
8th RQ "Who is going to eat insects"	66.7%	88.2%
10th RQ "Does anyone want to buy a tractor that is on sale"	100%	61.8%
13th RQ "Does anyone drink carrot juice for an energy boost"	66.7%	73.5%
	ISQ	
	English native speakers (6 participants)	Italian native speakers (34 participants)
1st ISQ "Does anyone drink carrot juice for an energy boost"	83.3%	76.5%
2nd ISQ "Does anyone want to buy a tractor that is on sale"	100%	73.5%
5th ISQ "Who knows her surname"	100%	64.7%
12th ISQ "Does anyone know her surname"	83.3%	94.1%
15th ISQ "Does anyone want to watch this curling match"	66.7%	67.6%

As it can be noticed from these two tables, neither the percentage of RQ recognition by Italian native speakers nor by the English native speakers is always elevated. Indeed, few are the straightforward results by the English native speakers – in questionnaire 1 they were able to recognise at 100% three RQs out of 5, whereas in questionnaire two it can be seen that only the 10th RQ has been recognised at 100%. As regards the Italians native speakers, however, none of the participants from questionnaire 1 and 2 perceived the RQs at 100%.

What emerged from these results is the fact that Italians experienced indeed some difficulties in the perception of RQs. Thus, it has been opted for focusing initially the discussion

mainly on the 10th and 13th RQ of questionnaire 1 and dedicating a separate discussion on them since they have been recognised with the lowest percentages. Indeed, it is possible to see that the 10th *wh*- RQ "Who knows her surname" and the 13th polar RQ "Does anyone know her surname" of questionnaire 1 posed particular problems for both L1 and L2 speakers. If we begin with the analysis of Figure (17) representing the 10th *wh*-RQ, it can be seen that it terminates with a final fall – this aspect is in accordance with recent research which discovered that *wh*- RQs in English tend to have a final fall analysed within the AM-model as L% (Dehé et. al., 2022). In this case, the following reported question has indeed a final fall and longer duration compared to the relative ISQ. This aspect, which considers the duration of the RQ, seems to be in accordance with recent studies which declare that *wh*- and polar RQs in English and Italian are uttered with longer duration compared to the ISQs (Dehé et. al., 2022). What emerged from the analysis of the RQs within the experimental section (see Table 14) is that the duration of all the RQs were uttered with longer duration in comparison to the ISQs.

Table (14). Duration of the target stimuli.

Tractor on sale			
Wh-RQ	2.3 s.	Polar RQ	2.7 s.
Wh-ISQ	1.93 s.	Polar ISQ	1.86 s.
Adele's surname			
Wh-RQ	1.12 s.	Polar RQ	1.38 s.
Wh-ISQ	0.9 s.	Polar ISQ	1.12 s.
Eating insects			
Wh-RQ	1.90 s.	Polar RQ	1.59 s.
Wh-ISQ	1.10 s.	Polar ISQ	1.58 s.
Drinking carrot juice			
Wh-RQ	2.65 s.	Polar RQ	2.19 s.
Wh-ISQ	1.6 s.	Polar ISQ	1.89 s.
Curling match			
Wh-RQ	1.7 s.	Polar RQ	2.04 s.
Wh-ISQ	1.46 s.	Polar ISQ	1.69 s.

However, despite the terminal fall and longer duration, neither the experimental group nor the control group fully identified the 10th RQ as such. More specifically, 63.3% of Italians perceived it as a RQ whereas, more surprisingly, four out of four participants from the first control group perceived this acoustic input at 100% as an ISQ.

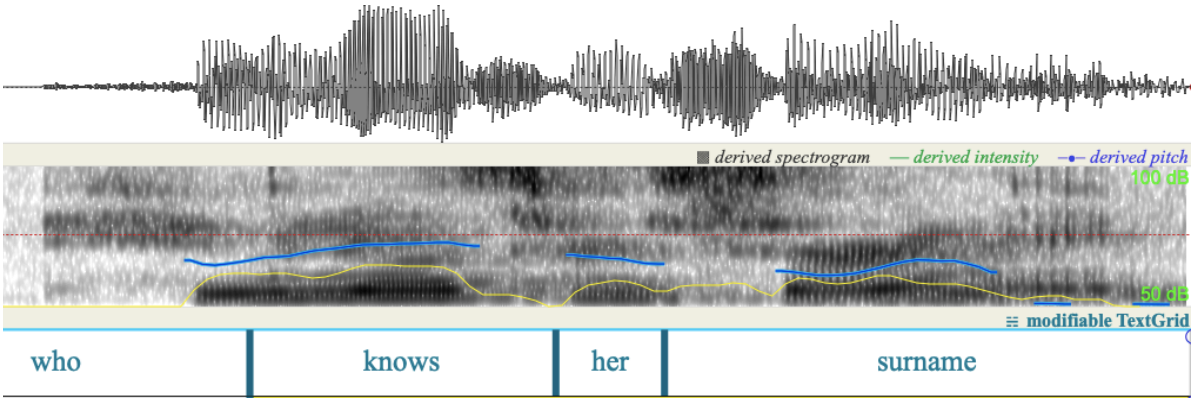

Figure (17). Waveform, spectrogram and pitch curve of the 10th stimulus, RQ "Who knows her surname" from questionnaire 1.

If we move on to the 13th polar question "Does anyone know her surname" represented in Figure (18), it can be seen that unlike the 10th RQ, this acoustic wave is not characterised by a falling intonation. It has been previously reported (see Chapter 1) that normally "polar RQs have the intonational contour of an assertion, and are thus realised with falling intonation, like declaratives expressing assertions, but unlike polar ISQs" (Dehé & Braun, 2020, p. 611). However, this specific acoustic wave seems to prove the opposite as it supports Bartels'(1999) claim that "polar RQs may be rising or falling, depending on polarity (positive vs negative sentence radical) and speaker's commitment to the proposition" (Dehé & Braun, 2020, p. 611). Indeed, in case speakers are dealing with assertiveness, it is frequent to detect the L-L% scheme, on the contrary, whenever there is "speaker's commitment to the polar opposite of proposition" (Bartels, 1999, p. 252) the H-H% scheme can be noticed. This can be supported

by the 15th RQ “Does anyone want to watch this curling match” of questionnaire 1 and the 10th RQ “Does anyone want to buy a tractor that is on sale” of questionnaire 2 where English native speakers perceived them correctly at 100% whereas the Italian native speakers at 73.3% and 73.5%, respectively. Thus, since these aforementioned RQs possess this rising contour and were recognized with lower percentages by the L2 speakers in comparison to the 100% of English native speakers, it can be assumed that this might be the expression of the speaker’s commitment to the communicative act and it can be therefore hypothesised that Italians might find it difficult to perceive RQs which express commitment rather than assertiveness.

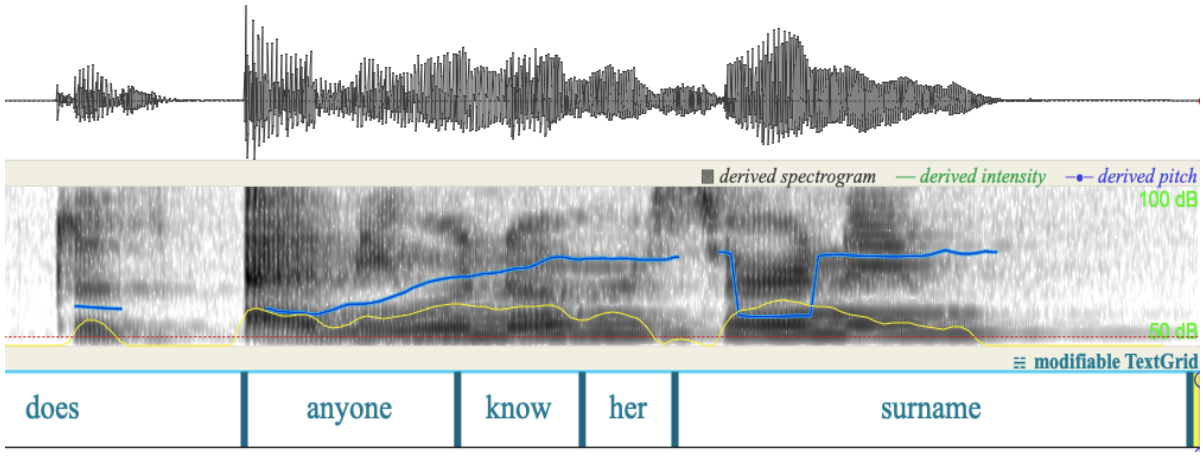

Figure (18). Waveform, spectrogram and pitch curve of the 13th stimulus, RQ "Does anyone know her surname" from questionnaire 1.

Since the remaining 1st and 6th RQs from questionnaire 1 and the 3rd RQ from questionnaire 2 did not pose any particular trouble for their identification to both the English and Italian native speakers, it has been decided not to provide an in-depth discussion on their features. However, it is important to mentioned that these RQs possess the L% in accordance with Dehé and Braun (2020) findings.

Another interesting result which is worth discussing regards the 6th *wh*- RQ “Who is going to watch this curling match” of questionnaire 2. In this case, it can be seen that, whereas a great percentage of Italians (88.2%) recognised it correctly as a RQ, the control group faced,

on the other hand, more difficulties since only 66.7% of them perceived it as a RQ. As reported in Figure (19), this acoustic wave has a L% edge tone, therefore it is in line with all the aforementioned research by Dehè & Braun (2020). However, despite this, English native speakers seemed to have experienced more difficulties than the Italians at perceiving and identifying correctly this RQ.

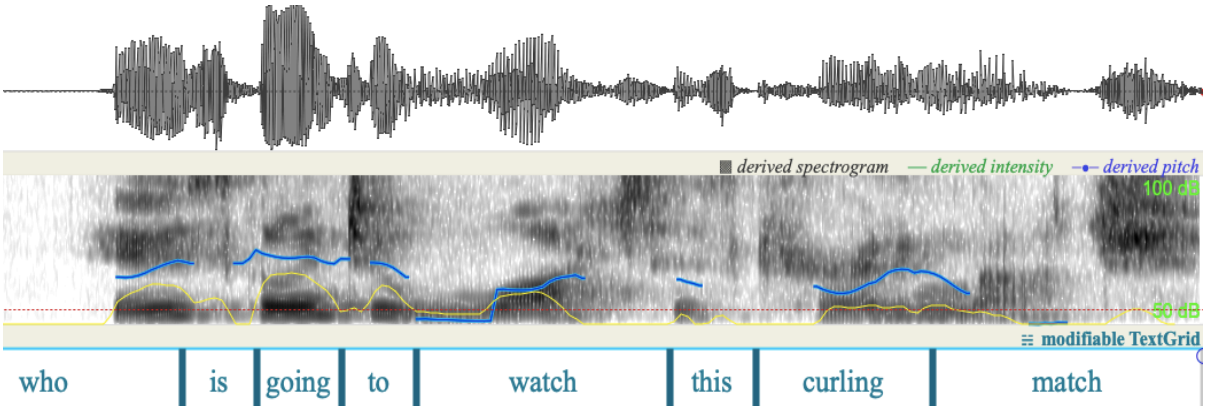

Figure (19). Waveform, spectrogram and pitch curve of the 6th stimulus, RQ "Who is going to watch this curling match" from questionnaire 2.

A similar result which is worth discussing is represented by the 8th RQ "Who is going to eat insects" from questionnaire 2. The majority of Italian native speakers did not experience particular difficulties at perceiving this RQ correctly as 88.2% of participants considered it a RQ. On the other hand, 66.7% of English native speakers had difficulties in perceiving it correctly despite its L% scheme. Lastly, both the control and experimental group found the 13th RQ of questionnaire 2 quite challenging –it has been recognised correctly as such by 73.5% of Italians and only by 66.7% of English native speakers. Differently from the previous 8th RQ, this RQ has a rising tone and posed difficulties to both the two groups.

Thus, these preceding samples of acoustic waves taken from the experiment, combined with the rest of RQs in the study, might reflect and validate the assumption that the absence of an explicatory context before any question might pose difficulties not only to those who are

learning a foreign language, in this particular case Italians learning English, but also to English native speakers themselves. Indeed, this is perfectly in line with recent findings from Sorianello's research (2020) in which she claimed that whenever a context related to a question is removed, the pragmatic content is affected, and listeners might resent it finding the identification of question types challenging. In this case, therefore, it seems that the root cause of a misleading interpretation of RQs should not only be found in the differences in the prosodic system between these two languages as firstly hypothesised, but also in the absence of an exhaustive explicatory context which can be helpful to also native speakers who might rely on pragmatic and contextual information to detect the correct question type.

Another essential aspect which needs to be discussed at this point of the thesis is the role that fillers had on the entire study. As it has been previously discussed, fillers have been introduced to control participants' threshold of attention during the whole experiment. Since their outputs were not impacting the results of the study relative to the RQs, they were not removed from the statistical analysis. From the statistical analysis, it has been discovered that what posed more difficulties were the imperative fillers compared to the remaining *wh*-exlamative fillers. Indeed, as the data showed, the 9th filler "Please tell me what you want to put" together with filler number 14 "Please tell me what you want to watch" were tendentially perceived as ISQs and not as non-interrogative, in all likelihood due to the fact that they are embedded *wh*-questions. As it has been already mentioned in Chapter 1, polar and *wh*-ISQs have specific prosodic representations. Indeed, since *wh*-ISQs in English can be uttered with a H* L-L% tonal configuration, it seems reasonable to hypothesise that Italians classified these aforementioned fillers as ISQs since their intonational contours were similar to those of the *wh*-ISQs and not to polar ISQs which present a low- rise scheme. More specifically, if we take into consideration filler number 14 represented in Figure (20), it can be seen that it presented a similar scheme to a *wh*-ISQ as it finishes with a L% contour. Since the acoustic representation

of filler number 9 is similar to the one of filler number 14, it has been opted not to add the relative representing figure.

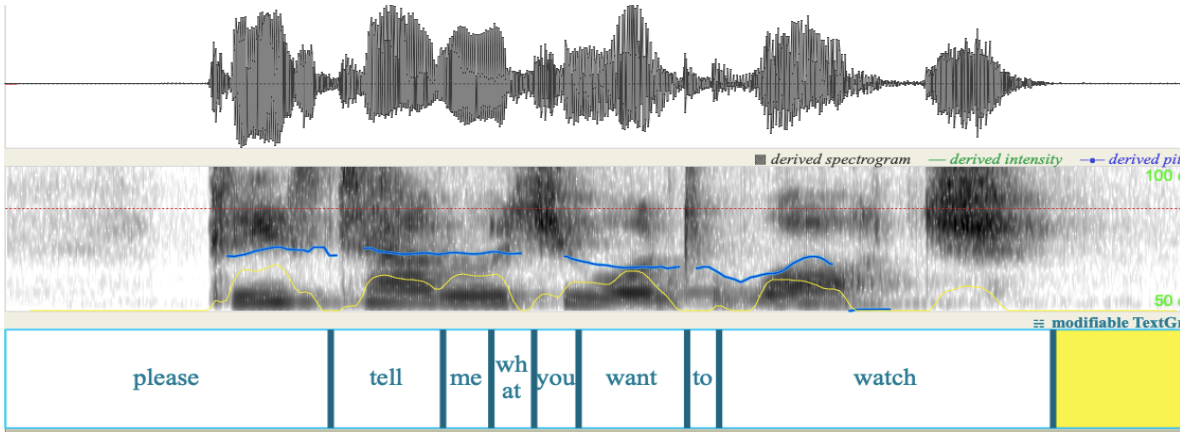

Figure (20). Waveform, spectrogram and pitch curve of the 14th stimulus, filler "Please tell me what you want to watch" from questionnaire 2.

More than the role that fillers covered in the experiment, it is essential to discuss the impact that the declared proficiency in English, the potential experiences abroad and the question type had on the RQ recognitions. What emerged from the data obtained through the statistical analysis is that none of these aforementioned variables affected significantly the success rate of RQ identification. This conclusion can be drawn taking into account the p-value level. Indeed, the significance level (represented with α) has been fixed conventionally to α=0.05 while the null hypothesis (henceforth, *Ho*) and the alternative hypothesis (henceforth, *Ha*) have been postulated later. Whereas the *Ho* expresses the absence of relation between the independent variables (i.e., the predictors of the level of proficiency in English, the experiences abroad and the type of questions) and the dependent variable (i.e., right or wrong answers of the target stimuli), the *Ha* supports the assumption that there is a connection between these two variables. Whenever the p-value is above the significance level of 0.05, the *Ho* can be maintained and the *Ha* rejected. Thus, since the p-values obtained from this statistical analysis

were higher than the significance level fixed at 0.05 as they ranged from 0.295 to 0.952, it was possible to state that in the first place the Italian participants' proficiency level of English and their experiences abroad were not influencing the recognition process of RQs. This finding appeared to be contrary to the second hypothesis (H2) which assumed that the better the level of English proficiency was, the higher were the chances of identifying correctly the RQs without having an interference between the L1 and L2 prosody. Moreover, another interesting factor to be discussed is the question type, more specifically it has been investigated whether there could be a difference in the recognition between *wh*- and polar RQs. What emerged from the data is that the success rate for the identification of *wh*- and polar RQs was analogous and almost equivalent, as represented in Table (11) in Chapter 3. Once again, the p-value level played an important role in stating whether there was a general tendency in the recognition between *wh*- and polar RQs. The results from the Logistic Regression Model showed that, since the p-value of Qtype is 0.295, this independent variable was not influential. Therefore, there is strong evidence for the *Ho* which can be confirmed and confirm at the same time that these two variables were not influencing each other. This implied that the question type as well as the level of competence in English and the experience abroad did not exert any influence in the process of recognising the RQs. Since these aforementioned factors were not influential and did not change the outcomes of the experiment, it can be hypothesized that this might be due to a universal means of marking RQs which goes beyond the mere linguistic and prosodic separation into English and Italian. Indeed, this might come along with one discovery by Gussenhoven (2004) in which it has been stated that "speakers manipulate their phonetic implementation for communicative purposes in a way that is to some extent independent of the language they speak" (Gussenhoven, 2004, p. 71). According to him, this system of communication employs paralinguistic features which are assumed to be the same for all the languages. More specifically, he asserted that these universal features count on biological

aspects (e.g., vocal tracts, vibration rate) which are at the basis of three defined biological codes. The first code to be mentioned is the "frequency code" which can be described as the "size code" (ibid, p. 81) since it deals with the amplitude of the vocal tracts and represents the change of the fold vibrations due to social purposes and positions (i.e., the employment of breathy voice or creaky according to social functions). The second universal code is the "effort code" which is focused on the emphasis of specific words under the so-called grammaticalization process (i.e., the prominence of a word by means of marking essential information for focus). Lastly, the "production code" represents the association between the utterances and breaths (ibid.) Even though Gussenhoven's finding (2004) put at its core the production process rather than perception, his contributions can still be relevant for this study as they are in line with current research which highlights that intrinsic and biological qualities of speakers have an impact on the way a specific sound input is firstly produced and, subsequently, perceived (Wayland, 2019). In light of what has been discussed so far, it can be stated that these aforementioned aspects related to the three biological and universal codes are still reflecting today's state of research which suggests that these intrinsic speakers' features might have a great influence on the consequent perception of any acoustic wave. This may lead to the assumption that, in this experiment which did not provide contextual references, people might have relied on acoustic cues based on universal aspects to detect and mark RQs among ISQs and fillers rather than counting on their actual level of English or their previous experiences abroad. Therefore, this potential universality of marking RQs vs. ISQs might be dependent on their duration, pitch excursion as well as other acoustic measurements. However, since these aspects were not at the core of this thesis, further studies on the matter should be needed.

To draw the final conclusions of this thesis, however, it is crucial to discuss thoroughly another final and important factor concerning the comparison between the way in which the

experimental and control groups discerned the RQs, ISQs and fillers. If we therefore shift our attention to the third research question which takes into consideration the possibility that Italians can distinguish the given acoustic inputs in the same way as the English native speakers do, it is possible to affirm that, on the basis of the results and outcomes of the experiment, Italians and English native speakers do not always perceive and interpret the given acoustic input similarly. Comparing the results from the control group to those of the experimental group, it can be reckoned that the way in which the acoustic inputs were perceived was not thus equal –what is relevant to mention is that there were cases in which English native speakers experienced more difficulties in the recognition of the RQs compared to Italians and vice versa. For instance, the aforementioned 10th RQ from questionnaire 1, which posed some difficulties in the experimental group and caused problems to the control group since none of the participants recognised it correctly, can be an emblematic example as it mirrored how these two groups perceived the acoustic inputs differently. An alternative interpretation for the 10th RQ of questionnaire 1 might be, on the other hand, that the L1 speaker did not convey any markers necessary for the rhetoric interpretation. However, what is interesting to mention is the fact that the third hypothesis (H3) has been fully validated. Indeed, it has been assumed that the absence of a context could have had an impact on the English native speakers as well. Considering what has been discussed above, it can be concluded that not providing a context before listening to RQs can pose problems to either English native speakers or Italians who might rely upon universal means of marking RQs in absence of a contextual framework.

CONCLUSIONS

Throughout the lines of this thesis, it has been attempted to provide the reader with a new perspective on the perception of RQs by means of showing the design of an experiment which investigated the process of perceiving RQs in English by Italian native speakers. Within the linguistic field, there are plenty of studies focused on the analysis of suprasegmental features of RQs in production rather than on their perception in English. Due to this limited presence of experiments on the perception of RQs in English by L2 learners whose mother tongue is Italian, in this thesis it has been sought to bridge the gap between the vast presence of studies aimed at exploring RQs' features in production and the limited field of experimental studies based on the investigation of their perception. The narrative thread of this thesis has always been, therefore, the perception of RQs without the aid of any contextual reference. Indeed, the main goal of this study was to investigate the way in which Italian speakers discriminate the RQs, uttered by a restricted group of English native speakers who were born and raised in Dublin (Ireland), from ISQs and fillers. This choice of selecting this specific Irish variety of the English language to be recorded is what contributed to offer an additional value to the entire research as it possesses peculiar features which are tendentially not familiar to Italians.

Along with the description of the functioning and the prosodic aspects of RQs in English and Italian, in this thesis it has been presented and discussed the methodology of the research. The first step of the entire experimental procedure allowed me to give access to a great deal of information relative to the prosody of RQs in English. Indeed, recording the English native speakers while they were reading the explicatory contexts and the following questions has been beneficial to the scope of the thesis since it let them produce natural and spontaneous rhetorical questions which were then analysed through the software PRAAT. The subsequential removal of all the explicatory contexts related to the RQs, on the other hand, is

what contributed to answer the research questions which have been postulated at the beginning of the research. The first research question regarded the possibility of experiencing some difficulties in identifying correctly the RQs of the experiment while discriminating them from the other ISQs and fillers due to the absence of any contextual reference. The results of the statistical analysis supported the initial hypothesis (H1) as it proved that, in the majority of cases (see Table 12 and 13), Italians had difficulties in perceiving correctly the RQs in absence of any given context, especially those possessing a rising contour. To provide a potential explanation to this outcome, it has been taken into account the research by Bartels (1999) which claimed that whenever a RQ possesses a H% boundary tone, it indicates the "speaker's commitment to the polar opposite of proposition" (ibid, p. 252), whereas if it characterised by a falling tone it becomes an indicator of assertions. Relying on this research and the research carried out by Dehé & Braun (2020), it can be assumed that Italians might have more difficulties in identifying RQs which express commitment rather than assertion. However, what the statistical analysis revealed is that not only the experimental group was striving for perceiving correctly the RQs, but also the control group. Indeed, this led to the conclusion that the absence of a context seems to be problematic to either those who are studying an L2, in this case Italians studying English, or the English native speakers themselves. This reflects totally the current state of research represented mainly by Sorianello's (2020) findings which evaluate the fact that whenever a context is removed, listeners might experience troubles as a consequence of the fact that the pragmatic content is affected. As regards the second research question, which investigates whether L2 learners' level of proficiency in English together with their potential experiences abroad and the question type (i.e., *wh*- or polar) might have had an impact on the outcomes, it can be summarised that they did not influence the recognition process of RQs, contrary to all the expectations and hypothesis postulated at the beginning of the study. This has been supported by the analysis of the p-values derived from the statistical

analysis. This outcome led to the following assumption that this might be caused by the possibility of dealing with universal means of marking RQs which takes into account not only linguistic and prosodic aspect of the English and Italian languages but also biological and intrinsic speakers' features which can exert an impact on the way an acoustic wave is perceived. As regards the third research question, it can be concluded that Italians did not perceive the RQs similarly to the English native speakers. Moreover, the results concerning the duration of RQs compared to ISQs revealed and supported recent findings which claim that the lengths of RQs are tendentially longer than those of ISQs.

In conclusion, the findings of this thesis support the idea that, in absence of any contextual reference, listeners may count on intonational cues focused on universal aspects in order to discern and consequently mark correctly the RQs amid the ISQs and filler since their L2 level of proficiency, the question type as well as their possible experience abroad, seem not to be relevant as they do not affect the outcome of the study. However, this potential universality of marking RQs vs. ISQs has not been thoroughly explored in this experiment given that it was not the first goal of the study. Therefore, since this universality may be dependent on other speakers' intrinsic parameters such as the pitch excursion or other acoustic measurements, further studies focused on this aspect should be carried out in order to obtain an exhaustive panoramic on how RQs are perceived in L1 and L2.

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APPENDIX

Appendix (1). First questionnaire for Italian native speakers: list of stimuli.

An Experiment on the Perception of Rhetorical Questions in English

Background information

Please see the following general questions and answer them referring to your personal experience.

Are you an Italian native speaker?
- o Yes
- o No
- o Others

How long have you been studying English?
- o Less than a year
- o 1-2 years
- o 2-5 years
- o 5-10 years
- o More than 10 years

What is your level of proficiency in English?
- o A1/A2
- o B1/B2
- o B2/C1
- o Native speaker

Have you ever lived in an Anglophone Country?
- o No
- o Yes, short-term (3-6 months)
- o Yes, long-term (more than 6 months)

The experiment

The aim of this experiment is to understand whether the difference between rhetorical and information-seeking questions can be perceived without an explicatory context. In this experiment, you are going to listen to 16 questions and your goal is to detect whether you are dealing with rhetorical or information-seeking questions. In order to listen to the audio file, you need to click on the hyperlink in the question section.

Before starting, please see the following example to understand the difference between Information-seeking questions and Rhetorical questions. In the example on the left, the person asking the question wants to know the answer and he genuinely wants to know whether his

friends would like some cheese. This type of question is called "Information-seeking question". On the right, instead, the person asking the question does not want to know whether his friends would like to taste the cheese or not because he knows that nobody is going to taste the cheese since it is stinky. This latter question is called “rhetorical question” as it is used not to elicit and get information but rather to confirm the obviousness of the answer (i.e., nobody will taste it).

Information-seeking question	**Rhetorical question**
At a garden party, you offer canapés with Limburger cheese. You would like to know which of the guests eat this and want some of it. You say to the guests: 	Your friend offers his guests a cheese tray, including Limburger. However, it is well known that none of your friends like stinky cheese and therefore, nobody will touch it. You say to your friend: 
Who eats Limburger?	

(example from Dehé & Braun, 2020)

1) 1st audio input “*Who wants to buy a tractor that is on sale*”
   - Rhetorical question
   - Information-seeking question
   - None of the above

2) 2nd audio input “*Does anyone want to eat insects*”
   - Rhetorical question
   - Information-seeking question
   - None of the above

3) 3rd audio input “*Who is going to watch this curling match*”
   - Rhetorical question
   - Information-seeking question
   - None of the above

4) 4th audio input “*Do me a favour and buy me a drink*”
   - Rhetorical question
   - Information-seeking question
   - None of the above

5) 5th audio input “*Who is going to eat insects*”
   - Rhetorical question
   - Information-seeking question
   - None of the above

6) 6th audio input “*Who drinks carrot juice for an energy boost*”

- Rhetorical question
- Information-seeking question
- None of the above

7) 7th audio input "*What a beautiful view*"
- Rhetorical question
- Information-seeking question
- None of the above

8) 8th audio input "*Who wants to buy a tractor that is on sale*"
- Rhetorical question
- Information-seeking question
- None of the above

9) 9th audio input "*Please tell me what you want to put*"
- Rhetorical question
- Information-seeking question
- None of the above

10) 10th audio input "*Who knows her surname*"
- Rhetorical question
- Information-seeking question
- None of the above

11) 11th audio input "*How interesting is this*"
- Rhetorical question
- Information-seeking question
- None of the above

12) 12th audio input "*Who drinks carrot juice for an energy boost*"
- Rhetorical question
- Information-seeking question
- None of the above

13) 13th audio input "*Does anyone know her surname*"
- Rhetorical question
- Information-seeking question
- None of the above

14) 14th audio input "*Please tell me what you want to watch*"
- Rhetorical question
- Information-seeking question
- None of the above

15) 15th audio input "*Does anyone want to watch this curling match*"
- Rhetorical question
- Information-seeking question
- None of the above

16) 16th audio input "*What a terrible idea*"
- Rhetorical question
- Information-seeking question
- None of the above

Appendix (2). Second questionnaire for Italian native speakers: list of stimuli.

An Experiment on the Perception of Rhetorical Questions in English

Background information

Please see the following general questions and answer them referring to your personal experience.

Are you an Italian native speaker?
- Yes
- No
- Others

How long have you been studying English?
- Less than a year
- 1-2 years
- 2-5 years
- 5-10 years
- More than 10 years

What is your level of proficiency in English?
- A1/A2
- B1/B2
- B2/C1
- Native speaker

Have you ever lived in an Anglophone Country?
- No
- Yes, short-term (3-6 months)
- Yes, long-term (more than 6 months)

The experiment

The aim of this experiment is to understand whether the difference between rhetorical and information-seeking questions can be perceived without an explicatory context. In this experiment, you are going to listen to 16 questions and your goal is to detect whether you are dealing with rhetorical or information-seeking questions. In order to listen to the audio file, you need to click on the hyperlink in the question section.

Before starting, please see the following example to understand the difference between Information-seeking questions and Rhetorical questions. In the example on the left, the person asking the question wants to know the answer and he genuinely wants to know whether his

friends would like some cheese. This type of question is called "Information-seeking question". On the right, instead, the person asking the question does not want to know whether his friends would like to taste the cheese or not because he knows that nobody is going to taste the cheese since it is stinky. This latter question is called "rhetorical question" as it is used not to elicit and get information but rather to confirm the obviousness of the answer (i.e., nobody will taste it).

Information-seeking question	**Rhetorical question**
At a garden party, you offer canapés with Limburger cheese. You would like to know which of the guests eat this and want some of it. You say to the guests: 	Your friend offers his guests a cheese tray, including Limburger. However, it is well known that none of your friends like stinky cheese and therefore, nobody will touch it. You say to your friend: 
Who eats Limburger?	

(example from Dehé & Braun, 2020)

1) 1st audio input "*Does anyone drink carrot juice for an energy boost*"
   - Rhetorical question
   - Information-seeking question
   - None of the above

2) 2nd audio input "*Does anyone want to buy a tractor that is on sale*"
   - Rhetorical question
   - Information-seeking question
   - None of the above

3) 3rd audio input "*Does anyone want to eat insects*"
   - Rhetorical question
   - Information-seeking question
   - None of the above

4) 4th audio input "*Do me a favour and buy me a drink*"
   - Rhetorical question
   - Information-seeking question
   - None of the above

5) 5th audio input "*Who knows her surname*"
   - Rhetorical question
   - Information-seeking question
   - None of the above

6) 6th audio input "*Who is going to watch this curling match*"

- Rhetorical question
- Information-seeking question
- None of the above

7) 7th audio input "*What a beautiful view*"
- Rhetorical question
- Information-seeking question
- None of the above

8) 8th audio input "*Who is going to eat insects*"
- Rhetorical question
- Information-seeking question
- None of the above

9) 9th audio input "*Please tell me what you want to put*"
- Rhetorical question
- Information-seeking question
- None of the above

10) 10th audio input "*Does anyone want to buy a tractor that is on sale*"
- Rhetorical question
- Information-seeking question
- None of the above

11) 11th audio input "*How interesting is this*"
- Rhetorical question
- Information-seeking question
- None of the above

12) 12th audio input "*Does anyone know her surname*"
- Rhetorical question
- Information-seeking question
- None of the above

13) 13th audio input "*Does anyone drink carrot juice for an energy boost*"
- Rhetorical question
- Information-seeking question
- None of the above

14) 14th audio input "*Please tell me what you want to watch*"
- Rhetorical question
- Information-seeking question
- None of the above

15) 15th audio input "*Does anyone want to watch this curling match*"
- Rhetorical question
- Information-seeking question
- None of the above

16) 16th audio input "*What a terrible idea*"
- Rhetorical question
- Information-seeking question
- None of the above