DEFINING AND OPERATIONALIZING PROPOSITIONAL COMPLEXITY INTO IDEA UNITS: EFFECTS OF MODE, DISCOURSE TYPE, TASK TYPE AND TASK COMPLEXITY

Applied Linguistics and Language Acquisition in Multilingual Contexts

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ABSTRACT

Propositional complexity is a dimension of L2 performance that refers to the amount of information that a person conveys in a given message and, according to Ellis and Barkhuizen (2005), it can be measured in terms of idea units (IUs). This study does not only aim at developing some guidelines as to how to segment oral and written data into IUs in order to operationalize a measurement of propositional complexity, but it also aims at investigating the relative impact of mode, discourse type, task type and task complexity on participants' production of IUs. In order to achieve these objectives, the study analysed data that was generated by participants out of performing tasks that differed in mode, discourse type, task type and task complexity. After segmenting this data following the guidelines that were designed, it was considered that the guidelines might constitute a reliable means of operationalizing propositional complexity, as a considerably high agreement between raters was obtained. As regards the relative influence of mode discourse type, task type and task complexity on the number of IUs conveyed, after conducting a standard and a hierarchical multiple regression, the results showed that 38.5% of the variability in production of IUs can be significantly explained by these independent variables and that all of these variables made a significant unique contribution on the number of IUs that can be produced. Nonetheless, the amount of variance in the dependent variable explained by each of the predictors was different. In the standard regression, mode appeared to be the best predictor, uniquely explaining 9.9% of the variance in production of IUs, while the rest of the predictors independently explained between 1.7 and 4.4% of the variance. In the hierarchical regression, nonetheless, the results (which were supported by further analyses that were conducted), indicated that both mode and discourse type were the best predictors of number of IUs conveyed. Task type and task complexity were found to account for a similar amount of variance to the one obtained in the standard regression.

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1. INTRODUCTION

When using a second language, 'how' you say things is as important as 'how much' you say. In other words, form is as significant as content. Most research into the measurement and assessment of L2 performance, however, has almost exclusively measured the complexity, accuracy and fluency (CAF) of L2 productions, since the construct of L2 performance is believed to be comprised of several components that can be best apprehended by these notions (Housen & Kuiken, 2009). Of these dimensions, complexity has been said to be the most challenging one, since it is a manifold construct comprised of multiple components and dimensions (Palloti, 2009; Norris & Ortega, 2009; Bulté & Housen, 2014).

When presenting a taxonomy of the different components and approaches to L2 complexity (see Figure 1), Bulté and Housen (2012) established that the absolute concept of L2 complexity encompasses three different components: linguistic, discourse-interactional and propositional complexity. Of these, linguistic complexity has been widely investigated, while discourse-interactional and propositional complexity have not received that much attention (Bulté & Housen, 2012).

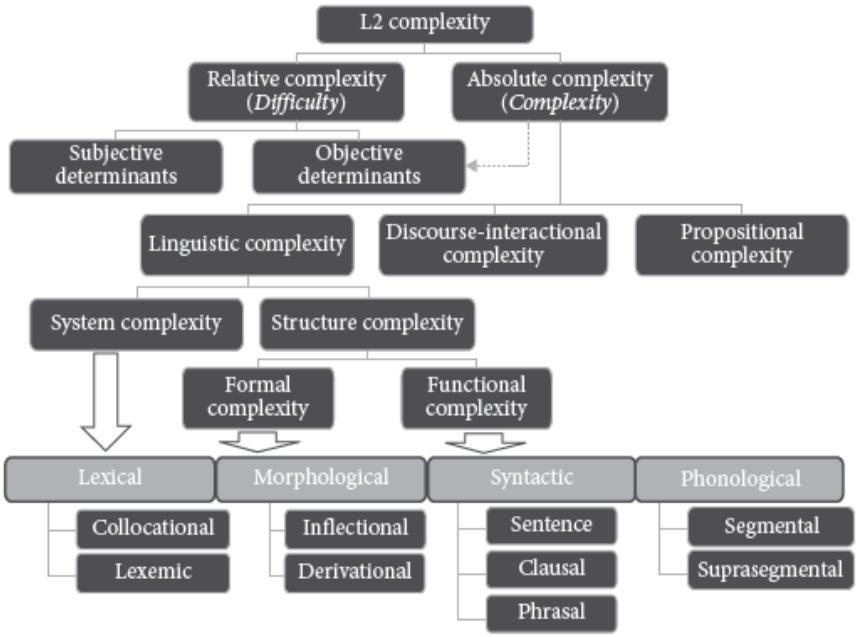

Figure 1: Taxonomy of complexity constructs (Bulté & Housen, 2012)

According to Bulté and Housen (2012: 24), propositional complexity refers to "the number of information or idea units which a speaker/writer encodes in a given language task to convey a given message content". As it has been previously pointed out, apart from measuring how fluent, accurate and syntactically and lexically complex a person is while performing a task, it will be of paramount importance to measure the amount of information that a person conveys. As Chafe (1994: 58) highlights, "Researchers are always pleased when the phenomena they are studying allow them to identify units. Units can be counted and their distributions analyzed, and they can provide handles on things that would otherwise be obscure". However, how can we measure content? Which unit of analysis should we use to assess this dimension? How can we segment discourse into units that give us information about the amount of content that is being conveyed?

Given the lack of research to answer these questions, the present study does not only aim at exploring the construct of propositional complexity, but also at developing some guidelines as to how to segment oral and written data into idea units (IUs) so as to operationalize a measurement of propositional complexity. These guidelines are then applied to data from previous studies so as to examine the relative impact that mode (oral/written), discourse type (monologic/dialogic) and task type (e.g.: narratives, argumentative tasks, instruction-giving tasks, etc.) have on the production of IUs.

Having these objectives in mind, first of all, the paper will present how propositional complexity and IUs have been defined and described by researchers. Moreover, studies in which the notion of IUs has been employed will be briefly discussed. With a focus on the variables that will be examined in the present study (namely, mode, discourse type, task type and task complexity), the paper will offer an account of the differences that can be found in L2 productions as regards IUs when these variables are manipulated so as to consider their relative effect on the number of IUs produced. In addition, some reference to the studies that have explored these divergences will be made. After this, the study itself will be described, its corresponding results will be discussed and some final conclusions will be drawn.

2. LITERATURE REVIEW

2.1. Propositional Complexity and IUs

As it has been previously explained, propositional complexity refers to the amount of information expressed by a speaker or a writer in a given message. For example, when describing a specific picture, a person can say "There is a person in a waiting room in a hospital and she is crying" and another person can say "There is a person that is crying,

probably because she has lost someone that she loved". Clearly, the second person is being more informative and is conveying more information about the picture and the person portrayed in it. Nonetheless, how can you quantify the amount of information that these two people are expressing?

As pointed out by Ellis and Barkhuizen (2005), propositional complexity can be operationalized in terms of IUs, since they offer "a measure of the extent to which a speaker/writer encodes the ideas needed to convey a given content" (p. 154). However, the quantification of information in terms of IUs might not be simple. For instance, in the sentence "wait until he comes", would you consider "until he comes" as a time reference that is part of the idea of *waiting* or would you consider it as a separate IU? Controversial issues like this emphasizes the importance of defining and describing the concept of IU. Despite the fact that Horowitz & Newman (1964) analysed oral and written data in terms of 'ideas' and other units and provided a definition and a brief description of them in their study[1], the notion of IU was first largely investigated and developed by Wallace Chafe during the 80s.

Chafe (1980, 1982, 1985) defined IUs as "spurts" of oral language that include all the information that can be focused on by the speaker's consciousness. Therefore, it could be said that IUs represent the content of speakers' thoughts. According to Chafe (1980, 1982, 1985), IUs present several features. In the first place, they have an intonation contour that is characterised by a fall or a rise in intonation. In the second place, IUs can be delimited by pauses in speech; in writing, the boundaries are marked by punctuation. In the third place, IUs are typically expressed in a single clause formed by a verbal predicate and the phrases associated with it[2].

[1] In their paper, Horowitz & Newman (1964) explored the differences between writing and speaking. Based on some considerations regarding several conditions that affect writing and speaking, researchers hypothesized that one of the differences between these two modes of expression will lie on the amount of ideas that participants will convey. In order to analyse the data, they carried out a psychological analysis of it, segmented the data into units and classified them as *ideas* (defined as utterances that convey thought "in a meaningful, relevant and unique way" (p.642). Ideas had to make reference to an act, an object or a notion so as to have sense and they had to be relevant and not previously mentioned), *subordinate ideas*, *ancillary ideas*, *communicative signals*, and *orientation signals*. Horowitz and Newman's (1964) definition of ideas can be considered to comprise some of the features that characterize IUs. Nonetheless, some further redefinition of the idea might be desirable.

[2] Despite the fact that some syntactic criteria are being used to describe IUs, it should be noticed that we are not dealing with structural complexity. Structural complexity refers to "the number, range, variety and diversity of different structures" that an L2 learner uses or knows (Bulté & Housen, 2012). Hence, while structural complexity is related to the grammatical and the syntactic dimension, propositional complexity does not focus on a linguistic dimension, but on an ideational one. Despite the fact that thoughts and ideas are encoded by the speaker in a syntactic frame, it should be stressed that propositional complexity is not concerned with the way ideas are syntactically formulated, but it is rather concerned with the number of ideas that are conveyed in a message, thus operating at the conceptual level.

In a later publication, Chafe (1994) further develops and elaborates on the notion of IUs (which he calls 'intonation units'). He defines intonation units as "a unit of mental and linguistic processing" (p. 55) and establishes some criteria to identify them. Firstly, as in his previous works, Chafe (1994) relies on intonation in order to pinpoint IUs[3]. Secondly, he states that intonation units will be normally bounded by pauses, albeit he calls attention to the fact that a unit boundary should not be established on the mere presence of a pause, since pauses can occur within IUs (Chafe, 1980). Thirdly, he suggests that intonation units might follow a pattern of acceleration-deceleration as regards the production of the syllables of the words constituting the intonation unit. Hence, the first syllables of an intonation unit might be produced so fast that their length is reduced, while the duration of the final ones might be extended. Fourthly, intonation units might show a change in intensity (i.e. a change in the degree of loudness at which they are produced). Finally, Chafe (1994) points out to the fact that intonation units can be identified by taking into consideration the fact that they tend to end being produced with a creaky voice. As Chafe (1994) just provides one example to show that these features can characterize IUs and he states that not all ideas units will conform to all of these characteristics, it might be considered that some of these traits do not constitute solid and firm descriptors of the units.

Focusing on semantics, Chafe (1994) explains that intonation units can express an event or a state. Speakers will be articulating an event when explaining something that has happened (e.g.: *I went to the cinema yesterday*) and they will be producing a state when describing the condition of a person or an object (e.g.: *The book is yellow*). Chafe (1994) calls this type of intonation units 'substantive', as they convey significant ideas. On the contrary, being aware of the fragmented nature of speech and of its immediacy or speed with which it is produced, he categorizes some intonation units as being 'fragmentary' and 'regulatory'. Fragmentary intonation unit are those that appear to be interrupted or incomplete (e.g.: *She has two I mean she…*). Regulatory intonation units are those units that help maintain the flow of the speech (e.g.: *Well…, let me see…*).

Despite the fact that Chafe (1980, 1982, 1985, 1994) provided a description of IUs that took into consideration several dimensions of language, it should be noticed that most of these aspects are related to phonetics. Hence, it seems that Chafe (1980, 1982, 1985, 1994) was mainly thinking in oral performance when determining these characteristics. Criteria which are less specific and/or oriented towards phonetic properties could have been considered in order to encompass the IUs that are expressed in writing. In addition, it

[3] He claims that IUs that are expressed by declarative sentences and wh-questions will show a decline in intonation, while those conveyed in yes-no questions will present a high pitch

should be pointed out that Chafe (1980, 1982, 1985) based his account of IUs on naturalistic data that was produced by speakers and writers who were using their L1 or were highly proficient in the additional language that they used. Hence, their productions probably presented few disfluencies. This would allow data to be easily segmented into IUs, as the units probably coincided with clause boundaries and pauses would more likely mark the end and the start of a new IU.

However, Chafe's criteria might be difficult to apply to data collected from L2 learners, since their productions display a larger amount of disfluencies. For instance, in L2 performance, it might be complicated to differentiate pauses that signal a move towards expressing a subsequent idea from pauses that result from having difficulties in retrieving a lexical item (Foster, Tonkyn, & Wigglesworth, 2000). As a consequence, one should be cautious when considering pausing as a criterion to establish the boundaries of IUs when analysing data produced by L2 learners.

Apart from Chafe (1980, 1982, 1985, 1994), more recently, other researchers have dealt with the concept of IUs. In describing how CAF can be measured, Ellis and Barkhuizen (2005) considered propositional complexity and mentioned the computation of IUs as a means to measure this construct. They defined an IU as "a message segment consisting of a topic and comment that is separated from contiguous units syntactically and/or intonationally" (p. 154). Moreover, they made a distinction between major and minor IUs (the latter ones being those that offer more details about the main content of the message, albeit not considered to be necessary or fundamental). In spite of this account, Ellis and Barkhuizen (2005) do not provide an explanation on how to apply this definition to real data so as to segment it into IUs.

Lastly, to our knowledge, only the study conducted by Larsen-Freeman (2006) has engaged in the analysis of data in terms of IUs[4]. Interested in observing how the narratives produced by five Chinese learners of English are differently constructed over time in terms of the ideas that are expressed in them, Larsen-Freeman (2006) adopted Ellis and Barkhuizen's (2005) definition of IUs and segmented the data into such units. Despite the

[4] It is important to mention that, albeit not engaging in the analysis of data in terms of IUs, before Larsen-Freeman (2006), Butterworth (1975) conducted a study in which he used the term *idea* to refer to the semantic units in which the participants of his study segmented some transcriptions which they were presented with. Seeking to investigate whether cognitive rhythms in speech are related to its semantic structure, Butterworth (1975) asked the participants of his study to divide several transcriptions of speech into *ideas* intuitively. By not providing a definition or a description of the concept of *idea* to the participants, Butterworth (1975) was able to observe whether there was any relation between the location of pauses and the semantic structure of the speech. Butterworth (1975) confirmed this relation, as most participants' location of ideas corresponded to the place where there were pauses. It should be noted that, in spite of using ideas as a semantic unit to segment speech, Butterworth (1975) did not offer any definition or explanation of the unit in his paper.

fact that she provided an example from a participant that showed how the narrative was divided into IUs, it should be noticed that Larsen-Freeman did not offer a description on the criteria that was used to segment this data into the target units. Therefore, the way in which the data was divided into IUs might be open to debate. Further explanations might be needed about how Ellis and Barkhuizen's (2005:154) notion of IU as "a message segment consisting of a topic and a comment" was understood by Larsen-Freeman (2006), since a different division of the data might had been made depending on one's interpretation of the meaning of *topic* and *comment*. For instance, Larsen-Freeman (2006) considered the sentence *I was so excited when I saw my husband who was waiting for me on the exit gate* in the airport as one IU. She might have considered the subordinate clause (i.e. *who was waiting*…) as part of a comment of the main topic of the sentence, thus including the clause as being part of one IU. Nonetheless, if the clause is thought to be expressing a message in itself, it might be analysed as a separate IU enlarging a previous one.

In conclusion, considering that there might be some points in the description and definition of IUs that are ambiguous or unclear, it should be highlighted that one of the objectives of this study consists in developing some guidelines as to how to segment oral and written texts into IUs in a systematic manner.

2.2. Mode, Discourse Type, Task Type and Task Complexity

As it was previously explained, this study aims at observing the relative impact of mode (oral/written), discourse type (monologic/dialogic), task type (e.g.: narratives, instruction-giving tasks, argumentative tasks, etc.) and task complexity (simple/complex) on L2 performance as regards IUs. In order to consider the degree of influence that these factors can have on production of IUs, the following sub-sections will provide a description of the differences that exist in performance with respect to these units when these variables are manipulated. In addition, some studies that have explored these divergences will be identified and reviewed[5].

2.2.1. Effects of Mode

According to Chafe (1982, 1985), the main difference between the processes of speaking and writing relates to the time available to produce content. Normally, oral messages are produced on the spot, with little time to think about what to say or modify what has been said. In addition, speakers need to maintain their interlocutors' attention, so

[5] Due to a lack of systematic inquiry, differences in performance as a result of task type will not be discussed.

that the production of speech should be somewhat continuous. On the contrary, in monologic writing, there is not an immediate recipient of what is being expressed and writers do not need to keep the attention of the addressee of the message that is being constructed (Chafe, 1982, 1985).

Due to these characteristics, Chafe (1982, 1985) claims that IUs will be shorter and simpler in speaking as compared to the IUs produced in writing, which will be longer and more complex. Since writers have plenty of time to plan how to formulate their ideas, they have the possibility to include more information into an IU and to join several IUs into a complex linguistic whole, thus increasing the size of IUs and establishing the connections between them at different levels of dependence (Chafe, 1982, 1985; Chafe & Danielewicz, 1987)[6]. In contrast, since language users will be constrained by their short-term memory capacity and by the amount of information they can focus on consciously at a time owing to the fact that speaking is produced on the spot, the IUs produced by speakers will tend to encompass less information and be more independent from each other (for instance, while a writer might say *I met Jane, who was extremely beautiful*, a speaker might say *I met Jane / She was extremely beautiful*). Apart from this, it should be pointed out that Chafe (1982, 1985) noticed some variations with respect to the use of some elements that are more common in speaking than in writing (e.g.: *you know, well, anyway*) and to the devices that are used to link IUs.

Albeit not quantifying the differences between oral and written discourses and not measuring the influence of mode on production of IUs, it should be highlighted that Chafe (1982, 1985) provided a qualitative description of some of the divergences that can be observed regarding IUs between the different modes. Apart from him, a small number of researchers have investigated the effects of mode on language performance (Bulté and Housen, 2009; Ferrari & Nuzo, 2009; Grandfeldt, 2007; Kormos & Trebits, 2009; Kuiken & Vedder, 2011; Yu, 2010). However, it should be stressed that these studies focused their attention in measuring differences not in terms of IUs, but in terms of syntactic complexity, lexical variation and accuracy.

2.2.2. Effects of Discourse Type

As in the case of studies investigating mode, the number of studies examining the differences in performing monologic and dialogic tasks and the degree of impact that this aspect can have on linguistic performance is limited as well (Michel, Kuiken & Vedder,

[6] Differences in size among IUs produced in writing and speaking might be also motivated by the consideration of readers' and listeners' processing capacities (Chafe 1982, 1985; Chafe & Danielewicz, 1987).

2012; Gilabert, Barón & Levkina, 2011). The few studies exploring this issue (namely, Michel et al., 2012; Gilabert et al., 2011; Michel et al., 2007; Robinson, 2007) have focused on comparing the effects of task complexity on the productions of participants performing monologic and dialogic tasks; only Michel et al. (2009, 2012) analysed the influence of discourse type on its own, without considering task complexity. Nonetheless, it should be noticed that none of these studies analysed L2 performance in terms of IUs, but rather they assessed it by means of measurements of accuracy, fluency and linguistic complexity.

Consequently, no description of the variations that can be found between tasks that differ in discourse type with respect to IUs can be provided. Notwithstanding, some points highlighted by Michel et al. (2012) and Gilabert et al. (2011) about the divergences that exist between monologic and dialogic tasks can be discussed here as they might be relevant for the issue of IUs, since they might offer an insight on the relative weight that discourse type can have on propositional complexity.

Firstly, given the presence of another speaker during dialogic tasks, one of the interlocutors in this type of tasks will be granted some planning time as the other person is speaking (Michel et al., 2012). As a result, the hearer in the conversation will have some time to conceptualize and think about how to formulate his/her message. Therefore, s/he might come up with more ideas to convey or with several ideas that might be included in a single linguistic whole. This might not be possible in monologues, as the speaker will have to produce ongoing speech, hence having no time to think about alternative ideas to formulate.

Furthermore, Gilabert et al. (2011) characterize dialogic discourses as being fragmented in nature, since there tends to be a considerable number of interruptions, clarification requests and confirmation checks that are formulated during interaction. As a result, in quantitative terms, it would be reasonable to believe that participants might produce more IUs in dialogic than in monologic tasks due to the interaction taking place between them and the clarification requests and answers to these requests that might be generated.

2.2.3. Effects of Task Complexity

Over the last decades, researchers have been interested in finding how task design influences the performance of language learners (Gilabert, Barón & Levkina, 2011). Focusing on task complexity as one of the elements in task design that can affect learners' performance, Robinson formulated the Cognition Hypothesis (2001, 2003, 2005, as cited

in Gilabert et al., 2011), by which he provided some suggestions on how task complexity could impact L2 production. He suggests that, if tasks are complexified along 'resource-dispersing' dimensions[7], learners will not focus on language, as their attention and memory resources will be dispersed. On the contrary, by modifying 'resource-directing' variables[8], he claims that L2 learners will direct their attention to the linguistic elements. Thus, provided that the task remains simple concerning 'resource-dispersing' variables, learners will focus on lexis and grammar, so that they might be more accurate and might use more complex grammatical structures and sophisticated and/or varied words. Nonetheless, their fluency will decrease (Gilabert et al., 2011).

In contrast to Robinson's Cognitive Hypothesis (2001, 2003, 2005), Skehan's Trade-off Hypothesis (2009, as cited in Gilabert et al. 2011) establishes that it is not task complexity what predicts the relationship between the different dimensions of CAF during L2 performance, but rather particular combinations of task characteristics and conditions. Skehan (2009, as cited in Gilabert et al., 2011) claims that, due to attentional and memory limitations, some competition for attention will occur. Therefore, there will be trade-off effects, especially between complexity and accuracy. However, under certain task conditions, attentional resources will be freed up. Consequently, there will be no competition between dimensions as learners will be able to attend to both complexity and accuracy at the same time. As a result, no trade-off effects will occur (Gilabert et al, 2011).

It is worth noticing that Robinson and Skehan did not offer any suggestion on how task complexity could affect propositional complexity. Similarly, studies interested in examining the effects of task complexity on linguistic performance (Michel et al., 2012; Gilabert et al., 2011; Michel et al., 2007; Robinson, 2007, etc.) did not focus their attention on how task complexity could impact the production of IUs or how much variance in propositional complexity task complexity could explain, bur rather directed their attention towards its impact with respect to several measures of accuracy, fluency and structural and lexical complexity.

Hence, as in the case of the other variables, no account of the degree and the kind of influence that this factor can have on L2 performance as regards propositional complexity can be provided. It might be hypothesized that tasks that are complexified along +/- elements might involve the production of more ideas, as participants might need to comment on more aspects or elements present in the task. However, complex tasks

[7] In this case, a task will be manipulated with respect to the conditions under which learners perform the task (for instance, by providing some time to plan what they want to say).

[8] In this case, a task can be complexified regarding the number of items in the task, the extent to which learners have to refer to a displaced past time or the reasoning demands required by the task.

complexified along +/- Here-and-Now might have a negative impact on the number of IUs produced, since participants might forget to convey some ideas that they might have transmitted if they were performing the task in the here-and-now. Given the uncertainty of how task complexity can affect L2 performance as regards the production of IUs, it would be interesting to observe whether the factor has any impact on the amount of content that one can transmit and how much of the variance in number of IUs conveyed it can actually explain.

In light of what it has been explained, the present paper can be deemed to be filling a gap in the field, since no study has measured the relative influence of the variables mentioned (i.e. mode, discourse type, task type and task complexity) on the amount of IUs that are conveyed during L2 task performance. The following section will present the specific objectives and research question of the study.

3. OBJECTIVES AND RESEARCH QUESTION

As previously explained, one of the objectives of this study is to develop some criteria or guidelines that might be helpful when establishing the boundaries of IUs. In applying this criteria to data obtained in previous studies, segmenting this data according to these guidelines and observing how well these criteria work with different types of data, the study will seek to answer the following question:

- What is the relative impact of mode, discourse type, task type and task complexity on the number of IUs produced during L2 performance?

4. METHODOLOGY

As explained before, the present study will analyse data that has been collected in previous studies in which participants performed oral monologic, oral dialogic and written monologic tasks[9] of different kinds. The following subsections will provide a description of the studies and data that have been selected to be analysed as well as of the participants and the materials that were used in each of these studies. The criteria to identify IUs will be subsequently presented and, finally, an account of the statistical procedures that were followed to analyse the data will be offered.

[9] No analysis of data from written dialogic tasks will be carried out because this type of data was not available.

4.1. Data

Table 1 presents the different studies from which the data to be analysed in this paper has been selected and the type of data that has been obtained from them:

	Oral																Written			
	Narrative				Instruction-giving				Argumentative								Argumentative		Descriptive	
									Fire-chief				Party							
	Mono.		Dial.		Mono.		Dial.		Mono.		Dial.		Mono.		Dial.		Mono.		Mono.	
	S	C	S	C	S	C	S	C	S	C	S	C	S	C	S	C	S	C	S	C
Gilabert, 2007	5	5			8	8			5	5										
Gilabert et al., 2009			5	5			7	7			5	5								
Gilabert & Barón, 2013											5	5			5	5				
Kuiken et al. 2010																		20		
Levkina, 2013																			30	

Table 1: Studies and number of tasks selected according to mode, discourse type, task type and task complexity.

As it can be observed, the data obtained from the studies consists on participants' L2 oral productions when carrying out different types of tasks (namely, narratives, instruction-giving and argumentative tasks) of different complexity that are performed monologically in some studies and dialogically in others. Moreover, the present paper will also analyse L2 written data (argumentative and descriptive essays).

Taking into consideration the fact that the present study aimed at examining the relative weight that mode, discourse type, task type and task complexity can have in relation to the number of IUs produced, these studies were selected because they offered data that could serve the objectives and could help answer the research question of the present study. In addition, one of the aspects that was taken into account when reflecting on the studies whose data could be analysed (apart from availability) was the fact that some of the studies used exactly the same tasks to elicit participants' discourses; they only difference between the tasks lied in the way in which participants had to perform them (individually or in pairs). Thus, despite the fact that the participants that did the tasks were different, it was considered that an insight about the differences between monologic and dialogic tasks and the effects of these differences with respect to IUs could be gained from studies using the same tasks with different discourse types.

4.2. Participants

Study 1: Gilabert (2007): the participants from this study were Catalan-Spanish speakers whose additional language was English. They were university students with ages ranging from 18 to 40 and with a level of English that varied between low-intermediate and high proficiency.

Study 2: Gilabert et al. (2009): the participants were students between the ages of 18 and 40 that were taking an English major at the University of Barcelona. They had been studying English for the same amount of years approximately and had between an intermediate and a high proficiency level of English.

Study 3: Gilabert & Barón (2013): the people that took part in this study were Catalan/Spanish university students between the ages of 19 and 21 that studied English as a foreign language. They were reported to have a B1 level of English.

Study 4: Kuiken et al. (2010): the participants were Dutch university students learning Spanish as a foreign language who had an average age of 24.9 years. They were registered in the modern language section of the University of Amsterdam.

Study 5: Levkina (2013): The people that took part in this study were students of English as a foreign language with an intermediate level in the L2. Their average age was 24.7 years old.

4.3. Materials

4.3.1. Oral Tasks

Narrative (see Appendix 1): participants were presented with some wordless comic vignettes and were asked to narrate the story that was represented by the pictures. They were prompted to narrate both a story in the present tense while looking at the pictures (simple narrative task in the here-and-now condition) and a story in the past tense without having the comic vignettes in front of them (complex narrative task in the there-and-then). In the dialogic version of the task, participants were given half of the pictures that composed the stories in a random order and they were asked to reconstruct them and narrate them to each other.

Instruction-giving task (see Appendix 2): participants were presented with a city map and they were asked to give instructions to another person as to how to complete a number of tasks (namely, post a letter, buy a bunch of flowers, etc.). The route that this other person was meant to follow was marked in the map with which participants were presented. As in the case of narratives, this instruction-giving task was manipulated in terms of cognitive demands, so that participants had to perform a simple and a complex version of the task[10].

Argumentative tasks: two different argumentative tasks were used in Gilabert and Barón's (2013) study (one of which was also used in Gilabert (2007) and Gilabert et al. (2009)). Firstly, in the 'Fire-chief task' (see Appendix 3 and 4), participants were presented with a picture of a building in which a fire has broken out. Participants had to explain (or discuss in pairs in the case of performing the task dialogically) how they would save the people that are trapped in the building; they had to describe the steps they would take to rescue these people and the order in which they would save them as they provide a justification for the decisions they take. Participants had to perform a simple and a complex version of the task[11].

[10] In the simple task, there were few and easily distinguishable landmarks to which participants could make reference to while guiding and they had to move along a lateral axis (left, right, straight). In contrast, in the complex task, there were more and hard-to-distinguish landmarks and participants had to move along a lateral, vertical (up and down) and sagital axis (front and back).

[11] The difference between the versions lied in the amount of reasoning demands put forward by the way the elements and factors in the task were related. In the simple version, participants were presented with plenty of resources to use, with people with no particular role, and with factors affecting the level of danger that were unconnected (e.g.: smoke moving out of the building, static fire, etc.). In contrast, in the complex

The second argumentative task that was analysed in this study is the 'Party task' (see Appendix 5), in which participants (in pairs) are asked to discuss and agree on some aspects so as to hold a party (e.g.: type of music, food, meeting day, etc.). In order to take a decision on these issues, they have to consider not only their wishes, but also the preferences of the person to whom they are talking to and of a third person who is not present in the conversation. These preferences are specified for each of the participants (including the person not present in the discussion). In the study in which this task was used, participants performed a simple and a complex version of the task[12].

4.3.2. Written Tasks

Argumentative essay: From a number of non-governmental organizations, participants were asked to choose one which they would like their university to award a grant to. They had to write an argumentative essay in which they had to provide a number of sound arguments that could convince the university board of giving the grant to the association that they think deserves the money. In the essay, they were told to include a number of points: the organization they support and its aims, the beneficiaries of the organization's work and, at least, three sound and convincing arguments. Participants had 35 minutes to write the essay, which had to contain 150 words minimum. Given the fact that participants had to take a decision and reflect about convincing arguments to include in their essay, in the present study, this task was considered to be complex.

Descriptive task (see Appendix 6)**:** by imagining that they have visited a friends' place and that they have been completely amazed by the living room of his/her friend, participants were asked to write an e-mail describing this living room (which was presented in a photograph). They had to mention a number of specified items and their location in the room. This task was described in this study as being simple, since it did not impose too many reasoning demands on participants as they only had to describe a picture[13].

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version, participants had to deal with a more complex situation in which the resources to use were much more limited, the people inside the building were different (e.g.: there was a pregnant woman, an old man, etc.), and some factors were tightly related (e.g.: the wind blowing into the building that made the fumes remain inside). Given these factors, participants would need to reflect more about their decisions to take, thus making the task more complex.

[12] In contrast to the simple task (in which participants' preferences are the same), participants' wishes are different in the complex task, so that the task will be more cognitive demanding, as participants will need to engage in decisions that involve more steps.

[13] In her doctoral dissertation, Levkina (2013) described this task as being simple as well.

4.4. Operationalization of Propositional Complexity into IUs: Guidelines to segment data

In this study, an IU is defined as a segment in oral or written discourse that carries a message that is semantically meaningful and complete. Moreover, as pointed out by Chafe (1994), IUs can be considered to express an event (e.g.: *The ball hit the window*) or a state (e.g.: *I had a pencil in my hand*).

Since the boundaries of an idea are difficult to establish by just considering semantic criteria, some reference to grammatical and intonational features might be useful. First of all, following Chafe (1980, 1982, 1985, 1994), IUs in oral production will have "a single coherent intonation contour" (p. 106), so that its boundaries will be signalled by a fall or a rise in intonation. Secondly, in this study, pausing will not be taken into consideration as a criterion to delimit the boundaries of IUs, since one should take into account the fact that, when considering productions generated by L2 learners, pauses might be produced because the speaker is having difficulties in retrieving a lexical item rather than because another idea is being conceptualized.

Focusing on IUs from a structural or grammatical perspective, IUs would typically consist of an independent clause with a finite verb form (e.g.: *He went to his parent's house*) (Chafe, 1982, 1985). However, it should be pointed out that L2 learners might complexify their productions (especially when writing) by attaching subordinate clauses to the main clause (e.g.: *I had a friend who was called Jeremy*) (Chafe, 1982, 1985). The question will be whether these subordinate clauses will be expressing a new IU or not. In this respect, despite the fact that one should consider the semantic content expressed in these clauses in order to establish whether a new IU is being conveyed, some guiding points can be suggested so as to better determine this.

To begin with, relative clauses usually express an idea that will enlarge an idea previously conveyed, as in the sentence *I had a friend who was called Jeremy*. In the example, the relative clause will introduce an idea that is closely related to the idea that is expressed previously, so that it might be considered that the relative clause is a part of the first IU. However, if one considers the semantic content of the sentence, it can be said that two ideas are being expressed: I have a friend and my friend was called Jeremy. The same explanation can be applied to most adverbial subordinate clauses (e.g.: *I took no notice of him, so that he was really angry*) and non-finite clauses that function as adjuncts (e.g.:

having finished my homework, I went out)[14]. These subordinate clauses can be deemed to be introducing a new IU that adds information to the idea expressed in the main clause.

As regards clauses that contain a nominal subordinate clause that take the form of a that-clause (e.g.: *I think that she is beautiful, I suppose/believe that God exists, I've noticed that she speaks Russian well*), it has been considered that they constitute a single IU since the subordinate clause forms part of the message that is being transmitted through the main verb. If one tries to reconstruct and transform these sentences into independent ones (e.g.: *she speaks Russian well / *I noticed*), one of the resulting sentences cannot stand alone, thus signalling that the subordinate clause is not adding a new idea, but it is completing the message that is conveyed by the main clause.

As for non-finite clauses that function as X-Complements (e.g.: *Bill started to laugh*), it will be considered that they do not constitute a separate IU, but rather that they complete the message that is sought to be conveyed.

When analysing oral data, one should also take into account the case of phrases that are produced as a response to a question (e.g.: "A: *How long have you been in New York?* / B: *Three years*") and the case of phrases in which the verb is omitted (*You turn right along High Road again, like before*). These sub-clausal units will be deemed to constitute an IU, since a piece of information can be extracted from the phrase if it is imagined to be part of a completely elaborated clause that is non-ellipted (Foster et al, 2000). Likewise, phrases such as *Thank you very much* or *Yes* will be also considered to be conveying an IU, since they are fulfilling a speech act[15].

Particles that are used to manage the conversation (which are referred to as *regulatory idea units* by Chafe) (e.g.: *well, I mean, you know*) will not be considered to constitute IUs, since they do not appear to convey a meaningful message; they seem to be used as devices to provide the speaker with some time to conceptualize what s/he wants to communicate. The same can be said of parenthetical elements that are used as comments at the beginning or the end of sentences (e.g.: *I think, I guess, I suppose*). As for particles that are uttered with a rise of intonation that signal that a question is being asked (e.g.: *turn right, ok?, You have to go straight on, right?*), it has been considered that they do not constitute an IU. These particles could be interpreted as asking a question (e.g.: *turn right, do you*

[14] Decisions taken regarding some instances of subordinate clauses that were controversial will be specified and justified in Appendix 7.

[15] One should be careful with words such as *ok* or *yes*, which can be used as elements to manage the conversation rather than as elements to express agreement. In case some words are used as in the first situation, they will not be considered to constitute an IU in this study. Appendix 7 (point 4) will present some examples in which these particles are used in conversations so as to exemplify their different uses and explain how they were analysed in this study.

understand me?/are you following me?), and so they could be seen as constituting a new IU. However, they are just a means to manage the conversation making sure that the other interlocutor is following what is being said. In addition, some people have a tendency to use this kind of particles at the end of a sentence, so that we considered this to be a kind of backchannelling rather than a production of units conveying meaning or fulfilling a speech act. Thus, they will not be counted as IUs. The answers to this kind of implicit questions, though, will be considered to constitute an idea, since the speaker will be fulfilling a speech act, as s/he is providing an answer to the implicit question posed by the other interlocutor and/or confirming something that this other interlocutor has said.

Finally, disfluencies like repetitions, self-corrections or false starts, which are very common in spontaneous speech, should be also taken into account when examining L2 performance. From the perspective of IUs, repetitions (e.g.: *these <two> [/] two people are running*) do not appear to introduce new ideas; they just signal difficulties in formulating the message (that is, in expressing a conceptual message linguistically); the concepts to be conveyed can be deemed to be the same[16].

Something similar occurs with self-corrections. According to Foster et al. (2000), the speaker will produce a self-correction when s/he stops and reformulates the message s/he is transmitting (e.g.: *because <its easy> [//] there's easy access*). Thus, the speaker can be said to change the form in which the message is constructed, albeit the conceptual message will not vary much, so that no IU will be introduced. Utterances that convey a complete message but that are subsequently corrected or reformulated (e.g.: *I can see some noises I can hear some noises*, *he catch me he got me*) will not be counted as a separate IU. In these cases, the speaker appears to have a conceptual message in mind which has been expressed linguistically wrong or in a non-satisfactory way for him/her, so that s/he conveys the same idea again in a different way. Given that the second message is conceptually the same as the first one, just the last segment will be counted as an IU.

As regards false starts (i.e. instances in which the speaker starts formulating a message and s/he abandons it or reformulates it in a different manner) (e.g.: *so the first thing that I would do it's difficult because…*), it might be considered that they would not constitute an IU given the fact that the message or the idea to be expressed is not fully completed and cannot be reconstructed.

[16] When participants utter an idea and subsequently utter it again in the same (or nearly the same) way (e.g.: *cross the road ok cross the road*, *there's a fire there's a fire in the building*), it will be considered that speakers are conveying just a single idea, as the conceptual message is approximately the same.

4.5. Statistical Instruments

The statistical instruments used in this study to analyse the data include descriptive statistics and a standard multiple regression between ratio number of IUs[17] as the dependent variable and mode, discourse type, task type and task complexity as independent variables or predictors[18]. Normality of the dependent variable with the independent ones as factor variables was assessed before performing the regression test. Since data was not normally distributed, a logarithmic transformation was used on that measure so as to reduce skewness and the number of outliers and improve normality, linearity and homoscedasticity.

Inter-rater reliability procedures were applied on 10% of the data for the segmentation of data into IUs, with average inter-rater reliability reaching 89%[19].

5. RESULTS

Table 2 shows descriptive statistics and includes information about the number of participants, means of the ratio number of IUs produced and standard deviations of the data according to the different independent variables that are being examined in the study.

Table 2: Descriptive statistics of the number of IUs produced (ratio measure)

Variables	Levels	N	Mean	Std. Deviation
Mode	Oral	144	2.30	.76
	Written	50	1.45	.30
Discourse Type	Monologic	86	1.66	.55
	Dialogic	108	2.42	.75
Task Type	Narrative	30	1.80	.60
	Instruction-Giving	44	2.58	.84
	Argumentative	90	2.12	.73
	Descriptive	30	1.54	.32
Task Complexity	Simple	102	1.96	.64
	Complex	92	2.22	.87

[17] Since participants' productions differed in terms of length, it is possible that longer texts contain more IUs than shorter texts. Hence, a ratio number of IUs was used in order to compensate for text length. This was calculated in the following way: number of IUs / √number of tokens.

[18] It should be pointed out that some additional analyses were conducted in order to further explore the data and to offer some support to the results obtained in the previous tests. These analyses will be specified and described later.

[19] Two raters were used for inter-rater reliability. It is important to point out that, in contrast to the first rater, the second rater was not familiar with the field of applied linguistics. The percentage of agreement achieved with the first rater after solving some differences in the number of IUs quantified through discussion was 92%. For the second rater, 86% of agreement was reached. The percentage of agreement achieved between inter-rater one and two was 88%.

As previously explained, a standard multiple regression was conducted in order to answer the research question of the study, which inquired about the relative impact of discourse mode, discourse type, task type and task complexity on the production of IUs during L2 task performance. As part of the regression, some correlations between all the variables were obtained, so that the relation between the variables could be examined. As it can be observed in Table 3, there were moderate, albeit significant correlations between (log of) ratio of IUs and mode and discourse type (r=-.528 and -.522 respectively, p<.001); task type and task complexity were significantly weakly correlated with (log of) ratio of IUs (r=-.151, p=.02; r=.142, p=.02, respectively), thus indicating that these variables are not much related[20]. Apart from that, it should be noticed that there were also inter-correlations among the four independent variables, with the highest being between mode and discourse type (r=.660, p<.001) and mode and task type (r=.626, p<.001).

Table 3: Correlations between (log of) ratio of IUs, mode, discourse type, task type and task complexity.

	(log of) ratio IUs	Mode	Discourse Type	Task Type
(log of) ratio IUs				
Mode	-.528**			
Discourse Type	,522**	-,660**		
Task Type	-,151*	,626**	-,301**	
Task Complexity	,142*	-,088	,058	-,189**

* p < .05. ** p <.001

Focusing on the main results of the regression test, it was found that the regression was statistically significant (p<.001). Moreover, it revealed that 38.5% of the variance in production of IUs could be significantly explained by mode, discourse type, task type and task complexity (F(4,189)=29.551, R^2=.385, Adjusted R^2=.372). When looking at the contribution of each individual predictor on the dependent variable, it was observed that all the variables made a significant unique contribution (see Table 4). Nonetheless, it should be noticed that mode was the best predictor of the dependent variable (β =-.523), explaining 9.9% of the variance. Albeit significant, the rest of the variables explained little of the variance in production of IUs, as indicated by the squared semi-partial correlations (sr^2) reported in Table 4.

[20] Despite the fact that this might imply that the variables will explain little of the variance of production of IUs, it was decided that these predictors will be nonetheless included in the regression as the study aimed at exploring their relative contribution to the number of IUs transmitted by participants during L2 task performance.

Table 4: Standard multiple regression of (log of) ratio measure of IUs by mode, discourse type, task type and task complexity (*N* = 194)

	R^2	Adjusted R^2	β	Sig.	sr^2
Model	.385	.372			
Mode			-.523	.000	.099
Discourse Type			.252	.001	.035
Task Type			.277	.000	.044
Task Complexity			.134	.022	.017

In sum, all the independent variables that have been analysed (namely, mode, discourse type, task type and task complexity) significantly contributed to the variance in the number of IUs generated, explaining 38.5% of this variance. Mode emerged as the variable that had the largest influence on this dependent variable, as it independently accounted for almost 10% of the variance. Given these results, some additional analyses were conducted so as to better examine the present data. In the following sub-section, a description of these analyses will be presented together with their corresponding results.

5.1. Additional Analyses

5.1.1. Hierarchical Regression

Observing that mode was the factor that most significantly contributed to the number of IUs produced and that there might be some shared variance between variables, a hierarchical regression was conducted to examine the effects of the other variables before mode was added to the regression. Task type was entered in Step 1; discourse type, in Step 2; task complexity, in Step 3; and finally, mode was introduced in Step 4. The results revealed that discourse type made the strongest unique contribution to the model (ΔR^2=.25) and that, once introduced, it was the only variable that significantly explained variance in number of IUs transmitted before mode was added to the regression (see Table 5). After mode was entered into the regression, it was found that it uniquely accounted for 9.9% of the variance in IUs (as indicated in the standard regression by the sr^2-value) and that the independent contribution of each of the other variables was significant (see Table 5).

Table 5: Hierarchical multiple regression of (log of) ratio measure of IUs by mode, discourse type, task type and task complexity (*N* = 194)

Model	Predictors	Total R^2	ΔR^2	B	Std. Error	β
1	(Constant)			,358	.033	
	Task Type	.023*	.023*	-025	.012	-.151**
2	(Constant)			.033	.049	
	Task Type			.001	.011	.006
	Discourse Type	.272**	.249**	-164	.020	.524**
3	(Constant)			-.031	.060	
	Task Type			.005	.011	.028
	Discourse Type			.164	.020	.524**
	Task Complexity	.286**	.013	.036	.019	.117
4	(Constant)			.218	.072	
	Task Type			.047	.013	.277**
	Discourse Type			.079	.024	.252*
	Task Complexity			.042	.018	.134*
	Mode	.385**	.099**	-.186	.034	-.523**

* $p < .05$. ** $p < .001$

5.1.2. Independent-samples T-tests and One-way Between-subjects ANOVA

Given the fact that the results obtained for the regressions should be taken with caution, as the predictor variables were nominal instead of continuous, comparisons between groups were made and their effect sizes, calculated. Some support for the results obtained in the regressions would be gained from these analyses and calculations in case the results from these comparisons and effect sizes are similar to the results obtained in the regressions.

In the first place, three independent-samples t-tests were conducted in order to observe whether there was a significant difference in (log of) ratio number of IUs produced when participants performed oral and written, monologic and dialogic and simple and complex tasks. Results revealed that there was a significant difference in the amount of IUs that participants convey when they perform oral and written tasks ($t(192)=10.88$, $p<.001$) and when performing tasks in a monologic and in a dialogic mode ($t(192)=-8.49$, $p<.001$). The effect size of the differences in the means as regards mode and discourse type was large ($\eta^2=.38$ and .27 respectively). As for task complexity, it was found that there was not a significant difference between participants when they performed simple and complex tasks ($t(192)=-1.97$, $p=.051$). In addition, the eta squared statistic indicated a small effect size ($\eta^2=.02$).

In the second place, a one-way between-subjects ANOVA was run so as to examine whether there was any effect of task type on the (log of) ratio number of IUs transmitted. Results showed that there was a significant main effect of task type on the dependent variable ($F(3,190)=15.37$, $p<.001$, $\eta^2=.19$). Post-hoc tests revealed that there was a significant difference in number of IUs conveyed between the instruction-giving task and the rest of the tasks ($p<.001$ for the comparison with narratives and descriptive tasks and $p<.003$ for argumentative tasks) and between argumentative and descriptive tasks ($p<.001$).

In sum, it can be concluded that there were significant differences in amount of IUs conveyed when the tasks performed differed in mode, discourse type and task type. In addition, results from effect sizes appear to correspond to the ones obtained in the hierarchical regression. Mode and discourse type got the largest effect sizes, which will be in consonance with the results achieved in the regression, where they uniquely accounted for a considerable amount of variance as compared to the rest of the variables. As regards task type, its effect size was large, though it was close to being moderate and it is smaller than the ones achieved by mode and discourse type. Similarly, results from the regressions pointed to some amount of variance being explained by this variable, albeit it was inferior to the one accounted by mode and discourse type. Lastly, as indicated by the unique amount of variance that it explains in the regressions, task complexity appears to have a small effect size.

6. DISCUSSION

This study has not only developed some guidelines as to how to segment oral and written data into IUs, but it has also investigated the relative impact of mode, discourse type, task type and task complexity on the number of IUs transmitted by participants during the performance of different types of tasks.

Regarding the guidelines that were designed, it should be highlighted that a considerable percentage of agreement between raters was achieved (almost 90%). It should be pointed out, moreover, that agreement was observed to be higher for monologic tasks than for dialogic ones. This is probably due to the difference that exists between monologic and dialogic tasks as regards the presence of particles such as *ok* or *yes* in the dialogic tasks. Through the discussion of some problematic aspects when counting IUs, it was noticed that the main conflictive point was related to the interpretation of these particles as fillers or are elements showing agreement. Thus, this might be a point to consider in future research when dealing with the segmentation of dialogic tasks. On balance, nonetheless, owing to the considerably high agreement obtained between raters, the guidelines

developed might be judged to be useful for other researchers who decide to measure propositional complexity, as they might constitute a systematic and reliable means of operationalizing the dimension.

As regards the relative influence of mode discourse type, task type and task complexity on the number of IUs conveyed, focusing on the results of the standard regression, it was found that the independent variables accounted for 38.5% of the variance in production of IUs and that each of the variables made a significant unique contribution to the dependent variable. Nevertheless, the amount of variance explained by each of these predictors varied. In the standard regression, mode was the factor that displayed the highest impact on the variance as compared to the rest of the predictors, which explained little (between 1.7 and 4.4% of variance). In the hierarchical regression, nonetheless, the best predictor was discourse type (uniquely explaining 25% of the variance). The rest of the variables accounted for approximately the same amount of variance as in the standard regression.

One of the reasons why mode appeared to be one of the variables that made a greater unique contribution to the dependent variable could be related to the fact that the processes of writing and speaking are considerably different. In the first place, as it was explained in the literature review, speakers have to produce messages on the spot in order to both keep the flow of the conversation and maintain their interlocutors' attention on what they are saying (Chafe, 1982, 1985). As speech needs to be continuous, speakers do not have time to plan what they want to say and they immediately produce what they conceptualize. On the contrary, writers have plenty of time to think about the content they want to transmit as they have a displaced audience. They can plan, revise and rewrite their ideas without that much pressure of time (Chafe, 1982, 1985). This availability of time to plan what they want to say and how they want to say the things they are conceptualizing as opposed to speakers' need to produce ideas in a continuous mode is what probably mostly differentiates speaking from writing and what might cause speakers to produce a larger number of IUs as compared to writers.

In addition, it may be hypothesized that writers might decide to focus their attention on increasing the lexical sophistication of their ideas or on making the text coherent instead of on conveying a higher number of ideas. Apart from that, it should be taken into account that monologic writing can be considered to be a much slower action than speaking, so that writers might transmit fewer ideas than speakers[21]. These differences between the two processes might have favoured mode to arise as a factor that considerably affected the

[21] In future studies, as dialogic writing might be deemed to be similar to the act of speaking, it would be interesting to examine whether there is any difference in terms of IUs between dialogic written texts as opposed to spoken texts.

number of IUs that was generated. The results from the t-test, which revealed that there was a significant difference in the number of IUs produced in oral and written tasks and showed that the effect size of the difference between means was large, might give support to the idea that mode highly affects the amount of IUs that one can convey during L2 task performance.

As regards discourse type, the present study has found that it explained 3.5% of the variance in number of IUs produced in the standard regression and 25% in the hierarchical regression. The low unique variance of the variable in the first regression might be a result of the fact that it was highly correlated with mode, so that its unique contribution to the number of IUs transmitted was low once the variance that these variables probably share is partialed out. In the hierarchical regression, nonetheless, the importance of each independent variable depends on the order in which it is introduced into the regression. Consequently, there is a possibility that the figure obtained in this type of regression for the variable of discourse type might be taking into consideration an explanatory part of the dependent variable that is shared with another variable. This notwithstanding, the figure obtained in the hierarchical regression was in consonance with the magnitude of the effect size that was calculated from the t-test conducted. Therefore, it might be considered that discourse type might considerably impact the amount of IUs that participants produce when performing tasks.

As explained in the literature review, participants might be found to significantly produce more IUs in tasks that are performed dialogically rather than monologically due to the interaction that is generated between interlocutors. When interacting, participants will tend to formulate clarification requests and confirmation checks, so that they will be conveying new IUs. These requests and clarifications are not present in monologic tasks, so that less IUs might be produced in this type of tasks as compared to the ones that are performed in pairs. It is possible that this difference between monologic and dialogic tasks might have caused discourse type to account for the amount of variance indicated in the regressions.

With respect to task type, the regressions showed that the variable explained 4.4% and 2.3% of the variance in production of IUs in the standard and the hierarchical regression respectively. Some studies have observed differences in performance across task types (Gilabert et al., 2011; Foster & Skehan, 1996; Gilabert et al. 2009). Therefore, it was believed that some difference with respect to IUs would be found between the different types of task, so that task type would significantly contribute to explain a substantial amount of the variation in the number of IUs that participants can produce. Nevertheless,

albeit its unique contribution was significant, the variable was found to explain little of this variance. A possible explanation for this might be one's tendency in conveying ideas. In some cases, in this study, the different types of task were performed by the same people. Thus, if a person does not usually talk much when performing tasks and do not convey a lot of ideas in a narrative, s/he might consistently not say much in the other types of tasks. This might be the reason why the influence of task type on the amount of IUs produced might have been minimized. Future studies examining the effects of task type on propositional complexity might take into consideration this issue.

In addition, it might be the case that some tasks are similar in the inherent number of IUs that can be said during their performance. For instance, for the descriptive task, participants were instructed to comment on a number of points. Despite the fact that participants are free to include some more ideas to contextualize the main points they have to make reference to, there is a limited number of IUs that they can convey as the task can be described as being closed[22]. Similarly, in the narrative tasks, participants are presented with some pictures that construct a story. In spite of the fact that participants can feel very much engaged in the task and start describing the pictures in detail (thus conveying more ideas), the task is also a closed one, so that the number of events or ideas they can make reference to is very much established. If the number of ideas to be conveyed in the narrative and in the descriptive task is approximately the same, the differences that can arise between these different types of task might be reduced. As a result, the effect of task type on number of IUs produced might be mitigated.

This might be supported by the results of the ANOVA conducted in this study, which revealed that there was an effect of task type on the number of IUs produced, albeit significant differences were only found between instruction-giving tasks and the rest of the tasks and between argumentative and descriptive tasks. Moreover, despite the fact that the effect size of the differences in the means was large (.19), it was still inferior to the effect size obtained for mode and discourse type, thus pointing to the fact that the impact of task type on the number of IUs conveyed is not as great as the influence exercised by these two other variables, as was observed in the hierarchical regression.

Finally, task complexity has been shown to explain little of the variance in the number of IUs that can be transmitted. Thus, it seems that task complexity does not greatly affect propositional complexity. Investigating whether pre-task planning would have an affect on

[22] According to Ellis (2003) tasks can be classified as being open or closed. In contrast to open tasks, closed ones have a limited number of solutions or outcomes at which participants can reach. Hence, with respect to IUs, in closed tasks, participants will be expected to convey a quite limited number of IUs, whereas they can convey an endless amount of IUs in open tasks.

participants' attention to form during the process of planning and performance of the task, Ortega (1999) found that participants' decisions as regards their allocation of attention depended on the nature of the task and on their natural tendency to focus on form or on meaning according to the demands of the task that they performed. Taking this into consideration, it might be hypothesized that the participants of this study were naturally more concerned with the form in which their messages were produced when they were performing complex tasks than with the actual content of these messages, so that their attention to meaning or content and production of IUs might have been the same when performing simple and complex tasks. This idea will be coherent with the findings presented by several studies investigating the effects of task complexity (Michel et al., 2007; Gilabert et al., 2011; Michel et al., 2012, etc.), which suggest that learners will tend to direct their attention towards form when presented with tasks that are complex.

According to Robinson's Cognition Hypothesis (2001, 2003, 2005, as cited in Gilabert et al., 2011), when tasks are complexified along resource-directing variables, learners will direct their attention towards language. Since most of the complex tasks that were analysed in this study were manipulated along these variables, it is possible that participants' attention was focused on form rather than on the production of IUs when performing complex tasks. This might have caused the influence of task complexity to be reduced, thus resulting in a low explanatory percentage of the amount of IUs conveyed. This, in addition, might be supported by both the results found in the t-test, which showed that there was not a significant difference in number of IUs produced between participants performing simple and complex tasks, and by the result of the effect size of the difference in the means between these two groups.

7. CONCLUSIONS

This study has sought to explore the dimension of propositional complexity and the notion of IU by both developing some guidelines as to how to segment oral and written data into IUs in order to operationalize a measurement of propositional complexity and by investigating the relative impact that several factors (namely, mode, discourse type, task type and task complexity) can have on the production of IUs.

Focusing on the guidelines that have been designed to segment oral and written data, it can be concluded that they can be considered to be quite reliable and useful for other researchers when they engage in the measurement of propositional complexity due to the agreement that was reached with raters. Clearly, some aspects might have not been tackled and some researchers might not agree with some of the points stated or might consider that

a number of these points are not totally transparent or unambiguous. Nevertheless, as Foster et al. (2000) suggests, researchers need to acknowledge the fact that the segmentation of data into units is not a simple and easy matter, since multiple decisions have to be taken when facing the unexpected characteristics of data that do not fit one's definition of the unit that is being used. Accepting that each set of data is different and that researchers will need to take individual decisions according to the data they have, this study has sought to provide not only a clear description of what an IU is, but also some precise and coherent instructions as to how to segment oral and written data into these units as a first step towards a reliable operationalization of propositional complexity that might be helpful for future research.

As regards the results obtained in this study, it has been found that mode, discourse type, task type and task complexity significantly explained more than a third part of the variance in production of IUs, with mode and discourse type being the variables that had the largest impact on the dependent variable. The rest of the predictors made a significant unique contribution to the number of IUs conveyed, albeit they accounted for little of its variance. As it has been explained, this might be due to individual differences within participants or to the nature of the tasks and the similarities that might exist between them regarding their inherent number of IUs. In conclusion, since propositional complexity has received little attention in research, it might be considered that the present study has shed some light on this dimension and on how it can be affected by the aforementioned factors. This notwithstanding, due to some limitations in the study, it should be acknowledged that results need to be taken with caution.

7.1. Limitations

In the first place, it should be highlighted that a more appropriate statistical test than the one that has been used in this study could have been considered to be used. Firstly, it should be pointed out that results from the regressions should be taken with caution given the fact that the predictor variables were nominal instead of continuous. For this reason, some additional analyses (i.e. the use of independent-samples t-tests, one-way between-subjects ANOVA and the calculation of size effects of the differences between means) were made so as to give some support to the interpretation of the results from the regressions. Since these results corresponded to the ones obtained in the hierarchical regression, it might be considered that the results that have been presented might be indicative on the relative impact of the observed explanatory variables on propositional complexity. Nevertheless, as pointed out before, results must be carefully considered.

Secondly, as the present study was examining several independent variables, it is possible that there was an interaction between them, meaning that the effect of one independent variable could depend on the level of another independent variable. Multiple regressions do not provide information about the possible interactions that might take place between variables. For these reasons, future studies might think about using factorial ANOVAs (which could not be used in this thesis due to its design)[23] or PLS (Partial Least Squares), which will predict a number of dependent variables from a set of independent variables. Both tests, in addition, will provide information about the interactions taking place between the variables.

In the second place, it should be noticed that a more complete analysis could have been provided if performance in written dialogic tasks had been included in the scope of the paper. Moreover, it would have been beneficial if some information about the amount of IUs that native speakers produce in the type of tasks that have been analysed in the study could have been obtained, since this would allow having a baseline against which non-native participants could have been compared.

7.2. Further Research

The present study might have contributed to enhance our understanding of the nature of the productions generated by L2 learners as they perform communicative tasks in their L2. However, the paper has provided only a partial view. Apart from thinking about the content of what they are going to say, L2 users also think about the formal aspects of their message (such as, the lexical items or the tense to use, etc). Therefore, it would be interesting to observe how propositional complexity interacts with the other dimensions of CAF (structural and lexical complexity, fluency and accuracy).

In addition, there are several factors that can affect the number of IUs that L2 learners generate when performing tasks that could be investigated. For instance, since IUs are defined by Chafe (1980, 1982, 1985) as the verbalizations of what is held in short-term memory, some attention could be drawn to the role of working memory on the amount of information that people with different working memory capacities are able to transmit.

Another aspect to be examined in future research that can explain some of the variance in production of IUs is proficiency. Due to limitations in using linguistic resources to express the ideas conceptualized, L2 learners might decide to abandon their initial consideration of conveying a particular idea. On the contrary, L2 learners with a high level

[23] A factorial ANOVA could not be used because values for written dialogic tasks were missing, since no data with these characteristics could be obtained.

of proficiency in the additional language might not feel limited in the verbalization of the ideas they conceptualize by their knowledge of the language, so that they might transmit more IUs than L2 learners with a lower level of proficiency. Given this possibility, it might be interesting to consider proficiency as a factor to investigate with relation to propositional complexity in future studies.

Lastly, apart from examining the difference in the number of IUs that can be produced in different types of tasks or according to different variables, it might be worth investigating whether there is a difference in the quality of the IUs that are conveyed during L2 task performance.

LIST OF REFERENCES

Bulté, B., & Housen, A. (2009). The development of lexical proficiency in L2 speaking and writing tasks by Dutch-speaking learners of French in Brussels. Paper presented in the colloquium "Tasks across modalities", *Task Based Language Teaching Conference*, Lancaster 2009.

Bulté, B., & Housen, A. (2012). Defining and operationalising L2 complexity. In A. Housen, F. Kuiken & I. Vedder (Eds.), *Dimensions of L2 performance and proficiency*, pp. 21–46. Amsterdam/Philadelphia: John Benjamins.

Bulté, B., & Housen, A. (2014). Conceptualizing and measuring short-term changes in L2 writing complexity. *Journal of Second Language Writing, 26*, 42–65.

Butterworth, B. (1975). Hesitation and semantic planning in speech. *Journal of Psycholinguistic Research*, *4*(1), 75-87.

Chafe, W. (1980). The deployment of consciousness in the production of a narrative. In W. Chafe (Ed.), *The pear stories: cognitive, cultural and linguistic aspects of narrative production* (pp. 9-50). Norwood, N.J.: Ablex.

Chafe, W. (1982). Integration and involvement in speaking, writing, and oral literature. In D. Tanned (Ed.), *Spoken and written language: Exploring orality and literacy* (pp. 35-53). Norwood: Ablex.

Chafe, W. (1985). Linguistic differences produced by differences between speaking and writing. In D. Olson, N. Torrance & A. Hyldyard (Eds.), *Literacy, language, and learning: The nature and consequences of reading and writing* (pp. 105-123). Cambridge: Cambridge University Press.

Chafe, W. (1994). *Discourse, consciousness, and time: The flow and displacement of conscious experience in speaking and writing.* The University of Chicago Press.

Chafe, W., & Danielewicz, J. (1987). Properties of spoken and written language. In R. Horowitz & S.J. Samuels (Eds.), *Comprehending oral and written language* (pp. 83-113). San Diego: Academic Press.

Ellis, R. (2003). *Learning a second language through interaction*. Amsterdam: John Benjamins.

Ellis, R., & Barkhuizen, G. (2005). *Analysing learner language.* Oxford: Oxford University Press.

Foster, P., Tonkyn, A., & Wigglesworth, G. (2000). Measuring spoken language: A unit for all reasons. *Applied Linguistics, 21*(3), 354-375.

Ferrari, S., & Nuzzo, E. (2009) Meeting the challenge of diversity with TBLT: Connecting speaking and writing in mainstream classrooms. Paper presented in the colloquium "Tasks across modalities", *Task Based Language Teaching Conference*, Lancaster 2009.

Foster, P. & Skehan, P. (1996). The influence of planning and task type on second language performance. *Studies in Second Language Acquisition, 18*(3), 299-323.

Gilabert, R. (2007). Effects of manipulating task complexity on self-repairs during L2 oral production. *IRAL, 45*, 215-240.

Gilabert, R., Barón, J. & Llanes, À. (2009). Manipulating cognitive complexity across task types and its impact on learners' interaction during oral performance. *International Review of Applied Linguistics in Language Teaching, 47*, 367–395.

Gilabert, R., Barón, J., & Levkina, M. (2011). Manipulating task complexity across task types and modes. In P. Robinson (Ed.), *Second Language Task Complexity. Researching the Cognition Hypothesis of language learning and performance* (pp. 105 – 138). Amsterdam and Philadelphia: John Benjamins.

Gilabert, R. & Barón, J. (2013). The impact of increasing task complexity on L2 pragmatic moves. In K. McDonough & A. Mackey (Eds.), *Second language interaction in diverse educational contexts*, pp.45-70. Amsterdam: John Benjamins.

Granfeldt, J. (2007). Speaking and writing in L2 French: Exploring effects on fluency, accuracy and complexity. In S. Van Daele, A. Housen, F. Kuiken, M. Pierrard, & I. Vedder (Eds.), *Complexity, accuracy and fluency in second language use, learning and teaching* (pp. 87 - 98). Brussels: KVAB.

Horowitz, M., & Newman, J. (1964). Spoken and written expression: An experimental analysis. *Journal of Abnormal and Social Psychology, 68*(6), 640-647.

Housen, A., & Kuiken, F. (2009). Complexity, accuracy and fluency in second language acquisition. *Applied Linguistics, 30*(4), 461-473.

Kormos, J. & Trebits, A. (2009). Task-related differences across modes of performance. Paper presented at the *Task Based Language Teaching Conference*, Lancaster 2009.

Kuiken, F. & Vedder, I. (2011). Task complexity and linguistic performance in L2 writing and speaking: The effect of mode. In P. Robinson (Ed.), *Second language task complexity: Researching the Cognition Hypothesis of language learning and performance* (pp. 91–104). Amsterdam: John Benjamins.

Kuiken, F., Vedder, I. & Gilabert, R. (2010). Communicative adequacy and linguistic complexity in L2 writing. *EUROSLA Monographs, 1*, 81-100. Regio-Emilia: Eurosla.

Larsen-Freeman, D. (2006). The emergence of complexity, fluency and accuracy in the oral and written production of five Chinese learners of English. *Applied Linguistics, 27*(4), 590-619.

Levkina, M. (2013). *The role of task sequencing in L2 development as mediated by working memory capacity* (Doctoral Dissertation). Retrieved from http://-hdl.handle.net/2445/54846

Michel, M., Kuiken, F., & Vedder, I. (2007). The influence of complexity in monologic versus dialogic tasks in Dutch L2. *International Review of Applied Linguistics, 45*, 241 – 259.

Michel, M., Kuiken, F., & Vedder, I. (2012). Task complexity and interaction: (Combined) effects on task-based performance in Dutch as a second language. *EUROSLA Yearbook, 12*, 164 – 190.

Norris, J.M., & Ortega, L. (2009). Towards an organic approach to investigating CAF in instructed SLA: The case of complexity. *Applied Linguistics, 30*(4), 555–578.

Ortega, L. (1999). Planning and focus on form in L2 oral performance. *Studies in Second Language Acquisition, 21*(1), 109-148.

Pallotti, G. (2009). CAF: Defining, refining and differentiating constructs. *Applied Linguistics, 30*(4), 590-601.

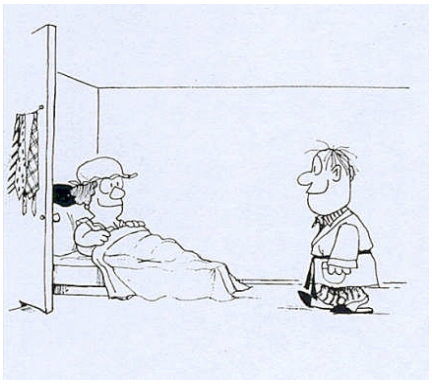
Robinson, P. (2007). Task complexity, theory of mind and intentional reasoning: Effects on speech production, interaction, uptake and perceptions of task difficulty. *International View of Applied Linguistics, 45*, 195 – 215.

Yu, G. (2010). Lexical diversity in writing and speaking task performances. *Applied Linguistics, 31*(2), 236 - 259.

APPENDICES

Appendix 1 – Narrative Tasks

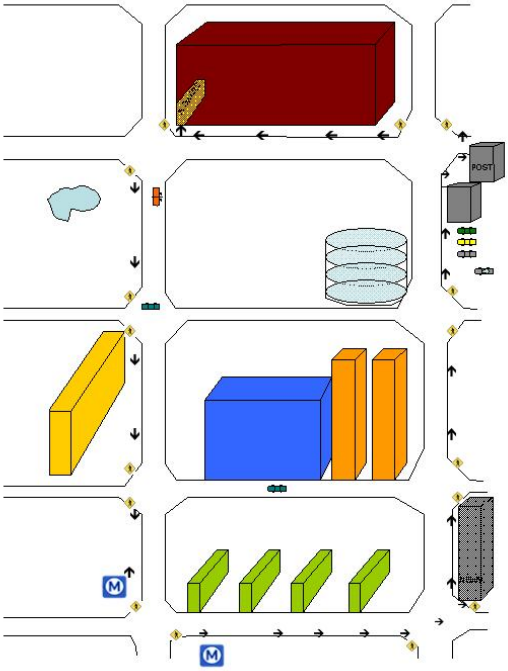
Story 1



Story 2

Appendix 2 – Instruction-Giving Task

Simple version



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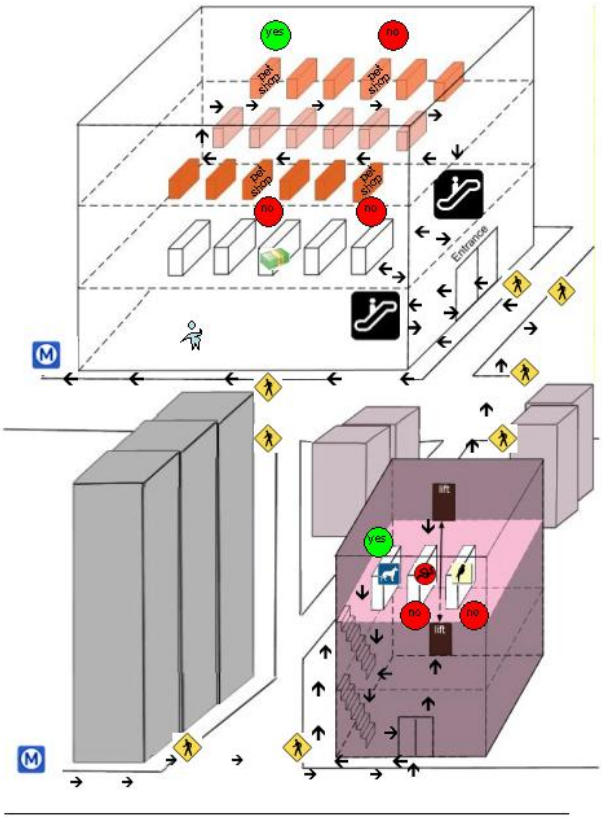
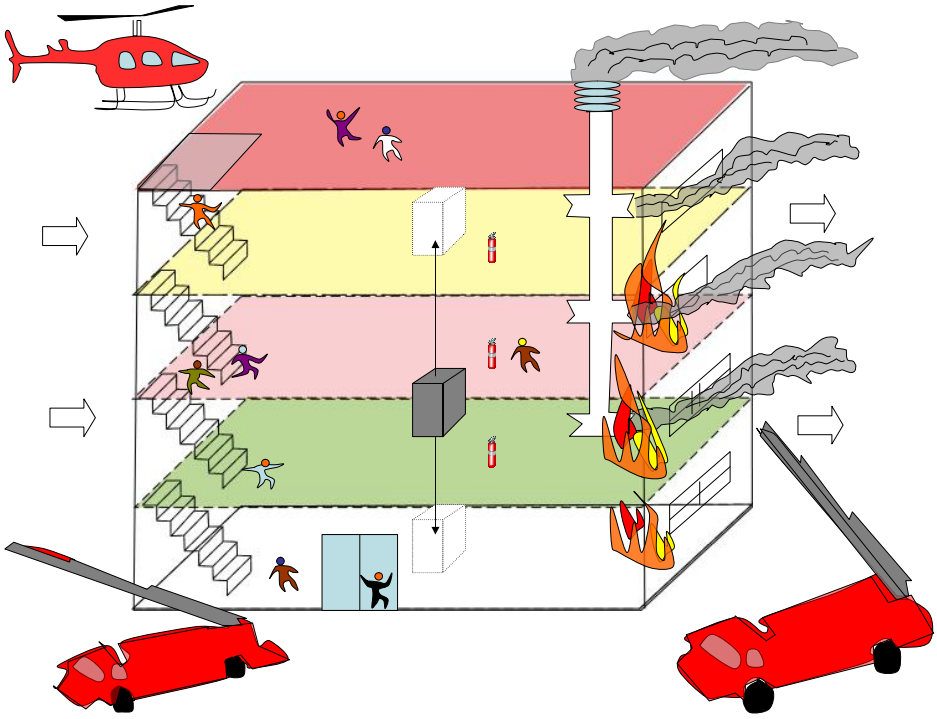
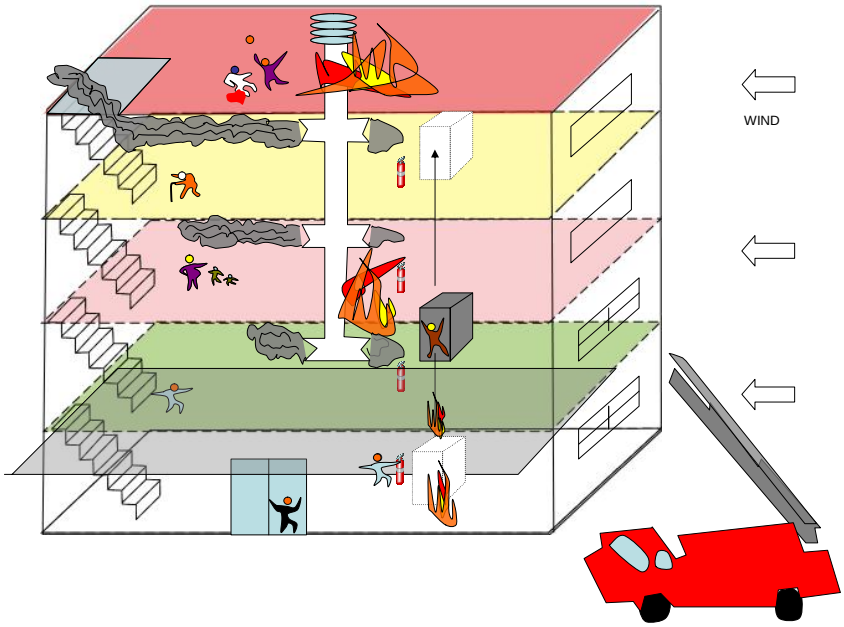


Appendix 3 – Argumentative Task ('Fire-Chief Task'; monologic version)

Simple version



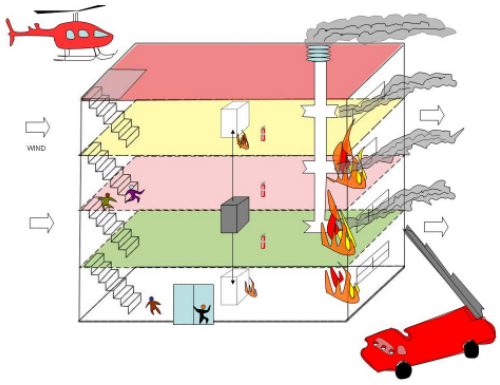
Complex version



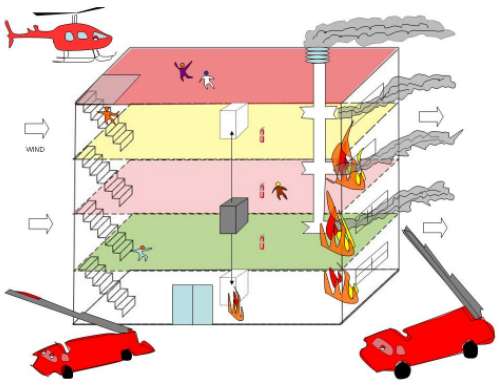
Appendix 4 – Argumentative Task ('Fire-Chief Task'; dialogic version)

Simple Version

Student A

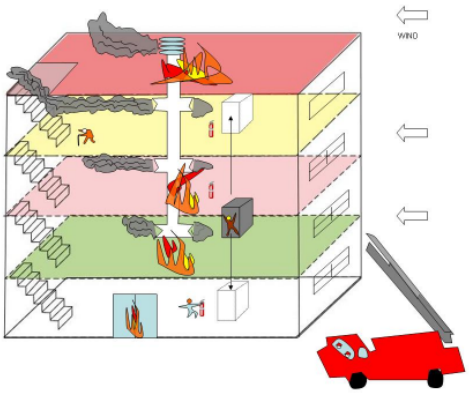


Student B

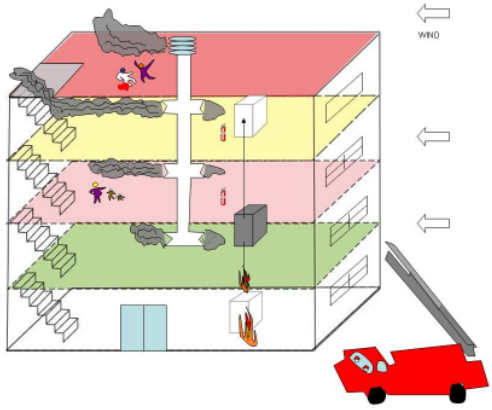


Complex Version

Student A



Student B



Appendix 5 – Argumentative Task ('Party Task')

Simple version

Imagine that you are room-mates and that you also live with another friend, James. Student A wants to throw a party in the house and he/she has to ask for permission to the other people living in the flat. Student A has to ask for permission to Student B. Student A has already asked James who will accept but with some conditions.

James says...

- only 5 FRIENDS.
- only VEGETARIAN FOOD, NO MEAT.
- THURSDAY NIGHT.
- only MUSIC from the 80s and 90s.

STUDENT A's conditons are:

- invite 3 friends.
- to eat tofu and algi.
- to hold the party during the week.
- to have "oldies"

STUDENT B's conditions are:

- to bring 2 friends.
- to have a variety of salads.
- to hold the party on Thursday or over the weekend.
- no preferences for music.

Complex version

Imagine that you are room-mates and that you also live with another friend, James. Student A wants to throw a party in the house and he/she has to ask for permission to the other people living in the flat. Student A has to ask for permission to Student B. Student A has already asked James who will accept but with some conditions.

James says...

- only 5 FRIENDS.
- only VEGETARIAN FOOD, NO MEAT.
- THURSDAY NIGHT.
- only MUSIC from the 80s and 90s.

STUDENT A's conditions are:

- to invite 7 friends.
- to have a barbecue for the party.
- to hold the party on Saturday night.
- to have live music at the party.

STUDENT B's conditions are:

- to bring 4 friends.
- to eat 'paella'.
- to hold the party on Friday night.
- to have a DJ, not live music.

Appendix 6 – Descriptive Task

Imagine that you've just moved to London and now you have to furnish your new flat. Today you went to visit a friend of yours and you loved her / his living room.

Here is the living room.

WHAT DO YOU HAVE TO DO? ...

Now you're already at home and you want to share your impressions with <u>your friend</u> who is still in Spain. <u>Write him/her an e-mail</u> describing the living room you've just seen. Remember that you have to mention where each of the following objects was in the living room (as you see them in the photo):

1. a sofa
2. two black armchairs
3. a rug
4. a set of three small white vases
5. a plant
6. a wooden chair
7. two black-and-white pictures
8. a coffee table
9. a dining table with four white chairs
10. stairs
11. a red lamp
12. a laptop

You've got **15 minutes** to write your e-mail.

Appendix 7 – Further Discussion on the Operationalization of Propositional Complexity

1. Time adverbial clauses:

Examples: *wait until he comes*

when you get out of the metro uh you have to get that road

Considering the first example, one could think that adverbial clauses are completing the messages expressed in the main clauses by adding some time reference or information. However, one can break the sentences in the examples into two independent ones that have sense and convey an event (e.g.: *Wait. He will come; Get out of the metro. You have to get that road*). Thus, time adverbial clauses will be considered to express a new IU.

2. Conditional adverbial clauses:

Examples: *If she go upstairs I will be help with my helicopter*

he gets fat with that if he eats meat

As in the case of time adverbial clauses, conditional clauses can be deemed to be part of the message that is being conveyed through the main clause as they express a condition for something to occur. Nonetheless, it was believed that if the conditional clauses could be converted into independent ones that stand alone and convey a complete message, this could mean that they could be regarded as being transmitting a new IU (e.g.: *He eats meat, he gets fat*).

3. Purpose adverbial clauses:

Examples: *I will go downstairs to take the two children*

The boy has a thermo bottle to probably drink something

Purpose adverbial clauses could be considered to be adding some extra information and to be completing the whole message that is being conceptualized by the speaker/writer, as they express the purpose in doing a certain action expressed by the main verb. Nevertheless, as a complete and meaningful message can be extracted from the subordinate clause if it is transformed into an independent one, it was decided that purpose adverbial clauses would be constituting a new IU (e.g.: *I will go downstairs. I want to take the two children; The boy has a thermo bottle. He probably wants to drink something*).

4. Particles such as *ok, right, yes:*

Example 1	**Example 2**
St.1: that's that's why we should go just eh to the fourth floor and then	*St.1: ok follow that that street the same where the grey building is*
St.2: <u>yeah</u>.	*St.2: <u>yes</u>*
St.1: catch all the people what do you think?	*St.1: go straight forward and you will cross the street once*
St.2: <u>yes yeah</u> but I have I have one person in the second floor.	*St.2: <u>yes</u>*
	St.1: one street then you cross again
	St.2: <u>ok</u>

When looking at particles such as *ok, right* or *yes*, one should discern whether these particles fulfil a speech act or are elements used to indicate that one is listening and understanding the message that the other person is uttering. In the first example, the first speaker is stating his opinion on what he would do to save some people that are trapped in a building on fire and the second speaker appears to use the particle *yes* so as to indicate that s/he agrees with what the first speaker is saying. Therefore, as they are fulfilling a speech act (i.e. showing agreement) these *yes* should be counted as IUs. On the contrary, in the second example, the second speaker is not performing any speech act, but rather s/he is just using *yes* and *ok* to indicate that he is following what the first speaker is saying. Hence, these particles should not be counted as IUs.

5. Incomplete ideas:

Sometimes, in conversations, people get interrupted by other interlocutors when they are talking, so that their message might not be fully completed (e.g.: *they are already*). In some other cases, the speakers might decide to abandon a message they were transmitting and start conveying another one. No matter the reason why speakers leave a message without being fully formulated, incomplete messages that can not be reconstructed from context will not be considered to constitute an IU. Nonetheless, though incomplete, segments from which a message can be extracted or reconstructed (e.g.: *the mother is saying goodbye to the children with the, I've I've written a letter to muy mum <u>so i want to send her</u>*) will be counted as an IU, since they are carrying a message that is semantically meaningful and complete and interlocutors can easily understand and visualize what the speaker is conceptualizing and intending to communicate.

6. Ideas initiated by one speaker and completed by another interlocutor:

Example 1:

St.1: The people well the person that's on on the third floor is

St.2: is going up to the roof

Example 2:

St.1: […] and they go out by the

St.2: by the stairs

Example 3:

St.1: I think is the same floor where

St.2: where where is the person

In cases like the ones exemplified, a decision about the person to whom the idea should be attributed had to be taken. To make this decision, the content of the message that was being transmitted (which is mainly expressed by the verb) was taken into consideration. In Example 2, the speaker completing the message that was initiated by another interlocutor is just supplying a word that the first speaker cannot retrieve. Thus, it would be considered that the idea belongs to the first speaker, as s/he is transmitting the main content of the idea that s/he is conceptualizing. In Example 3, in contrast, the second speaker is the one that transmits the idea that was initiated by the first speaker with the word *where*, since s/he is expressing or describing a meaningful and complete state by having the verb and the subject of the sentence that s/he is uttering. In Example 1, the first speaker is interrupted when s/he is about to utter the verb of the sentence, which can be considered to be the most important element in a sentence given the fact that it conveys most of its content[1]. Thus, it might be believed that the idea should be attributed to the second speaker, who includes the verb of the sentence in his/her statement. However, as the first speaker pronounces the auxiliary of the whole verb form, it might be hypothesized that s/he would have completed the idea him/herself if s/he had not been interrupted. Therefore, both speakers would be considered to have transmitted an idea.

[1] Consider the segment *Sophie book*. Without the verb, the semantics of the sentence is incomplete. One cannot know whether Sophie is reading a book or whether she is buying one, etc.

Appendix 8 – Segmentation of Data into IUs

Instance of a simple oral monologic narrative text

MaAn: s it was a very annoying music that|
MaAn: and they couldn't sleep all night|
MaAn: so mr ropper get dressed|
MaAn: and put uh get dressed|
MaAn: and to and wanna and wanted to go hmm on the wanted uh to go to above floor|to complain about the noise|because they can't sleep|
MaAn: so he he went up the stairs|
MaAn: and pick up
MaAn: and and on and and started to to to talk uh in the door|in order to complain about|it was very late|
MaAn: and please to don't play don't played this loud music|
MaAn: hmm his wife als his wife was lying in bed/
MaAn: and was listening the music /
MaAn: and also and alsos and also listen some shouting there/
MaAn: then the music stop /
MaAn: and the wi and his wife was very relaxed and happy too|because because she could know that she can sleep now\
MaAn: hmm her husband came for a while|
MaAn: and we don't know and we don't know why|but he collected all his all his clothes|
MaAn: and started singing and started singing|saying he wants to go back there\
MaAn: the wife his wife doesn't understand anything |
@End

IDEA UNITS: 24

Instance of a complex oral dialogic argumentative text

*SIL: in my building there is fire only in the down floor of the building| and the the lift isn't useful|because there is fire\and we cannot used the lift.|
*JOS: okay in my building there's fire on the lower floor first floor second floor and the roof.|eh and the lift is working|as see. there is no danger on the lift|and there is also fire on the entrance of the building|so we can't evacuate people from that from that eh position|eh as seen on the first floor there are the truck|and we could evacuate PP them with from the first floor with the using the stairs from the truck./what do you think?|
*SIL: the people in my building is mostly in the left part of the building| and the wind is going to the left part of the building./so the smoke is asphyxiating the people.|

*JOS: ha ha.
*SIL: and I have a woman and two children in the second floor a pregnant woman in the second floor with two children more and in the roof I have a
*JOS: wounded wounded wounded
*SIL: a wounted person and person like screaming and shouting.
*JOS: <this cames> [>] in panic?
*SIL: <eh> [<] yes.
*JOS: oh see it.
*SIL: yes yes. because there is someone wounded or dead/we don't know/ so…
*JOS: who who will you evacuate first? I think the danger guy will be DEC fine to evacuate first..
*SIL: the…
*JOS: what do you think?
*SIL: I will evacuate DEC first the wounded person and then I will go DEC downstairs to take the the two children and the pregnant woman
*JOS: and what about the guy that is screaming out?
*SIL: the guy that is in panic would be CON the last person I will save because eh he is save/and in the…
*JOS: but what if he jumps from the top of the building? maybe he he's crazy now/he can jump or do some something..
*SIL: I don't think he has this kind of intentions.
*JOS: okay okay I trust you./okay. in my building I see. there is also the wind going to the east/and in the third floor I see an an an old person that is trying to go up stairs./I'm gonna tell him to take the lift DEC/oh I see a man on the lift! she is inside the lift./I don't know if he can escape from there/I'm gonna save him DEC/and there is one guy on the on the lowest floor and taking the exctintor/I don't know what he is going to do with that/eh it would be fine CON/if he exctints the fire of the first floor to eh make the evacuation easier/
*SIL: but what would do what are you going to do with the man/that is in the lift?/
*JOS: eh I'm now gonna try to go DEC and that xxx. and take him out/
*SIL: but there is fire in front of the lift./
*JOS: yeah. we're going to take DEC the extintor from the first floor. no. the lowest floor/and extinct that fire./because I don't see any <any more way to> [>]
*SIL: <but fire is gonna be extincted.> [<] only with one extintor?
*JOS: well I have I have more staff/and I'm gonna take DEC some water and I have many staff I'm very welling well trained and everything
*SIL: the the old man the ancient man he he is going upstairs and he would asfixiate/she he will asfixiate with the smoke!/
*JOS: I'm going to to take DEC that man first but telling to go downstairs because in the roof <there there is also fire. > [<]
*SIL: <but maybe> [<]
*SIL: the man that is in the lift get burned./
*JOS: oh. let's trust me!/SPFS ha ha. easy./come up!/now the man on the lift I see I think he is save there\because there there is no entrance of smoke\and also the smoke goes to the left\and the lift

is on the right I don't think he is in danger right now I think
the the old man is the most dangerous the person right now in the
building.
*SIL: yes.
*JOS: and ha ha and he's got a stick and gonna kill me. ha ha. no.
I'm I'm gonna take him DEC down right now and do what I have said.
I'm gonna tell DEC the guy that is taking the extintor to extinct
the fire on the first floor as I said before to eh move the people
to the window and take them off from the track stairs.
*JOS: very good.
*SIL: eh and fuck with the guy of the lift he can wait en he can PP wait.
eh that's it ok it's over cut a way!
@End

IDEA UNITS JOS: 63

IDEA UNITS SIL: 32

Instance of a complex written monologic argumentative text

Este año tengo el privilegio de estar en el comité de estudiantes y puedo dar mi consejo sobre qué organización no gubernamental debería recibir la subvención de 50.000 euros

En mi opinión, <<Vuelta a la naturaleza>> tendrá que ser la ganadora. Ya que esta organización intenta proteger los poco espacios naturales que aún quedan en nuestro país

En primer lugar, este objetivo es muy positivo para la naturaleza misma, porque todos sabemos que cada vez nos queda menos espacio natural, por ejemplo, a causa de las construcciones de edificios

En segunto lugar, nosotros, los humanos, benficiaremos de la protección de la naturaleza también, a través de realizar excursiones por espacios naturales o simplemente al contemplarlos y disfrutar de su belleza.

En tercer y último lugar, la protección de la naturaleza significará un mundo más sano para todos sus habitantes. y ¿quién no va a querer esto?

Más espacio verde, más oportunidades para descubrir la naturaleza en su orgininalidad y, además, un mundo más sano, son todas esta cosas que <<vuelta a la naturaleza>> nos quiere ofrecer

¡A votar por esta organización si queremos un mundo mejor!

IDEA UNITS: 15