CHUNKING A TRANSCRIPT OF A LECTURE TO HELP STUDENTS AT EAP COURSES IMPROVE THEIR LISTENING COMPREHENSION SKILL(S)

JANUSZ BADIO
University of Łódź, Poland
janusz.badio@uni.lodz.pl

Abstract
Pre-sessional EAP courses in the UK welcome international students seeking admission to British universities. The official requirement for English language proficiency is typically determined by a student's scores in the four language skills. Students' proficiency levels in these skills generally range from 5.0 to 6.5. One significant challenge faced by foreign students is in the area of listening skills. The listening comprehension classes often involve listening to lengthy lectures, during which students struggle with note-taking and answering questions. One effective instructional strategy is to provide plain text transcripts of recorded lectures. This article aims to illustrate how a lecturer segments speech and how teachers can transcribe this process and its constituent units using methodologies discussed in works such as Badio (2004), Chafe (1994, 2003), and Croft (1995). The unit of speech in these analyses is defined by a set of conceptual and phonetic criteria, and segmenting a lecture involves applying these criteria impressionistically. The resulting modified format of a plain text transcript can serve as a valuable pedagogical tool. Teachers can demonstrate to students, who may not have a background in linguistics, that a single word is not the only or primary unit of speech. They can illustrate how pauses signal new topics or how different types of intonation units are used to convey conceptualisations and regulate the flow of ideas and speech. Such focused and structured presentations enhance language acquisition and learning.

1. Introduction

Summer pre-sessional courses tend to be challenging for international students whose level of proficiency in English defined by an IELTS score is too low to be admitted to a UK university. Such students can enrol on a summer pre-sessional course of English for Academic Purposes (EAP) and upgrade their skills. The challenges facing foreign students with IELTS scores average on all skills approximately between 5 and 6.5 are enormous, but this article focuses solely on the skill of listening to a lecture, which is key for any university student.

University lectures typically last one hour or more, so they differ in this respect from the listening exercises found in second or foreign English language textbooks. They are delivered in diverse ways depending on the speaker of course, some more, or less audience conscious. However, for a foreign language learner, not only are they long, but typically well practised as the lecturers deliver the same lecture (though not without some changes) for a few years to different groups of students. This means that one should expect lectures tend to contain quite long and fluent stretches of vocalisation that the learners may find hard to comprehend and take notes of.

Universities in UK provide listening comprehension resources to their prospective and in-sessional students. By way of example, the University of Reading webpage furnishes the prospective students with lecture audio files coupled with a transcript of each lecture. The audio files of a typical lecture consists of several, usually 5 to 10 minutes of lecture parts. For analysis and presentation in the present study, a lecture has been selected on *Diet and the immune system*[1]. The student groups at pre-sessional courses may differ with respect to their chosen field of study, which further complicates the organisation of the classes and lessons, but this theme, human well-being and immune system, seems to resonate well with most people.

The nine parts of this lecture contain 7553 words of transcript, which needed to be checked for precision as the automatic transcription tools may be inaccurate as regards punctuation, spelling and recognition of lexis in context.

As already mentioned, the whole lecture has nine parts, but in this article the first part will be considered with special focus on how the lecturer segments or chunks (delivers in portions) the conceptual content and language. The way the lecturer chunks the lecture is represented in transcription by a single line referred to as the intonation unit, a model followed here after Chafe (1994). It is argued that instructing the students about different aspects of this chunking procedure (and the effected chunks) is conducive to learning and L2 students' language growth. Thus, the article briefly presents the theory of conceptual and phonetic chunking (Badio 2004; Chafe 1994; Stelma & Cameron 2007) in section two, followed by a discussion of selected research on SLA, which supports the teaching of breaking down concepts and sounds for better learning. Section four offers suggestions on how this can be applied to academic lectures in the context of English for Academic Purposes (EAP), though no specific exercises are provided.

2. Conceptual and phonetic chunking

A lecture is a discourse coherence that can be termed an episode, which consists of topics, which in turn consist of intonation units (Chafe 1994; 1996; 1998; 2003). The term chunking (Badio 2004; Chafe 1994; Croft 1995; Stelma and

[1] University of Reading, UK website with free access to this lecture: https://www.reading.ac.uk/global-study-lounge/university-of-reading-lectures/diet-and-the-immune-system-lecture

Cameron 2007;) designates the process of segmenting or dividing speech. Alternatively, this process can be conceptualized as the selection of both conceptual and phonetic content, or, in Langacker's terms (1987, 1991, 1999, 2008), the 'conceptual' and 'phonetic' poles of an utterance. Johnson-Laird (1977, 1983) characterizes chunking as a strategy for overcoming communication obstacles; once these obstacles are resolved, the chunk (whether a segment, phrase, idiom, collocation, or clause) becomes a structured unit stored in long-term memory, enabling its fluent retrieval when needed. In this way, speakers acquire pre-formed solutions for the verbal representation of specific mental construals or conceptualizations.

Goldman-Eisler (1958) demonstrated that speech production takes place incrementally with asynchronous phases of planning-pausing followed by execution-phonation. For example, while a lecturer is saying, Today I'm going to talk about learning styles and strategies, s/he is already busy creating a plan of the next unit that is delivered after a brief pause, […] with particular reference to people like you. Consider the following example.

(1)

	planning of [a]
a) .. [2]Today I'm going to talk about learning styles and strategies	execution and **planning** of [b]
b) … with particular reference to people like you	execution and **planning** of [c]

Planning appears to be a continuous process whose effects are spurts of language of variable length measured in the number of words per unit. Even if somewhat repeatedly, the unit of speech that was proposed by Chafe (1994) and also discussed by Croft (2007), the intonation unit, occupies one line of transcription. It correlates with a single focus of consciousness (attention), and in Badio (2004) it is referred to as a conceptual chunk, a term that refers to the semantic, conceptual pole, associated with meaning, whereas the term intonation unit is technically reserved for the linguistic rendition of the conceptual chunk.

By way of example, the following several lines and intonation units (IU-s) come from a TV interview with Phil Collins transcribed in the following way:

[2] Three dots " **…**" are used to represent a long pause. In this paper pausing time is not measured. Longer pauses allow the speaker to spend more time planning; they are sometimes used strategically, functionally to signal a new topic or episode. They can also be used to add emphasis, which in turn effects a greater salience and vividness of a unit of language they precede.

(2) a) ... ^We were doing an ^^album.
b) ^Genesis.
c) .. ^we were doing an ^^album,
d).. eh .. we ^can't ^^dance,
e) .. and eh .. we were ^writing every ^^day,
f).. the ^way we were ^^writing,
g) ^three people we get in a ^^room,
h) .. and we just
i) .. we had a ^blank sheet of ^^paper,
j) .. and we just start ^^playing,
k) .. and some of us must' ^start ^^singing,
l) .. and some of us must start ^^joining ^in,
m) and so eventually a ^song,
n) ^develops over a period of er . ^^weeks.[3] (Badio, 2004)

The IU-s represent a topic that was called "Album – We can't dance" (Badio, 2004); they form a coherent set of ideas that in writing would need a paragraph to develop (Chafe 1994: 296-301). In speech, one notices repetitions, hesitations as well as pausing between and within the IU-s. This example demonstrates different use of pausing. In [a] a long pause was used as the speaker is commencing a new topic; [d] demonstrates that the speaker is probably still planning what to say as he may have forgotten which album the song he was referring to came from; [h] was not completed, so it can be termed fragmentary as the speaker gave up its verbalisation plan mid-way and he uttered the unit [j] instead; the next few IU-s, i.e., [i-m], begin with a co-ordinate conjunction and, which tends to be a frequent choice in spoken data; coordinate syntactic structures are significantly more frequent than the subordinate ones. Moreover, an important observation to make about this short sample is that the mean length of an IU amounts to 5.2 words/UI, a number close to the length of an IU in speech studied by Chafe (1994).

Moreover, it is the clause that tends to be the most convenient format for intonation units. Goldberg (1995) argued that the basic clause patterns reflect the basic human experience with one, two, or maximally three participants of a situation or an event per clause. The subject of a sentence tends to code the primary figure of a scene; the object designates the secondary figure, or a reference point, whereas compliments (obligatory in a sentence) can typically code features of the main participants or their location. The adverbials, which are most often non-mandatory, can be added to provide information regarding the circumstances of an event. Hence, a single event, scene, or a situation is conveniently coded in the format of a grammatical clause[4].

[3] The symbols in the transcription: a) '^^' - primary or main stress; b) '^' secondary stress; c) '…' long pause; d) '..' short(er) pause; d) ',' intonation that is not falling, but one that signifies a speaker has not finished verbalising an idea and will continue; e) "." falling intonation contour signifying the end of verbalisation of an intonation unit.

[4] However, even a single clause as simple as e.g., *I have no time*, can be delivered in four chunks with short pauses after each word to add emphasis to a refusal to assist somebody in a task.

Three unit types have been identified by Chafe (1994: 53-71): substantive, regulatory and fragmentary. The substantive units are used to code the content of what a speaker is saying, whereas the regulatory ones facilitate and control the flow of ideas; the fragmentary units are the ones that a speaker starts verbalising, but half way through s/he abandons the plan and decides to create a new plan, a process frequently taking some processing time. An intonation unit will not break the structure of a noun, verb, adjective, adverb or prepositional phrase. More examples of intonation units will be presented and discussed in section four, when Part 1 of the lecture Diet and the immune system are analysed and discussed. Meanwhile, let us consider some L2 research supporting the idea of focusing on form, formal instruction and so also instructing students about the chunking phenomenon.

3. Second language acquisition, and chunking speech in an EAP lesson

This section presents selected perspectives on L2 acquisition that, in this author's view, offer a rationale for applying the chunking of speech discussed in the previous section to the EAP classroom setting. They will be discussed in the following order: form focused instruction and instruction as facilitation, mediated learning and Zone of Proximal Development, and emergentism. The discussion below is based on Ellis (2008).

3.1. Form focused instruction and instruction as facilitation

The language classroom context constitutes a kind of intervention in the process of L2 acquisition. Such intervention (Ellis, 2008: 838) can be either indirect or direct. The former type of instruction, the indirect one, focuses on the idea of creating conditions for learning, especially tasks for students to interact, communicate and negotiate meaning. The latter type of instruction, the direct one, lists what the students will learn, language forms, skills and functions.

Such a programme of study should state explicitly the *linguistic target*, i.e. the aspect of the *problematicity* (Ellis, 2008: 838) to deal with. In the case of lecture listening and the groups of foreign students on an EAP course, the natural choice of the learning/study target is the students' typically low scores on tests of comprehension to a lecture and the discrepancy between the expected language proficiency and the students' level of English.

The problematicity lies in the relatively fast speed of delivery of such lectures targeted for native speaker populations of students, so instruction needs to respond to the challenge of understanding relatively fast speech with phonological processes such as assimilation, rhythm, division into feet. Also, many students will wrongly assume that a lecture will provide more information than it actually does. As research suggests, as much as 26 % of what we say consists of regulatory and fragmentary intonation units (Chafe 1994: 53-71; Badio 2005: 11-23) on top of other discourse management regulation in the form of: pauses, repetition,

or anacrusis, gestures, facial expression and gaze. Hence, the teacher can focus on the low level skill of comprehending fast speech and the higher order, discourse skills of recognizing topics and particular intonation units within a lecture.

The above mentioned *direct* vis a vis *indirect* distinction of learning a language is akin to the choice of the theoretical option of focusing on the 'code' (language), not only on meaning. The so-called *zero option* discussed in Ellis (2008) is represented by: Dulay and Burt (1973), Krashen (1982), Newmark (1966), Prabhu (1987), Paradis (2004) and Terrel (1977). They all agree that acquisition and learning never interface. The former is a subconscious process taking place naturally in response to comprehensible input students receive, whereas the latter, learning, has been defined as a conscious process of studying language, its grammar or lexis and other formal features. Moreover, acquisition on this view provides students with both accuracy and fluency, whereas the pool of learnt knowledge only serves the purpose of monitoring output.

Challenging the above view DeKeyser (1998 in Ellis 2008: 844) articulates the thesis that even if formal instruction is not essential in foreign language learning/acquisition, it facilitates it, and helps accelerate the intake of patterns of a foreign language. The following ways that this facilitation happens are discussed as: *interface position, variability hypothesis, teachability hypothesis* and *the weak interface hypothesis*. The interface view supports the claims that acquisition is facilitated by the presentation of language, and that practice leads to automatization and fluency in language use. According to the variability hypothesis, students' interlanguage competence includes different styles, and the one that is affected most by formal instruction is the careful style, not the vernacular. The teachability hypothesis argues that a student can only benefit from formal instruction if her/his interlanguage system is developed well enough to overcome a certain learning task in a natural environment. Last, the weak interface hypothesis predicts that formal instruction is facilitative because it offers 'hooks, points of access' (Ellis, 2008: 846); 'it does not enable learners to fully acquire what is taught when it is taught, but prepares the way for its subsequent acquisition'. Learners are guided to attend selectively to patterns of language use and its form-meaning constructions. They are invited to *notice*, i.e. pay attention and *notice the gap* in their interlanguage systems as well as how to possibly cover these gaps. To conclude, according to Lightbown & Spada (1990), 'attention to both form and meaning works best for L2 learners.'

In sum, there is ample evidence from research to suggest that formal instruction supports and facilitates language acquisition. However, the programme of study should specify the linguistic target and the problem area that needs to be addressed.

3.2. Mediated learning

The concept of mediated learning comes from Sociocultural Theory discussed in Ellis (2008, p. 517-555). Stemming from the work of Vygotsky (1987), Leont'ev (1978) and Wertsch (1985), it explains language acquisition as a process that is inter and intra lingual, arising from interaction. Mediation through interaction is explained as a process of *scaffolding*, in which one speaker facilitates meaning construal for the other speaker. The concept also refers to teacher-student(s) interactions, where a teacher assists the students in attaining skill or understanding that a student would find considerably harder or impossible on her own. Such an interpretation of *assisted performance* (Lantolf & Thorne 2006) is closely related to Vygotsky's (1987) well known concept of the *Zone of Proximal Development (ZPD)*.

The three levels of development are discussed in Ellis (2008: 532): actual, potential and beyond the learner. ZPD is typically associated with the second level of potential development, where language acquisition through assistance can facilitate learners' growth of knowledge and skills. One other similar interpretation of ZPD is an expert-novice one (Swain 2000: 97-114).

Language acquisition can also be mediated by *private speech*, that is, speech which is a substitute for real verbal interaction. This activity is also viewed as potentially useful in helping EAP students learn to comprehend lectures. Private speech can take the form of imitation and mental rehearsal; its version in psychological studies of attention are referred to as *shadowing*. Tutors can capitalise on it when they help the students understand lectures better. Suggestion of practical applications will be discussed in section four.

3.3. Emergentist models of L2 acquisition and meaning construction

The views of language system consisting of two sub-components of grammar and lexis, where actual utterances that language users produce are generated have been substituted by *emergentist* models of language: *connectionism* (Rumelhart and McClelland 1986) and *The Competition Model* (MadcWhiney 2001).

Ellis (2008: 466-471) provides interpretation of the implications for L2 acquisition stemming from emergentism. First, language is exemplar-based, i.e., its acquisition takes place bottom-up, from instances in the input to emerging schemas that people are typically unaware of. The rules arise from the constant and automatic tallying of instances of constructions (cf. Paradis 2004) as they appear in the input and are processed by the brain. Language acquisition is a use[5] based process, a view also espoused by Langacker's *Cognitive Grammar* (1987, 1991, 1999, 2001, 2008). Human brain is considerably superior in its ability to

[5] *Use* and *usage* are terminology that sometimes have differing interpretations. Whereas the former tends to refer to the appearance of a unit in communication, interaction, the latter is reserved to mean application, or how a structure or unit should be used.

store large quantities of low-level constructions[6] (cf. Goldberg 1995; Lamb 1999) such as actual words, idioms, collocations, partially filled phrases *(have a _____, if I were you I would ___, today's lecture will ____)*, even complete clauses rather than generating them via the closed system of phrase structure rules and feeding the rules with individual morphemes (cf. Lewis 1997). The system of linguistic knowledge full of interconnected constructions of variable complexity, schematicity and cognitive entrenchment is self-organising and dynamic, i.e., it is subject to change throughout our lifetimes (cf. McClelland, Rumelhart & Hinton 1986: 42 in Ellis 2008: 467). Learning a language on this view involves building form-function mappings, which is compatible with functional approaches of language (cf. Halliday 1985).

As already mentioned in passing, comprehensible input provides a multitude of constructions with varying frequency. One can distinguish *type/token* frequency; the former can be exemplified by the numerous occurrences of the English regular past tense ending -ed, and the latter by the very high frequency of the English irregular past tense forms. As regards the academic lecture, which is a specialist discourse genre, one can study frequencies of the occurrence of particular types of overall structure as well as lower level constructions typical of the introduction, conclusion, change of topic, paraphrasing, directing the students' attention. Because lectures are multimodal communicative events, several channels of communication synchronically support the construal of a message, with clues from these variable channels signalling the lecturer's intent. Learning of constructions (in fact anything) is subject to the *law of practice*, which states that:

> […] the logarithm of the reaction time and/or the error rate for a particular task decrease linearly with the logarithm of the number of practice trials taken. Put less technically, practice improves performance but with gradually diminishing effect. The effects of practice are linked to **'chunking, which N. Ellis (1996, p. 107) defined as 'the development of permanent sets of associative sections in long-term storage … that underline the attainment of automaticity and fluency in language. Practice enables learners to develop higher order chunks out of lower-order ones** [emphasis mine].

Moreover, learning is implicit; students typically fail to realise that some modification in the weights of connection in their brains' networks has occurred (Hulstijn 2002), though on the other hand, after Ellis (2008: 469-470), 'learners need to attend to sequences in the input and that this **noticing is a conscious process**' [emphasis mine]. What follows is that language learning is to some extent also an explicit process of 'initial registration of […] constructions that are then integrated into the system by implicit learning during subsequent input processing' (N. Ellis 2005: 335).

In summary and conclusion of the present section, the aspects of L2 acquisition discussed above: form focused instruction and instruction as facilitation, mediated

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[6] In Cognitive Linguistics a construction (Goldberg, 1995) is understood as any form-meaning pairing, where the meaning cannot be deduced from form.

learning with the concept of the Zone of Proximal Development together with emergentist approaches to language and its acquisition have been discussed. Creating and noticing chunks of knowledge and language appears an important factor in learning, including learning to comprehend lectures. Some suggested applications of the above theory are discussed in the remaining part of this article.

4. Applying chunking to lectures in EAP context

The lecture with the title *Diet and the Immune System* from the pool offered by the University of Reading UK for students to practise listening comprehension will be used to discuss the concept, process and some glottodidactic applications of chunking. Some possible misunderstandings, however, need to be dispelled.

The materials available to teach lecture comprehension are lecture audio files and transcripts. The audio of a lecture available in the form of mp3 or some other digital format can be turned into text with the use of the Word Office 365 online audio transcription functionality. Such a transcript can be accessed to preview the lecture content more quickly before the class. This author suggests that once teachers have access to such a text, they can transform it along the lines suggested above (Chafe 1994; Badio 2005).

In general, the task of using text in learning to comprehend a foreign language is supported by some research. For example, Vanderplank (2013, 2016) says that the use of listening with a transcript (LWT) can aid learners in understanding the spoken language better, as it provides additional support for comprehension through the written text. It can help students link sounds to their written forms and improve overall listening comprehension skills. Similar conclusions were reached by Granena and Meiselman (2015); in their study of Spanish-Catalan bilinguals learning English the authors found that using LWT improved their listening comprehension. The presence of the written text alongside the spoken language facilitated the understanding of unfamiliar words and phrases, contributing to more effective language learning. Loewen and Isbell (2017) examined the impact of LWT and LWR (listening while reading) and found that listening while reading enhanced learners' vocabulary retention and overall comprehension of the target language.

4.1 The Lecture on Diet and the Immune system

The transcript of this part of the lecture contains approximately 1029 words. The whole Part 1 can be considered an *episode*, the largest coherence of spoken discourse, a communicative encounter with a purpose, for example: a radio interview with a singer, family meeting to discuss different options to go on summer holidays, somebody reminiscing her/his past experience, comment-elaboration encounters between friends without any obvious goal and direction, putting up a piece of furniture from IKEA (cf. McCarthy and Carter 1997), or an academic lecture.

The episode has been divided into 181 intonation units, and five topics. The five topics contain variable number of intonation units:

Table 1. Topic numbers and titles with number of IU-s

Topic number and title	N. of IU-s
1 Lecture goal and overview of the sub-themes	28
2 Definition of the immune system and its aspects	34
3 Stomach and its acid as part of the immune system	13
4 Friendly bacteria as part of the immune system	24
5 What happens when we have an infection	72

A topic is a discourse coherence whose written analogue is a single paragraph. Both contain a number of concepts, ideas and information manageable for human short term memory (Chafe 1994: 120-137), neither too little nor too much. With the 5 m. 44 s. recording of this part of the lecture and 5 topics in each, the mean length of a topic in IU-s is 34 IUs, so a topic lasts approximately one minute (see appendix). Though this may sound surprisingly short, a typical paragraph of a piece of writing would usually tend to take even less time to read.

The 181 IU-s come in two main types, substantive and regulatory. The former serve the purpose of coding the content of the lecture, whereas the latter regulate the flow of speech. The regulative units are further divided into: textual *(first, next, now)*, interactional *(you know)*, cognitive *(I see, do you understand)* and validational *(ok, sure, right)* (Chafe 1994: 53-71). This analysis ignores the more detailed divisions of the regulatory IU-s, also because an utterance seldom performs one type of regulation. The following example illustrates the first five IU-s in this lecture together with the names of their types.

(3)

a) Good ^^**morning**, ^everybody.	regulatory
b) Can everybody ^**hear** me?	regulatory
c) **So**,	regulatory
d) . **today,**	regulatory
e) .. we're going to ^**learn** about ^^**diet,**	regulatory

The lecturer begins the talk; all the IUs are of the regulatory type. Boldface was used coupled with '^' to mark the secondary and '^^' to mark the primary stress. The full stop in [3a] means the idea is finished, and so does the one in [3b], whereas the commas used after the remaining units in this example stand for the suspended intonation contour. They signal that the whole message and sentence has been divided into 3 consecutive foci of attention and 3 IUs, each IU with its separate focus: *so, today*, *learn*, and *diet.* The particular transcription convention presented here can naturally be altered to match a teacher's goal and technical preferences. The meaning of the stressed words reflects what has been said here: *morning*, *hear*, *so*, *today*, *learn* and *diet.*

There are 136 substantive IUs, whose *Mean* length=*4.88* words per IU, Mode=3.0, and SD[7] =2.56. This is close to the result obtained for spoken English by Chafe (1994); the length of the substantive units ranges between 1 to 11 words. The regulative IUs always tend to be shorter. There are 30 of them in this short sample, which means that approximately 16% of all the units are regulatory, or in other words, every 6th IU the speaker needs to regulate the flow of speech. These regulatory units are, for example: *Good ^^morning, ^everybody., so, now, so today, I'm going to explain to you, I'm going to give you some examples, .. and at the ^end, ^first of all, .. now, which ^i==s*[8]. Especially at the beginning of the lecture the regulatory IUs perform a function similar to the part of essay introduction called essay map that students are taught to include in their written work on pre-sessional EAP courses.

Microsoft Access programme was used to record and analyse the data, filter types and use descriptors for each unit. The descriptors or parameters were: id, the IUs itself, type of IU, key words, number of words, and topic.

4.2 Using the transcription divided into intonation units in an EAP class

Comprehension practice can be organised as pre-listening, during listening and post listening. Before the lecture listening lesson students could be asked to read a related article on the immune system, or the key vocabulary from the lecture could be extracted for them to study at home. This has the goal of activating their background knowledge of the topic.

4.2.1 Lexis

It is the in-class activities, though, that will receive the most attention in this section especially as the concept of chunking will be new to students coming to the first class of listening to lectures. At the start of the class, students can be asked to brainstorm content relevant to the theme of human immune system.

They could also be pre-taught vocabulary that the tutor extracts from the transcript of the lecture. The key, content lexis relevant to the topic, can be manually copied and pasted to a separate text document. Such lexis should include not only single words, but also set phrases to learn, e.g. *immune system, released into the blood, produced in the bone marrow, where they mature, in addition to that, because they* (immune system cells) *have to be everywhere; on occasion whole clauses are also worth focusing on and learning, such as: because they have to be everywhere, you also have lymph nodes, you have the spleen, which is in your abdomen, you have the tissue called the lymph, or so they're shown here.*

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7 SD (standard deviation) is the mean variance/deviation from the mean.

8 The double equals sign is used to designate a lengthening of the key syllable; in other contexts it could be used as a speaker's hesitation.

The following three computer programmes that this author can recommend to assist the tutor in the preparation of lexical, pre-listening practice are: the Microsoft Access data base, Hot Potatoes suit of programmes and the WordSmith Tools.

The MS Access was used here to prepare the tagged, annotated (or marked) transcription of the lecture, in a simple way, one table with columns describing different features one wishes to be able to filter later on. Importantly, one can always manually add descriptors as needed for later analysis, and for a different purpose. An example of a few lines of the transcription is provided below:

(4)

MS-Access, main table with some language data

id	IU	type	key stressed word(s)
42	… our ^skin,	sub	skin
43	^first of all,	reg	first
44	forms the ^barrier to the ^entry of those ^^pathogens.	sub	barrier entry pathogens
45	…the ^second ^^barrier,	sub	second barrier
46	.. is our ^gastrointestinal,	sub	gastrointestinal
47	.. and ^respiratory tracts.	sub	respiratory

Hot potatoes[9] is an app that can be used to prepare question-based quizzes of multiple choice and short answer, gap fill exercises, jumbled sentence exercises, crossword puzzles as well as matching and ordering tasks. Any of the above types of tasks can be saved in the format of html ready for use by students. After uploading to a cloud location on an MS 365 account, a tutor can send a link to students to practise using their internet browsers.

Finally, the WS-Tools[10] is a suit of programmes for corpus analysis. It can create a word frequency list, a list of key words from a batch of texts on the same topic; the Concord of WS-Tools can be used in search of collocations and frequently recurring expressions with any number of words. The texts fed into the app do not have to be tagged; they can be in the plain text format. The easiest to use is probably the WordList app in WS-Tools, but the Concord is also quite manageable, even for a complete beginner. In sum, the three example apps can be helpful in manually coding variable chunks of language (Access), identifying them, listing and arranging a frequency list in a transcript of one lecture or a batch of lecture transcripts (WS-Tools) as well as easily creating interactive, online exercises in the html format for students to practice (Hot Potatoes).

9 Hot potatoes can be accessed from : https://hotpot.uvic.ca/

10 Word Smith Tools can be accessed from: https://lexically.net/wordsmith/

4.2.2 Topics and intonation units

The chunking procedures presented above and the transcription of Part 1 of the lecture (see appendix) were used to demonstrate the idea of speech segmentation, its reasons and effected units, the intonation units. The tutor can adapt the transcription as it suits her/his context. Certainly, the goal should not be a linguistic lecture coupled with grammatical jargon. Instead, one expects that by focusing the students' attention to how a continuous flow of speech is divided into topics and intonation units, they will be better prepared to deal with lectures in English.

A coherence of the size of several intonation units, with a correlate of a single paragraph in writing (see above) seem a natural the starting point for students to deal with. In groups they could be asked to find topics in the lecture by either listening to the audio file (laptops or smartphones needed), read and listen or only read the transcription.

In groups students could identify topics, which is meaningful (cf. Ausubel 1963) as it involves reading, understanding, having a clear goal, communicating with their peers, negotiating meaning, listening to others, or arguing for and against. The follow-up activity is suggested as a between group comparison and comparison of the topics found by the students to the ones suggested by the tutor. Moreover, the students can discuss how they reached their decisions, which clues they found most helpful.

The concept of a single intonation unit represented by a single line in transcription can be communicated to the students by the tutor saying that one can focus on only one single idea at a time, and then attention is disengaged and engaged on something else. It is easy enough to demonstrate that this phenomenon is not strictly linguistic, but that vision and other human modalities also operate in a similar way. The tutor can ask the students how they inspect a classroom, say, if they were in it for the first time with the expected answer that we tend to look at one thing at a time. The focus of attention is engaged, disengaged, shifted and engaged on another object. Speech is performed in a similar fashion; people, as if, move from one idea to another, and this changing focus produces a feeling of continuous flow (Chafe 1994).

Here too, the students can be provided with a flow of plain text, forming a topic. The tutor could ask the students to divide it into intonation units. The students can compare the divisions performed by the tutor and the different groups. Importantly, it is not the precision or correctness that is key in this activity, but the process and awareness raising. In a different task, the students could be provided with a topic realised by a number of both substantive and regulatory units and asked whether the units within a topic have the same function.

Another option to use could be to ask students if all the words within a single intonation unit are equally strong, loud and emphasized, or whether perhaps they differ with respect to how much stress they receive. In the transcription (see appendix) the symbols '^' and '^^' were used for the main and secondary stress, accordingly. Such a task naturally requires the students to listen to a few lines of a topic in the audio intensively; importantly, this task would give them motivation to listen carefully.

Such a procedure, in turn, can produce what has been earlier in this paper referred to as practice effect and overlearning.

Last, students can also be asked to listen to a recording and repeat without stopping the recording. Such an activity naturally taps to the concept of mediated learning and using private speech. Badio (2011) demonstrates how some intermediate Polish students of English perceived the intonation units of the audio file they were asked to shadow (listen to and repeat without the recording being stopped).

(5) … She said she'd ^**never** been so scared in ^^**all** her life. (original)
… She said she'd ^**never** been so scared in … ^^**whole** her life. (student's version)

(6) .. she said she'd seen a ^^**ghost** last ^**night** (original)
.. she said she seed the a ^^**ghost** last ^**night** (student's version)

(7) But ^**Aliki** told her she was ^^**dreaming** (original)
But ^**Aliki** sh .. said she was ^^**dreamed** (student's version)

In [5] a student inserts a different but semantically related word; [6] is a case of phonological confusion, where the phrase /ʃid ˈsiːn ə/ / becomes /ʃiː siːd ðə ə/, so the student's interlanguage system seems to struggle with the short form of the Past Perfect tense. The form 'seed' is as if an attempt to use some past form, the /d/ is attached to the verb see, perhaps because it was indeed noticed (heard) though not correctly categorised. In [7] *told* is exchanged for *said* with some hesitation, a sign that the difference in meaning and use between *say* and *tell* has not been fully acquired[11]. However, the student correctly produces *said she was* and erroneous **said her she was*, which might suggest this was only a slip of the tongue. In sum, the shadowing technique forces the student to pay attention to form and meaning.

5. Conclusions

Chunking is a natural cognitive process, which, when applied to language, refers to episodes, topics and intonation units. The term episode applies to such discourse-communicative encounters as: at the doctor's, meeting a friend and telling stories or discussing a plan to go on holiday with a family, arguing for something, and also a more formal verbal endeavour such as an academic lecture. Topics are limited coherences of ideas; the limit tends to be defined by the human short term, working memory. Topics in spoken language correlate with the concept of paragraph in writing. Intonation units are used to code one "idea" at a time, or one act of attention to an entity in the outside world, or a concept, or a memory. The preferred grammatical format of an IU tends to be

[11] According to Krashen (1982), acquisition (as a process differentiated with conscious learning) gives a student both fluency and accuracy. This view is called non-interface position, with consciously learnt knowledge solely applied as a monitor in oral or written production (see discussion earlier in this work).

a grammatical clause, or a phrase, and its average length in the lecture amounts to approximately 5 words per IU. Instead of presenting a plain text of a lecture, a teacher can transcribe it as a sequence of intonation units.

Courses of English for Academic Purposes for students of English as a foreign language naturally cater for the skill of listening to an academic lecture. Lecture comprehension poses challenges for L2 students with IELTs average scores between 5 and 6.5. The problematicity lies in the fact that lectures are long and are delivered relatively fast, even if lecturers tend to be audience conscious. The article discussed rationale from the Second Language Acquisition research in the form of form focused instruction and instruction as facilitation, mediated learning and Zone of Proximal Development, as well as emergentism, all in favour of including some aspects of focus on form in the second language class, including an EAP class. This can take the form of asking students to identify topics, intonation units, types of intonation units, and raises their awareness of discourse, here lecture segments. Pre-listening activities can be organised in the form of reading to a text on a similar (to a lecture) topic; lexical preparation can be accomplished with the help of such computer programmes as: WS-Tools, Hot Potatoes and MS-Access. The students, as this author suggests, can discuss and compare the topics and intonation units they have found in an unedited data, which is a meaningful, communicative activity. They can also listen and read the transcription prepared by the teacher beforehand, thus raising their awareness of how attention is distributed to individual intonation units and how it flows from one idea at a time to another, with pauses between them. Such an approach, it is argued here, is superior to only requiring that students only listen to lectures and take notes, or do discrete point tests. Future research on this topic is needed to investigate how particular tasks related to the chunking described above enhance lecture comprehension. This objective would probably require a longitudinal study. Also, it would be most interesting and useful to develop actual exercises in answer to the theory of chunking and the research in SLA supporting focus on form.

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Hot Potatoes: https://hotpot.uvic.ca/

WS-Tools: https://lexically.net/wordsmith/

Appendix

Part 1 of the lecture on Diet and the immune system chunked into topics and intonation units:

Topic 1 Lecture goal and overview of the sub-themes:

1) Good ^^**morning**, ^everybody.
2) Can everybody ^**hear** me?
3) **So,**
4) . **today**,
5) .. we're going to ^**learn** about ^^**diet,**
6) .. and the ^^**immune** ^**system**.
8) … Now,
9) our ^^**immune** ^**system,**
10) .. is ^^**absolutely** ^**essential,**
11) .. for our ^**survival,**
12) …but it's ^**influenced** by a ^**number** of different ^^**things,**
13) … **including,**
14).. our ^**diet,**
15) ..and the **way** that we ^**live.**
16) … So **today,**
17) … I'm going to ^^**explain** to ^**you**,
18) ^**why nutrition**,
19) .. ^**affects** your ^^**immune** ^**system**,
20) … and also ^**why** this becomes ^**increasingly** ^^**important**,
21) .. as we ^**become** ^^**older**.
22) I'm going to give you some .. ^**examples** of how,
23) .. ^**specific** nutrients,
24) .. in our ^**diet**,
25) .. ^**affect** the ^^**immune** system,
26) .. and at the ^**end**,
27) I hope to ^**give** you some ^^**highlights**,
28) of some of the ^**research** that we're ^**doing** in this ^^**area**.

Topic 2 Definition of the immune system and its aspects

29) ... [LP] So the ^^**immune**^ **system**,
30) .. is a ^**barrier**,
31) .. to the ^**entry**,
32) of ^**pathogens**.
33) … ^^**Pathogens** are ^**foreign** ^**bodies**,
34) ..that we don't ^**want**,
35) .. ^**inside** us,
36) … so they include ^**bacteria**,
37) … ^**viruses**,
38) .. and ^**parasites**,
39) … ^**things** that will ^**cause** ^^**infections**,
40) and that we want to keep ^**out** of our ^^**bodies**.
41) … So the ^^**barrier** .. is ^**presented** in .. several ^**different** ^**forms**.
42) … Our ^**skin**,
43) first of all,
44) forms the ^**barrier** to the ^**entry** of those ^^**pathogens**.
45) …The ^**second** ^^**barrier**,
46) .. is our ^**gastrointestinal**,
47) .. and ^**respiratory** tracts.
48) .. So ^^**gastrointestinal** ^**tract**,
49) … represents the ^**track** that ^**leads** to your ^^**gut**,
50) … and the ^^**respiratory** ^**tract**,
51) .. is your ^**breathing** apparatus that ^**leads** to your ^^**lungs**.
52) … and they ^also form a ^^**barrier**,
53) .. that ^**keeps** ^^**out**,
54) ^**bacteria** and ^**viruses** most of the ^^**time**.
55) … We ^**also** produce ^^**mucus**,
56) .. which has an ^**important** role in the ^^**immune** ^**system**,
57) because it ^**washes**,
58) .. **bacteria** and **viruses** ^^off the ^**surfaces** inside, inside our ^**bodies**,
59) … and it ^^**stops** them ^**sticking**,
60) .. and being ^**able** to get into our ^^**blood**.
61) … because if they ^^**get** into the ^**blood**,
62) .. they ^**cause** an ^^**infection**.
63) So ^**mucus** is also very ^^**important**.

TOPIC 3 Stomach and its acid as part of the immune system

64) … In our ^**stomachs**,
65) .. ^**we** ^**produce** ^^**acid**.
66) .. Now,
67) the ^^**acid** in our ^**stomachs**,
68) .. helps us to ^**digest** ^^**fo**==**od**,
69) … but it ^^**a**==**lso** has a ^**secondary** function,
70) which ^**i**==s,
71) that it ^**kills** ^^**bacteria**.
72) it kills ^**most** of the ^**bacteria** that come in through our ^^**food**.
73) … Not ^**all**,
74) . but ^**most**.
75) … So it's ^**important** that our as
76) that our ^**stomach**,
77) .. produces ^**acid** to kill ^^**bacteria**.

TOPIC 4 Friendly bacteria as part of the immune system

78) … And ^**finally**,
79) .. we have some ^^**friendly** ^**bacteria**,
80) .. in our ^**guts**.
81) and I'll explain ^exactly what I mean by ^^**friendly** ^**bacteria**,
82) .. and what they ^**do**,
83) . a bit ^**later** in the ^^**lecture**.

TOPIC 5 What happens when we have an infection

84) ... ^**Now**, of course,
85) sometimes we ^^**do** get ^**infections**,
86) … so ^obviously our ^**immune** system doesn't work a **hundred** per-^^**cent**.
87) … But if those ^**pathogens**,
88) or ^**bacteria**,
89) ^**viruses**,
90) ^**parasites**,
91) .. ^**do** get into our ^^**bodies**,
92) .. then our ^^**immune** ^**system**,
93) ^^**has** to be able to ^**fight** them.
94) .. it has to be able to ^**deal** with them.
95) .. and ^**remove** them.
96) .. and ^**destroy** them.
97) … And the ^**way** that our **immune** system ^^**does** this,
98) .. is that it ^**produces** ^^**proteins**,
99) .. that it ^**releases** into the ^^**blood**,
100) .. and those proteins ^**recognise** the foreign ^^**bodies**.
101) .. they ^**coat** them,
102) .. so they ^**stick** to them,
103) … and that ^**enables** them to be ^^**recognized**,
104) ..by ^^**cells** of the ^**immune** system,
105) and ^**destroyed**.
106) .. So,
107) if those .. ^**foreign** bodies ^^**do** get in to our ^**body**,
108) .. then they can be ^^**destroyed** by our ^**immune** ^**system**.

Topic 6 Diagram illustrating the defense of the immune system

109) … This is just a ^**simple** ^^**diagram**,
110) .. to ^**show** you,
111) .. ^**where** the immune system ^^is,
112) .. in your ^**body**.
113) .. It's ^**spread** all ^^**over**.
114) .. so there are ^**specific** cells and tissues of the ^^**immune** system,
115) that you ^**find** .. ^**all** over your ^^body.
116) .. ^**in** your ^^**throat**,
117) .. you have ^**tonsils**,
118) and you also have ^**adenoids**,
119) in the ^**back** of your ^^**nasal** passage,
119) so they're shown ^**here**.
120) … You have .. a ^**tissue** called the ^^**thymus**,
121) . which is in your ^**chest**.
123) … you have the ^**spleen**,
124) .. which is in your ^**abdomen**,
125) … you have .. ^**several** collections of .. ^**immune** tissue in your ^^**gu**= **t**.
126) .. ^**quite** a lot of **immune** ^tissue in your ^^guts .
127) . so you have the ^**appendix**,
128) … ^**here**,
129) … and ^**also**,
130) . there are ^**lo**=**ts** of collections of immune tissue called ^^**Peyer's patches**,
131) ^^**all** the way through your ^**gut**.
132) … You ^**also** have ^^**lymph** ^**nodes**,
133) which you ^**find** .. in your ^^**throat**,
134) .. or ^**neck**,
135) .. in your ^^**armpit**,
136) .. And ^**also** in the ^^**groin**.
137) .. So they're very ^**rich**,
138) in ^**cells** of the ^^**immune** system,
139) .. and your ^**bone** marrow is also . a very ^^**important** site,
140) .. for ^**cells** of the immune system,
141) in ^**fact**,
142) ^**a**=**ll** of the cells,
143) . of your ^^**immune** ^**system**,
144) .. ^**orRI**=**ginally** come from the ^^**bone** ^**marrow**.
145) ^^**That**'s where they're ^**made**.
146) ^**Once** they're ^^made in the bone marrow.
147) They're ^**released** into your ^^**blood**,
148) . so your blood is ^**full** of cells of the ^^**immune** ^**system**.
149) they're called ^^**white** ^**blood** ^**cells**,
150) … and they can ^**go** . ^^**from** the ^**blood**,
151) .. ^**into** one of these other ^^**tissues**,
152) .. where they ^**mature**.
153) … so when they're ^^**first** produced from the ^**bone** marrow,
154) . they're very ^**immature**,
155) ..they're ^**released** into the ^^**blood**,
156) .. and they will ^**go**,
157) . into the ^**thymus**,
158) . or the ^**spleen**,
159) or the ^^**lymph** ^**nodes**,
160) ..where they ^**become** more ^^**mature**.
161) … In ^**addition** to those ^^**tissues**,
162) . you ^**also** find,
163) ^**a**=**ll** of the time,
164) that ^**cells** of the immune system are ^**circulating** in your ^^**blood**,
165) . and ^**also** in your ^^**lymph**,
166) .. which is a type of ^^**milky** ^**liquid**.
167) In ^^**addition** to ^**that**,
168) . ^**cells** of the immune system are ^^**sca**=**ttered**,
169) through ^every tissue in your ^^**body**,
170) … and they ^^**have** to ^**be**,
171) . because they have to be ^**everywhere**,
172) . ^**looking**,
173) . for foreign ^**bodies**,
174) … ^**looking** for any ^^**bacteria**,
175) or ^**viruses**,
176) .. that have ^**infected** you,
177) so that they can ^**deal** with those.
178) .. so ^^**all** of the tissues of your ^**body**,
179) . have cells of the ^^**immune** ^**system**,
180) .. but they're ^**concentrated** in these ^^**tissues**.