

Intonation and Anticipation in Simultaneous Interpreting

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1. *Anticipation in simultaneous interpreting*

1.1. Introduction

Anticipation, in a very general sense, refers to the prediction of an event, much like the weather forecast we watch on television every day. Anticipation in simultaneous interpreting (SI) is not much different, except that instead of predicting what the weather will be like, the interpreter finds herself predicting how the discourse of a given speaker will evolve. In keeping with this simile (which I owe to my colleague Mike Evans), the simultaneous interpreter proceeds analogously to the weather forecaster by drawing up a probability prognosis of how events may unfold based on her knowledge of certain repeating patterns and recurring facts. Not unlike the weather forecast, the more information we have, the better we will be able to anticipate events. And just like with the weather forecast, if the probability of guessing the unfolding of events is too low, we may want to employ other strategies, like taking along an umbrella – just in case. It should, in fact, be pointed out that although anticipation is a common strategy amongst interpreters to cope with syntactic asymmetry between languages, it is not the only one (Ilg 1978, Setton 1999).

Nevertheless anticipation is a concept whose importance for SI is acknowledged by most interpreter researchers (Moser 1976, Kirchhoff 1976, Ilg 1978, Wilss 1978, Lederer 1981, Kurz 1983, Seleskovitch 1984, Van Dam 1989, Chernov 1992, Gile 1992, Kohn & Kalina 1996, Riccardi & Snelling 1997, Massaro & Shlesinger 1997, Zanetti 1999, Setton 1999). The bone of contention seems to be whether anticipation plays a more prominent role when interpreting between structurally different languages (e.g. German and French) than when interpreting between structurally similar ones (e.g. Italian and French) – a discord that divides two main schools of the interpreting research community.

One school, referred to as « the universalists » by Setton (1999) or « liberal arts community » by Moser-Mercer (1994), is based on the so-called interpretive theory (IT) or *theorie du sens* and is chiefly represented by Lederer (1981) and Seleskovitch (1968, 1984). Advocates of this school postulate that given sufficient linguistic aptitude in both languages involved, SI is equally difficult for any language pair, as the predictive nature of understanding will cancel structural asymmetries (Setton 1999). They furthermore claim that anticipation is applied to all sentence constituents and thus is no peculiarity pertaining to the verb.

The other school which Setton (*ibid*) calls « the bilateralists » and Moser-Mercer (1994) refers to as « natural science community » operates within the so-called information processing (IP) paradigm. Its scholars, notably Moser (1976, 1978), Gerver (1976) and Gile (1992, 1995), mainly draw on cognitive psychology and neuroscience. Consequently, they argue that the sequential nature of language perception and thus comprehension has direct repercussions on SI, as the transformation processes involved depend on linguistic structure. In other words, the fact that the interpreter is lacking a certain sentence constituent when interpreting between structurally different languages (e.g. the verb in German) will force her to employ strategies such as anticipation as she « can hardly ever wait to process an entire sentence before starting with [her] interpretation » (Moser-Mercer, 2000:107).

As anticipation is a key concept for this paper, I shall try to provide a brief overview on prior work dedicated to this notion – a task facilitated by the fact that the amount of in-depth research in this particular field is rather modest.

1.2. Literature review

The earliest corpus-based account of anticipation was presented by Wilss in 1978; it largely recapitulated data gathered by Mattern (1974) for her (unpublished) graduation thesis. In his paper, Wilss posits that the « transfer on the basis of parallel syntactic structures can – at least on the syntactic level of the interlingual transfer – be regarded as easier to accomplish » (1978:343) and that « [s]yntactic divergences between SL and TL have clearly different implications for translation and for SI procedures » (*ibid.*:345). In doing so he clearly sides with the proponents of the IP theory. Wilss then goes on to more closely analyze anticipation by differentiating three kinds of cues that trigger it: « co-textual intralingual » cues, « extralinguistic situational » cues and « standardized communication » cues. Thanks to the corpus collected by Mattern, Wilss'

account on anticipation certainly represents a pioneering effort towards an empirical exploration of the phenomenon.

The other major corpus-based account of anticipation was produced by Lederer in 1981 in which she argues that anticipation is ubiquitous in SI regardless of the language pairs involved, postulating that anticipation is a non-language specific phenomenon. Lederer also offers a distinction between different kinds of anticipation, namely cognitive and linguistic anticipation and another form of anticipation which she calls « freewheeling interpretation » (or « en roue libre ») (ibid:253). In the latter, the interpreter has decided on the meaning of the speaker's utterance and listens to the original merely to verify the accuracy of her own « production » in order to make the necessary corrections. According to Lederer, therefore, even instances in which the interpreter utters a constituent a few seconds after the speaker, should sometimes be considered as instances of anticipation. The author of this paper agrees that there may in fact be instances, in which the interpreter commits to a certain sentence structure at an early stage of her interpretation and uses the original merely to verify the suitability of her interpretation. When the interpreter produces a correct verb in what looks like « freewheeling » interpretation in a transcription (thus very shortly after the speaker actually uttered the verb), however, this does not automatically imply anticipation. In fact, the interpreter may employ a grammatical structure allowing her to use a variety of verbs, once she hears the verb in the original. In some instances of free wheeling interpretation we may, therefore, suspect anticipation where in fact there is none – only a very clever interpretation strategy at work.

In 1984 Seleskovitch, who had also provided the introduction to Lederer's book, presents a brief account on anticipation. In this article featuring a German corpus albeit without synchronous transcription of source and target language, Seleskovitch draws a clear distinction between syntactic and semantic anticipation and claims that anticipation from German should pose no serious problem to the interpreter with sufficient command of the passive language (Seleskovitch, 1984:280).

A more recent effort to investigate verb anticipation is the (unpublished) master thesis of Jörg (1995), who explored the phenomenon in an experimental setup, looking for differences in verb anticipation but also overall interpretation accuracy between student and professional interpreters as well as between interpreters working into their mother tongue and into a foreign language. Jörg points out the problem of « syntactic divergence » and claims that verb anticipation « represents a

very real problem for all interpreters working simultaneously from German into English and thus deserves to be tackled » (1995:7). His analysis revealed that interpreters anticipated the German verb in 50% of what he calls « anticipation-likely sentences ». Furthermore, professional interpreters were found to anticipate more accurately than interpreting students and interpreters working from their mother tongue into a foreign language were found to have better developed anticipation skills.

These accounts are probably not the only ones in the interpreting research literature addressing the issue of anticipation, but they are the only ones thoroughly exploring the phenomenon and based on a corpus analysis. For the sake of completeness, attention should be drawn to other authors who have dedicated part of their work to the phenomenon of anticipation, such as Moser (1976) in whose process model of simultaneous interpreting anticipation plays a major role. More recently, Gile (1992) investigated predictable sentence endings in an attempt to « rephrase the language-specificity issue in the conceptual framework of ‘Effort Models’ of interpreting » (ibid:13). In 1992 Chernov presented a model suggesting that prediction is based on four tiers, among which all levels can be distributed: sound tier, syntactical tier, semantic tier and the sense tier. Finally, Setton (1999), in his « cognitive-pragmatic analysis of simultaneous interpretation », differentiates between « anticipation from a propositional attitude », « anticipation from pragmatic principles » and « long-range deductive anticipation ».

This brief overview of the existing literature on anticipation seems to corroborate the author’s assumption that semantic and syntactic anticipation cannot, with very few exceptions, be clearly separated (see also Gile 1995). Although in certain instances one cue may be more pertinent than another, usually both coexist and both trigger anticipation. The cases in which the interpreter relies on one single cue are probably few and far between. Examples that come to mind are unambiguous collocations, idioms and set phrases. In such cases, if the interpreter knows the expression, she can rely exclusively on her linguistic skills as the ending of the sentence can be predicted with 100% certainty making it unnecessary to look for more cues. If, on the other hand, the interpreter is unfamiliar with the expression, she will have to wait until it has been uttered in its entirety.

1.3. A new view on anticipation

As the brief literature review above shows, several authors have already addressed the notion of anticipation in simultaneous interpreting. Some of

the existing accounts are based on corpus analyses and put forth substantiated claims, whereas others rely chiefly on introspection and professional experience. That is why, despite the ambitious heading of this paragraph, I shall not seek to re-invent the wheel. Instead, I will try to build on what has already been said about anticipation in an attempt to cast light on previously unexplored areas.

Anticipation is, according to a very succinct yet germane definition by Van Besien, « the production of a constituent (a word or a group of words) in the target language before the speaker has uttered the corresponding constituent in the source language » (1999:250). Although this definition falls short of Lederer's (1981) notion of freewheeling interpretation, given the argumentation above I second Van Besien's perhaps more narrow definition of anticipation.

This means then that, thanks to modern speech recording and analysis equipment, the phenomenon of anticipation in simultaneous interpreting should not be difficult to quantify. That is, unfortunately, not entirely true. One remaining problem is the qualification of « corresponding constituents » which, bearing in mind that a literal translation of such constituents is often neither possible nor desirable, remains difficult. In the case of verb anticipation the task is somewhat facilitated by the fact that sentences generally need a verb, as it carries meaning that in most languages can hardly be expressed in any other grammatical form.

1.4. Anticipation from German

Several interpreters claim anticipation from German to be more difficult than anticipation from their other passive languages, particularly when those happen to be syntactically symmetrical to their active language, in which case anticipation is less crucial (Riccardi 1996, Riccardi and Snelling 1997, Zanetti 1999). This claim, however, introduces a qualitative attribute which is very difficult to substantiate experimentally due to the vast variety of confounding variables. I shall thus refrain from claiming whether SI from German is more, less or equally difficult than SI from any other language. Instead, I will concentrate on the purely quantitative attribute. Indeed it seems plausible to assume that SI from German to English relies more heavily on anticipation than SI from other languages or, more generally, that SI between syntactically asymmetrical languages requires more anticipation than SI between structurally symmetrical ones. Lederer and Seleskovitch claim that interpreters anticipate regardless of language combination. This author certainly agrees, but Lederer's own corpus analysis showed that 80% of all anticipations from German

concerned the verb, whereas only 20% concerned other sentence constituents. It thus appears as though when interpreting between structurally symmetrical languages, where verb anticipation is unnecessary (provided they are not verb-final), the incidence of overall anticipation may well be lower – a speculative assertion which would certainly be worth investigating further.

We have seen that the interpreter's ability to anticipate how the discourse of a speaker will unfold depends on a variety of factors, and it is generally agreed upon that the ability to anticipate improves as the source text unfolds (Kirchhoff 1976, Kopczynski 1980, Van Dam 1989). The more the interpreter can discover about the speaker from verbal and non-verbal cues, the better her chance of understanding and thus anticipating the speaker. This is how « gradually, almost imperceptibly, for the duration of the speech, the interpreter slips into the speaker's mind » (Van Dam 1989:173).

But which are the cues the interpreter relies on, in order to make (more or less) reliable predictions about how a discourse will unfold? To date, semantic and syntactic anticipation have attracted most of the researchers' attention (Seleskovitch 1968, 1984, Moser 1976, Wilss 1978, Lederer 1981, Gile 1995, Setton 1999). One aspect which, with few exceptions, was almost entirely neglected and seemed to find its way into the literature and models merely for the sake of completeness, are non-verbal features of language, i.e. prosody.

Moser (1976), for instance, refers to what she calls « extralinguistic factors » by summarizing a selection of prior accounts on such phenomena and underscoring their importance for simultaneous interpreting, albeit not establishing a concrete link between these features and anticipation. Lederer (1981) acknowledges the importance of prosody as a bearer of information for the listener (thus also for the interpreter). More recently, Chernov (1992) includes it in his model for anticipation as first tier « intonation and stress and other prosodic features ». Setton (1999) briefly touches upon the function of prosody, saying that although the phonetic string alone is not generally sufficient for comprehension, prosody plays a role in both word-recognition and sentence parsing. He also includes a « prosodic channel » in his model.

The lack of a more detailed scrutiny of the function of prosody in SI could partially be explained by the fact that computer technology has only recently made it possible to quantify, analyze and manipulate prosodic features of speech in an uncomplicated and economical manner.

This author ventures to speculate that, in addition to semantic and syntactic cues, the simultaneous interpreter working between structurally asymmetrical languages (e.g. from German to English) relies on prosodic features as a third cue for anticipation. Before elaborating on the potential role of prosodic features in anticipation, however, I shall attempt to provide a concise account of the phenomenon.

2. Prosody

2.1. Introduction

Although in the course of the past four decades it has received considerable attention, prosody to date remains one of the least explored aspects of language. Throughout the literature there is little consistency in the terminology used to describe the phenomenon, principally due to the fact that it can be described in physical as well as in formal terms (Crystal 1981, Ladd & Cutler 1983, Hargrove & McGarr 1994, Hirst & Di Cristo 1998). Depending on the level of analysis, a distinction is drawn between parameters that can be observed and physically measured, and phenomena that constitute a rather abstract level of representation.

Although the term prosody is sometimes used interchangeably with that of intonation, it is generally accepted that the former is a complex system of features including the latter (Crystal 1981, Ladd & Cutler 1983, Hargrove & McGarr 1994, Hirst & Di Cristo 1998). Prosody is a complex multifaceted notion rather than a single homogeneous entity (Crystal 1969). It « represents the linguistic use of the vocal aspects of speech without consideration of the segmental aspects (speech sounds or phonemes) » (Hargrove & McGarr 1994:1) and comprises several components (physical definition) and features (formal definition). The four prosodic components identified by Hargrove and McGarr (*ibid*) are intonation, stress, tempo and rhythm, whereas their auditory correlates are pitch, loudness, duration and pause. However, rather than being a simple additive combination of these, prosody is the product of the interaction among the different features and components, and therefore the final product exceeds the sum of its parts (Crystal, 1975).

2.2. Intonation

Intonation, as defined by Hargrove and McGarr (1994:16) is the « communicative use of pitch ». Pitch, on the other hand, is the auditory percept associated with the vibration of the vocal folds (*ibid*). We can therefore say that intonation is an aural attribute, which approximately corresponds to instrumentally measured frequency. This physical attribute

of pitch, F_0 or base frequency, is dependent on the number of times the vocal folds open and close per second. Slowly vibrating vocal folds produce a low pitch sound whereas fast vibrating vocal folds generate a high pitch sound. This is, however, an oversimplification, firstly because the correlation with frequency changes at the extremes of pitch range, secondly there are other factors influencing this rate, which may in turn be conditioned by a wide range of articulatory gestures (Gibbon 1976). In a phonetic sense, fundamental frequency (F_0) is a continuously varying contour. From a phonological point of view, however, F_0 is best described as a sequence of discrete phonological events (Ladd 1992). Fundamental frequency is, in fact, never a momentary appearance and even for static trajectories requires at least 20-25msec.

Most of the studies of the phenomenon have consisted in establishing correlation between instrumentally measured frequencies and perceptual judgments thereof. Relating pitch judgments and frequency is fairly simple, as the function relating pitch height and frequency is roughly the natural logarithm, and thus with the exception of very high and very low frequencies, pitch height varies closely with the logarithm of frequency (Gibbon 1976). Yet intonation research has taught us that sometimes linguists tend to hear things that are acoustically no there. In fact, what may initially sound like a rising pitch direction may turn out to be a decrease in frequency accompanied by an increase in amplitude and in duration.

2.2.1 Properties of intonation

Generally speaking we can say that fundamental frequency changes from speaker to speaker, from occasion to occasion and even from one part of an utterance to another (Ladd 1996). Yet despite differences due to gender, age, personality, environment, etc. (ibid), certain generalizations are acceptable. We know, for instance, that the pitch range of a particular speaker is wider at the beginning of paragraphs than it is towards the end, where it tends to get narrower. At the beginning of a new utterance, the pitch level is then reset again (Vaissière 1983, Bolinger 1986, Ladd 1992, 1996, Hargrove and McGarr 1994,). It was observed that pitch range is widened for emphasis or interest and narrowed when the topic is familiar or the speaker is bored or depressed (Ladd 1992). Finally, it was shown that a certain intonation pattern does not usually span over an entire utterance, but that every utterance is made up of intonation units. These intonational phrases (Nespor & Vogel 1983, Féry 1988), or their endings, provide the listener with the pertinent cue, allowing him to identify a phrase as complete or yet to be continued. It also allows the speaker to differentiate between a statement and a question (von Essen 1973). Questions generating

a yes or no response feature an interrogative pattern, i.e. they show a final rise in their intonation curve. Complete statements, on the other hand, feature a terminal pattern, i.e. they show a final fall in their intonation curve. Unfinished statements, finally, are characterized by sustained intonation, i.e. they neither show a final rise, nor a final fall in their intonation curve (ibid).

Although this classification appears rather unambiguous it has been shown that listeners interpret the same prosodic patterns quite differently depending on verbal and situational context. Thus a final pitch rise may be interpreted as a tag question, a request for more information or as a means to express irony depending on context. As Crystal (1981) points out, there is no one-to-one correspondence between perceptual judgments and instrumental measures of prosody.

2.2.2 Functions of intonation

A – by no means exhaustive – review of the literature on prosody has yielded a plethora of conjectured functions of intonation, i.e. changes in F_0 . It should be reiterated at this point that although F_0 changes are claimed to be the most important cue to identify differences in intonation, other acoustic cues such as an increase in intensity or duration often happen simultaneously (Crystal 1975, Hargrove & McGarr 1994). Hermann (1942 quoted in von Essen 1973:12) suggests that the melody, i.e. the intonation of a sentence, is above its grammatical form and therefore it is the melody of a sentence and not its form that defines sentence meaning. More detailed accounts on the function of intonation suggest that its communicative role is to distinguish given from new information, to signal turns in discourse, to place focus on important information in an utterance, to give cues as to the underlying syntactic organization of an utterance, to distinguish questions from statements, to convey attitudes such as warnings, boredom, surprise, neutrality as well as other emotions (Grosjean 1977, Scherer 1974, 1978, Pheby 1975, Wunderlich 1988, Hargrove & McGarr 1994, Darò 1994, Gibbon 1998,). The extent to which these functions are valid for German intonation, which is the object of this experiment, shall be analyzed in the following chapter.

2.2.3 German intonation

Languages can generally be divided into tone languages and intonation languages, depending on whether intonation plays a lexical or a grammatical role. Although it is true that some languages do not allow a clear-cut classification to either of the above mentioned groups, in German,

intonation plays no lexical role, suggesting it is, in fact, an intonation language employing intonation for grammatical purposes (Pheby 1975). It has been suggested, however, that the fact that German is a highly inflected language with relatively free word order may have repercussions on the use of intonation (Gibbon 1998). As we have seen above, the function of intonation is characterized by a complex interaction of phrase stress and word stress (Gibbon 1998, Caelen-Haumont forthcoming). In German, however, focalization is not only realized by intonation but also by word order, therefore the functional load on prosody in this respect may be lower than in English.

The pragmatic functions of intonation in German have been identified by Wunderlich (1988) to be the organization of discourse and the emphasis of constituents. From a semantic point of view, the functions of intonation are to indicate the modality of an utterance (initial or final boundary tones) and to indicate the focus domain (stressed phrase accent). Most importantly, however, Wunderlich showed that the distribution of pitch accents can reveal the syntactic structure of a German sentence and allow the listener to tell a left branching from a right branching syntactic construction. This is particularly pertinent to the present study which will single out German left branching structure as one of the difficulties of simultaneously interpreting from that language.

2.2.4 « Normal » vs. « abnormal » intonation

For every human language, certain intrinsic melodic patterns have evolved (von Essen 1973). This standard intonation, also referred to as « neutral » or « colorless » intonation, can be used as a baseline against which to contrast all other forms of intonation (Stockwell 1972). An attempt to describe normal intonation of any language is beyond the scope of this paper. Clinical studies demonstrated, however, that the degrading of prosodic information negatively influences performance on comprehension tasks and that minor deviations in the prosody of an utterance may impede intelligibility because speech is rendered unnatural and may distract the listener from the content (Hargrove & McGarr 1994). The human ear can very well identify anomalous intonation and may not tolerate more than a few phrases of a rough or monotonous voice (Caelen-Haumont forthcoming). These claims are supported by the results of an experiment carried out by Moser-Mercer at the ETI, the *Ecole de Traduction et d'Interprétation* in Geneva.

In an experiment designed to assess the importance of visual input for successful simultaneous interpreting (Moser-Mercer, 1998), subjects were

tested on four conditions (live speaker, audio-recording of speech, video-recording of speech, computer-synthesized speech with computer talking-head as visual input) with speeches counter-balanced in a 4x4 Latin square design. While all subjects performed better in the live condition, the audio-recorded version (spliced off the video-version) produced better results than the video-version, and the best subjects did as well in the computer-synthesized condition (spliced off the video-version) as they did in the audio-condition. This suggests that when input conditions are sub-optimal (as is the case in a monotonous vs. a lively speech) interpreters summon additional cognitive efforts to focus on linguistic and contextual clues that are unaffected by monotony in order to compensate for loss of prosodic features that facilitate comprehension. Clearly, such efforts will carry a heavy price in terms of early onset of fatigue and earlier decline in quality.

2.2.5 Monotony

When listeners perceive a speaker as being monotonous, this cannot usually be attributed to one individual prosodic feature. In fact, monotony can be a function of tempo, intonation, stress and rhythm or a combination thereof. It is true, however, that intonation (pitch movement) is the prosodic cue to which listeners are particularly sensitive (Bolinger 1986), and that, consequently, speakers who lack normal variability in frequency are perceived as monotonous (Hargrove and McGarr 1994). Scherer (1974) showed that listeners associate utterances featuring moderate pitch variation with emotions such as anger, boredom, disgust or fear. Extreme pitch variation, on the other hand, are interpreted as pleasantness, activity, happiness and surprise (ibid). It should be pointed out, however, that « the range of pitch modulation in German is generally much less than in other languages in otherwise comparable situations, and therefore might lead to misjudgments of intention or attitude » (Gibbon 1998: 89). To an anglophone listener, a German male speaker may sound boring or unfriendly; a British female speaker may be perceived as aggressive or over-excited by a German listener (ibid). It is therefore important to bear in mind that despite an array of generalizations about intonation across languages, there are language- and/or culture-specific peculiarities that need to be taken into consideration in order to avoid this kind of misinterpretation.

Another factor yet to be taken into consideration is whether a speaker improvises, basing her observations on keywords, or whether she actually reads off a speech prepared in advance. This will have an impact on the length of the intonation units, which tend to get longer in prepared formal speeches (Féry, 1988). Some speakers also have the bad habit of reading

through their manuscripts without any attempt at signaling emphasis, or grammatical or syntactical structures by means of intonation. This does not mean, however, that there are not any good public speakers who can present a written (and very probably well-rehearsed) text as though it were improvised, with the appropriate pauses, stresses and intonation.

Unlike Darò, who suggests that standardized voice quality sounds boring and unpleasant (1994:264), I argue that many of today's speakers do not really use the full spectrum of intonation patterns when speaking in public. Yet when we hear these people engage in less formal conversations we realize that they can be just as lively, as dynamic and as persuasive as any other good speaker.

3. *Intonation and anticipation in SI*

As previously mentioned, only few authors touched upon the notion of prosody, or more specifically intonation, in their writings on simultaneous interpreting. The number of those who attempted to establish a link between intonation and anticipation is even more limited. Kohn and Kalina (1996) for instance say that for strategic anticipation, the interpreter relies on every cue she may get, from pragmatic inferences to lexical collocations, syntactic structures and suprasegmental features. Riccardi (1997) posits that prosodic features allow the interpreter to understand even long parenthetical sentences and clumsy constructions and that anticipation can be triggered by linguistic and non-linguistic elements. Gile (1992) found a considerable difference in PSE (predictable sentence endings) between Japanese or German and French or English and claims this can be explained largely by one single factor – the fact that in Japanese and German determinant elements precede the main verb which is in final position. As soon as a function word or tonal stress indicates the exhaustion of such determinant elements, the listener knows that what follows is the sentence ending and can use this information to anticipate it.

We therefore see that although some authors presume that prosodic features play an important role in the simultaneous interpreting process, so far there have been few attempts at empirically exploring the role of source language prosody in SI.

In order to go beyond intuitive claims and to find evidence substantiating or challenging the conjectured role of prosody for the simultaneous interpreting process, the author of this paper designed an experiment aimed at exploring the effects of monotonous intonation on anticipation in simultaneous interpreting.

3.1. The pilot

In order to collect a first set of data and to investigate the potential problems of an experimental setup aimed at exploring the potential role of intonation for anticipation in simultaneous interpreting (from German into English) a pilot study was devised. The hypothesis to be tested was that monotonous intonation of the source text will have a negative effect on the interpreter's ability to anticipate the verb when working from German into English.

In this pilot, two recent graduates of the ETI were asked to interpret two German speeches of equal difficulty and on the same topic into English. The speeches had been recorded by a native speaker of German who had been given instructions to deliver one speech in as lively an intonation and the other one in as monotonous an intonation as possible. The analysis of the two versions showed that the standard deviation of F_0 of the monotonous speech (10Hz) was considerably lower than the one of the lively speech (43 Hz). The speeches were subsequently presented to the subjects in a modified Latin square design in order to account for practice effect and fatigue.

The results of the experiment were very inconsistent for the two subjects (S1, S2). Whereas S1 was able to anticipate the verb equally often for both conditions (monotonous and lively), S2 performed better during the lively presentation and was unable to anticipate a single verb during the monotonous speech. What is even more striking, in five instances S2 waited through the entire German sentence not starting with the interpretation before the verb was uttered (as opposed to only once during the lively presentation). These results, albeit very tentative, suggest that the lack of intonation may indeed have a detrimental effect on the interpreter's ability to anticipate the verb when interpreting simultaneously from German into English.

Although devising a pilot for a small experiment such as this may seem excessive at first, a number of potential pitfalls became evident during the pilot (i.e. control of the independent variable, confounding variables, inappropriate materials)¹ which certainly justify the effort. Although this does not make us immune against other mistakes, it will hopefully keep us from making the same mistakes twice.

¹ For more details about the pilot and the experiment see Seeber 2001

3.2. The experiment

The existing accounts on anticipation in simultaneous interpreting principally address syntactic and semantic anticipation. At the same time, prosody is recognized as an important non-linguistic feature facilitating language comprehension. This author therefore designed an experiment intended to explore to which extent intonation, one of the most prominent prosodic features, is involved in the anticipation process in SI.

3.2.1 Hypothesis

The following hypothesis was put to the test: Monotonous intonation of the source text has a detrimental effect on the interpreter's ability to anticipate the verb when interpreting simultaneously from German into English. In other words, when the intonation of the source text is monotonous, the interpreter will anticipate the verb less accurately and less quickly.

3.2.2 Design

In a within-subject design, professional interpreters were asked to simultaneously interpret two speeches from German into English, one lively, the other one monotonous.

3.2.3 Materials

The materials used in the experiment included two German speeches based on an original speech delivered by German Chancellor Gerhard Schröder one week before the European Council in Nice in October 2000. Both speeches had been edited to be equal in length (approximately 1570 words or 16 minutes at a speaking rate of approximately 100 words per minute) and to contain an equal number of items (10 verb-final sentences each) equally distributed throughout the text (one every minute). In both speeches the first three minutes served as warm-up period and therefore did not contain any items .

Both speeches were then presented by a female German native speaker who had been instructed to be as persuasive as possible. Given the speaker's experience as a lecturer, she could be considered a seasoned public speaker. These presentations were recorded on a computer using a digital recording software called *Cool Edit Pro*², and subsequently analyzed by means of the speech synthesis program *Praat*³. This program not only

² Cool Edit Pro 1.2 by Syntrillium. www.syntrillium.com

³ Praat 3.9 by Paul Boersma. www.fon.uva.nl/paul/

analyzes and graphically displays the main prosodic features of a sound sample (i.e. pitch, intensity, spectrogram) but it also allows individual manipulation of these features. The intonation contours (base frequency) of both speeches were then artificially flattened to 150hz, which roughly corresponded to the speaker's mean base frequency. Once synthesized, both speeches were copied onto a CD-ROM, together with the (unedited) lively speeches, allowing the alteration of only one prosodic feature and avoiding potential confounding variables due to change in intensity, rhythm or pauses. This yielded a total of four speeches: speech 1 lively, speech 1 monotonous, speech 2 lively, speech 2 monotonous.⁴

3.2.4 Apparatus

The apparatus consisted of a soundproof interpreting booth (permanent installation) conforming to ISO standards (ISO 2603, 4043), equipped with stereo headphones, incremental volume controls for both channels (left and right ear) a directional microphone, a master switch and a cough button. This kind of installation allows two sound streams (original and interpretation) to be recorded on the same tape.

3.2.5 Subjects

The subjects were four experienced professional interpreters, three female and one male, with English as their mother tongue. The mean age across subjects was 56 years; the average professional experience 34 years. All subjects regularly interpret simultaneously from German into English (table 1). They all had German as one of their passive languages – the remaining passive languages are shown in table 2.

age Ø	56
professional experience Ø	34
contracts including German	50-75%
contracts (including German) in simultaneous mode	more than 75%

Table 1: Summary: personal history form

⁴ A sample of both conditions can be heard on the *Cahiers de linguistique française* web page : <http://www.unige.ch/lettres/linge/>, following « Publications ».

Subject	active (A)	passive ©	passive ©	passive ©
1	English	German	French	Spanish
2	English	German	French	Russian
3	English/Swedish	German	Danish	Norwegian
4	English	German	French	Swedish

Table 2: Subjects' language combination

3.2.6 Procedure

11 potential subjects were sent a letter inquiring about their willingness to participate in an experiment aimed at « exploring the effects of the speaker's public speaking skills on the interpreting process ». One week after receipt of the letter, subjects were contacted by phone regarding their availability and eventually individual recording sessions were scheduled (all within a one-week period). The subjects were not given any details about the purpose of the experiment except that it would entail an interpreting task of 30 minutes and a questionnaire. Four subjects accepted to participate in the experiment.

On the day of the experiment, each subject was asked to fill in a brief personal history form as well as sign a consent form.

The experiment consisted of three main parts: 1) discourse-embedded anticipation, 2) item-related anticipation, and 3) the interview. A modified Latin square design (table 3) was chosen in order to account for practice effects.

S1	TXT 1 L	TXT 2 M	ITMS 1 L	ITMS 2 M
S2	TXT 1 M	TXT 2 L	ITMS 1 M	ITMS 2 L
S3	TXT 2 L	TXT 1 M	ITMS 2 L	ITMS 1 M
S4	TXT 2 M	TXT 1 L	ITMS 2 M	ITMS 1 L

(L=lively, M=monotonous, TXT=entire discourse, ITMS=selection of items)

Table 3: Modified Latin square design

3.2.6.1. Discourse-embedded anticipation

The subject was shown to the interpreting booth and familiarized with the interpreting installation. After hearing a brief pre-recorded introduction containing a welcoming message, the topic of the speeches and some information about them, the subject was prompted by an acoustic signal before the first speech was played through the headphones. Both, the speech and the interpreter's rendition were recorded on a dual-track tape in order to allow synchronized transcription. After the first speech, a short

pre-recorded message introduced the seven-minute break giving the interpreter time to leave the booth. At the end of the break the subject was prompted to return to the booth and asked to interpret the second speech. Again, both the speech and the interpreter's rendition were recorded on a dual-track tape. After the end of the second speech the subject was asked to remain in the booth for the second part of the experiment.

3.2.6.2. Item-based anticipation

After having completed the first part of the experiment, the subject was asked to once again interpret a few excerpts of the speeches she just interpreted in order to collect supplementary data. The subject interpreted a second time a randomly chosen sample of items (items number 2,5,8) of each speech, where each item included the two preceding sentences in order to provide a minimum of context. After having interpreted the random selection of items the subject was asked to remain in the booth for the third part of the experiment.

3.2.6.3. The interview

At this point the subject was informed about the purpose of the experiment i.e. to test if monotonous intonation of the source text has a detrimental effect on the interpreter's ability to anticipate the verb when interpreting simultaneously from German into English. Subsequently, the subject was asked three questions:

- (1) How important is the intonation of the source text for the simultaneous interpreting process?
- (2) When interpreting simultaneously from German into English, what cues do you rely on to anticipate the verb?
- (3) How realistic or artificial did the monotonous version of the speech you just interpreted sound?

Each subject was furthermore given ample time (ca. 15 minutes) to provide feedback on the experiment. After approximately an hour and a half the subjects were thanked and released.

3.2.7 *Performance criteria*

3.2.7.1. Qualitative data

The definition of errors in interpreting is highly subjective. In this particular experiment the difficulty was the assessment of accuracy with which the verb was anticipated. A fine-grained scoring scale was deliberately avoided. Instead, the raters (three professional interpreters, one

native speaker of English, one native speaker of German and one bilingual) were instructed to attribute the subjects' verb anticipations to one of the following categories (table 4):

CATEGORY	POINTS
correct anticipation	10
approximate anticipation	7
placeholder	0
wrong anticipation	0

Table 4: Assessment of anticipation accuracy

In order to facilitate the scoring task, the raters were given scoring instructions containing a definition of each category as well as a scoring example:

correct anticipation: whenever the interpreter is able to anticipate the original verb providing *the* or *one of the* accepted standard equivalents thereof.

approximate anticipation: whenever the interpreter produces a verb which, albeit not a standard equivalent of the original verb, can be considered a semantic approximation thereof.

placeholder: whenever the interpreter produced a general « all-purpose » verb allowing him/her to continue the sentence (in some instances qualifying it at a later stage)

wrong anticipation: whenever the interpreter commits to a rather precise verb which does not reflect the meaning of the original verb

The author of this paper decided not to award any points both for placeholders and wrong anticipations (see figure 4). This does not mean that a placeholder is deemed to be a wrong anticipation. The use of placeholders is, in fact, an acceptable interpreting strategy. Nevertheless, it indicates the interpreter's conscious avoidance of the anticipation process and should therefore not be awarded points when assessing anticipation accuracy.

Furthermore, as the transcripts provided to the raters did not include the time indexes of the verbs, a fifth category (*no anticipation*) was introduced for those instances in which the verb of the interpretation (regardless of the degree of accuracy) was uttered after the verb in the original. No points were awarded for this category.

As the accuracy of verb anticipation was assessed by three independent raters the scores were not always identical. However, at least two of the three scores coincided in each instance. Whenever only two scores

concurrent, the outlier was dropped in favor of the coinciding score which was reported.

3.2.7.2. Temporal data

A first glance at the temporally aligned transcriptions of the original and the interpretations seemed to indicate several instances of « freewheeling interpretation » (Lederer 1981). In fact, it appeared as though the interpreter often uttered the verb approximately at the same time as the speaker (figure 2). However, a more thorough analysis of the transcripts revealed that often the interpreter, although producing the auxiliary, waited for the original verb to be uttered before continuing with the rest of her verbal construction. The phonological analysis of the interpreter's output further corroborated this assumption (figure 3). In this instance, for example, the auxiliary « have » features a final F_0 rise as well as an increase in intensity, indicating the interpreter's hesitation as she did not *yet* know which main verb to use. Only after hearing the beginning of the verb in the original, albeit only 0,2 seconds of it, the interpreter committed herself to a main verb.

Against this background the author of this paper decided to measure verb anticipation (t_A) as the time elapsing between the *main verb* of the interpretation and the original. Consequently, the larger the value for t_A , the better the anticipation performance by the interpreter. In figure 1, interpreter 2 anticipated the verb earlier (2.8sec) than interpreter 1 (2sec).

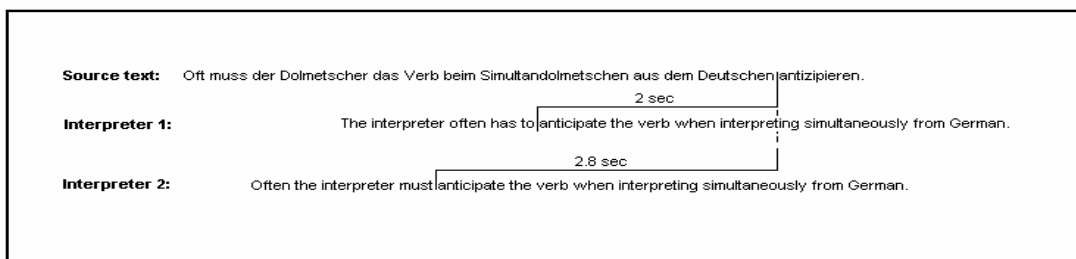


Figure 1: Calculation of t_A

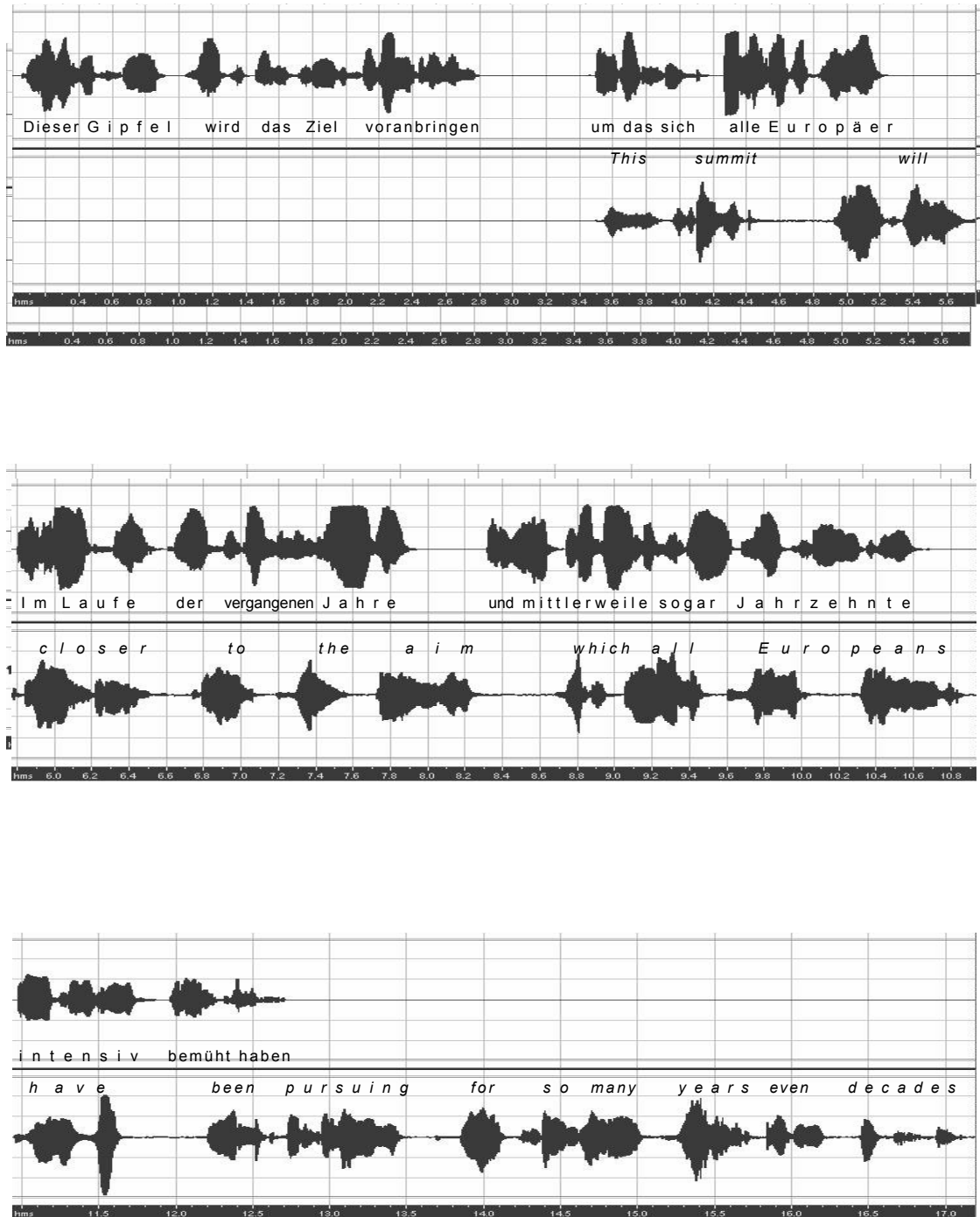


Figure 2: Temporal analysis of anticipation

Figure 3: Phonological analysis of anticipation

3.2.8 Results

3.2.8.1. Grouped data

The data presented in this section is based on average values of the four subjects who participated the experiment.

3.2.8.1.1 Anticipation Accuracy (A_A)

3.2.8.1.1.1 Discourse-embedded anticipation

The first objective was to establish to which extent anticipation took place in the experiment. With 4 subjects, 2 speeches and a total of 10 items per speech there was a total number of 80 possible anticipations. Table 5 and figures 4 and 5 show all instances of anticipation for both conditions tested (lively = C_L , monotonous = C_M).

	C_L	C_M
correct anticipation	10	15
approximate anticipation	7	5
placeholder	5	12
wrong anticipation	6	2
no anticipation	12	6

Table 5: Instances of verb anticipation (C_L and C_M): discourse-embedded

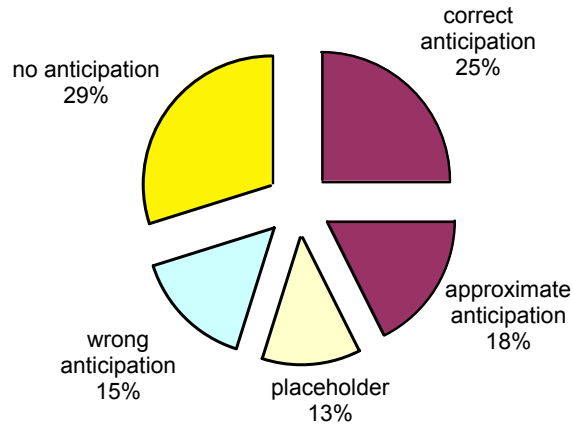


Figure 4: Distribution of verb anticipation (C_L): discourse-embedded

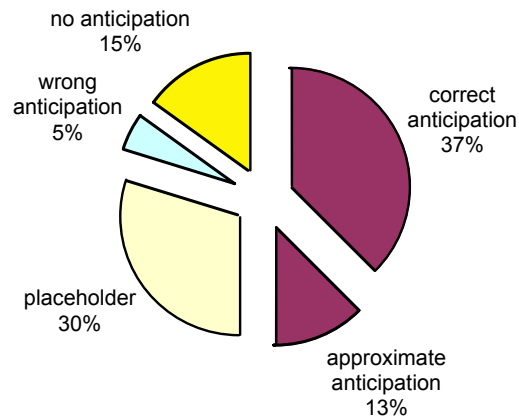


Figure 5: Distribution of verb anticipation (C_M): discourse-embedded

The distribution of verb anticipation shows that the total number of acceptable verb anticipations (i.e. all correct and approximate anticipations) was similar for both conditions: 17 instances (43%) for C_L and 20 instances (50%) for C_M . However, there was a substantial difference between the two conditions in the number of *placeholders*, *wrong anticipations* and in the instances of *no anticipation*. The number of placeholders produced for C_L (5 or 13%) was considerably lower than for C_M (12 or 30%). Conversely,

the number of wrong anticipations and no anticipation was higher for C_L (wrong: 6 or 15%, no anticipation: 12 or 29%) than for C_M (wrong: 2 or 5%, no anticipation: 6 or 15%). Before attempting to draw conclusions from the above figures, we shall look more closely at anticipation accuracy.

The accuracy score for verb anticipation (A_A) includes all accuracy ratings for anticipation attempts, regardless of whether they were successful or not (i.e. *correct anticipations*, *approximate anticipations*, and *wrong anticipations*). The ratings for *no anticipation* and *placeholder* were excluded. Whereas the rationale for not including *no anticipation* is evident, the ratings for *placeholders* were excluded as the production of a placeholder can be considered a conscious attempt at avoiding anticipation.

The analysis of A_A revealed a difference in the average degree of anticipation accuracy for both conditions (figure 6). In fact, subjects' anticipations were more accurate for C_M (8.65 pts) than for C_L (6.32 pts). Although a one-tailed t-test ($df=3$, critical $t= 2.35$, $p \leq 0.05$) indicated a value to the left of the normal distribution curve ($t= -2.03$) this result cannot *per definitionem* be significant given the original (directional) hypothesis.

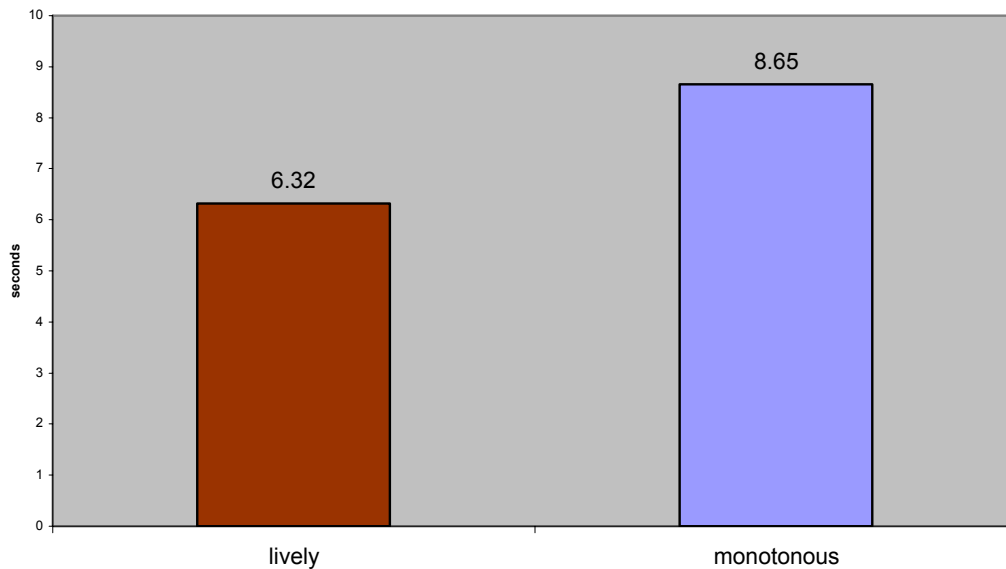


Figure 6: Anticipation accuracy (A_A) for both conditions (C_L, C_M): discourse-embedded

3.2.8.1.1.2 Item-based anticipation

The analysis of the data gathered during the second part of the experiment, i.e. item-related anticipation, yielded results similar to those obtained

during the first part. Due to an incomplete set of data⁵, one subject had to be excluded from the analysis, leaving 3 subjects and a total number of 9 possible anticipations for each condition. First we shall again look at the instances of anticipation for both conditions tested (C_L , C_M).

	C_L	C_M
correct anticipation	4	6
approximate anticipation	3	1
placeholder	0	2
wrong anticipation	1	0
no anticipation	1	0

Table 6: Instances of verb anticipation (C_L and C_M): item-related

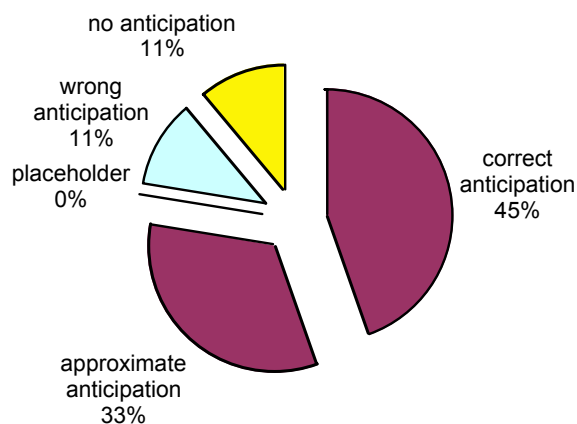


Figure 7: Distribution of verb anticipation (C_L): item-related

⁵ One subject was unable to complete the exercise due to lack of time.

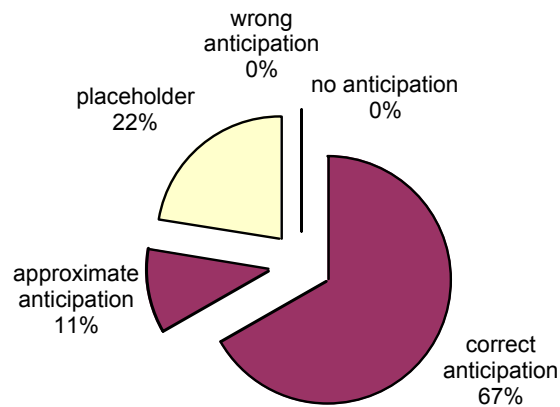


Figure 8: Distribution of verb anticipation (C_M): items-related

Similar to the results obtained in the first part of the experiment (discourse-based anticipation), the number of acceptable anticipations is identical for both conditions (C_L and $C_M = 7$ or 78%; table 6, figure 7,8). Similarly, the number of placeholders is higher for C_M (2 or 22%) than for C_L (none), whereas the number of wrong and no anticipations is higher for C_L (1 or 11% each) than for C_M (none).

The analysis of anticipation accuracy (A_A) again showed a difference between the two conditions. In fact, as during the discourse-embedded anticipation, subjects anticipated the verb more accurately for C_M (9.67 pts) than for C_L (7.16 pts) (figure 9). Once more, a one-tailed t-test ($df=2$, critical $t= 2.91$, $p \leq 0.05$) revealed the result ($t= -1.55$) to be on the far left side of the normal distribution curve and, hence, not statistically significant given the original (directional) hypothesis.

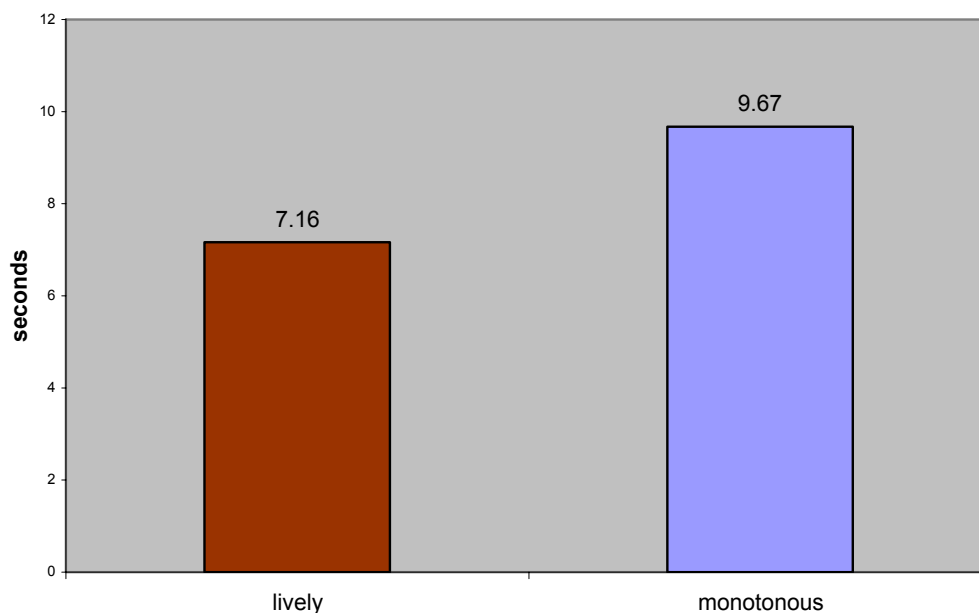


Figure 9: Anticipation accuracy (A_A) for both conditions (C_L, C_M): item-related

We see, thus, that the analysis of anticipation accuracy (A_A) both during the discourse-embedded and item-related anticipation showed no statistically significant difference between the subjects' performance in the two conditions (C_L, C_M).

3.2.8.1.2 Time of anticipation (t_A)

So far we have looked only at anticipation accuracy (A_A), not taking into account the time of anticipation. The analysis of t_A , i.e. the time that elapsed between the verb in the interpretation and the verb in the original, will allow us to determine under which condition (C_L or C_M) the subjects were faster in anticipating the German verb.

In order to calculate the mean anticipation time of all anticipations we shall use the average value of all *correct anticipations*, *approximate anticipations* and *wrong anticipations*, again excluding the values for *no anticipation* and *placeholders*.

3.2.8.1.2.1 Discourse-embedded anticipation

The average time of anticipation during the interpretation of discourse indicated a considerable difference between the two conditions. Whereas during C_L the average t_A was 3.69 seconds, during C_M subjects were able to anticipate the verb by 4,74 seconds (figure 10). A one-tailed t-test ($df= 3$, critical $t= 2.35$, $p \leq 0.05$) revealed this difference not to be statistically significant ($t= -2.48$). It was interesting to see, however, that t was on the

extreme left of the normal distribution curve, indicating a clear tendency against the author's hypothesis.

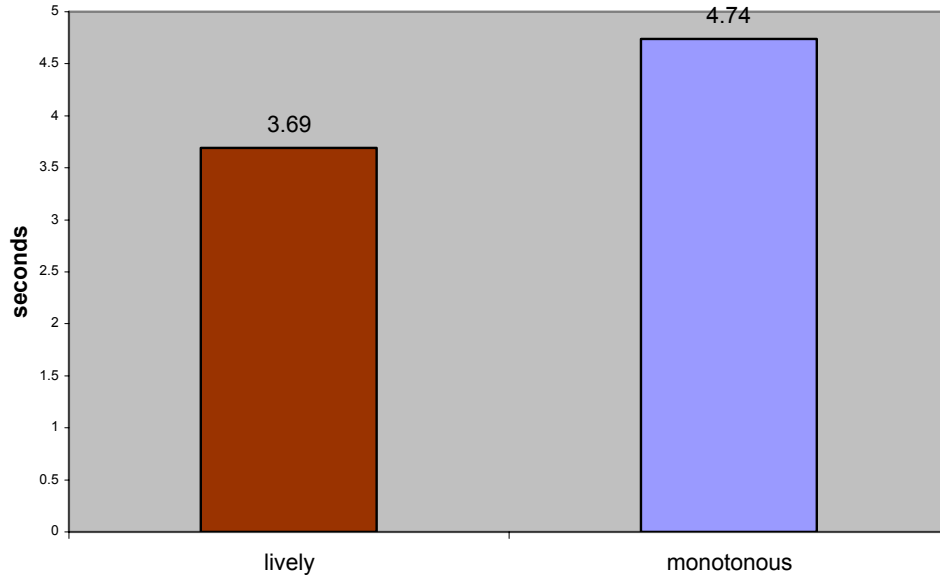


Figure 10: Time of anticipation (t_A) for both conditions (C_L, C_M): discourse-embedded

3.2.8.1.2.2 Item-related anticipation

The analysis of the time of anticipation during the second interpreting exercise, i.e. the interpretation of items, showed results similar to the ones obtained during the interpretation of discourse. As shown in figure 11, the average time of anticipation (t_A) was again longer (i.e. better) for C_M (5.24 seconds) than for C_L (3.08 seconds). Again, the t-test ($df= 2$, critical $t= 2.92$, $p \leq 0.05$) indicated a value on the far left of the normal distribution curve ($t= -2.76$). Thus the results are statistically not significant.

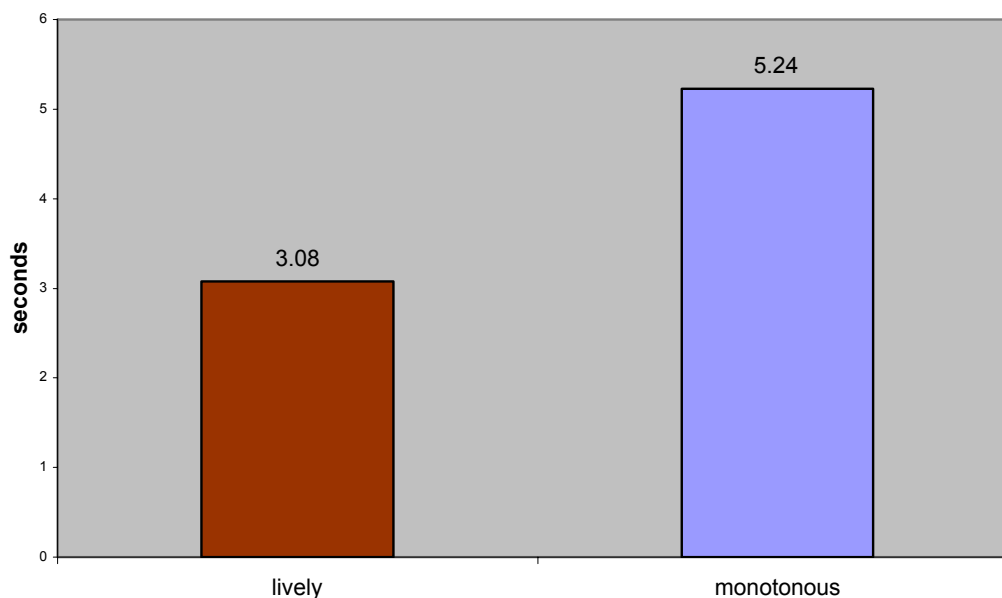


Figure 11: Time of anticipation (t_A) for both conditions (C_L, C_M): discourse-embedded

3.2.8.2. Individual data

In order to identify potential outliers which could have distorted the analysis of the grouped data, this section reports the individual results (of a one-tailed t-test) for each subject. Tables 7-10 and figures 12-15 show that the data for individual subjects is reasonably homogeneous. With the exception of the A_A values of S1 and the t_A values of S2 all results are on the left, sometimes even on the extreme left of the normal distribution curve.

Subject	C_L	C_M	df	$p \leq$	t critical	t stat	significant
1	8.71	8.33	6	0.05	1.94	0.22	NO
2	5	7.28	6	0.05	1.94	- 1.8	NO
3	4.8	10	4	0.05	2.13	- 2.55	NO
4	6.8	9	5	0.05	2.01	- 1.92	NO

Table 7: Statistical analysis of individual A_A (pts): discourse-embedded

Subject	C_L	C_M	df	$p \leq$	t critical	t stat	significant
1	10	10	/	/	/	/	/
2	no data	no data	/	/	/	/	/
3	8	10	2	0.05	2.92	- 2	NO
4	3.5	9	2	0.05	2.92	- 2.44	NO

Table 8: Statistical analysis of individual A_A (pts): item-based

Subject	C_L	C_M	df	$p \leq$	t critical	t stat	significant
1	3.97	5.26	6	0.05	1.94	- 1.74	NO
2	4.86	4.79	6	0.05	1.94	0.07	NO
3	3.2	4.24	4	0.05	2.13	- 1.61	NO
4	2.72	4.70	5	0.05	2.01	- 1.73	NO

Table 9: Statistical analysis of individual t_A (in seconds): discourse-embedded

Subject	C_L	C_M	df	$p \leq$	t critical	t stat	significant
1	4.39	5.60	2	0.05	2.92	- 1.48	NO
2	no data	no data	/	/	/	/	/
3	3.11	4.67	2	0.05	2.92	- 0.81	NO
4	1.73	5.45	2	0.05	2.92	- 5.09	NO

Table 10: Statistical analysis of individual t_A (in seconds): items-based

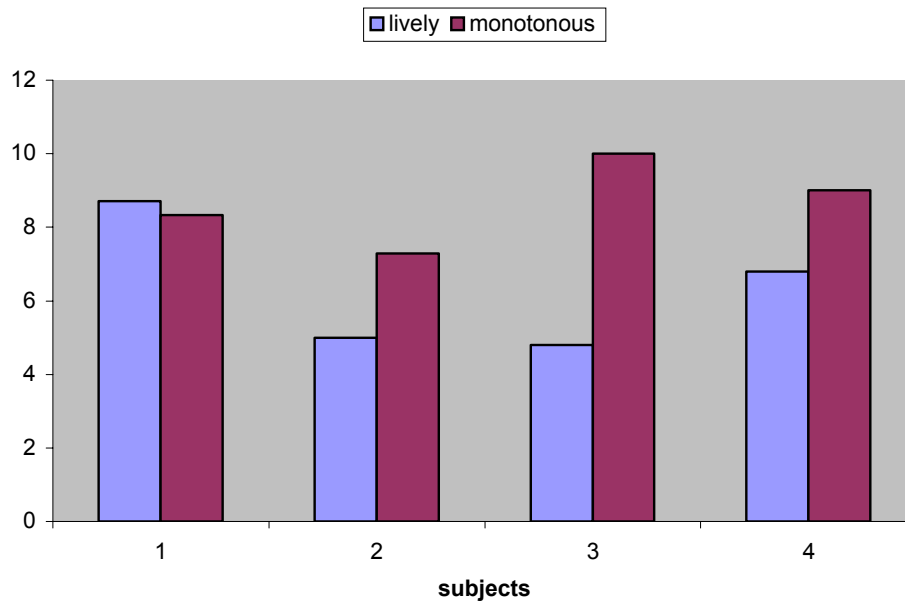


Figure 12: Individual A_A : discourse-embedded

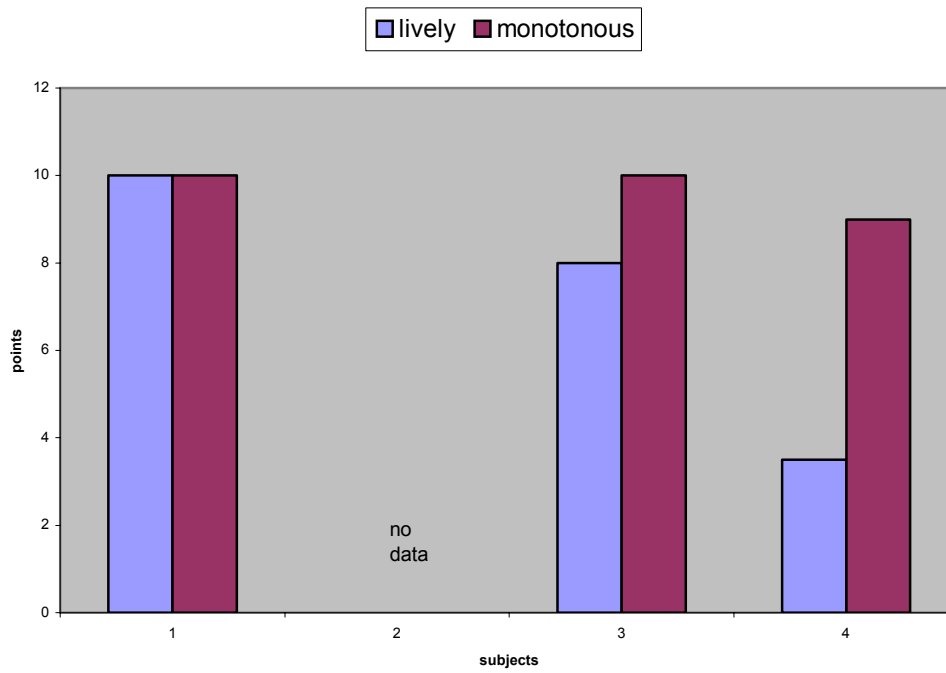


Figure 13: Individual A_A : item-related



Figure 14: Individual t_A : discourse-embedded

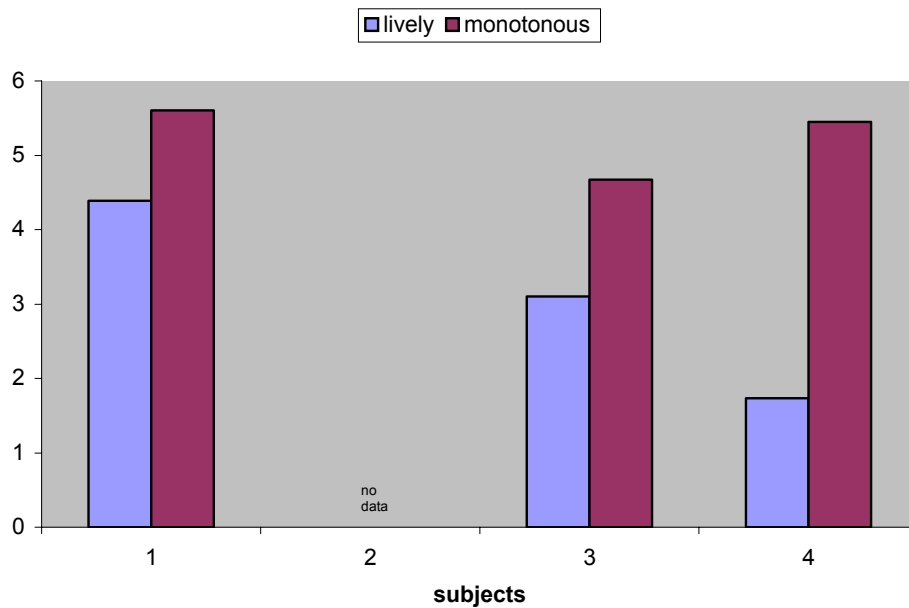


Figure 15: Individual t_A : item-related

3.2.8.3. The interview

The interview at the end of the experiment was an opportunity for subjects to give some feedback in an informal context without the restrictions imposed by a questionnaire. Consequently, no attempt will be made to quantify the data collected during the interview. As an alternative, some of

the answers shall be reported. It is particularly interesting to see how the subjects' impressions were sometimes different from the measured results.

Question 1: « How important is the intonation of the source text for the simultaneous interpreting process? »

Answers: « Instinctively, interpreting without musical signals from the speaker is something totally out of the question...and most speakers don't know how [...] they can breathe life into the text ».

« Intonation certainly helps, ... also helps because I found the monotonous version so uncongenial that you develop a sort of resistance to relating to the meaning, you almost become rebellious ».

Question 2: When interpreting simultaneously from German into English, what cues do you rely on to anticipate the verb?

Answers: « I think you have to have a very good instinctive understanding of German to anticipate because the grammatical and linguistic cues are sometimes very subtle. I sometimes wonder how people who have not grown up with the language manage to do it ».

« I'm convinced one has to have a fairly active knowledge of German to perform properly. Superficial knowledge of German in terms of being able to follow the words is simply not sufficient. Knowledge has to be fairly instinctive. The language has to have been used on a day-to-day basis for an extended period ».

Question 3: How realistic or artificial did the monotonous version of the speech you just interpreted sound?

Answers: « I hope I never come across a speaker like that ».

« There are instances where it's not much of a fake...there are very poor readers ».

« It was boring, monotonous. When they read their speeches they are that way. It was actually much better than the average fellow that reads a speech. There are speakers a thousand times worse than this, even when they speak their mother tongue ».

Although subjects were unable to indicate why, they instinctively thought that intonation of the original was important for simultaneous interpreting (cf. question 1). When asked about the cues that help them anticipate the German verb, subjects were unable to point out exactly what it is that allows them to do so. Instead, they underlined the importance of having an « instinctive knowledge and understanding » of the (German) language. Although this term is rather vague I assume that along with idiomatic expressions and set phrases the familiarity with certain intonation

patterns could be considered part of this instinctive understanding of the language. The answers to the third question, which was meant to assess ecological validity of the edited speech, showed that the majority of the subjects thought the monotonous speech was still reasonably feasible. Nonetheless, all subjects pointed out the « poor intonation » of the speech in C_M .

3.2.9 Discussion

This section is an attempt to summarize the results of the individual parts of the experiment, i.e. accuracy and time measurements during the interpretation of discourse, accuracy and time measurements during the interpretation of items, and the interview.

The analysis of the experimental data revealed very little difference (C_L : 58%, C_M : 55%) in the number of overall anticipations across the two conditions. Furthermore, the number of acceptable anticipations (i.e. correct and approximate anticipations) was approximately the same (C_L : 43%, C_M : 50%) in both conditions. There was, however, a difference in the accuracy with which verbs were anticipated as well as in the time, at which they were uttered. In fact, both measures indicate that subjects performed better in C_M than in C_L . In other words, subjects anticipated the verbs more accurately (C_L : 6.32 pts, C_M : 8.65 pts) and earlier (C_L : 3.69 s, C_M : 4.74 s) during the monotonous than during the lively speech. Similar tendencies emerged from the analysis of the data gathered in the item-based anticipation. Although the results did not pass the threshold of statistical significance, the tendency contradicts the author's hypothesis. Against this backdrop and taking into account the difference in the number of *wrong anticipation* (C_L : 18%, C_M : 5), *no anticipation* (C_L : 12%, C_M : 6%) and *placeholders* (C_L : 13%, C_M : 30%), as well as the information collected during the interview, the following interpretation of results represents an attempt at explaining why the author's hypothesis was not supported.

At first glance the data seem to support the theory that a monotonous source text facilitates verb anticipation, by allowing the interpreter to be quicker and more accurate. The information gathered during the interview, however, shows that interpreters are convinced that intonation helps the SI process, that sometimes grammatical cues are not enough to trigger verb anticipation and that verb anticipation requires an « instinctive understanding » of the language (a concept, which according to the author includes, amongst other things, intonation patterns of that language).

There seems to be a divergence in the subjects' impression and their performance. This discord could be explained by the fact that interpreters

increase their cognitive efforts in order to compensate for adverse working conditions, i.e. the lack of intonation. This reasoning is consistent with the findings of Moser-Mercer (1998), which suggest that when input conditions are sub-optimal (as is the case in a monotonous vs. a lively speech) interpreters summon additional cognitive efforts to focus on linguistic and contextual clues that are unaffected by monotony in order to compensate for loss of prosodic features that facilitate comprehension (ibid). The interpreter would then make a conscious effort to anticipate the verb or, whenever that seems an unwarranted gamble, avoid anticipation by resorting to a safer strategy: *placeholders*. This would explain faster and more accurate anticipation, as well as the much higher number of placeholders used during interpretation of the monotonous speech. This explanation is furthermore substantiated by the fact that subjects were observed to close their eyes during the monotonous speech but not during the lively, which could be interpreted as an attempt to block out any visual distraction and allow for better concentration.

It must be pointed out that although the above explanations fit the facts, there is little evidence substantiating them. In order to obtain such evidence the experiment would have to be repeated and a measure for cognitive effort would need to be introduced. This could perhaps be achieved with pupillometry measurements, a noninvasive technique that records the pupil diameter using infrared-sensitive video cameras (Tommola 1990).

3.2.10 Conclusion

The data collected in the experiment did not support the author's hypothesis according to which monotonous intonation of the source text has a negative effect on the interpreter's ability to anticipate the verb when interpreting simultaneously from German into English. In fact, subjects anticipated the verb more accurately and more rapidly during the interpretation of the monotonous speech than during the lively speech. Based on the data, particularly the number of *placeholders* used in the monotonous condition, it is this author's assumption that interpreters attempt to compensate for lack of intonation by increasing their cognitive effort and by adopting a more conservative interpreting strategy. In order to minimize anticipation errors they use placeholders, thus avoiding verb anticipation altogether.

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