Abschlussarbeit zur Erlangung des Akademischen Grades
Bachelor of Arts

From Tone to Intonation

An Empirical Study of L2 Prosodic Acquisition by Chinese Learners of German

1. Gutachterin:	Dr. Sabine Arndt-Lappe	Isabella Tegethoff
2. Gutachter:	Univ.-Prof. Dr. Clemens Knobloch	6. Semester
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0   Introduction

China's recent economic growth and role in international politics have triggered a rapidly increasing interest in international communications in both China and the Western world. Though this development offers great economic opportunities and cultural benefits, it also brings along a set of potential difficulties in the communication between those cultures. The fact that the fundamental differences between the Asian and Western world have a high potential to cause misunderstandings and hinder communication has been known and investigated intensively by researchers since the early eighties. However, many of these misunderstandings and difficulties in communication are not based on cultural differences alone but can often be related to linguistic differences in the native tongues of the members of the different cultures.

With the government opening its politics towards the international world, the Chinese have become tremendously interested in exploring foreign cultures which in most cases is closely connected to the acquisition of foreign languages. As a consequence, universities all over the country offer a wide range of foreign language courses so that the acquisition of languages such as English or German is an essential part of a student's education. However, acquiring linguistic competence in a second language has proven more complex than the simple process of learning vocabulary and grammatical rules.

As far the acquisition of the German language by native Chinese speakers is concerned, the system of the German language does not only differ from that of the Chinese in form of typographical codification and pronunciation. It more importantly shows fundamentally different strategies of implementing meanings above the sentence level which provide important information about attitudes, personal views and emotions when interacting with other people. German uses intonation strategies to convey this and other kinds of information which are thus an essential part of the language. However, Standard Chinese is not one of the world's intonation languages but a tone language. As a consequence, it is reasonable to question whether Chinese uses the same intonation strategies to convey attitudes, emotions and other information. If it does not, it is interesting to investigate how these differences between the two languages influence the acquisition of German as a second language by native Chinese speakers. Is it possible for speakers of a tone language such as Chinese to master the comprehension and production of the intonation strategies of a toneless language such as German or does the acquisition of this feature raise difficulties? If acquiring the use of intonation is in fact of a problematic nature, how does this affect the communication between native Chinese learners of German and native German speakers?

In order to find answers to these questions, the present study set up an empirical research project which involved native Chinese learners of German as well as native German speakers to investigate the phenomenon of German intonation in an interlinguistic and intercultural context. The paper related to this case study is meant to give an introduction to the project as well as to its theoretical background and results. In this way, the phenomenon of intonation as it appears in the German and Chinese language will be defined and compared in the first chapter in order to point out possible differences that may be the root of difficulty in the acquisition of, and communication in, the German language for native Chinese speakers. The second and third part of the paper will focus on the layout, conduction and results of the research project which was undertaken for the investigation into the particularly problematic nature of intonation in an interlinguistic context. Finally, I will draw a conclusion on the project's results which will give reasonable answers to the questions mentioned earlier.

1   Theoretical Background: Intonation

This chapter deals with the linguistic phenomenon of intonation. The first part aims at applying an extensive definition of the term 'intonation' before its appearance in the two languages, which are relevant for this case study, will be analysed. Those two languages concern an intonation language, namely High German, on the one hand, and a tone language, which is Standard (Mandarin) Chinese, on the other. Furthermore, a comparison of the two languages' intonation systems will point out possible sources of difficulty in the acquisition of German intonation by native Chinese speakers. Finally, I will introduce the four different types of German intonation which will be investigated in the research project of this study.

1.1 Definition and Function

1.1.1 Definition

Many different definitions of the term 'intonation' exist in the literature depending on the particular aims of every single researcher's study. Among those, one common understanding of intonation is to relate the term to a change in pitch, i.e. a change in the fundamental frequency (f_0) of a sound (Inozuka 2003: 26). Other definitions seem to confuse the term 'intonation' with that of 'stress', which is the emphasis on certain words or syllables by means of loudness. However, stress is a prosodic feature which is independent of intonation but it can (and in fact often does) occur in combination with intonation in connected speech (Stock 1980: 37).

The definition that I will refer to in the present study is not the understanding of intonation as a change in pitch but as varying pitch contours. This view has been developed by linguists such as Otto Von Essen, Anthony Fox and Margret Selting. According to Von Essen, the human voice uses a whole scale of different pitch levels during the process of articulating an utterance. Intonation is thus characterized by its strong reliance on different pitch levels within an utterance (Inozuka 2003: 11). In close relation to this, Fox claims that 'any piece of speech will be spoken with a continuously changing pitch, and the pitch patterns can be called its intonation' (Fox 1984: 4, as quoted in Inozuka 2003: 22). Further supporting this idea, Selting defines intonation to be 'the contour or melody of speech in terms of the temporal organization of perceived pitch of utterances' (Selting 1987: 779, as quoted in Inozuka 2003: 22). All of these researchers have in common that they describe the phenomenon of intonation as a prosodic feature which is related to 'pitch variations' or 'pitch patterns'. This concept of varying pitch is not to be understood as a change in the fundamental frequency but rather as the relation of these changes within larger units which is perceived as something that can be described as the 'melody of speech' (Inozuka 2003: 22). Intonation is thus not a prosodic feature of single syllables but rather of larger so-called 'intonation units' which 'consist of syllables structured into rhythmic sequences with superimposed tonal patterns' (Gibbon 1998: 82).

In this paper, I will refer to intonation as related to varying pitch contours in connected speech. Furthermore, I will unify the different terminology (i.e. 'pitch pattern', 'pitch variation', 'melody of speech', 'tonal pattern') under the term 'pitch contour'. The terms 'intonation' and 'pitch contour' will thus be used interchangeably.

1.1.2 Function

> 'Intonations in language have meanings which are superposed on the dictionary meanings of the words uttered. They may convey subtle shades of meaning which could only be expressed by words in a cumbrous manner, if at all.' (Jones 1960: 277, as quoted in Inozuka 2003: 64).

Jones, among other researchers, emphasises on the additional meanings which intonation contributes to the lexical meaning of a word or sentence. But how do these meanings influence the interpretation of an utterance? What is the function of intonation within a word, phrase or sentence?

1.1.2.1 Syntactic Function

Besides their role 'in signalling the organization of utterances into phrases [and] sentences' (Ladd 1980: 162), i.e. into intonation units, one of the basic functions of intonation is the distinction of different types of sentences. Pitch contours are thus able to define declarative and interrogative phrases independently of their syntactic structure. For example:

    (1)   *Er ist krank.*

From a syntactic point of view, sentence (1) is a declarative sentence due to its word order (subject – verb – copula) and the punctuation mark. However, the imposition of different pitch contours may change the sentence into a question as can be seen in sentence (1"):

    (1")   *Er ist krank?*

A more detailed description of the pitch contours defining syntactic types of sentences will be given in chapter 1.2.2. Pitch contours which have a syntactic function can be called 'syntactic intonation'.

1.1.2.2 Expressive Function

> 'Jeder Normalsprecher weiß, daß Bewegungen der Stimme (der "Sprachmelodie", der "Intonation") verschiedene psychische oder physische Zustände wie Furcht, Schmerz, Angst, Überraschung, Ironie, Gereiztheit, Gleichgültigkeit, Ärger, Zärtlichkeit, Drohung usw. ausdrücken können.' (Isacĕnko/ Schädlich 1973: 40)

Besides its syntactic function, intonation can also express the speaker's feelings, moods and attitudes. It thus contributes additional information to an utterance, namely the speaker's emotional state or their attitude towards the utterance itself which provides important information for the listener (Stock 1980 47). Intonation which has a primarily expressive function can be called 'expressive intonation'. These expressive intonations occur spontaneously and may be triggered by many different types of emotions (Stock 1980: 47). Therefore, expressive pitch contours are likely to be highly individual and vary tremendously in their use and contexts in which they are uttered. Furthermore, they are not as frequently used as pitch contours that mainly have syntactic functions (Wunderlich 1988: 2). As a consequence, expressive intonation is considered to be far more difficult to investigate than syntactic types of intonation and little research has been done on this type of intonation so far.

In summary, intonation is a prosodic feature in the phonetics of a language which is related to varying pitch contours. These contours are determined by the individual situation in which they occur and influence the articulation and interpretation of single words, phrases and complete sentences. Pitch contours may have syntactic or expressive functions that either distinguish different types of sentences or contribute emotions, moods and attitudes to the literal meaning of an utterance. Starting from this general definition, the paper will give an inside view into how the phenomenon of intonation is realised in different languages. Is the use of varying pitch contours a universal phenomenon or do different languages apply different strategies to express intonational meaning? Do certain pitch contours appear equally in different languages? If they do not, how does this affect the acquisition of a language by speakers of another? In order to find answers to these questions, I will compare the intonation systems of two completely different languages, namely High German and Standard Chinese.

1.2 The German Intonation System

This part of the chapter will deal with the intonation system of the German language with a strong focus on different pitch contours. Due to fact that a wide variety of research exists on German intonation, the features presented in this chapter concentrate on the relevant aspects for the present study and are thus highly selective.

1.2.1 Standard German

The language investigated in this study is 'Standard German' or 'High German'. This variety of the German language 'is not the language of a specific social stratum in a specific geographical dialect area' (Hist 1998: 78) but it aims at promoting 'a pronunciation […] which is free of dialectal and other variation' (Wiese 1996: 2). For this reason, the Standard German dialect is defined by its codification in the Duden dictionary (Hist 1998: 78).

1.2.2 German Pitch Contours

Standard German is an intonation language which imposes pitch contours on phrases and sentences in order to contribute additional meanings to their lexical meanings. There is a broad variety of different pitch contours in the German language and each of them can be associated with a certain meaning. Among these different pitch contours, three basic patterns have been commonly described in the literature and are known as the 'nuclear tones'. Due to the fact that the human mind does not perceive pitch levels as discrete tones but rather as relatively high, mid-high, low, rising, falling, the German nuclear tones have relatively simple pitch contours, namely 'falling', 'rising' and 'mid-level' (Inozuka 2003: 12). Moreover, the German nuclear tones

have a primarily syntactic meaning and function. The falling nuclear tone is typically associated with statements and exclamations whereas the rising tone refers to yes/no questions seeking for confirmation. The mid-level tone is characterized by its progredient, i.e. continuative, feature which indicates the incompleteness of a phrase or sentence (Gibbon 1998: 88). In the following examples, I will indicate the falling tone by using the symbol (↓), the rising tone by (↑) and the mid-level tone by (→).

(1) *Er ist krank.*

Nuclear tone	Sample sentence	Intonational meaning
falling (↓)	(1') *Er ist krank.*	completed declarative sentence
rising (↑)	(1'') *Er ist krank?*	interrogative sentence
mid-level (→)	(1''') *Er ist krank* (→) *und liegt im Bett.*	incomplete phrase

Table 1: German nuclear tones applied to sentences

When articulated with a falling nuclear tone as in (1'), sentence (1) will be interpreted as a statement. However, when articulated with the rising nuclear tone as in (1''), it will sound like a question seeking for confirmation. When the mid-level tone is imposed on sentence (1) as in (1'''), it is likely to be perceived as an incomplete sentence which is missing its final part, namely 'und liegt im Bett' (cf. Isacĕnko/ Schädlich 1973: 46-53).

As seen from the given example, nuclear tones can be imposed on large phrases or sentences. Moreover, they may also be applied to monosyllabic and dissyllabic words in the German language which are then considered to function as phrasal intonation units as can be seen in the following examples (Isacĕnko/ Schädlich 1973: 46):

(2) *Jan will nach Hause gehen.*

Nuclear tone	Sample phrase	Intonational meaning
falling (↓)	(2') Jan. (↓)	confirming a statement
rising (↑)	(2'') Jan? (↑)	seeking for confirmation

Table 2: German nuclear tones applied to syllabic words

(3) *Ihr seid Essen gegangen.*

Nuclear tone	Sample phrase	Intonational meaning
falling (↓)	(3') *Essen.* (↓)	confirming a statement
rising (↑)	(3'') *Essen?* (↑)	seeking for confirmation

Table 3: German nuclear tones applied to dissyllabic words

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In intonation languages such as German, it is possible that one sentence has more than just one nuclear tone (Wiese 1996: 78). In this case, the final intonation unit of a sentence plays the major role in the interpretation of the syntactic intonation of the whole sentence (Isačenko/ Schädlich 1973: 44).

(1''')　　*Er ist krank* (→) *und liegt im Bett* (↓).

Sentence (1''') consists of two intonation units, namely '*Er ist krank*' and '*und liegt im Bett*'. Therefore, two nuclear tones can be identified: the continuative mid-level tone is imposed on the first unit and the falling tone on the second. When cited in isolation, the first unit appears to be incomplete due to its progredient tone. However, the final unit carries the falling tones that indicates completeness which is why sentence (1''') is perceived as a completed statement.

Besides the three basic nuclear tones, a huge number of more complex pitch contours, especially concerning different types of expressive intonation, exists in the German language. However, modern intonation theory supposes that all of these complex contours can be attributed to the three basic nuclear tones (Gibbon 1998: 83). In this way, nuclear tones may be combined to construct more complex patterns such as the 'fall-rise' pitch contour expressing uncertainty (Scuffil 1982: 60). One of the complex intonation contours investigated in this study is a type of expressive intonation which refers to a question implying a reproach. This complex contour may be attributed to a combination of a primarily low rising version of the rising tone and a secondary low falling version of the falling tone. A detailed description of the pitch contours used in the study will be presented in chapter 1.5.

1.2.3 Intonation Particles

Besides the use of pitch contours, the German language also uses intonation particles to 'convey [certain] kinds of information […], such as "obviousness", "imputed shared presupposition", or "contradiction"' (Gibbon 1998: 81). German offers many of these 'quasi-parenthetic particles' (Gibbon 1998: 81) such as 'doch', 'ja', 'also', 'wohl, 'auch' and the like. Though these particles imply various meanings, it is possible to impose different pitch contours on them. As a consequence, the particles may lose or change their initial meaning as they adapt the meaning of the superimposed pitch contour as will be demonstrated in chapter 1.4.

1.3 The Chinese System: Tone vs. Intonation

The strategies of using different pitch contours in Chinese are the major focus of this part of the chapter. Since many different dialects of the Chinese language exist, a clarification which variety this paper is based on will be given first. Secondly, I will explain the typical features of Chinese being a tone language which makes its prosodic structure fundamentally different from that of the German language. Thirdly, I will present a detailed description of how the Chinese language uses pitch variation at the syllable, word and sentence level.

1.3.1 Standard Chinese (普通话)

The English term 'Chinese' may be used for a wide spectrum of dialects being spoken in the Peoples' Republic of China. For this reason, I will refer to 'Chinese' as the largest among the Chinese dialects which involves 840 million native speakers who are mainly living in the northern parts of the country (Sun 2006: 6). In the Chinese language, this dialect is referred to as 'pǔtōnghuà' which is the basis for the grammar of written Chinese as it is taught to 'all Han-Chinese children, particularly those growing up in dialect-speaking areas' (Sun 2006: 8) in the Peoples' Republic of China. As a consequence, *pǔtōnghuà* 'is generally considered to be the most prestigious variety of the Chinese language all over the country' (Sun 2006: 9) and thus referred to as 'Standard Chinese'. In the English-speaking world, *pǔtōnghuà* has also been known as 'Mandarin Chinese'.

1.3.2 Syllable/Word Level: Tone

Standard Chinese is commonly known as one of the world's tone languages. As opposed to toneless, i.e. intonation, languages such as German, English and most other European languages, tone languages 'use pitch variation at the word/ morpheme level' (Lin 2001: 44). This means that different tones are applied to every syllable of the language which is a fundamental feature of its morphological structure. Within the language of Mandarin Chinese, four basic tones as well as a neutral tone are to be distinguished (Sun 2006: 39).

1.3.2.1 Basic Tones

The basic tones in Standard Chinese differ from each other in terms of pitch levels and pitch contours:

> 'In Mandarin, it is not just a matter of the height of the pitch varying to yield different level
> tones, but rather the pitch may go upward or downward to produce different contour tones'
> (Lin 2001: 44)

In order to describe the phonetic shape of the different tones, several linguistic analyses have been developed among which the *Scale of Five Pitch Levels* by Yuen Ren Chao is the most apprehensive one (Lin 2001: 44).
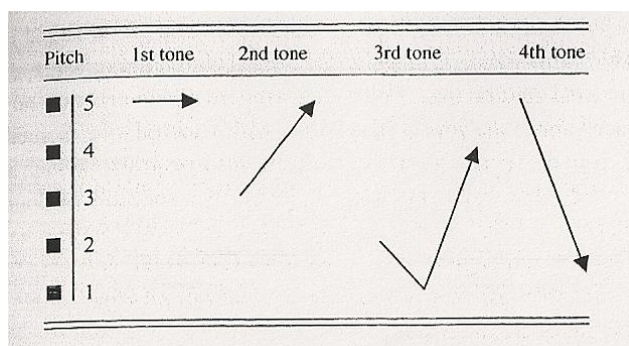
Figure 1: Scale of Five Pitch Levels (Sun 2006: 39)

The first of the four Chinese basic tones is called 'level tone' or 'high-level tone' since it has a pitch value of 55 'indicating that the tone starts and ends at the same pitch level of 5' (Sun 2006: 39). The second tone starts at the pitch level 3 and ends at level 5 which is why it is called 'high-rising tone'. The more complex 'low-rising tone' has a pitch value of 214 and the fourth tone is a 51 'falling tone'.

Concerning the transcription of Chinese tones, the official transcription of Chinese characters into Latin writing called *pīnyīn* uses diacritics which are placed on top of the vowel of a syllable. The first tone is represented by ¯, the second tone by ´, the third by ˇ and the fourth by ` (Sun 2006: 39).

1.3.2.2 Neutral Tone

Apart from the basic tones, Chinese also has a neutral tone which 'typically occurs with some grammatical items such as verbal suffixes […], in which the central vowel is regularly reduced to a short and weak neutral tone' (Sun 2006: 40). Moreover, 'any of the four basic tones can lose their inherent tone and be 'neutralized' into' (Lin 2001: 48) the neutral tone in unstressed positions. Due to fact that the neutral tone has no significant pitch level or contour, no diacritic is used to mark this tone.

1.3.2.3 Tone and Meaning

Besides their characteristic of having different pitch contours, one of the most significant features of the Chinese tones is that they distinguish lexical meaning. Consequently, a single syllable may be pronounced in five different ways, expressing five different meanings and thus referring to five different morphemes. The following table shows different morphemes of the Chinese syllable 'ma' as characterised by different tones:

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Tone	Chinese Character	Pīnyīn	Lexical Meaning
1	妈	mā	mother
2	麻	má	(to) be numb
3	马	mǎ	horse
4	骂	mà	(to) curse
neutral	吗	ma	sentence final question marker

Table 4: Chinese tones applied to syllabic words (Kratochvil 1998: 420)

Moreover, lexical distinction by means of tonal patterns also applies to dissyllabic words:

Tone	Chinese Character	Pīnyīn	Lexical Meaning
2,4	习惯	xíguàn	habit
1,3	吸管	xīguǎn	drinking straw

Table 5: Chinese tones applied to dissyllabic words

For this reason, it is not possible to superimpose nuclear tones, i.e. pitch contours, on syllables or words in the Chinese language. If a one-syllable word has the falling fourth tone, a rising pitch contour cannot be imposed on it (as it is possible in German) because this change in pitch would not result in formulating the word as a question but in changing its lexical meaning, i.e. in changing it into a different morpheme/ word.

In conclusion, Standard Chinese applies five different tones to every syllable. Since the fundamental function of these tones is to distinguish lexical meaning, they are not only a prosodic feature of the language's phonology but they more importantly are a fundamental part of the language's morphology.

1.3.3 Sentence Level: Intonation

1.3.3.1 Nuclear Tones

While different tones are used in the Chinese language to distinguish morphemes at the syllable and word level, this is different at the sentential level:

'Die vier Töne gehören in den Bereich der Wortlehre und sind mitbestimmend für die Bedeutung eines Wortes. Die Satzmelodie hingegen hat bestimmte syntaktische Funktionen bzw. drückt bestimmte Empfindungen aus' (Kuan 1974: 21).

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In Standard Chinese, pitch contours can be used to express grammatical meaning at the sentential level. Two types of nuclear tones are common, namely the falling tone (↓) and the rising tone (↑). The falling tone is used for declarative sentences with a neutral manner whereas the latter refers to rhetoric questions expressing astonishment as can be seen in the following example based on Kuan (1974: 21):

Nuclear Tone	Chinese Characters	Pīnyīn	English
falling (↓)	下雨了。 他去看电影。	Xià yǔ le. Tā qù kàn diànyǐng.	It's raining. He went to the movies.
rising (↑)	下雨了？ 他去看电影？	Xià yǔ le? Tā qù kàn diànyǐng?	It's raining? He went to the movies?

Table 6: Chinese nuclear tones (Kuan 1974: 21)

However, apart from these two nuclear tones, the inventory of pitch contours is very limited in the Chinese language due to the fact that complex pitch contours are difficult to articulate on top of the five tones that are applied to every syllable. Consequently, the Chinese language 'operates with a relatively small number of basic intonation types' (Kratochvil 1998: 430) and uses different strategies to express intonational meaning.

1.3.3.2 Intonation Particles

One of those strategies is the use of intonation particles in phrases or sentences. Standard Chinese offers a broad inventory of intonation particles, which usually occur at the end of a sentence and 'perform a wide variety of functions indicating mood, […] expressing estimation or doubt' (Lin 2001: 118). An example of such intonation particles is the sentence final particle 呢 (ne). When used in questions, this particle contributes a reproachful or accusatory tone as can be seen in the following examples:

Chinese Characters	Pīnyīn	English
你怎么不说话呢？	Nǐ zěnme bù shuōhuà ne?	How come you aren't saying anything?
他到底来不来呢？	Tā dàodi lái bù lái ne?	Is he coming or not?
她为什么要回家呢？	Tā wèishénme yào húijiā ne?	Why is she going home?

Table 7: The use of the Chinese intonation particle 呢 (ne) (Kuan 1974: 141)

While the speaker is complaining that the listener is not saying anything in in the first example, the intonation particle 呢 (ne) indicates that the speaker is angry about a person being late or

hesitating about making a decision in the second question. In the third example, the intonation particles 呢 (ne) implies the speaker's disapproval of a person going home.

1.4 Comparison: German vs. Chinese Intonation System

The most striking difference between the German and Chinese language is the fact that their prosodic structures are fundamentally different from each other: German shows fundamental features of an intonation language while Chinese belongs to one of the world's tone languages. Given these facts, it is reasonable to question whether these languages can have any commonalities in the use of intonation strategies at all.

At the syllable/ word level, it is in fact true that no commonalties can be found. Chinese uses pitch variation (called tone) to mark lexical meaning and distinguish different morphemes. In contrast to this, German uses intonation at the word level to impose expressive or syntactic meanings to the same morpheme or word.

Nevertheless, both languages use different pitch contours to distinguish syntactic structures at the sentence level. German as well as Chinese both have two nuclear tones, i.e. a falling and a rising tone, which distinguish declarative from interrogative sentences that may not be marked by any other means. For example:

Nuclear tone	Chinese	German	English
Falling (↓)	她要回家。 Tā yào huí jiā.	Sie will nach Hause gehen.	She wants to go home.
Rising (↑)	他要回家？ Tā yào huí jiā?	Sie will nach Hause gehen?	She wants to go home?

Table 8: Falling and rising nuclear tone in German and Chinese sentences

As evident from table 8, the sentence 'She wants to go home' may either be interpreted as a statement or question in both languages depending on the type of syntactic intonation applied to it.

However, as far as expressive types of intonation are concerned, the two languages' intonation systems differ greatly. While German mainly applies complex pitch contours to phrases and sentences to express feelings, moods and attitudes, Chinese does so by adding intonation particles and stress patterns. Even though the German language also has a broad inventory of intonation particles which can be used in combination with pitch contours and stress patterns, this is no obligatory feature. The following example demonstrates the different strategies of adding expressive meaning in the German and Chinese language:

(4) *Sie will nach Hause gehen?*

Sentence (4) may be articulated with an accusatory tone in the German language by using a specific pitch contour (for more details on this pitch contour see chapter 1.5.3.3). In the Chinese language, the intonation particle 呢 (ne) needs to be included in combination with a question word, which in this case is 'why' 为什么 (wèi shénme), in order to add an accusatory tone to the question:

Chinese Characters	Pīnyīn	English (literal translation)
她为什么要回家呢？	Tā wèishénme yào huí jiā ne?	She why wants to go home (ne)?

Table 9: The intonation particles 呢 (ne) in questions of reproach

This structure is also possible in German as can be seen in sentence (4') which contains the question word 'warum' and the intonation particle 'denn':

(4') *Warum will sie denn nach Hause gehen?*

However, the addition of intonation particles and question words is a facultative option in the German language which only supports pitch contours that may equally be expressed without them. Moreover, the addition of intonation particles does not guarantee the contribution of intonational meaning referring to a reproach since this structure may also be articulated with a pitch contour which makes it sound like a curious, well-meant question. Consequently, pitch contours are the most striking feature and main carrier of intonational meaning in the German language. In contrast to this, the addition of intonation particles is an obligatory structure in most cases in Chinese since this language does not have pitch contours that express complex emotional phenomena. The use of intonation particles is thus an elementary feature to express intonational meaning in the Chinese language.

To summarise, the German and Chinese intonation systems show similar patterns in the use of syntactic intonation at the sentence level. However, they differ tremendously in the use and function of pitch contours (in the German language) and tones (in the Chinese language) at the syllable and word level. Moreover, they show completely different strategies of implementing expressive intonation at the sentence level. As a consequence, it is reasonable to assume that the acquisition of the intonation system of the one language is likely to be a source of difficulty for second language learners who are native speakers of the other language. Can intonation strategies of an intonation language such as German be mastered by speakers whose native tongue is a tone language? If so, which types of pitch contours are problematic for Chinese learners of German and which types are not? Furthermore, what kinds of difficulties arise from

the differences in the use of intonation strategies across the two languages and how do they affect the communication between German native speakers and native Chinese learners of German?

1.5 Types of Intonation under Study

The aim of this study is to investigate the comprehension and production of German intonation by native Chinese learners of German. For this reason, it will focus on four different types of German intonation including two types of syntactic intonation and two types of expressive intonation. The two types of syntactic intonation have been investigated in former research. However, the two types of expressive intonation have not been the object of study in former research which is why these types of intonation need to be confirmed by native German participants in this study.

1.5.1 Neutral Statement

One of the most commonly known German pitch contours is the falling nuclear tone. This tone is characterized by its high fall from approximately 1600 to 75 Hz (female speaker) on the last syllables of the relevant intonation unit. The pitch contour of the falling tone is visualised in the following spectrogram in form of a blue line. The spectrogram was produced with pitch-analysis software called Praat.
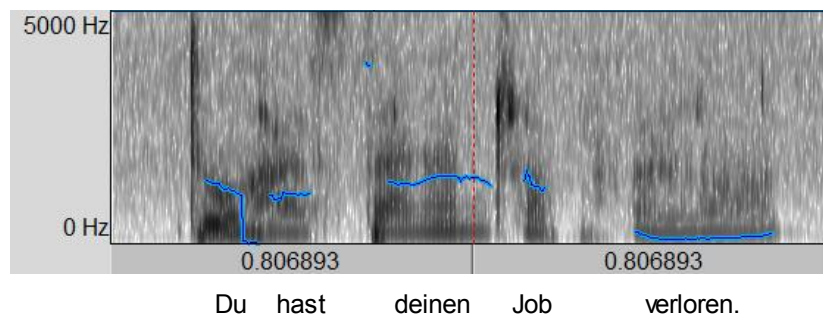
Figure 2: Pitch contour implying a neutral statement

The main function of the falling tone lies in its syntactic distinction of declarative from interrogative sentences (Isačenko/ Schädlich 1973: 53). If a phrase is articulated with the falling nuclear tone, it will thus be interpreted to be a statement. Moreover, if the falling tone does not occur in combination with other (especially expressive) pitch contours, it is usually associated with a neutral and informative manner of speaking. For example:

(5)   *Du hast deinen Job verloren.*

When spoken with a falling nuclear tone, sentence (5) is a non-judgmental, i.e. neutral, and primarily informative sentence which states the loss of the job. For this reason, I will refer to this type of intonation as 'neutral statement' (German 'Neutrale Aussage').

1.5.2 Astonished Question

Another type of syntactic intonation is the rising nuclear tone which characterizes any phrase as a question even if its syntactic structure is that of a declarative sentence (Isačenko/ Schädlich 1973: 46). The contour's high rise from approximately 1200 to 2800 Hz is easy to perceive and is applied to the last syllables of the relevant intonation unit which can be seen in figure 3. The spectrogram shows the pitch contour of the rising nuclear tone imposed on sentence (5):
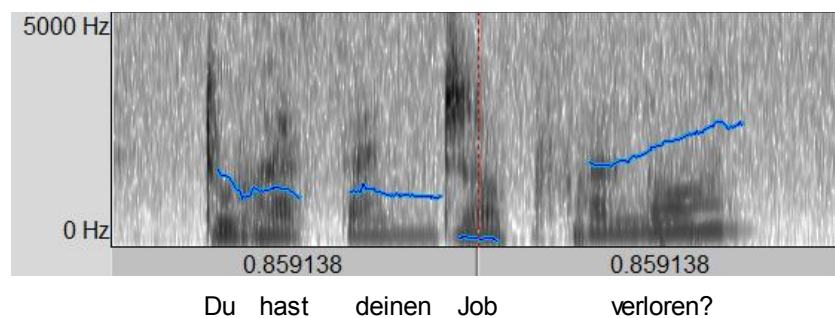
Figure 3: Pitch contour implying an astonished question

Due to the fact that the rising tone is associated with astonishment that seeks for confirmation of its content, I will refer to this type of intonation as 'astonished question' (German 'Erstaunte Frage') in the study. For example:

(5)   *Du hast deinen Job verloren?*

When articulated with a rising nuclear tone, sentence (5) expresses the speaker's astonishment about the loss of the job. The speaker seeks for confirmation about the content of their question which could be paraphrased as '*Did you really lose your job?*'.

1.5.3 Reproachful Question

The first type of expressive intonation investigated in this study is used in interrogative sentences that show characteristics of a rhetorical question. It usually implies the speaker's refusal or disapproval of the subject and may be interpreted as a reproach towards the listener.

For example, as a consequence of applying this pitch contour to sentence (5), it may be interpreted as '*Why did you lose your job?*' or '*You lost it again?*'. For this reason, I will refer to this type of intonation as a 'reproachful question' (German 'Vorwurfsvolle Frage').

Concerning the pitch contour of a reproachful question, the most striking feature is that it remains relatively static throughout the sentence. This means that the whole sentence is articulated at almost the same pitch level. Especially in contrast to an astonished question, there is no high rise towards the end of the question but the pitch level rises almost imperceptibly (i.e. around 300 Hz) and there is even a low fall on the final syllable. The following spectrogram shows the pitch contour of sentence (5) when articulated as a reproachful question.
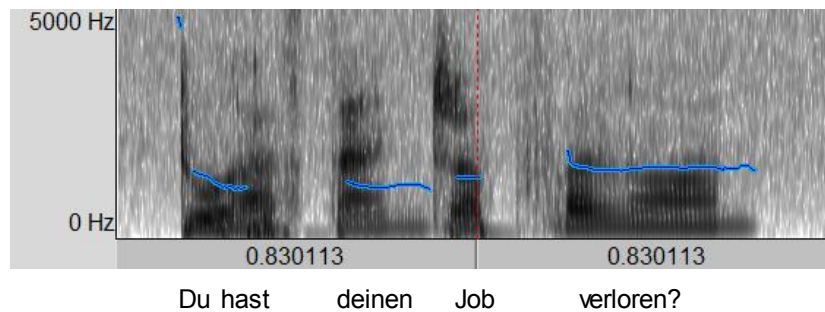
Figure 4: Pitch contour implying a reproachful question

1.5.4 Hint

The fourth type of intonation, which will be investigated in this study, is an expressive intonation used in declarative sentences. The characteristic feature of this pitch contour is that it implies a hint at further information about the subject of the utterance which is not explicitly mentioned in the utterance itself. If a speaker uses this type of intonation, he/she knows more about the subject than the literal meaning of the utterance reveals and uses the contour to indicate that there is an unspoken content besides the factual aspect of the utterance. This usually provokes a reaction from the listener who is likely to ask for more information about the subject being hinted at. For example, if the sentence (5) is articulated with this type of intonation, it could persuade the listener to expect that there is more to the loss of the job than a common dismissal, for example a discharge due to inappropriate behaviour or laziness. As a consequence, the listener may ask for further information about the circumstances of losing the job. Due to this characteristic of implying a hint at further information, I will refer to this type of intonation as 'hint' (German 'Anspielung') in the following sections.

Technically speaking, the pitch contour of a hint concentrates on the word (or phrase) which is the main focus of the hint, i.e. the subject on which more information is available. This word or phrase has a complex pitch contour (usually between 900 and 1600 Hz, female speaker) that is not quite accurate enough for, however does resemble to, the shape of a sine function. The

following spectrogram shows the pitch contour of sentence (5) when spoken with this type of intonation. The second spectrogram shows the complex pitch contours of the words which are the main focus of the hint in the sentences used in this study.
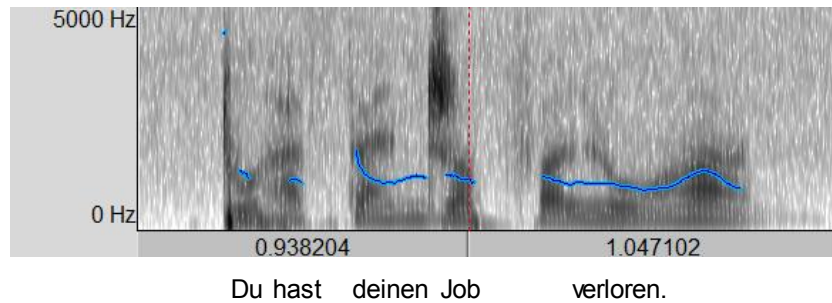
Figure 5: Pitch contour implying a hint
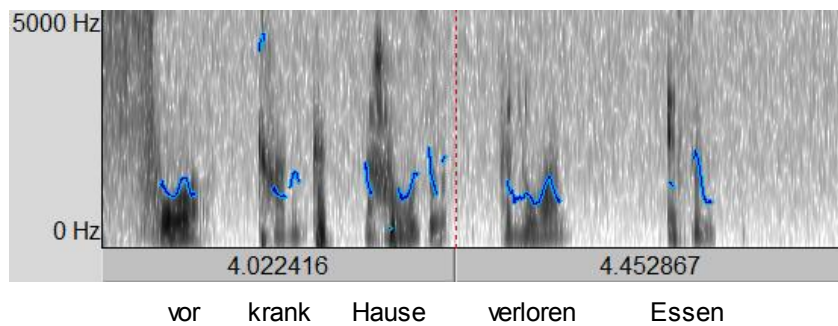
Figure 6: Items with pitch contour implying a hint

1.5.5 Types of Sentences

In order to investigate the types of intonation presented above, six sample sentences were chosen to which the intonations could be applied. These sentences are similar in their syntactic structure; however differ in their semantic meaning. Furthermore, all of the sentences have a fairly simple syntactic and semantic structure so that the non-native participants do not have any difficulties in comprehending the structure but focus on the different pitch contours applied to them.

Sentence Structure

NP (subject)	+ V (verb)	+ NP (direct object)
		+ PP (direct object, adverbial of place)
		+ AP (copula)

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Sample Sentences

1. Sie haben noch etwas vor.
2. Er ist krank.
3. Sie will nach Hause gehen.
4. Du hast deinen Job verloren.
5. Ihr seid Essen gegangen.
6. Sie hat ein neues Kleid gekauft.

Each of the four types of intonation introduced earlier in this part of the chapter may be imposed on sentence 1-6. In this way, each sentence can have four different versions whose difference is made by varying pitch contours only, i.e. neither by changing the syntactic structure or wording nor by using different stress patterns or intonation particles.

As far as the documentation of the sentences is concerned, sentences 1 to 5 were marked by the letter D (for German native speaker) and numbered from 1 to 5 while sentence 6 was marked by the letter C (for Chinese speaker) followed by a number referring to the particular Chinese speaker. Moreover, the documentation included a number referring to the four types of intonation (i.e. 1 = neutral statement, 2 = astonished question, 3 = reproachful question, 4 = hint). In this way, sentence D 4.3 is the sentence 'Du hast deinen Job verloren' which implies a reproachful question and is spoken by a native German speaker.

Given the theoretical background of different intonation strategies in the German and Chinese language, I will now move on to the empirical study that was undertaken for the investigation into the topic.

2 Methodology

This chapter is meant to introduce the empirical research project which was carried out for this case study. First, I will give an overview of the project's layout before introducing the hypotheses on the comprehension and production of German intonation by native Chinese speakers. The second part of the chapter will outline the process of how the study was carried out including detailed information on the questionnaire and audio files being used as well as information on the test subjects and procedures.

2.1 Rationale of the Research Project

The aim of this study is to investigate the comprehension and production of two types of syntactic and expressive German intonations by native Chinese learners of German. For this reason, an empirical project involving native Chinese learners of German as well as native German speakers was set up. The project focused on three major aspects:

1. The comprehension of sentences containing four different types of intonation spoken by a German native speaker through native Chinese learners of German as well as native German speakers.
2. The production of sentences containing four different types of intonation by native Chinese learners of German.
3. The comprehension of sentences containing four different types of intonation spoken by native Chinese learners of German through native German speakers.

2.1.1 Hypotheses

With reference to the information compiled in the previous chapter, the following hypotheses were made on the investigation into the comprehension and production of German pitch contours by native Chinese learners of German:

Comprehension
1. The comprehension of the two types of syntactic intonation, i.e. neutral statement and astonished question, will not cause major problems to the Chinese learners due to the similar pitch contours used in their native language and German.
2. Expressive pitch contours implying a reproachful question and a hint will be problematic in the comprehension for the Chinese learners of German due to the fact that the Chinese language uses different strategies for realizing these phenomena.
   a. The reproachful question will not be perceived as a question due to the fact that its pitch contour has no high rise at the end but remains rather static. Since its grammatical structure is typical for declarative sentences, the reproachful question will be mistaken for be a neutral statement.
   b. The difference in pitch contour between a hint and a neutral statement will not be perceived. The hint will thus be interpreted as a neutral statement.

Production

3. The production of the pitch contours expressing a neutral statement and an astonished question will not be the main difficulty for the Chinese leaners of German. This is due to the similarities in the intonational strategies expressing syntactic meaning of their native language and German.

4. Producing expressive intonation contours, i.e. a reproachful question and a hint, will be problematic for the Chinese learners.

   a. The reproachful question will be identified as a neutral statement by native German speakers.

   b. The Chinese production of a hint will be interpreted as a neutral statement by native German speakers.

2.1.2 Research Method

At the time of working on this study, little research had been done on expressive intonation in the German language and no research was existent on difficulties in comprehending and producing different types of intonation in German by native Chinese learners of German. As a consequence, the only reasonable research method was the collection of new data. Due to the complexity of the object under investigation, a qualitative approach towards the subject involving a limited number of test subjects as well as detailed descriptions and explanations appeared to be most suitable (Gass/ Mackey 2005: 162). However, quantitative research studies on the topic involving a higher number of test subjects need to be undertaken in order to solidify the results of this study.

Concerning the choice of an appropriate data collection method, it seemed to be preferable to let the German and Chinese participants interact and collect data from spoken interaction. Spoken interaction offers the possibility to "shed light on the participants' production of communicative action and their (mis)comprehension of the interlocutor's contributions' (Kasper 2000: 317). However, two of the types of intonation under investigation had not been investigated in former research so that the free use of those undefined types of intonation would lead to highly personal impressions and was thus likely to cause confusion and problems.

Apart from spoken interaction, other options to collect data are 'survey methods [that] obtain written responses' (Kasper 2000: 317). Such questionnaires 'are any written instruments that present respondents with a series of questions to which they are to react either by writing out their answers or selecting from among existing answers' (Brown 2001: 6) and are particularly appropriate for recognition tasks. However, research on different types of intonation cannot be

carried out by written processes only. As a consequence, a combination of several data-collection methods, including both oral as well as written data collection, was chosen for the study.

2.2 Procedure of the Research Project

2.2.1 Audio Recordings

2.2.1.1 Sentences and Speakers

As far as the audio files which were used in the study are concerned, five sentences were recorded (as introduced in chapter 1.5.5) that differed in meaning and wording but were similar in grammatical structure and length. Each of these sentences was articulated with the four different types of intonation presented in chapter 1.5, namely a neutral statement, an astonished question, a reproachful question and a hint, making it a total of 20 sentences.

The speaker producing the sentences was a female German native speaker in the mid-20s with an average pitch level of 210 Hz. The speaker attempted to articulate the sentences in a manner of speaking that was as similar as possible to the way the sentences would occur in natural speech.

The sentences recorded during the study were produced by five test subjects involved in the project, i.e. male as well as female native Chinese learners of German between the ages of 20 and 30. Each subject was asked to produce a sample sentence with the four different types of intonation under study. In this way, a total of 20 sentences was recorded.

2.2.1.2 Technical Devices and Software

The technical devices being used to record the sentences spoken by the German native speaker were a HP Pavilion notebook and a Plantronics headset. The software involved in the recording process were three freeware programs, namely Audacity 1.2.4, Praat5304 win32 and Format Factory 2.20. Audacity is a cross platform audio editor which was mainly used for the recording of the sentences. Each sentence was articulated several times and saved as single draft versions of the desired sentence. Praat5304 32-bit edition for windows was used to analyse the draft versions of the sentences in terms of pitch contour. The software shows pitch contours of audio files in a spectrogram measuring in Herz and seconds. The draft sentence whose pitch contour was the most accurate was saved as the official version of the sentence and used in the study. Format Factory 2.20 was used to transform the formats of the audio files in order to make them usable in the different software.

The technical device that was used to record the sentences articulated by the Chinese test subjects during the study was an Olympus WS-330 M voice recorder. Each test subject was recorded separately. However, all of the four versions of the sample sentence were recorded in one continuous audio file with each test subject and later edited with Audacity 1.2.4 and Format Factory 2.20 using an HP Pavilion notebook.

Concerning the output of the audio files during the study, windows media player was used to play the files to the test subjects on an HP Pavilion notebook.

2.2.2 Questionnaire

The questionnaire developed for this study was particularly coordinated with the use of the recorded audio files and production of further audio files. Therefore, a mixture of multiple-choice questionnaires containing closed-ended and open-ended questions was developed for the recognition task of the different intonations and a worksheet introducing a closed role-play for the recording of the Chinese test subjects was also provided. Due to the complexity of the subject under investigation, the questionnaire consisted of three different parts as well as an information sheet on the study. The aim of the first part was to collect anonymous information on the test subjects. While the second part focused on the comprehension of the recorded sentences produced by a native German speaker, the third part concentrated on the production and interpretation of German sentences spoken by the Chinese learners of German. In order to suit the different tasks of the German and Chinese subjects, two different versions of the third part were developed.

2.2.2.1 Information Sheet

An information sheet introducing the study and topic under investigation was given on the first page of the questionnaire. Information included details on the university and major of the bachelor thesis for which the study was conducted. It also served to introduce the test subjects to the study's structure as well as its purpose.

2.2.2.2 Part 1: Personal Information

The first part of the questionnaire mainly contained questions collecting anonymous information on the test subjects. Such information included the subjects' gender, age and mother tongue. The Chinese test subjects received additional questions on the length and circumstances of their German language study as well as time spent living in Germany.

2.2.2.3 Part 2: Interactive Closed-Ended Multiple-Choice Questionnaire

The main focus of the second part of the questionnaire was on the comprehension of 20 recorded sample sentences containing four different types of intonation spoken by a German native speaker. The process of comprehending the recorded audio files was supported by a closed-ended multiple choice questionnaire.

> 'Multiple-choice items specify the situational context and prompt for a response, but rather than leaving the response selections to the participant, they specify several response alternatives from which one has to be chosen' (Kasper 2000: 330).

Before playing the audio files to the subjects, an introductory text to the task advised the test subjects to listen carefully to the audio recordings and decide on the basis of their intuition which of the given types of intonation was expressed by each sentence. Furthermore, a detailed definition of the four types of intonation was given after the introductory text.

In a second step, all of the 20 sentences were played to the subjects in a random order while multiple-choice alternatives were provided to support the interpretation of the intonation of each sentence. Due to the complexity of the different types of intonation and their potential to rise a wide range of different, highly intuitive answers, the response alternatives were limited to a number of four items, including the types of intonation under study, namely 'Neutrale Aussage' (neutral statement), 'Erstaunte Frage' (astonished question), 'Vorwurfsvolle Frage' (reproachful question) and 'Anspielung' (hint). Another reason for providing a closed-ended questionnaire was the fact that the recognition of the audio files, which did not provide any broader context or facial expressions, would make the task too difficult for the participants (especially the non-native speakers) if they had to come up with totally self-initiated answers.

The second part of the questionnaire was equally put to test by the Chinese and German participants due to the fact that two of the types under investigation needed to be confirmed by German native speakers.

2.2.2.4 Part 3: Closed Role-Play and Interactive Open-Ended Multiple-Choice Questionnaire

The production of German sentences containing four different types of intonation by native Chinese learners of German was the main focus of the third part of the questionnaire. Due to the complexity of this task, namely the recording of the Chinese test subjects and the following interpretation of their sentences by the native German participants, two different versions of the third part of the questionnaire were developed.

The part handed out to the Chinese test subjects was designed in the form of a worksheet giving them instructions on how to produce the sentence for the recording in a closed role-play.

> 'In closed role-plays, the actor responds to the description of a situation and, depending on the communicative act under study, to an interlocutor's standardized initiation. They are thus organized as single-turn speech acts.' (Kasper 2000: 323).

The worksheet contained an introductory text to the task including a sample sentence which the Chinese participants were supposed to produce in four different manners. In this way, four different versions of the sentence reflecting the four different types of intonation under study were recorded per participant. Moreover, the worksheet advised the test subjects neither to change the sentence's grammatical structure or wording nor to leave out or add new words, but to express the differences in meaning by varying pitch contours only. In order to support the subjects in articulating the different pitch contours, a detailed description of sample situations in which the sentence could be uttered was listed for each of the four types of intonation.

Besides the comprehension of intonation produced by German native speakers through non-native German speakers, the study also aimed to investigate the reversed phenomenon. In this part of the study, the role of the German participants was thus to listen to the recorded sentences produced by the Chinese participants and to interpret them in terms of intonation. For this reason, the third part of the questionnaire which was developed for the German test subjects consisted of a questionnaire similar to the one of the second part. Four different multiple-choice alternatives were offered for each sentence. However, since the sentences produced by non-native German speakers were likely not to be as straight forward and carefully recorded as the ones being recorded for the study by a native German speaker, they were likely to widely differ in terms of pitch contour and stress patterns depending on the speaker's individual intuition of how to implement a certain meaning. For this reason, it was believed that the four response alternatives would not be sufficient for the interpretation of the sentences produced by non-native German speakers. As a consequence, the interpretation of these sentences was supported by a multiple-choice questionnaire that also offered an open-ended question for each sentence. Since 'open-ended questions include items where the actual question is […] [followed] by some blank space […] for the respondent to fill' (Dörnyei/ Tatsuya 2010: 36), this item gave room for the participants' individual interpretations of the intonations. The German participants were thus particularly encouraged not to feel the need to take any of the offered choices, but to fill in their individual interpretations in case none of the alternatives being offered were suitable.

2.2.3 Notes

Notes were taken by the researcher during and after the conduction of the study. In most cases, an optional reflecting interview took place with the participants in which they expressed their impressions on the study. Though the researcher's notes contributed optional information, they were considered in the evaluation process since they offered useful information for the interpretation and explanation of the study's results.

2.2.4 Test Subjects

Due to the qualitative approach towards the object under investigation, the total of test subjects involved in the study was limited to ten participants. The group of participants consisted of five native German speakers and five native Chinese learners of German who were as homogenous as possible in terms of age, gender, mother tongue and circumstances of learning German.

2.2.5 Time and Place

The study was conducted in the city of Siegen (Germany) under the patronage of the Siegen University within a time period of 2 weeks in March 2012. Furthermore, the study was carried out individually with each of the 10 test subjects and took place either at the researcher's or the participants' home. Working on the questionnaire, including its three parts, took between 30 to 60 minutes per test subject. Concerning the Chinese participants, all three parts of the study were conducted at the same time. As far as the German test subjects are concerned, two steps were necessary due to the fact that the audio files which were produced by the Chinese participants and supposed to be interpreted by the German participants in the third part needed to be recorded and edited first.

2.2.6 Testing Process

Before playing the audio files to the test subjects or recording them, each task was additionally explained orally by the researcher and the participants were encouraged to ask questions about the study's procedure as well as definitions of terms used in the study at any time.

In the second part of the questionnaire as well as in the third part of the questionnaire for the German participants, the sentences under investigation were played to the subjects on a HP Pavilion notebook turned on full volume. The test subjects were allowed to listen to each sentence as many times as needed; however an average of two times per sentence was most common.

All of the sentences were played to the participants in a random order. Nevertheless, this random order was saved as two versions, namely 'Reihe A' and 'Reihe B'. 'Reihe B' differed from 'Reihe A' in the way that it has the reversed order of sentences from 'Reihe A'. Both versions were played to an equal amount of German and Chinese test subjects in order to achieve results that are independent of a specific order.

Concerning the recording process of the Chinese participants in the third part of the questionnaire, the dictation machine was turned on and put on a table before the recording. During the recording process of the four versions of the sentence, the researcher avoided turning the machine on and off several times in order to create a natural situation for the speaker and minimize the impact of the fact that the sentences were being recorded. Thus, one or two long audio files which contained draft sentences and irrelevant conversation were recorded per participant and edited later by the researcher.

3 Results

An overview of the results of the project which was conducted for this study will be given in this part of the paper. In accordance with the layout of the questionnaire, the results will be presented in three parts, each focusing on a specific aspect of study. The comprehension of different pitch contours was mainly evaluated in form of tables. Concerning the results of the second part of the questionnaire, those of the German and those of the Chinese participants were mostly considered separately. The production of sentences implying different pitch contours by the Chinese participants was analysed with Praat, i.e. in form of spectrograms that show the pitch contours of each participant and sentence.

3.1 Part 1

Involved in the study were ten test subjects, made up of five female and five male participants. While all ten of the participants required a basic knowledge of the German language as a prerequisite, the group actually consisted of five native Chinese speakers learning German and five native German speakers. Examining the finer details of the native German speakers first, the group was made up two females and three males with an average age of 20 to 30 years (although one participant was between the ages of 50 to 60). The native Chinese learners on the other hand included three female and two male Chinese exchange students, all between the ages of 20 to 30 and currently students at the Siegen University in Germany. At the time of conducting the study, their average time of learning German was three years, except for one participant having learnt German over a period of two years. Moreover, most of the Chinese

participants had learnt German either at a university or as part of a DSH course and they had all been living in Germany for approximately two years. Due to the anonymous information collected on the test subjects, the German participants were referred to as D1 to D5 and the Chinese participants as C1 to C5 in the evaluation process of the project.

3.2 Part 2

The results of the second part of the questionnaire concern the comprehension of the four types of intonation in sentences spoken by a native German speaker. As this part was equally put to the test by both German and Chinese participants, I will first analyse the results of the German test subjects before presenting the results of the Chinese participants. Following this, I will display some general results concerning both groups.

3.2.1 Results of the German Participants

The following table shows the overall percentages of the comprehension of each type of intonation by the German participants.

Type of Intonation	Correct	False
neutral statement	100%	0%
astonished question	96%	4%
reproachful question	72%	28%
hint	92%	8%

Table 10: Comprehension of the 4 types of intonation by German native speakers

With 100 % of the neutral statements interpreted correctly, it is clear to see that this type of intonation is the best understood by the German native speakers. Similar results were also achieved with the astonished questions and those sentences in which a hint was implied, where results of 96% and 92% were respectively obtained.

Despite this however, sentences which contain the pitch contour of a reproachful question proved more problematic, with native German speakers being only able to identify this type of intonation 72% of the time. Diagram 1 shows how much the interpretations of the reproachful question by the German natives varied.
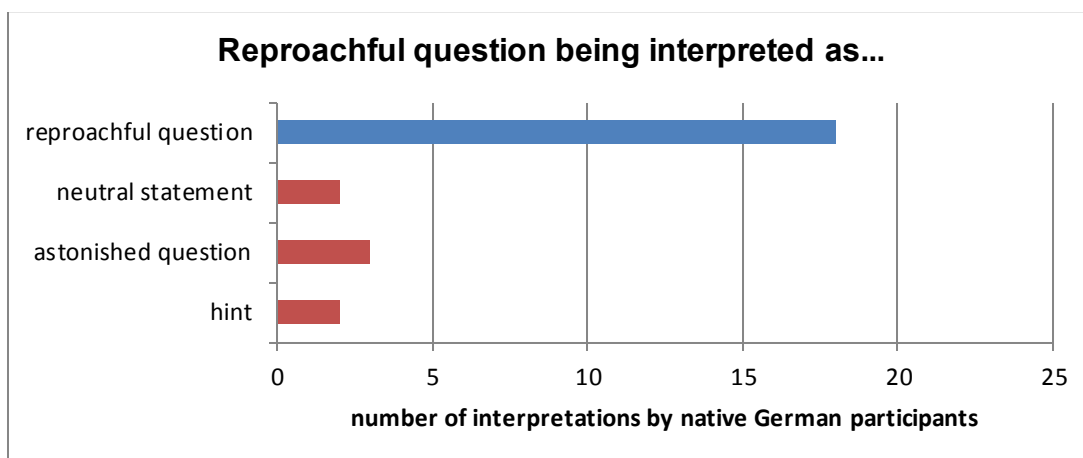
Diagram 1: Interpretation of reproachful question by German native speakers

As illustrated above, out of the 7 times in which sentences implying a reproachful question were not identified, they were interpreted as neutral statements (twice) or as hints (twice). In three cases, they were also mistaken for an astonished question.

3.2.2 Results of the Chinese Participants

As far as the results of the native Chinese learners of German are concerned, the figures differ from those of the German group in that they are not as straight forward. To illustrate this further, Table 11 shows the percentages of the comprehension of each type of intonation by the Chinese participants.

Type of Intonation	Correct	False
neutral statement	56%	44%
astonished question	64%	36%
reproachful question	12%	88%
hint	60%	40%

Table 11: Comprehension of the 4 types of intonation by native Chinese learners of German

As can be seen from table 11, the neutral statement was only correctly interpreted 56 % of times. With a percentage of 64%, the astonished question proved the most easily identifiable. Similar to the results of the German participants, the Chinese group also found the reproachful question the hardest to grasp with only 12% being placed correctly. Nevertheless, the Chinese participants were able to accurately identify sentences containing the pitch contour of a hint in 60% of the time.

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Due to the fact that the percentages of correct comprehension are comparatively low to those of the German participants for all types of intonation, I will examine this particular discrepancy further. The following table illustrates what each type of intonation was interpreted to be when mistaken for a different pitch contour.

Type of intonation	Interpreted as neutral statement	Interpreted as astonished question	Interpreted as reproachful question	Interpreted as hint
neutral statement	14	1	2	8
astonished question	2	16	5	2
reproachful question	12	5	3	5
hint	6	1	3	15

Table 12: Interpretation of the 4 types of intonation by native Chinese learners of German

As evident from the table above, when a neutral statement was not interpreted correctly, it was most often understood to be a hint, as occurred 8 times. In 5 cases, the astonished question was mistaken for a reproachful question while the reproachful question in fact showed a high number of interpretations as a neutral statement (12 times). Moreover, sentences implying a hint were mistaken for a neutral statement in 6 cases.

Out of the four types of intonation, the native Chinese learners of German struggled the most to identify the reproachful question. Consequently, all of the sentences implying this type of intonation were interpreted incorrectly by almost all of the Chinese participants. Below, Diagram 2 shows the number of correct and incorrect interpretations given by the five Chinese participants for each type of sentence containing the pitch contour of a reproachful question.
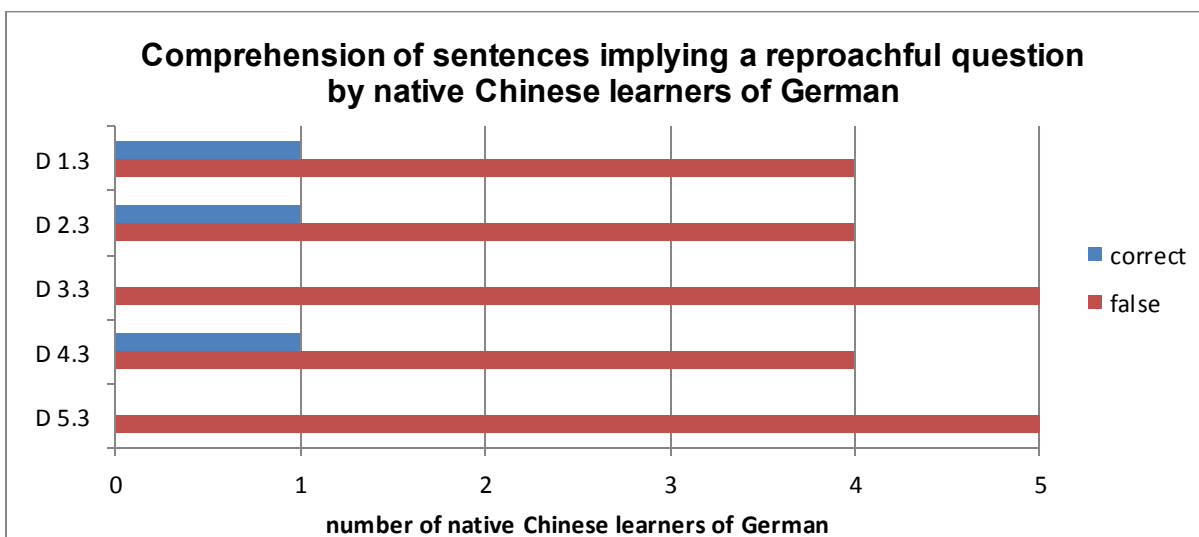
Diagram 2: Comprehension of sentences implying a reproachful question by Chinese learners of German

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3.2.3 General Results

As desired when constructing the sample sentences which were used in the study, neither the results of the German participants nor those of the Chinese group show that a specific type of sentence was easier to comprehend than others. The results rather demonstrate that certain pitch contours were easier to comprehend than others. This is also reflected in the fact that different types of sentences containing the same type of intonation were interpreted correctly more often than others. For example, the highest number of correct interpretations occurred with the astonished question D 5.2 *'Ihr seid Essen gegangen?'* (10 out of 10 participants) and also with the neutral test sentences D 3.1 *'Sie will nach Hause gehen.'* and D 5.1 *'Ihr seid Essen gegangen.'* with 9 out of 10 correct interpretations respectively. The sentences which caused the most difficulties were sentences which imply a reproachful question, such as D 2.3 *'Er ist krank?'* and D 3.3 *'Sie will nach Hause gehen?'* with only 3 out of all 10 participants being able to interpret them correctly.

3.3 Part 3

In the third part of the study, the focus was shifted to the production of the four different types of intonation by the native Chinese learners of German. For this reason, the Chinese participants were required to articulate a sample sentence in four different ways, namely Cx 6.y *'Sie hat ein neues Kleid gekauft.'* (where x = 1-5 refers to the number of the Chinese participant and y = 1-4 represents the type of intonation).

Throughout the role play, all of the Chinese participants reported that producing the different types of intonation was a far more complex task than purely comprehension alone. While all of them claimed that the neutral statement and astonished question was less problematic in the production, the two types of expressive intonation, i.e. reproachful question and hint, caused a lot of difficulties. Most of the participants felt the need to add words to the sample sentence or to change its word order and needed a comparatively high number of draft sentences until they were satisfied with the result, if at all. Given these facts, it is particularly interesting to see whether the impressions of the Chinese participants were to be reflected in the interpretations of their intonations by the native German group. Below, Table 13 shows the percentages of both correct and incorrect comprehension by the German native speakers for each type of intonation produced by the Chinese learners of German:

Type of Intonation	Correct	False
neutral statement	96 %	4%
astonished question	60%	40%
reproachful question	24%	76%
hint	16%	84%

Table 13: Comprehension of the 4 types of intonation produced by Chinese learners of German through German native speakers

In accordance with the self-evaluation of the Chinese participants, 96% of their sentences implying a neutral statement were correctly interpreted by the German participants. Concerning the sentences intending to imply astonished questions, the German participants were also able to identify them 15 out of 25 times (60%). The implementation of the types of intonation referring to a reproachful question and a hint were more difficult to comprehend so that the German participants were only able to identify the reproachful questions in 24 % of times and an even lower percentage was true for the hints (16%).

The following table provides a detailed description of the German participants' responses when initial intonations were confused.

Type of intonation	Interpreted as neutral statement	Interpreted as astonished question	Interpreted as reproachful question	Interpreted as hint	Other
neutral statement	24	-	-	-	1x statement with emphasis on 'neu'
astonished question	8	15	-	1	1x statement with emphasis on 'neu'
reproachful question	7	2	6	-	3x statement implying boredom 2x statement with unidentifiable judge 1x reproach 1x astonished question with emphasis on 'neu' 1x defensive statement 1x annoyed statement 1x delighted statement
hint	6	-	-	4	9x statement with emphasis on 'neu' 5x statement implying boredom 1x reproach

Table 14: Interpretation of the 4 types of intonation produced by native Chinese learners of German through German native speakers

As a general consensus, most of the German participants reported that they perceived many of the sentences spoken by the native Chinese learners of German to sound very monotonous. Perhaps as a direct result, a considerably high number of sentences were interpreted to be neutral statements. For example, if not comprehended as intended, the astonished question was understood to be a neutral statement in 8 out of 25 times, the reproachful question in 7 out of 25 times and the hint in 6 out of 25 times.

Even more interesting are the results of the interpretations of sentences which were intended to imply a reproachful question or a hint. Here, an extremely high number of individual interpretations occurred: when not interpreting the reproachful question as a neutral statement (as in 7 out of 25 times), the German participants considered them to be statements implying boredom, in the sense of indifference (3 times), or annoyance (once). Similarly, sentences which intended to imply a hint were also regarded to be statements implying boredom in 5 cases.

Apart from the relationship between these pitch contours and a sense of boredom or indifference, the individual interpretations also include many other types of intonation. In the case of the reproachful question, the individual interpretations show a high number of different responses from the German participants. Some of these interpretations are even quite contradictory, ranging from a pitch contour that infers a reproach in form of a statement to a pitch contour implying a statement of extreme delight which in turn furthers the initial impressions of the Chinese learners that these intonations were indeed the main difficulty in the production.

Moreover, the German participants differentiated the use of stress patterns from varying pitch contours. This can be seen mostly in the interpretation results where sentences were intended to imply a hint. In 9 out of 25 times, the German native speakers stated that they understood these sentences to be a neutral statement with a strong stress on the word 'neu'. However, they were not able to understand why such a stress pattern was used or what it was supposed to imply.

In the following, I will present some of the pitch contour analyses of the sentences produced by the Chinese participants in order to explain the results concerning their interpretations as obtained above.

Firstly, sentences which imply a neutral statement were not a source of notable difficulty amongst the German participants. For example, all of the German members were able to identify the neutral statement as produced from Chinese participant C2. This can be explained by the fact that the pitch contour produced by C2 has a falling tendency as can be seen from the pitch analysis in figure 7.

Sie hat ein neues Kleid ge kauft.
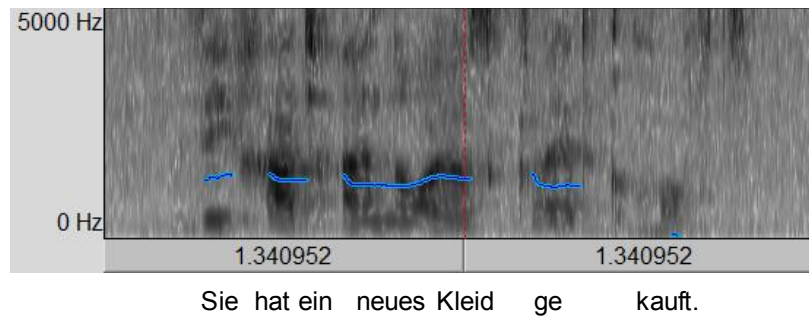
Figure 7: Pitch contour of C2 6.1 'Sie hat ein neues Kleid gekauft.'

Secondly, sentences implying an astonished question were able to be identified when produced with a rising tendency in pitch towards the end of the sentence, as seen in figure 8. The spectrogram shows the pitch contour of an astonished question produced by Chinese participant C5 which was interpreted correctly by 5 out of 5 native German speakers.

Sie hat ein neues Kleid gekauft.
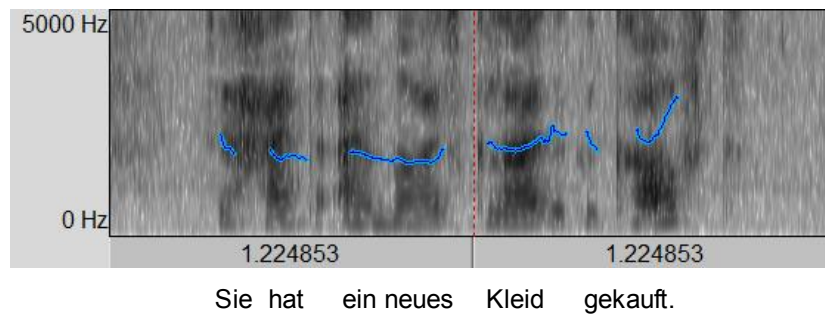
Figure 8: Pitch contour of C5 6.2 'Sie hat ein neues Kleid gekauft?'

In other instances however, the German native speakers struggled to interpret the astonished questions implemented by the Chinese learners. A possible reason for this may be the fact that the pitch contours produced by the Chinese speakers remain too flat, as can be seen in figure 9. Since there is no high rise in pitch towards the end of the sentence, the astonished question was interpreted to be a neutral statement by 4 out of 5 native German speakers.

Sie hat ein neues Kleid gekauft.
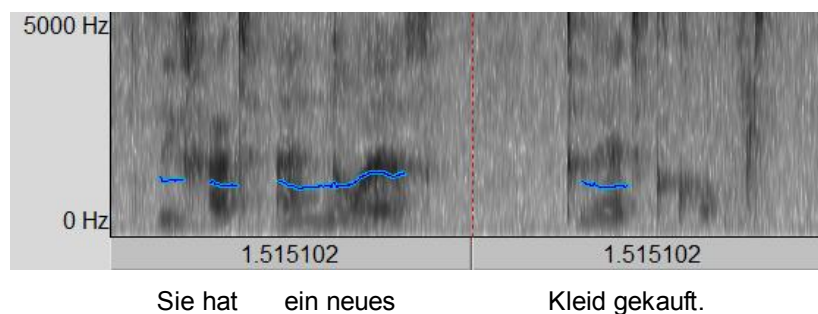
Figure 9: Pitch contour of C2 6.2 'Sie hat ein neues Kleid gekauft?'

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Furthermore, in 36% of the time, pitch contours which were intended to imply a hint were considered to be neutral statements with a strong focus on the word 'neu'. In the example of the Chinese participant C4, this may be explained by the fact that while the pitch rises on the syllable 'neu', it stays quite static throughout the rest of the sentence as seen in figure 10. For this reason, the word 'neu' is perceived to be of higher pitch and thereby interpreted to be the focus of the sentence accordingly. In contrast to this, when produced by a native German speaker, the pitch contour takes a complex shape on the word *'Kleid'*.
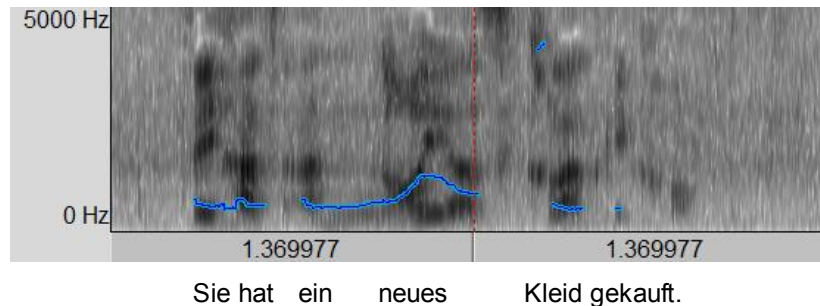
Figure 10: Pitch contour of C4 6.4 'Sie hat ein neues Kleid gekauft.'

Finally, despite making inferences from the results of this part of the study, it is important to mention that the levels of understanding, concerning the pitch contours produced by the Chinese learners, differed from individual to individual and are thus speaker-dependent. This point is particularly exemplified in the case of Chinese participants C1 and C2. While pitch contours produced by participant C1 were interpreted correctly in 15 out of 20 cases, those of C2 were identified in only 5 out of 20 cases.

4 Conclusion

In essence, this study was primarily aimed at investigating the comprehension and production of different types of German intonation by native Chinese learners of German. After taking into account the differences in the intonation systems of Standard German and Mandarin Chinese, which were demonstrated in chapter 1 of this paper, the assumptions were made that the comprehension and production of pitch contours which are similar in both languages would be relatively unproblematic for the Chinese learners whereas unfamiliar patterns would cause great difficulty (a detailed description of the hypotheses was given in chapter 2.1.1.). For the investigation into the hypotheses, an empirical research project was undertaken involving five native German speakers and five native Chinese exchange students, which, as seen, offered interesting results.

With respect to the results, which were presented in chapter 3, all of the types of intonation under study were identified correctly by the German native speakers. Nevertheless, while certain sentences, primarily those of a reproachful nature, proved slightly problematic, with only 72% interpreted correctly, all other pitch contours were able to be identified in about 97% of the time. For this reason, further research on the reproachful question is necessary to support the conclusions on this particular aspect of the study.

Moving on to the results of the Chinese participants; while their results were not specifically as straight forward as those of the native speakers, the majority of the Chinese learners of German was able to comprehend the neutral statements and astonished questions. In comparison to other pitch contours, it is reasonable to claim that these intonations are rather unproblematic for the Chinese learners as assumed in hypothesis 1.

Hypothesis 2a has also proven correct since the reproachful question was extremely problematic for the Chinese learners who could only identify 12% of this type of intonation. In 48% of the cases which were not interpreted correctly, the reproachful question was indeed mistaken for a neutral statement.

The results concerning hypothesis 2b turned out to be very interesting. In contrast to the assumptions made, the Chinese learners identified the pitch contour implying a hint as many times as they identified the neutral statement and astonished question. This was particularly surprising since many of the participants had stated that the meaning of this particular type of intonation was the most difficult one for them to comprehend. Furthermore, it is very unlikely that this type of intonation had been taught to the Chinese learners in institutional settings or that they had acquired the use of it from the interaction with native speakers since this type does not occur in everyday conversation on a very frequent basis. Yet after analysing the notes which were taken by the researcher during the study, it became clear that this high number of hint identifications may be based on the fact that the Chinese learners perceived this type of pitch contour as a statement; however not as a neutral one. In this way, the only option must have been to tick the box denoting a hint. However, if the participants had not been given this choice, they would probably not have been able to interpret this type of intonation with confidence. In brief, this particular result highlights the importance of not just being able to perceive differences in pitch contours but to also have a thorough understanding. As quoted in Inozuka 2003:70, 'a language user's intonational competence not only comprises knowledge about melodic form, but also about melodic function' ('t Hart 1990: 5, as quoted in Inozuka 2003: 70). Without this intonational competence, non-native speakers will not be able to understand the full meaning of an utterance and thus not be able to communicate successfully with native speakers of the

German language. Nevertheless, if the hint was mistaken for a different pitch contour, it was usually that of a neutral statement and hypothesis 2b is thus partly true.

Moving on to the production of the different types of intonation by the Chinese participants, the assumptions which were made on this aspect were similar to those concerning the participants' comprehension. The two types of syntactic intonation were expected to be rather unproblematic (hypothesis 3) whereas those types implying expressive meaning were thought to cause greater difficulty to the Chinese learners of German (hypothesis 4a and 4b). In fact, almost all of these suppositions turned out to be true. The only exception was the production of the astonished question which was identified by the native German participants in a noticeably lower number of cases than expected (hypothesis 3).

Apart from the results of the multiple-choice alternatives, the addition of an open-ended question in this part of the study, which offered the possibility to fill in individual interpretations, proved very efficient since all of the five German participants used this opportunity in many cases. The evaluation of the individual interpretations offer some interesting results which had not been considered in the hypotheses but are just as important as they provide reasonable information about the consequences which the incorrect use of intonation has on the interaction between non-native and native speakers. This is particularly true for the two types of expressive intonation, i.e. the reproachful question and the hint, which the German participants related to boredom, indifference or annoyance in the attitude of the Chinese speakers. These results support the view that intonation cannot just be considered to play a minor role in the competent acquisition of an intonation language such as German. Above all, the expressive types of intonation do in fact contribute a wide spectrum of meanings to the literal meaning of an utterance whose misinterpretation is not to be underestimated. In the intercultural context, it is an essential part of successful communication to be able to interpret as well as to express pitch contours which reflect the attitudes and behaviours of a speaker correctly. If this is not the case, linguistic incompetence may be related to personal traits of the speaker which will cause confusion and misunderstandings. For this reason, the consequences of an (in)correct use of intonation is an important subject that requires further research in the field of Sino-German intercultural studies.

In brief, the results of this study have shown that some types of German intonation are easier to comprehend by Chinese learners than others. However, as none of the pitch contours were identified in more than 64% of the time, it is also reasonable to conclude that the Chinese learners are far from being confident in interpreting different types of intonation in the German language. In relation to this, the production of different pitch contours proved equally difficult, as all of the types of intonation produced by the Chinese learners were only able to be identified

correctly in around half of the time (49%) by the German native speakers. On the one hand, the high number of interpretations as neutral statements along with the impressions of the German participants that many of the pitch contours produced by the Chinese learners sound very monotonous show the difficulty in producing any differences in pitch contours at the sentence level for the Chinese learners. On the other hand, with individual interpretations making up 27% of all answers, it may also be adequate to infer that in cases where the Chinese learners did in fact achieve to produce different pitch contours, they were often unfortunately not the ones they had aimed to produce.

Essentially in conclusion, this comprehensive case study has demonstrated that the German and Chinese language differ tremendously in their variety, use and function of different pitch contours. These differences have a major effect on the acquisition of German as a foreign language by learners whose native tongue is Chinese. Even though further quantitative research needs to solidify the results of this study, it is reasonable to conclude that native Chinese speakers are rather unfamiliar with the concept of varying pitch at the sentence level. The acquisition of the comprehension and production of the huge variety of different pitch contours of an intonation language such as German is thus highly problematic. Furthermore, most of the Chinese learners of German are neither aware of this sensitive feature of the German language nor of its importance for a successful communication with native speakers. All of the native Chinese learners of German who were involved in this study revealed that this was the first time they had ever come across this feature of the German language in an institutional setting. It is perhaps this lack of knowledge about different pitch contours and their meanings that shows the urgent need to include intonation into the study of the German language, especially for those whose native tongue is not an intonation language but rather a tone language such as Chinese. However, since little research has been done on the acquisition of German by Chinese speakers so far, this area offers vast opportunities for further research. Different pitch contours are an elementary feature of the German language which implies meanings to an utterance that have proven to be almost equally important to its literal meaning. If the use of this feature is not mastered by Chinese learners of German, the insufficient linguistic competence will cause confusion in the minor case. In the worst scenario, it will lead to major misunderstandings or even to a breakdown in communication.

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Appendix

Structure of the Appendix

A Questionnaire

Universität Siegen
Fakultät I, Angewandte Sprachwissenschaft

B.A. Arbeit, Empirisches Forschungsprojekt
„Interpretieren und Artikulieren von Intonation im Deutschen
durch chinesische Lerner des Deutschen"
von Isabella Tegethoff

Im Rahmen meiner Bachelor Arbeit im Studiengang „Sprache und Kommunikation" an der Universität Siegen führe ich, Isabella Tegethoff, ein Forschungsprojekt zum Gebrauch deutscher Intonation mit deutschen Muttersprachlern sowie chinesischen Lernern der deutschen Sprache durch. Ich wäre Ihnen sehr dankbar, wenn Sie mich bei meinem Projekt unterstützen würden.

Die Studie besteht aus drei Teilen:
Im ersten Teil werden Sie gebeten allgemeine Angaben zu ihrem Alter, Geschlecht sowie zu Ihrer Muttersprache zu geben.
Im zweiten Teil werden Ihnen 5 Beispielsätze mit jeweils 4 unterschiedlichen Betonungen (Intonationen) in zufälliger Reihenfolge vorgespielt (insgesamt 20 Sätze). Ihre Aufgabe soll es sein, sich die Sätze genau anzuhören und zu entscheiden, um welche der zur Auswahl gestellten Bedeutungsvarianten es sich bei dem jeweiligen Satz handelt.
Im dritten Teil werden die chinesischen Teilnehmer gebeten einen Beispielsatz mit vier verschiedenen Intonationen zu sprechen. Diese Sätze werden auf Band aufgenommen. Die Aufgabe der deutschen Teilnehmer soll es dann sein, sich die von den chinesischen Teilnehmern artikulierten Sätze genau anzuhören und schließlich auf einem separaten Aufgabenblatt die eigens interpretierte Bedeutung dieser Sätze anzukreuzen.

Bei diesem Projekt handelt es sich nicht um einen Sprachtest, der bewertet werden soll! Daher entspricht es nicht dem Ziel, dass Sie eine grammatisch richtige Antwort geben, sondern Ihrer Intuition folgen. Demnach gibt es weder falsche noch richtige Antworten. Der Zweck dieser Studie ist es, gewisse Regelmäßigkeiten, die beim Gebrauch bestimmter Intonationen im Deutschen bei chinesischen Lernern der deutschen Sprache auftreten, festzustellen umso zur Verbesserung des Deutschunterricht für chinesische Lerner des Deutschen beitragen zu können.

Ich danke Ihnen, dass Sie an meinem Forschungsprojekt teilnehmen und versichere, dass Ihre Daten anonym behandelt und ausschließlich zu Forschungszwecken gespeichert und verwendet werden.

Teil 1

Allgemeine Angaben:

Geschlecht: ☐ weiblich   ☐ männlich

Alter: ☐ 20 – 30 Jahre   ☐ 30 – 40 Jahre
                                        ☐ 40 – 50 Jahre   ☐ 50 – 60 Jahre

Muttersprache: ☐ Deutsch   ☐ Chinesisch

Falls Muttersprache Chinesisch:

Wie lange lernen Sie schon Deutsch?   _____ Jahre
Wie lange leben Sie schon in Deutschland?   _____ Jahre
Wo haben Sie Deutsch gelernt?   _____

Teil 2

Aufgabenstellung:

Hören Sie sich die von einer deutschen Muttersprachlerin gesprochenen Beispielsätze an und versuchen sie deren anhand von Intonation implizierte Bedeutung zu interpretieren.
Kreuzen sie die ihrer Meinung nach zutreffende Bedeutung an. Sollten Sie sich unsicher sein sind Mehrfachankreuzungen erlaubt.

Erläuterungen:

Neutrale Aussage:	Der Satz wird von einer Person mit einer wertfreien Intonation geäußert. Der faktische Inhalt des Satzes steht im Vordergrund.
Anspielung	Der Satz wird von einer Person geäußert, die über den thematisierten Sachverhalt mehr weiß als der wörtliche Inhalt des Satzes erschließen lässt. Sie betont den Satz in einer Weise, die den Hörer darauf hinweist, dass es neben der wörtlichen Bedeutung, d.h. dem faktischen Inhalt des Satzes, noch einen weiteren Sachverhalt gibt. Hierbei steht also nicht der faktische Inhalt des Satzes im Vordergrund, sondern der Hinweis auf einen weiteren, im Satz nicht erwähnten Inhalt.
Erstaunte Frage	Der Satz wird von einer Person geäußert, die von dem thematisierten Sachverhalt zuvor nichts wusste. Die Person ist von dem Sachverhalt positiv überrascht.
Vorwurfsvolle Frage	Der Satz wird von einer Person geäußert, die von dem thematisierten Sachverhalt zuvor nichts wusste. Die Person ist von dem Sachverhalt negativ überrascht und lässt anhand der Intonation des Satzes den Hörer wissen, dass sie von dem Sachverhalt genervt und/oder mit ihm nicht einverstanden ist.

Beispielsätze:

Beispielsatz 1.1

        ☐ neutrale Aussage
        ☐ erstaunte Frage
        ☐ Anspielung
        ☐ vorwurfsvolle Frage

Beispielsatz 1.2

        ☐ neutrale Aussage
        ☐ erstaunte Frage
        ☐ Anspielung
        ☐ vorwurfsvolle Frage

Beispielsatz 1.3

        ☐ neutrale Aussage
        ☐ erstaunte Frage
        ☐ Anspielung
        ☐ vorwurfsvolle Frage

Beispielsatz 1.4

        ☐ neutrale Aussage
        ☐ erstaunte Frage
        ☐ Anspielung
        ☐ vorwurfsvolle Frage

Beispielsatz 1.5

        ☐ neutrale Aussage
        ☐ erstaunte Frage
        ☐ Anspielung
        ☐ vorwurfsvolle Frage

Beispielsatz 1.6

        ☐ neutrale Aussage
        ☐ erstaunte Frage
        ☐ Anspielung
        ☐ vorwurfsvolle Frage

Beispielsatz 1.7

    ☐ neutrale Aussage
    ☐ erstaunte Frage
    ☐ Anspielung
    ☐ vorwurfsvolle Frage

Beispielsatz 1.8

    ☐ neutrale Aussage
    ☐ erstaunte Frage
    ☐ Anspielung
    ☐ vorwurfsvolle Frage

Beispielsatz 1.9

    ☐ neutrale Aussage
    ☐ erstaunte Frage
    ☐ Anspielung
    ☐ vorwurfsvolle Frage

Beispielsatz 1.10

    ☐ neutrale Aussage
    ☐ erstaunte Frage
    ☐ Anspielung
    ☐ vorwurfsvolle Frage

Beispielsatz 1.11

    ☐ neutrale Aussage
    ☐ erstaunte Frage
    ☐ Anspielung
    ☐ vorwurfsvolle Frage

Beispielsatz 1.12

    ☐ neutrale Aussage
    ☐ erstaunte Frage
    ☐ Anspielung
    ☐ vorwurfsvolle Frage

Beispielsatz 1.13

☐ neutrale Aussage
☐ erstaunte Frage
☐ Anspielung
☐ vorwurfsvolle Frage

Beispielsatz 1.14

☐ neutrale Aussage
☐ erstaunte Frage
☐ Anspielung
☐ vorwurfsvolle Frage

Beispielsatz 1.15

☐ neutrale Aussage
☐ erstaunte Frage
☐ Anspielung
☐ vorwurfsvolle Frage

Beispielsatz 1.16

☐ neutrale Aussage
☐ erstaunte Frage
☐ Anspielung
☐ vorwurfsvolle Frage

Beispielsatz 1.17

☐ neutrale Aussage
☐ erstaunte Frage
☐ Anspielung
☐ vorwurfsvolle Frage

Beispielsatz 1.18

☐ neutrale Aussage
☐ erstaunte Frage
☐ Anspielung
☐ vorwurfsvolle Frage

Beispielsatz 1.19

☐ neutrale Aussage
☐ erstaunte Frage
☐ Anspielung
☐ vorwurfsvolle Frage

Beispielsatz 1.20

☐ neutrale Aussage
☐ erstaunte Frage
☐ Anspielung
☐ vorwurfsvolle Frage

Teil 3 (Chinesische Teilnehmer)

Aufgabenstellung:

Versuchen die den Satz

„Sie hat ein neues Kleid gekauft."

auf vier verschiedene Weisen zu betonen, einmal als neutrale Aussage, erstaunte Frage, vorwurfsvolle Frage und Anspielung. Dabei darf die Satzstellung nicht verändert und keine Worte hinzugefügt oder ausgelassen werden.

Die folgenden Situationsbeschreibungen, in denen dieser Satz geäußert werden könnte, können Ihnen bei der Umsetzung der Aufgabe helfen:

1. Neutrale Aussage
Stellen Sie sich vor, dass sie am Vormittag mit ihrer Schwester shoppen waren. Am Abend fragt Sie Ihre Mutter, ob sich ihre Schwester etwas gekauft habe. Sie erstatten ihrer Mutter einen wertfreien Bericht, dass sich Ihre Schwester ein Kleid gekauft habe.

2. Erstaunte Frage
Stellen Sie sich nun vor, sie seien die Mutter und wussten nicht, dass Ihre Tochter shoppen war. Als man ihnen sagt, ihre Tochter habe sich ein neues Kleid gekauft, sind sie positiv überrascht.

3. Vorwurfsvolle Frage
Stellen Sie sich nun vor, sie seien die Mutter und hatten ihrer Tochter am Vormittag Geld gegeben um sich eine neue Hose zu kaufen. Als sie am Abend erfahren, dass sich Ihre Tochter statt einer neuen Hose ein neues Kleid gekauft hat, sind sie verärgert darüber, dass das Geld anders als vorher abgesprochen verwendet wurde und äußern den Satz vorwurfsvoll.

4. Anspielung
Stellen Sie sich vor, sie waren am Vormittag mit einer Freundin shoppen, die sich ein neues Kleid gekauft hat, da sie am Abend zu einem Date gehen wird. Eine andere Freundin von ihnen, die von dem Date nichts weiß, fragt Sie nach dem Shoppen was sich ihre Freundin gekauft habe. Sie antworten, sie habe sich ein Kleid gekauft mit der Absicht anzudeuten, dass sie den Grund für den Kauf des Kleides kennen.

Teil 3 (Deutsche Teilnehmer)

Aufgabenstellung:

Im Folgenden wird Ihnen ein Satz vorgespielt, der von den chinesischen Teilnehmern des Projektes mit vier verschiedenen Intonationen artikuliert wurde (insgesamt 20 Sätze/Varianten). Ihre Aufgabe soll es sein, sich die Sätze genau anzuhören und zu entscheiden, um welche Intonation (Bedeutung) es sich bei den jeweiligen Sätzen handelt. Es wird Ihnen eine Auswahl an möglichen Interpretationen vorgebeben. Sollte ihre Antwort nicht dabei sein, haben Sie die Möglichkeit die von ihnen interpretierte Bedeutung in einem separaten Feld einzutragen.

Beispielsatz 2.1

☐ neutrale Aussage
☐ erstaunte Frage
☐ Anspielung
☐ vorwurfsvolle Frage

☐ andere: _____

Beispielsatz 2.2

☐ neutrale Aussage
☐ erstaunte Frage
☐ Anspielung
☐ vorwurfsvolle Frage

☐ andere: _____

Beispielsatz 2.3

☐ neutrale Aussage
☐ erstaunte Frage
☐ Anspielung
☐ vorwurfsvolle Frage

☐ andere: _____

Beispielsatz 2.4

☐ neutrale Aussage
☐ erstaunte Frage
☐ Anspielung
☐ vorwurfsvolle Frage

☐ andere: _____

Beispielsatz 2.5

  ☐ neutrale Aussage
  ☐ erstaunte Frage
  ☐ Anspielung
  ☐ vorwurfsvolle Frage

  ☐ andere: _____

Beispielsatz 2.6

  ☐ neutrale Aussage
  ☐ erstaunte Frage
  ☐ Anspielung
  ☐ vorwurfsvolle Frage

  ☐ andere: _____

Beispielsatz 2.7

  ☐ neutrale Aussage
  ☐ erstaunte Frage
  ☐ Anspielung
  ☐ vorwurfsvolle Frage

  ☐ andere: _____

Beispielsatz 2.8

  ☐ neutrale Aussage
  ☐ erstaunte Frage
  ☐ Anspielung
  ☐ vorwurfsvolle Frage

  ☐ andere: _____

Beispielsatz 2.9

  ☐ neutrale Aussage
  ☐ erstaunte Frage
  ☐ Anspielung
  ☐ vorwurfsvolle Frage

  ☐ andere: _____

Beispielsatz 2.10

    ☐ neutrale Aussage
    ☐ erstaunte Frage
    ☐ Anspielung
    ☐ vorwurfsvolle Frage

    ☐ andere: _____

Beispielsatz 2.11

    ☐ neutrale Aussage
    ☐ erstaunte Frage
    ☐ Anspielung
    ☐ vorwurfsvolle Frage

    ☐ andere: _____

Beispielsatz 2.12

    ☐ neutrale Aussage
    ☐ erstaunte Frage
    ☐ Anspielung
    ☐ vorwurfsvolle Frage

    ☐ andere: _____

Beispielsatz 2.13

    ☐ neutrale Aussage
    ☐ erstaunte Frage
    ☐ Anspielung
    ☐ vorwurfsvolle Frage

    ☐ andere: _____

Beispielsatz 2.14

    ☐ neutrale Aussage
    ☐ erstaunte Frage
    ☐ Anspielung
    ☐ vorwurfsvolle Frage

    ☐ andere: _____

Beispielsatz 2.15

    ☐ neutrale Aussage
    ☐ erstaunte Frage
    ☐ Anspielung
    ☐ vorwurfsvolle Frage

    ☐ andere: _____

Beispielsatz 2.16

    ☐ neutrale Aussage
    ☐ erstaunte Frage
    ☐ Anspielung
    ☐ vorwurfsvolle Frage

    ☐ andere: _____

Beispielsatz 2.17

    ☐ neutrale Aussage
    ☐ erstaunte Frage
    ☐ Anspielung
    ☐ vorwurfsvolle Frage

    ☐ andere: _____

Beispielsatz 2.18

    ☐ neutrale Aussage
    ☐ erstaunte Frage
    ☐ Anspielung
    ☐ vorwurfsvolle Frage

    ☐ andere: _____

Beispielsatz 2.19

    ☐ neutrale Aussage
    ☐ erstaunte Frage
    ☐ Anspielung
    ☐ vorwurfsvolle Frage

    ☐ andere: _____

Beispielsatz 2.20

     ☐ neutrale Aussage
     ☐ erstaunte Frage
     ☐ Anspielung
     ☐ vorwurfsvolle Frage

     ☐ andere: _____

B Pitch Analysis

(of the 5 sample sentences implying 4 types of intonation

spoken by a German native speaker)

B.i Neutral Statement

1.1 „Sie haben noch etwas vor."
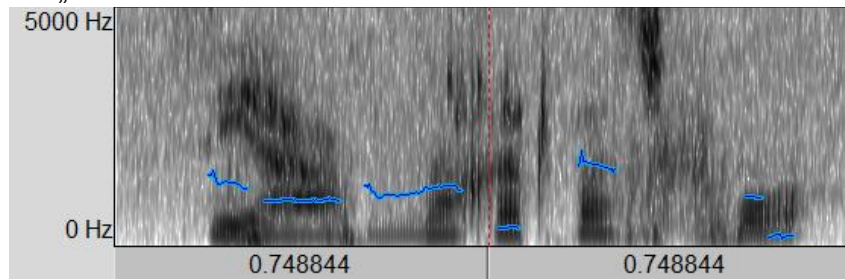
1.2 „Er ist krank."
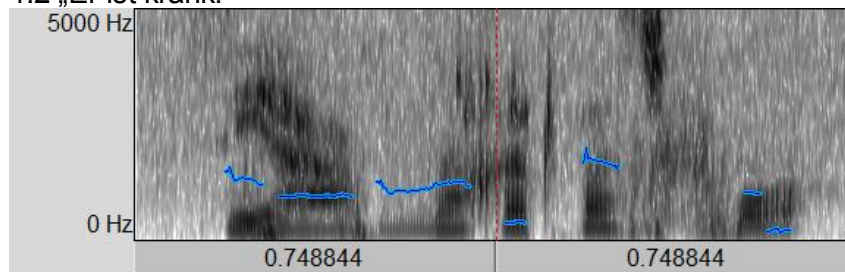
1.3 „Sie will nach Hause gehen."
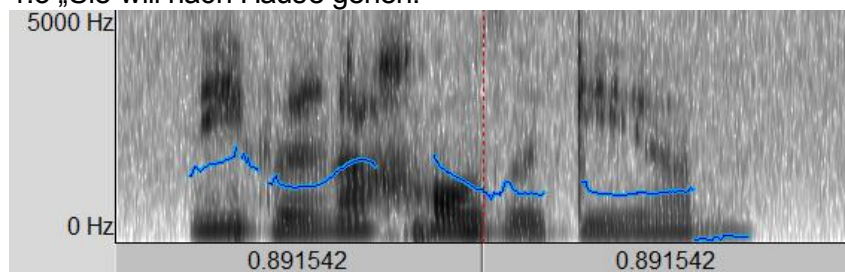
1.4 „Du hast deinen Job verloren."
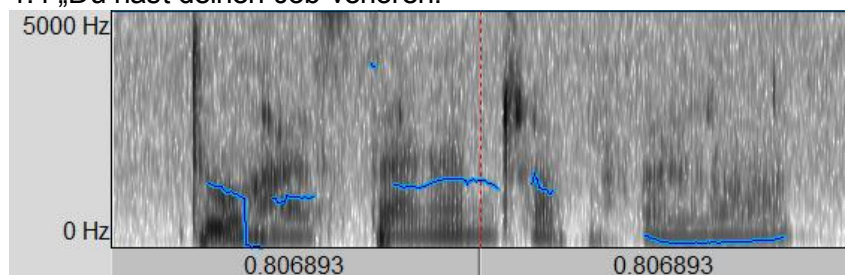
1.5 „Ihr seid Essen gegangen."
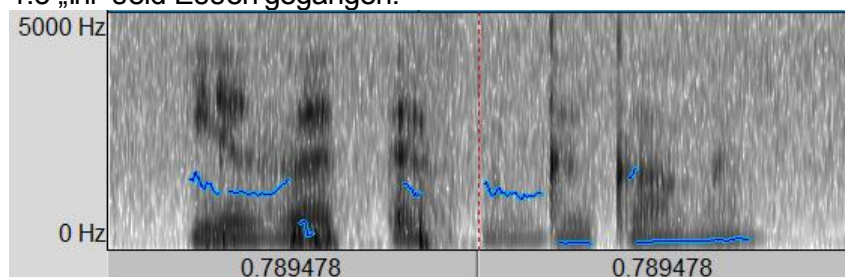
B.ii Astonished Question

1.2 „Sie haben noch etwas vor."
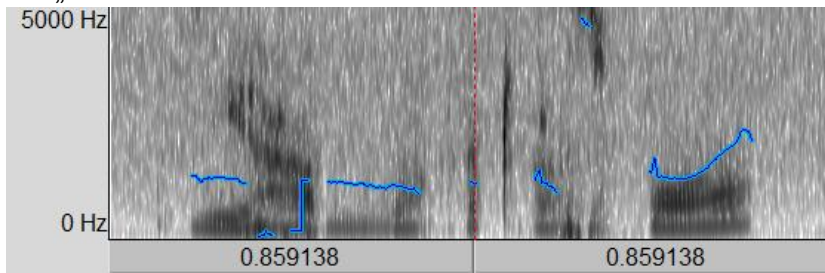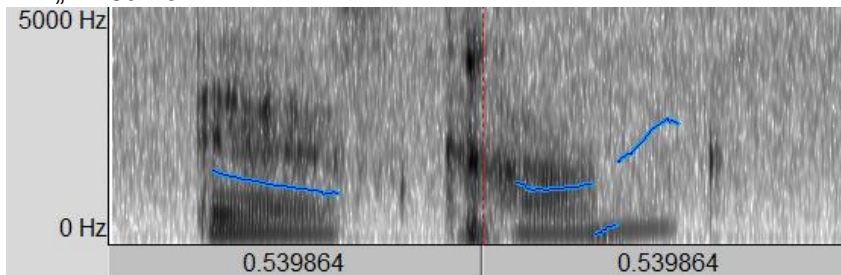
0.859138   0.859138

2.2 „Er ist krank."

0.539864   0.539864

3.2 „Sie will nach Hause gehen."

0.667574   0.667574

4.2 „Du hast deinen Job verloren."

0.859138   0.859138

5.2 „Ihr seid Essen gegangen."

0.737234   0.737234
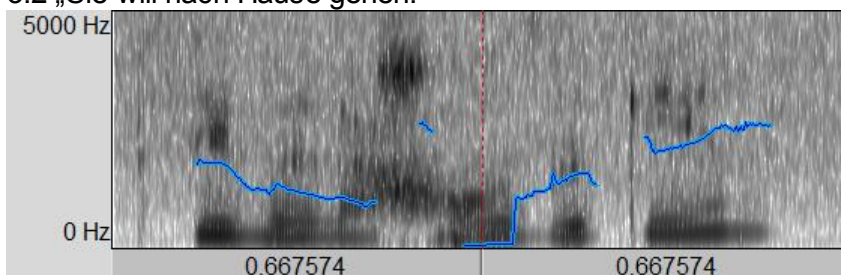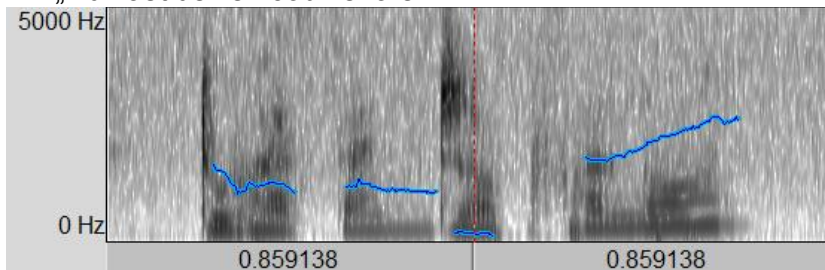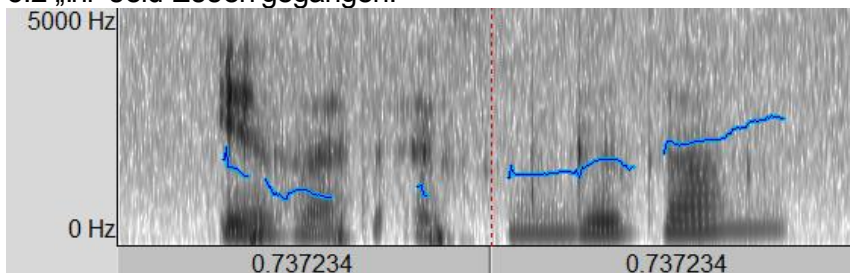
B.iii Reproachful Question

1.3 „Sie haben noch etwas vor.“
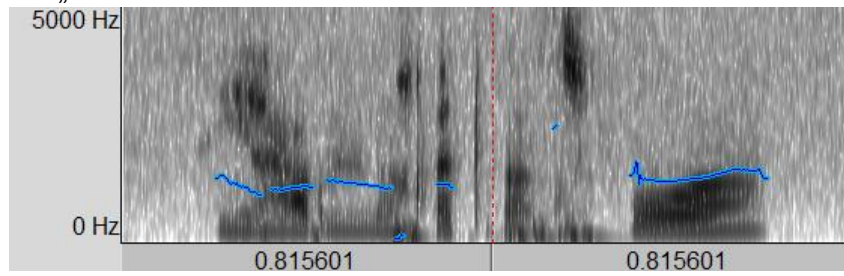
2.3 „Er ist krank.”
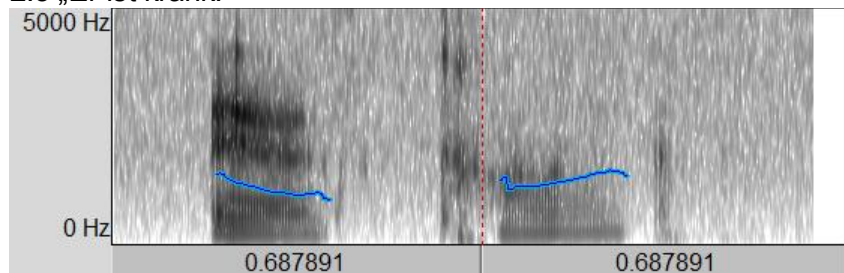
3.3 „Sie will nach Hause gehen.“
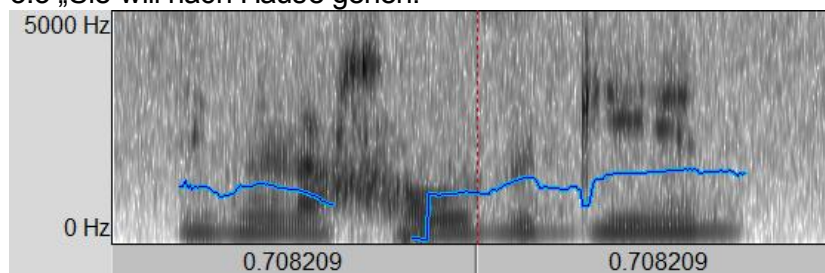
4.3 „Du hast deinen Job verloren.“
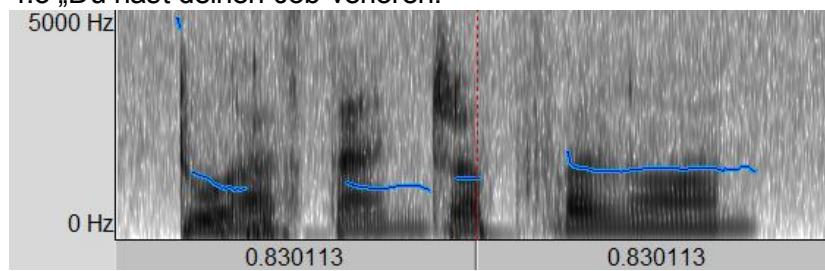
5.3 „Ihr seid Essen gegangen.“
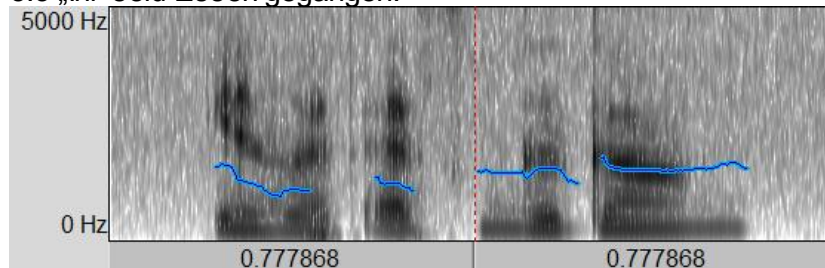
B.iv Hint

1.4 „Sie haben noch etwas vor."
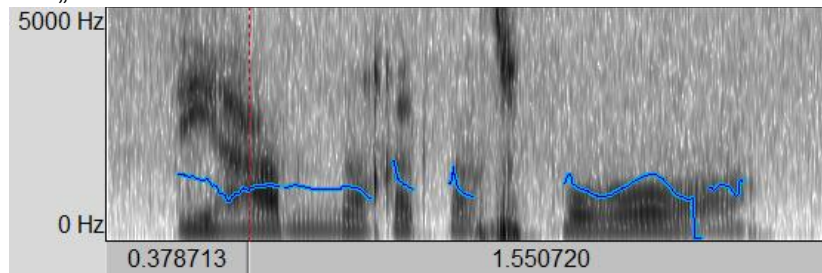
2.4 „Er ist krank."
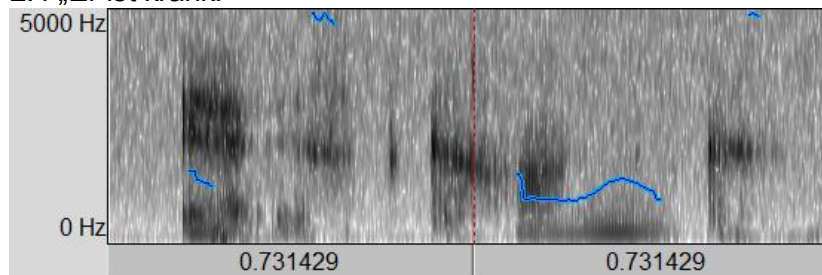
3.4 „Sie will nach Hause gehen."
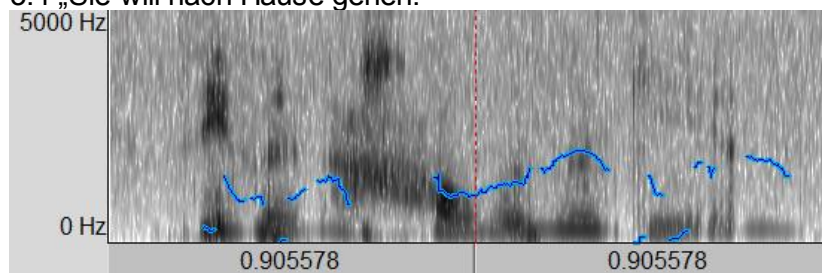
4.4 „Du hast deinen Job verloren."
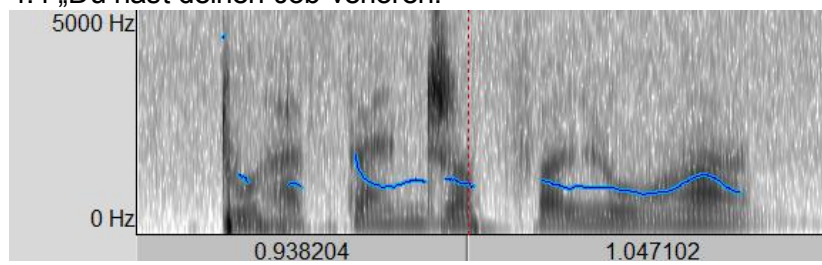
5.4 „Ihr seid Essen gegangen."
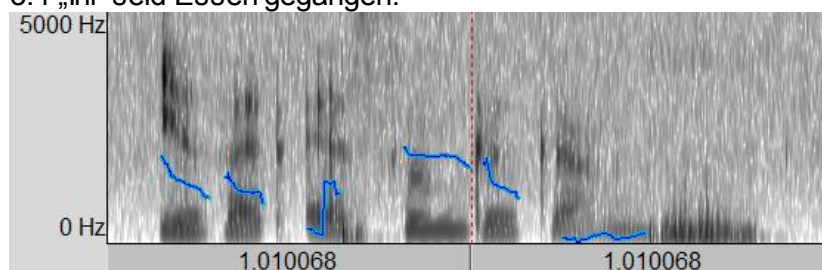
C Results

C.i Part 1

Personal information on test subjects

test subject	mother tongue	age	gender	time of learning German	time of living in Germany	place of learning German
D1	German	20-30	female			
D2	German	20-30	male			
D3	German	20-30	female			
D4	German	50-60	male			
D5	German	20-30	male			
C1	Chinese	20-30	male	3 years	2 years	university, DSH course
C2	Chinese	20-30	female	3 years	2 years	university
C3	Chinese	20-30	female	3 years	2 years	university
C4	Chinese	20-30	male	2 years	2 years	DSH course
C5	Chinese	20-30	female	3 years	2 years	university, Daf examination

German Test Subjects:

subjects: 5
gender: 2 female, 3 male
average age: 20-30 years

Chinese Test Subjects:

subjects: 5
gender: 3 female, 2 male
average age: 20-30 years
time of learning: 3 years
time of living in Germany: 2 years
place of learning: university, DSH-course

Total Test Subjects:

subjects: 10
gender: 5 female, 5 male
average age: 20-30 years

C Results

C.ii Part 2

(Individual results)

Test Subject: D1

Sentences Analysis

sentence	correct	interpreted as x.1	interpreted as x.2	interpreted as x.3	interpreted as x.4
D 1.1	yes				
D 1.2	yes				
D 1.3	yes				
D 1.4	yes				
D 2.1	yes				
D 2.2	yes				
D 2.3	yes				
D 2.4	yes				
D 3.1	yes				
D 3.2	yes				
D 3.3	yes				
D 3.4	yes				
D 4.1	yes				
D 4.2	yes				
D 4.3	yes				
D 4.4	yes				
D 5.1	yes				
D 5.2	yes				
D 5.3	yes				
D 5.4	yes				

Intonation Analysis

Comprehension of the 4 types of intonation

Type of intonation	Correct	False
Neutral statement	5 (100%)	0
Astonished question	5 (100%)	0
Reproachful question	5 (100%)	0
Hint	5 (100%)	0

Interpretation of the 4 types of intonation

Type of intonation	interpreted as neutral statement	interpreted as astonished question	interpreted as reproachful question	interpreted as hint
Neutral statement	5	-	-	-
Astonished question	-	5	-	-
Reproachful question	-	-	5	-
Hint	-	-	-	5

Test Subject: D2

Sentences Analysis

sentence	correct	interpreted as x.1	interpreted as x.2	interpreted as x.3	interpreted as x.4
D 1.1	yes				
D 1.2	yes				
D 1.3	no		X		
D 1.4	yes				
D 2.1	yes				
D 2.2	yes				
D 2.3	yes				
D 2.4	no			X	
D 3.1	yes				
D 3.2	no			X	
D 3.3	yes				
D 3.4	yes				
D 4.1	yes				
D 4.2	yes				
D 4.3	yes				
D 4.4	no			X	
D 5.1	yes				
D 5.2	yes				
D 5.3	yes				
D 5.4	no			X	

Intonation Analysis

Comprehension of the 4 types of intonation

Type of intonation	Correct	False
Neutral statement	5 (100%)	0
Astonished question	4 (80%)	1 (20%)
Reproachful question	4 (80%)	1 (20%)
Hint	2 (40%)	3 (60%)

Interpretation of the 4 types of intonation

Type of intonation	interpreted as neutral statement	interpreted as astonished question	interpreted as reproachful question	interpreted as hint
Neutral statement	5	-	-	-
Astonished question	-	4	1	-
Reproachful question	-	1	4	-
Hint	-	-	3	2

Test Subject: D3

Sentences Analysis

sentence	correct	interpreted as x.1	interpreted as x.2	interpreted as x.3	interpreted as x.4
D 1.1	yes				
D 1.2	yes				
D 1.3	yes				
D 1.4	yes				
D 2.1	yes				
D 2.2	yes				
D 2.3	no	X			
D 2.4	yes				
D 3.1	yes				
D 3.2	yes				
D 3.3	no		X		
D 3.4	yes				
D 4.1	yes				
D 4.2	yes				
D 4.3	yes				
D 4.4	yes				
D 5.1	yes				
D 5.2	yes				
D 5.3	yes				
D 5.4	yes				

Intonation Analysis

Comprehension of the 4 types of intonation

Type of intonation	Correct	False
Neutral statement	5 (100%)	0
Astonished question	5 (100%)	0
Reproachful question	3 (60%)	2 (40%)
Hint	5 (100%)	0

Interpretation of the 4 types of intonation

Type of intonation	interpreted as neutral statement	interpreted as astonished question	interpreted as reproachful question	interpreted as hint
Neutral statement	5	-	-	-
Astonished question	-	5	-	-
Reproachful question	1	1	3	-
Hint	-	-	-	5

Test Subject: D4

Sentences Analysis

sentence	correct	interpreted as x.1	interpreted as x.2	interpreted as x.3	interpreted as x.4
D 1.1	yes				
D 1.2	yes				
D 1.3	no				X
D 1.4	yes				
D 2.1	yes				
D 2.2	yes				
D 2.3	no				X
D 2.4	yes				
D 3.1	yes				
D 3.2	yes				
D 3.3	yes				
D 3.4	yes				
D 4.1					
D 4.2	yes				
D 4.3	yes				
D 4.4	yes				
D 5.1	yes				
D 5.2	yes				
D 5.3	yes				
D 5.4	yes				

Intonation Analysis

Comprehension of the 4 types of intonation

Type of intonation	Correct	False
Neutral statement	5 (100%)	0
Astonished question	5 (100%)	0
Reproachful question	3 (60%)	2 (40%)
Hint	5 (100%)	0

Interpretation of the 4 types of intonation

Type of intonation	interpreted as neutral statement	interpreted as astonished question	interpreted as reproachful question	interpreted as hint
Neutral statement	5	-	-	-
Astonished question	-	5	-	-
Reproachful question	-	-	3	2
Hint	-	-	-	5

Test Subject: D5

Sentences Analysis

sentence	correct	interpreted as x.1	interpreted as x.2	interpreted as x.3	interpreted as x.4
D 1.1	yes				
D 1.2	yes				
D 1.3	no	X			
D 1.4	yes				
D 2.1	yes				
D 2.2	yes				
D 2.3	no	X			
D 2.4	yes				
D 3.1	yes				
D 3.2	yes				
D 3.3	no		X		
D 3.4	yes				
D 4.1	yes				
D 4.2	yes				
D 4.3	yes				
D 4.4	yes				
D 5.1	yes				
D 5.2	yes				
D 5.3	yes				
D 5.4	yes				

Intonation Analysis

Comprehension of the 4 types of intonation

Type of intonation	Correct	False
Neutral statement	5 (100%)	0
Astonished question	5 (100%)	0
Reproachful question	2 (40%)	3 (60%)
Hint	5 (100%)	0

Interpretation of the 4 types of intonation

Type of intonation	interpreted as neutral statement	interpreted as astonished question	interpreted as reproachful question	interpreted as hint
Neutral statement	5	-	-	-
Astonished question	-	5	-	-
Reproachful question	2	1	2	-
Hint	-	-	-	5

Test Subject: C1

Sentences Analysis

sentence	correct	interpreted as x.1	interpreted as x.2	interpreted as x.3	interpreted as x.4
D 1.1	no				X
D 1.2	yes				
D 1.3	yes				
D 1.4	yes				
D 2.1	no				X
D 2.2	yes				
D 2.3	no	X			
D 2.4	no	X			
D 3.1	yes				
D 3.2	yes				
D 3.3	no	X			
D 3.4	yes				
D 4.1	yes				
D 4.2	yes				
D 4.3	no				X
D 4.4	yes				
D 5.1	yes				
D 5.2	yes				
D 5.3	no				X
D 5.4	no	X			

Intonation Analysis

Comprehension of the 4 types of intonation

Type of intonation	Correct	False
Neutral statement	3 (60%)	2 (40%)
Astonished question	5 (100%)	0
Reproachful question	1 (20%)	4 (80%)
Hint	3 (60%)	2 (40 %)

Interpretation of the 4 types of intonation

Type of intonation	interpreted as neutral statement	interpreted as astonished question	interpreted as reproachful question	interpreted as hint
Neutral statement	3	-	-	2
Astonished question	-	5	-	-
Reproachful question	2	-	1	2
Hint	2	-	-	3

Test Subject: C2

Sentences Analysis

sentence	correct	interpreted as x.1	interpreted as x.2	interpreted as x.3	interpreted as x.4
D 1.1	no				X
D 1.2	no				X
D 1.3	no	X			
D 1.4	no		X		
D 2.1	yes				
D 2.2	no			X	
D 2.3	no	X			
D 2.4	yes				
D 3.1	yes				
D 3.2	yes				
D 3.3	no	X			
D 3.4	yes				
D 4.1	no			X	
D 4.2	no			X	
D 4.3	no	X			
D 4.4	no			X	
D 5.1	yes				
D 5.2	yes				
D 5.3	no	X			
D 5.4	no	X			

Intonation Analysis

Comprehension of the 4 types of intonation

Type of intonation	Correct	False
Neutral statement	3 (60%)	2 (40%)
Astonished question	2 (40%)	3 (60%)
Reproachful question	0	5 (100%)
Hint	2 (40%)	3 (60 %)

Interpretation of the 4 types of intonation

Type of intonation	interpreted as neutral statement	interpreted as astonished question	interpreted as reproachful question	interpreted as hint
Neutral statement	3	-	1	1
Astonished question	-	2	2	1
Reproachful question	5	-	0	-
Hint	1	1	1	2

Test Subject: C3

Sentences Analysis

sentence	correct	interpreted as x.1	interpreted as x.2	interpreted as x.3	interpreted as x.4
D 1.1	yes				
D 1.2	no	X			
D 1.3	no		X		
D 1.4	no			X	
D 2.1	yes				
D 2.2	no			X	
D 2.3	no	X			
D 2.4	no	X			
D 3.1	yes				
D 3.2	no				X
D 3.3	no				X
D 3.4	no	X			
D 4.1	no			X	
D 4.2	no			X	
D 4.3	no	X			
D 4.4	yes				
D 5.1	no				X
D 5.2	yes				
D 5.3	no				X
D 5.4	yes				

Intonation Analysis

Comprehension of the 4 types of intonation

Type of intonation	Correct	False
Neutral statement	3 (60%)	2 (40%)
Astonished question	1 (20%)	4 (80%)
Reproachful question	0	5 (100%)
Hint	2 (40%)	3 (60 %)

Interpretation of the 4 types of intonation

Type of intonation	interpreted as neutral statement	interpreted as astonished question	interpreted as reproachful question	interpreted as hint
Neutral statement	3	-	1	1
Astonished question	1	1	2	1
Reproachful question	2	1	0	2
Hint	2	-	1	2

Test Subject: C4

Sentences Analysis

sentence	correct	interpreted as x.1	interpreted as x.2	interpreted as x.3	interpreted as x.4
D 1.1	yes				
D 1.2	no			X	
D 1.3	no				X
D 1.4	yes				
D 2.1	yes				
D 2.2	yes				
D 2.3	yes				
D 2.4	yes				
D 3.1	no				X
D 3.2	yes				
D 3.3	no		X		
D 3.4	no	X			
D 4.1	no				X
D 4.2	yes				
D 4.3	yes				
D 4.4	yes				
D 5.1	yes				
D 5.2	yes				
D 5.3	no		X		
D 5.4	yes				

Intonation Analysis

Comprehension of the 4 types of intonation

	TRUE	FALSE
Neutral statement	3 (60%)	2 (40%)
Astonished question	4 (80%)	1 (20%)
Reproachful question	2 (40%)	3 (60%)
Hint	4 (80%)	1 (20%)

Interpretation of the 4 types of intonation

Type of intonation	interpreted as neutral statement	interpreted as astonished question	interpreted as reproachful question	interpreted as hint
Neutral statement	3	-	-	2
Astonished question	-	4	1	-
Reproachful question	-	2	2	1
Hint	1	-	-	4

Test Subject: C5

Sentences Analysis

sentence	correct	interpreted as x.1	interpreted as x.2	interpreted as x.3	interpreted as x.4
D 1.1	no				X
D 1.2	yes				
D 1.3	no		X		
D 1.4	yes				
D 2.1	no				X
D 2.2	yes				
D 2.3	no	X			
D 2.4	yes				
D 3.1	yes				
D 3.2	yes				
D 3.3	no	X			
D 3.4	yes				
D 4.1	no		X		
D 4.2	no				X
D 4.3	no		X		
D 4.4	no			X	
D 5.1	yes				
D 5.2	yes				
D 5.3	no	X			
D 5.4	yes				

Intonation Analysis

Comprehension of the 4 types of intonation

Type of intonation	Correct	False
Neutral statement	2 (40%)	3 (60%)
Astonished question	4 (80%)	1 (20%)
Reproachful question	0	5 (100%)
Hint	4 (80%)	1 (20%)

Interpretation of the 4 types of intonation

Type of intonation	interpreted as neutral statement	interpreted as astonished question	interpreted as reproachful question	interpreted as hint
Neutral statement	2	1	-	2
Astonished question	1	4	-	-
Reproachful question	3	2	0	-
Hint	-	-	1	4

C Results

C.ii Part 2

(Total Results)

Sentences Analysis: D1-D5

sentence	correct	interpreted as x.1	interpreted as x.2	interpreted as x.3	interpreted as x.4
D 1.1	yes (5)				
D 1.2	yes (5)				
D 1.3	yes (3) no (2)		1		1
D 1.4	yes (5)				
D 2.1	yes (5)				
D 2.2	yes (5)				
D 2.3	yes (2) no (3)	2			1
D 2.4	yes (4) no (1)			1	
D 3.1	yes (5)				
D 3.2	yes (4) no (1)			1	
D 3.3	yes (3) no (2)		2		
D 3.4	yes (5)				
D 4.1	yes (5)				
D 4.2	yes (5)				
D 4.3	yes (5)				
D 4.4	yes (4) no (1)			1	
D 5.1	yes (5)				
D 5.2	yes (5)				
D 5.3	yes (5)				
D 5.4	yes (4) no (1)			1	

Sentences Analysis: C1-C5

sentence	correct	interpreted as x.1	interpreted as x.2	interpreted as x.3	interpreted as x.4
D 1.1	yes (2) no (3)				3
D 1.2	yes (2) no (3)	1		1	1
D 1.3	yes (1) no (4)	1	2		1
D 1.4	yes (3) no (2)		1	1	
D 2.1	yes (3) no (2)				2
D 2.2	yes (3) no (2)			2	
D 2.3	yes (1) no (4)	4			
D 2.4	yes (3) no (2)	2			
D 3.1	yes (4) no (1)				1
D 3.2	yes (4) no (1)				1
D 3.3	no (5)	3	1		1
D 3.4	yes (3) no (2)	2			
D 4.1	yes (1) no (4)		1	2	1
D 4.2	yes (2) no (3)			2	1
D 4.3	yes (1) no (4)	2	1		1
D 4.4	yes (3) no (2)			2	
D 5.1	yes (4) no (1)				1
D 5.2	yes (5)				
D 5.3	no (5)	2	1		2
D 5.4	yes (3) no (2)	2			

Sentences Analysis: D1-D5 and C1-C5

sentence	correct	interpreted as x.1	interpreted as x.2	interpreted as x.3	interpreted as x.4
D 1.1	yes (7) no (3)				3
D 1.2	yes (7) no (3)	1		1	1
D 1.3	yes (4) no (6)	2	3		2
D 1.4	yes (8) no (2)		1	1	
D 2.1	yes (8) no (2)				2
D 2.2	yes (8) no (2)			2	
D 2.3	yes (3) no (7)	6			1
D 2.4	yes (7) no (3)	2		1	
D 3.1	yes (9) no (1)				1
D 3.2	yes (8) no (2)			1	
D 3.3	yes (3) no (7)	3	3		1
D 3.4	yes (8) no (2)	2			
D 4.1	yes (6) no (4)		1	2	1
D 4.2	yes (7) no (3)			2	1
D 4.3	yes (6) no (4)	2	1		1
D 4.4	yes (7) no (3)			3	
D 5.1	yes (9) no (1)				1
D 5.2	yes (10)				
D 5.3	yes (5) no (5)	2	1		2
D 5.4	yes (7) no (3)	2		1	

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Intonation Analysis: D1-D5

Comprehension of the 4 types of intonation

Type of intonation	Correct	False
Neutral statement	25 (100%)	0
Astonished question	24 (96%)	1 (4%)
Reproachful question	18 (72%)	7 (28%)
Hint	23 (92%)	2 (8%)

Interpretation of the 4 types of intonation

Type of intonation	interpreted as neutral statement	interpreted as astonished question	interpreted as reproachful question	interpreted as hint
Neutral statement	25	-	-	-
Astonished question	-	24	1	-
Reproachful question	2	3	18	2
Hint	-	-	3	23

Intonation Analysis: C1-C5

Comprehension of the 4 types of intonation

Type of intonation	Correct	False
Neutral statement	14 (56%)	11 (44%)
Astonished question	16 (64%)	9 (36%)
Reproachful question	3 (12%)	22 (88%)
Hint	15 (60%)	10 (40%)

Interpretation of the 4 types of intonation

Type of intonation	interpreted as neutral statement	interpreted as astonished question	interpreted as reproachful question	interpreted as hint
Neutral statement	14	1	2	8
Astonished question	2	16	5	2
Repraochful question	12	5	3	5
Hint	6	1	3	15

Intonation Analysis: D1-D5 and C1-C5

Comprehension of the 4 types of intonation

Type of intonation	Correct	False
Neutral statement	39 (78%)	11 (22%)
Astonished question	40 (80%)	10 (20%)
Reproachful question	21 (42%)	29 (58%)
Hint	38 (76%)	12 (24%)

Interpretation of the 4 types of intonation

Type of intonation	interpreted as neutral statement	interpreted as astonished question	interpreted as reproachful question	interpreted as hint
Neutral statement	39	1	2	8
Astonished question	2	40	7	2
Reproachful question	14	8	21	7
Hint	6	1	6	38

C Results

C.iii Part 3

Test Subject: D1

Sentences Analysis

sentence	true	interpreted as x.1	interpreted as x.2	interpreted as x.3	interpreted as x.4	other	comments
C1 1.1	yes						
C1 1.2	yes						
C1 1.3	no					erstaunte Frage mit Betonung auf „neu"	
C1 1.4	yes						
C2 1.1	yes						
C2 1.2	no					neutrale Aussage mit Betonung auf „neu"	
C2 1.3	no	X					
C2 1.4	no	X					
C3 1.1	yes						
C3 1.2	no	X					leichte Stimmhebung am Ende, aber nicht genug für Frage
C3 1.3	no	X					
C3 1.4	no	X					
C4 1.1	no					neutrale Aussage mit Betonung auf „neu"	
C4 1.2	yes						
C4 1.3	yes						
C4 1.4	no					neutrale Aussage mit Betonung auf „neu"	
C5 1.1	yes						
C5 1.2	yes						
C5 1.3	no					verteidigende Aussage	„Doch, sie hat ein neues…"
C5 1.4	no					neutrale Aussage mit Betonung auf „neu"	

Intonation Analysis

Comprehension of the 4 types of intonation

Type of intonation	Correct	False
Neutral statement	4 (80%)	1 (20%)
Astonished question	3 (60%)	2 (40%)
Reproachful question	1 (20%)	4 (80%)
Hint	1 (20%)	4 (80%)

Interpretation of the 4 types of intonation

Type of intonation	interpreted as neutral statement	interpreted as astonished question	interpreted as reproachful question	interpreted as hint	other
Neutral statement	4	-	-	-	1x neutrale Aussage mit Betonung auf „neu"
Astonished question	1	3	-	-	1x neutrale Aussage mit Betonung auf „neu"
Reproachful question	2	-	1	-	1x erstaunte Frage mit Betonung auf „neu" 1x verteidigende Aussage
Hint	2	-	-	1	2x neutrale Aussage mit Betonung auf „neu"

Test Subject: D2

Sentences Analysis

sentence	true	interpreted as x.1	interpreted as x.2	interpreted as x.3	interpreted as x.4	other	comments
C1 1.1	yes						
C1 1.2	yes						
C1 1.3	yes						Betonung auf „neu" (→ schon wieder? noch eins?)
C1 1.4	yes						kann sich sagen, woran es liegt, dass er es als Anspielung erkennt
C2 1.1	yes						
C2 1.2	no	X					
C2 1.3	no	X					
C2 1.4	no					vorwurfsvolle Aussage	
C3 1.1	yes						
C3 1.2	no				X		Spannungsaufbau durch Stimmhebung am Ende, der auf zweiten Sachverhalt schließen lässt
C3 1.3	no					genervte Aussage	
C3 1.4	no					gelangweilte Aussage	
C4 1.1	yes						
C4 1.2	yes						Stimme geht hoch
C4 1.3	yes						„gekauft" stark in die Länge gezogen
C4 1.4	no					neutrale Aussage mit Betonung auf „neu"	

sentence	true	interpreted as x.1	interpreted as x.2	interpreted as x.3	interpreted as x.4	other	comments
C5 1.1	yes						
C5 1.2	yes						
C5 1.3	no					Aussage mit Wertung, jedoch nicht erkennbar ob positiv oder negativ	
C5 1.4	no					neutrale Aussage mit Betonung auf „neu"	

Intonation Analysis

Comprehension of the 4 types of intonation

Type of intonation	Correct	False
Neutral statement	5 (100%)	0
Astonished question	3 (60%)	2 (40%)
Reproachful question	2 (40%)	3 (60%)
Hint	1 (20%)	4 (80%)

Interpretation of the 4 types of intonation

Type of intonation	interpreted as neutral statement	interpreted as astonished question	interpreted as reproachful question	interpreted as hint	other
Neutral statement	5	-	-	-	-
Astonished question	1	3	-	1	
Reproachful question	1	-	2	-	1x Aussage mit nicht interpretierbarer Wertung 1x genervte Aussage
Hint	-	-	-	1	2x neutrale Aussage mit Betonung auf „neu" 1x gelangweilte Aussage 1x vorwurfsvolle Aussage

Test Subject: D3

Sentences Analysis

sentence	true	interpreted as x.1	interpreted as x.2	interpreted as x.3	interpreted as x.4	other	comments
C1 1.1	yes						
C1 1.2	yes						
C1 1.3	yes						
C1 1.4	yes						„neu" wird kurz betont, Stimmhöhe (v.a. gegen Ende) bleibt konstant (fällt/steigt nicht)
C2 1.1	yes						
C2 1.2	no	X					
C2 1.3	no					gelangweilte Aussage	
C2 1.4	no					gelangweilte Aussage	
C3 1.1	yes						
C3 1.2	yes						
C3 1.3	no					gelangweilte Aussage	
C3 1.4	no					gelangweilte Aussage	
C4 1.1	yes						
C4 1.2	yes						
C4 1.3	yes						
C4 1.4	no					neutrale Aussage mit Betonung auf „neu"	
C5 1.1	yes						
C5 1.2	yes						
C5 1.3	no					Aussage mit Nachdruck auf gekauft,	

						Aussage mit Wertung, aber nicht erkennbar ob positiv oder negativ	
C5 1.4	no					neutrale Aussage mit Betonung auf „neu"	

Intonation Analysis

Comprehension of the 4 types of intonation

Type of intonation	Correct	False
Neutral statement	5 (100%)	0
Astonished question	4 (80%)	1 (20%)
Reproachful question	2 (40%)	3 (60%)
Hint	1 (20%)	4 (80%)

Interpretation of the 4 types of intonation

Type of intonation	interpreted as neutral statement	interpreted as astonished question	interpreted as reproachful question	interpreted as hint	other
Neutral statement	5	-	-	-	-
Astonished question	1	4	-	-	-
Reproachful question	-	-	2	-	1x Aussage mit nicht interpretierbarer Wertung 2x gelangweilte Aussage
Hint	-	-	-	1	2x neutrale Aussage mit Betonung auf „neu" 2x gelangweilte Aussage

Test Subject: D4

Sentences Analysis

sentence	true	interpreted as x.1	interpreted as x.2	interpreted as x.3	interpreted as x.4	other	comments
C1 1.1	yes						
C1 1.2	no	X					
C1 1.3	no					besonders freudige Aussage	
C1 1.4	no	X					
C2 1.1	yes						
C2 1.2	no	X					
C2 1.3	no	X					
C2 1.4	no					gelangweilte Aussage	
C3 1.1	yes						
C3 1.2	no	X					
C3 1.3	no					gelangweilte Aussage	
C3 1.4	no					gelangweilte Aussage	
C4 1.1	yes						
C4 1.2	yes						
C4 1.3	yes						
C4 1.4	no					neutrale Aussage mit Betonung auf „neu"	
C5 1.1	yes						
C5 1.2	yes						
C5 1.3	no					negativ wertende Aussage	
C5 1.4	yes						

Intonation Analysis

Comprehension of the 4 types of intonation

Type of intonation	Correct	False
Neutral statement	5 (100%)	0
Astonished question	2 (40%)	3 (60%)
Reproachful question	1 (20%)	4 (80%)
Hint	1 (20%)	4 (40%)

Interpretation of the 4 types of intonation

Type of intonation	interpreted as neutral statement	interpreted as astonished question	interpreted as reproachful question	interpreted as hint	other
Neutral statement	5	-	-	-	
Astonished question	3	2	-	-	
Reproachful question	1	-	1	-	1x besonders freudige Aussage 1x vorwurfsvolle Aussage 1x gelangweilte Aussage
Hint	1	-	-	1	2x gelangweilte Aussage 1x neutrale Aussage mit Betonung auf „neu"

Test Subject: D5

Sentences Analysis

sentence	true	interpreted as x.1	interpreted as x.2	interpreted as x.3	interpreted as x.4	other	comments
C1 1.1	yes						
C1 1.2	yes						
C1 1.3	no		X				Stimmhebung am Ende
C1 1.4	no	X					
C2 1.1	yes						
C2 1.2	no	X					
C2 1.3	no	X					
C2 1.4	no	X					
C3 1.1	yes						
C3 1.2	no	X					
C3 1.3	no	X					
C3 1.4	no		X				
C4 1.1	yes						
C4 1.2	yes						
C4 1.3	no		X				
C4 1.4	no					neutrale Aussage mit Betonung auf „neu"	
C5 1.1	yes						
C5 1.2	yes						
C5 1.3	no	X					
C5 1.4	no					neutrale Aussage mit Betonung auf „neu"	

Intonation Analysis

Comprehension of the 4 types of intonation

| Type of intonation	Correct	False
Neutral statement	5 (100%)	0
Astonished question	3 (60%)	2 (40%)
Reproachful question	0	5 (100%)
Hint	0	5 (100%)

Interpretation of the 4 types of intonation

Type of intonation	interpreted as neutral statement	interpreted as astonished question	interpreted as reproachful question	interpreted as hint	other
Neutral statement	5	-	-	-	
Astonished question	2	3	-	-	
Reproachful question	3	2	0	-	
Hint	3	-	-	0	2x neutrale Aussage mit Betonung auf „neu"

Total Results: D1-D5

Sentences Analysis

sentence	true	recognized as x.1	recognized as x.2	recognized as x.3	recognized as x.4	other	comments
C1 1.1	yes (5)						
C1 1.2	yes (4) no (1)	1					
C1 1.3	yes (3) no (2)		1			1x erstaunte Frage mit Betonung auf „neu"	Betonung auf „neu" (→ schon wieder? noch eins?) (deshalb erkannt)
C1 1.4	yes (3) no (2)	2					kann sich sagen, woran es liegt, dass er es als Anspielung erkennt // „neu" wird kurz betont, Stimmhöhe (v.a. gegen Ende) bleibt konstant (fällt/steigt nicht) (deshalb erkannt)
C2 1.1	yes (5)						
C2 1.2	no (5)	4				1x neutrale Aussage mit Betonung auf „neu"	
C2 1.3	no (5)	4				1x gelangweilte Aussage	
C2 1.4	no (5)	2				1x vorwurfsvolle Aussage 2x gelangweilte Aussage	
C3 1.1	yes (5)						

sentence	true	recognized as x.1	recognized as x.2	recognized as x.3	recognized as x.4	other	comments
C3 1.2	yes (1) no (4)	3			1		Spannungsaufbau durch Stimmhebung am Ende, der auf zweiten Sachverhalt schließen lässt (deshalb Anspielung)
C3 1.3	no (5)	2				1x genervte Aussage 2x gelangweilte Aussage	
C3 1.4	no (5)	1	1			3x gelangweilte Aussage	
C4 1.1	no (1)					1x neutrale Aussage mit Betonung auf „neu"	
C4 1.2	yes (5)						Stimme geht hoch (deshalb erkannt)
C4 1.3	yes (4) no (1)		1				„gekauft" stark in die Länge gezogen (deshalb erkannt)
C4 1.4	no (5)					5x neutrale Aussage mit Betonung auf „neu"	
C5 1.1	yes (5)						
C5 1.2	yes (5)						
C5 1.3	no (5)	1				1x verteidigende Aussage 2x Aussage mit Wertung, jedoch nicht erkennbar ob positiv oder negativ 1x negativ wertende Aussage	„Doch, sie hat ein neues…" // Nachdruck auf „gekauft"
C5 1.4	yes (2) no (3)					3x neutrale Aussage mit Betonung auf „neu"	

Intonation Analysis

Comprehension of the 4 types of intonation

Type of intonation	Correct	False
Neutral statement	24 (96 %)	1 (4%)
Astonished question	15 (60%)	10 (40%)
Reproachful question	6 (24%)	19 (76%)
Hint	4 (16%)	21 (84%)

Interpretation of the 4 types of intonation

Type of intonation	interpreted as neutral statement	interpreted as astonished question	interpreted as reproachful question	interpreted as hint	other
Neutral statement	24	-	-	-	1x neutrale Aussage mit Betonung auf „neu"
Astonished question	8	15	-	1	1x neutrale Aussage mit Betonung auf „neu"
Reproachful question	7	2	6	-	3x gelangweilte Aussage 2x Aussage mit nicht interpretierbarer Wertung 1x vorwurfsvolle Aussage 1x erstaunte Frage mit Betonung auf „neu" 1x verteidigende Aussage 1x genervte Aussage 1x besonders freudige Aussage
Hint	6	-	-	4	9x neutrale Aussage mit Betonung auf „neu" 5x gelangweilte Aussage 1x vorwurfsvolle Aussage

Test Subject: C1

Pitch Analysis
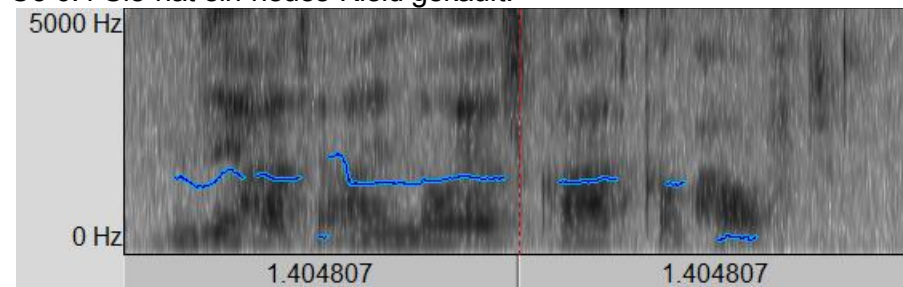
C1 6.1 Sie hat ein neues Kleid gekauft.
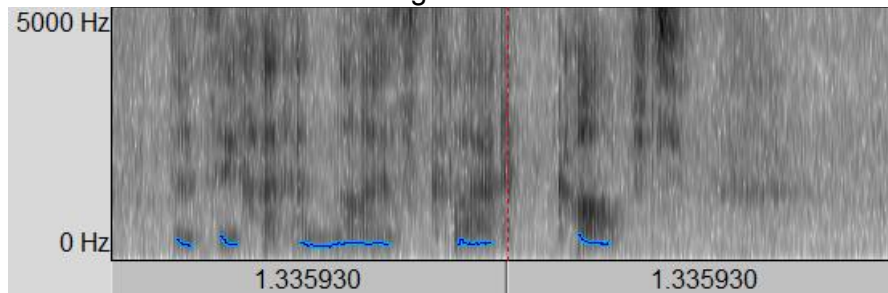
C1 6.2 Sie hat ein neues Kleid gekauft.
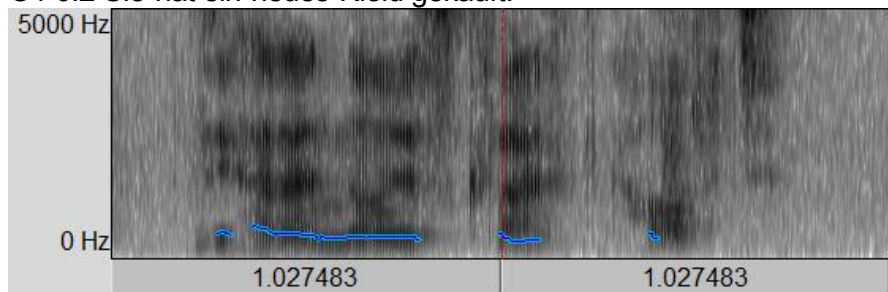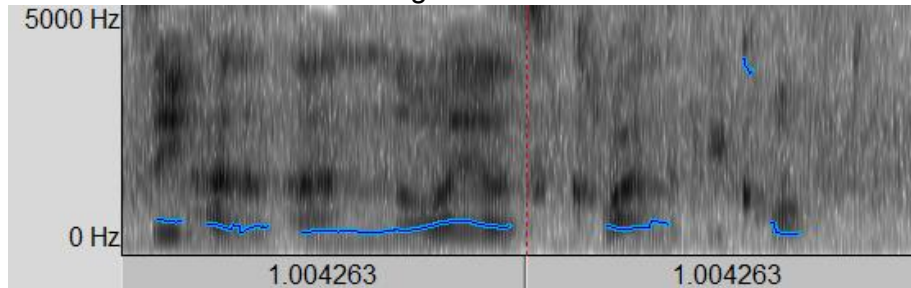

C1 6.3 Sie hat ein neues Kleid gekaut.
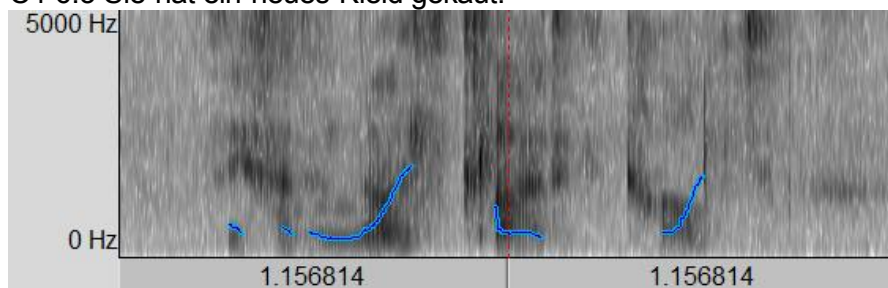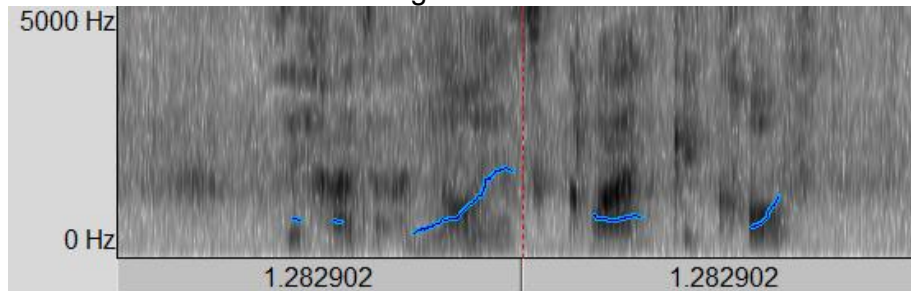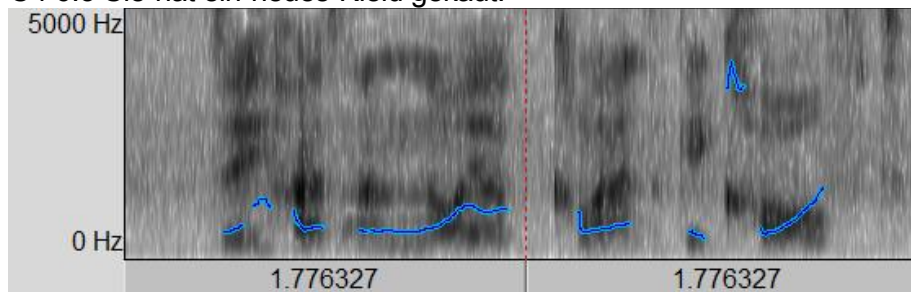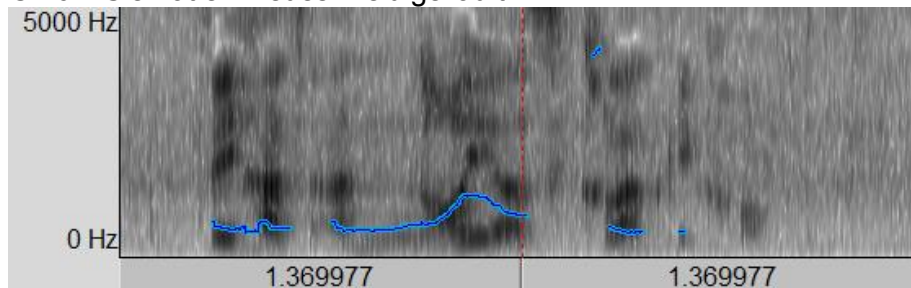

C1 6.4 Sie hat ein neues Kleid gekauft.
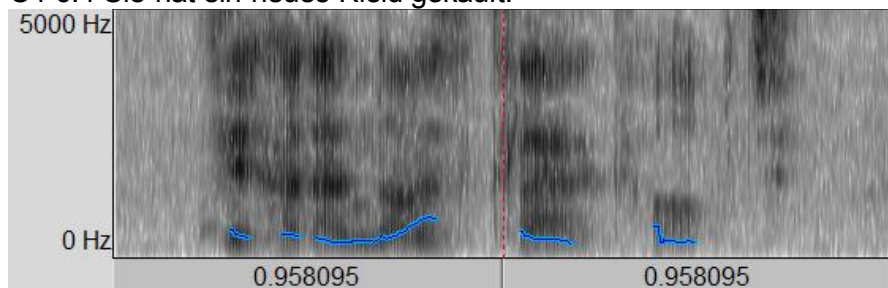
Test Subject: C2

Pitch Analysis

C2 6.1 Sie hat ein neues Kleid gekauft.

1.340952   1.340952

C2 6.2 Sie hat ein neues Kleid gekauft.

1.515102   1.515102

C2 6.3 Sie hat ein neues Kleid gekaut.

1.195828   1.195828
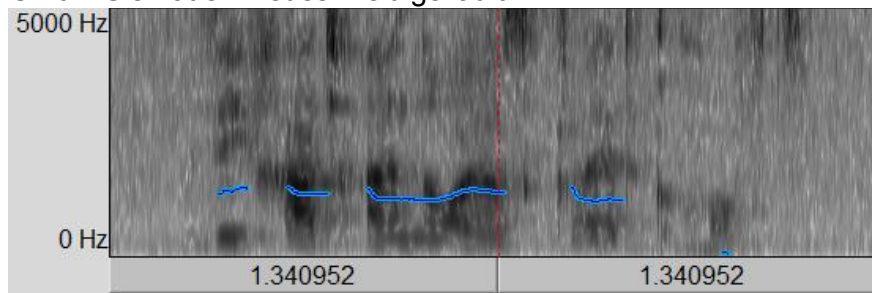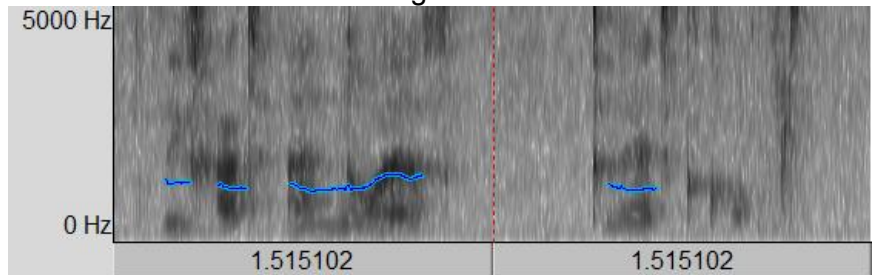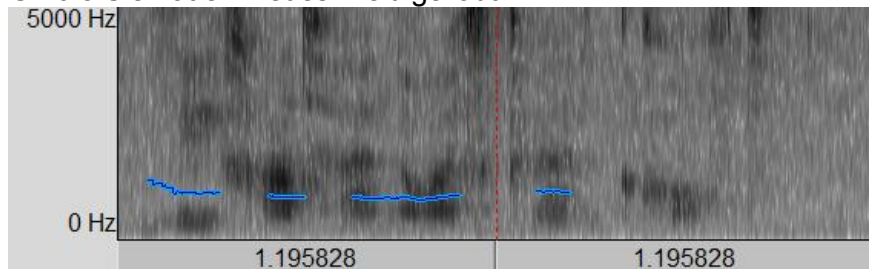
C2 6.4 Sie hat ein neues Kleid gekauft.

1.190023   1.190023
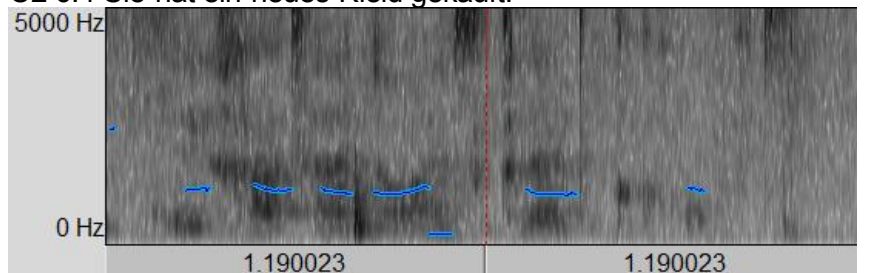
Test Subject: C3

Pitch Analysis

C3 6.1 Sie hat ein neues Kleid gekauft.
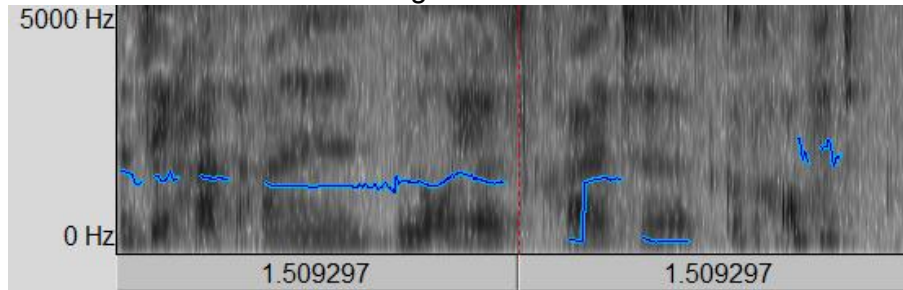
C3 6.2 Sie hat ein neues Kleid gekauft.
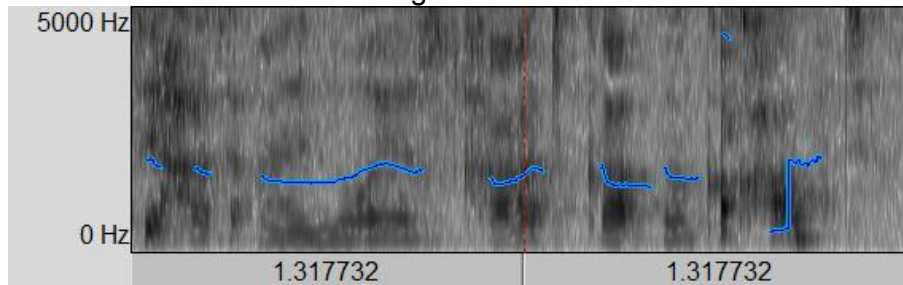
C3 6.3 Sie hat ein neues Kleid gekaut.
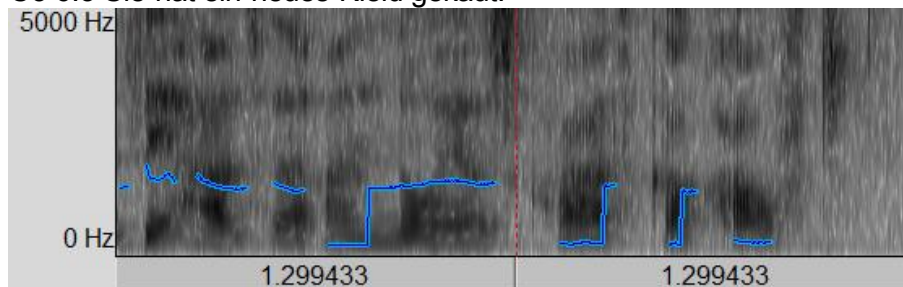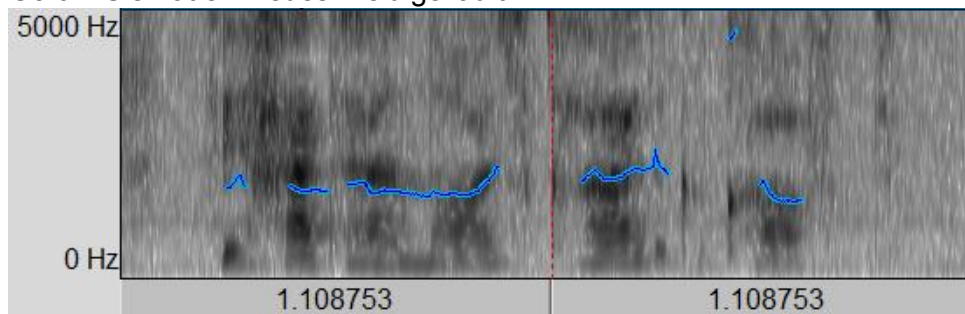

C3 6.4 Sie hat ein neues Kleid gekauft.

Test Subject: C4

Pitch Analysis

C4 6.1 Sie hat ein neues Kleid gekauft.

C4 6.2 Sie hat ein neues Kleid gekauft.

C4 6.3 Sie hat ein neues Kleid gekaut.
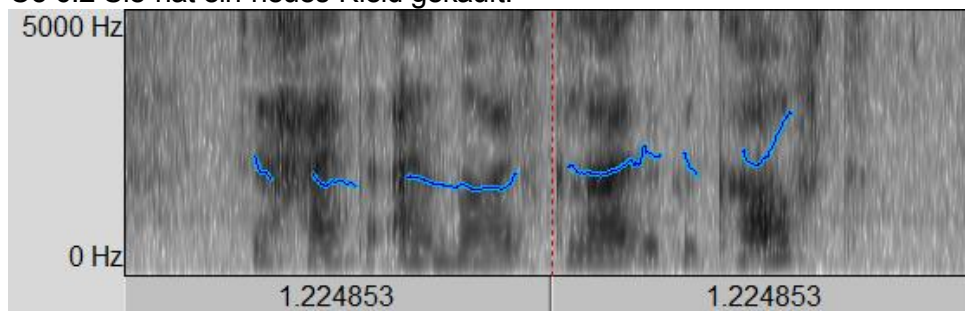

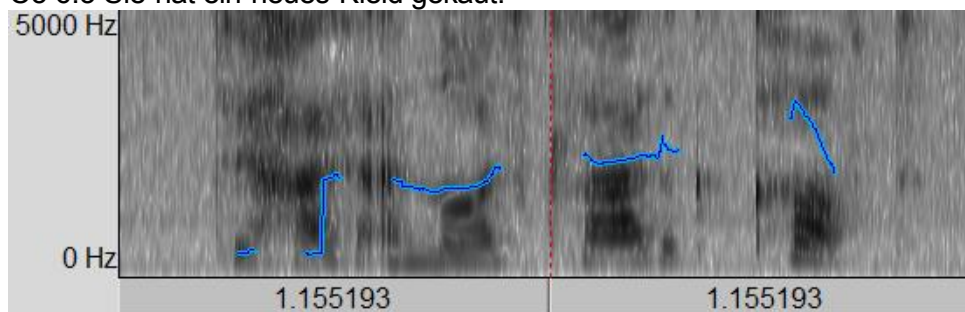C4 6.4 Sie hat ein neues Kleid gekauft.

Test Subject: C5

Pitch Analysis

C5 6.1 Sie hat ein neues Kleid gekauft.

C5 6.2 Sie hat ein neues Kleid gekauft.

C5 6.3 Sie hat ein neues Kleid gekaut.

C5 6.4 Sie hat ein neues Kleid gekauft.