The Pronouncing Dictionary of Austrian German (AGPD) and the Austrian Phonetic Database (ADABA) – Report on a large Phonetic Resources Database of the three Major Varieties of German

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Abstract

The paper gives a comprehensive overview over the results, the concepts and the methods which were developed and used to create the Pronouncing Dictionary of Austrian German (ÖAWB/AGPD) and the Austrian Pronouncing Database ADABA. The AGPD contains 42.000 entries which are based on a large audio corpus of 75.964 realisations of two model speakers each from Austria, Germany and Switzerland. The ADABA database provides 9 different ways to search the data. It also contains 24 model texts and another 30 texts showing linguistic and phonetic variation in Austria and in the other German speaking countries. The codification of Austrian standard pronunciation was based on the concept of German as a pluricentric language and on the concept of "media presentation language". Austrian pronunciation forms are presented in parallel with those of Germany and Switzerland to allow the comparison of differences between linguistically close national varieties of a language. The paper also gives a detailed characterisation of the software (transcriber, database) which was developed during the project that was supported by the Austrian national broadcasting corporation ORF and the University for Music and Dramatic Arts in Graz. Some of the software and the data can be obtained from the web site www.adaba.at.

1. Introduction

This paper gives a final report on the results of the project „Varieties of Austrian German – Standard pronunciation and varieties of standard pronunciation" which started in January 2000 and was finished in September 2007.

1.1 Objectives of the project

The main goal of the project was the creation of an Austrian pronouncing dictionary and a phonetic database which should serve as a means of documentation of the pronunciations presented in the dictionary. Another important objective was the creation of a representative corpus of spoken language of AG which was missing until now. The project was financed by the research fund of the Austrian national bank. However, due to certain restrictions in funding, four applications for funding had to be submitted in order to achieve the necessary means to finalise the project. The project was also supported by the national Austrian broadcasting corporation which provided trained speakers and expert knowledge on present pronunciation and spoken language on Austrian media.

1.2 The participating institutions

The project was carried out and co-ordinated by the "Austrian German Research Centre" at University of Graz which was responsible for the linguistic tasks. The development of software and the audio-editing was carried out by the "Institute of Electronic Music and Acoustics" at the University for Music and dramatic Arts Graz. The ORF - Austrian National Broadcasting Company – supplied expertise and a large number of news readers working at the company which provided the main corpus of spoken language serving as a basis for the codification of Austrian German norms of pronunciation.

2. The results of project I: The contents of the Austrian Pronouncing Dictionary (ÖAWB/AGPD)

The contents of the AGPD are: 1. The model-pronunciation of 42.000 words. 12.964 of these words are also part of the Austrian Pronouncing Database (ADABA) and associated with audio files. 2. The pronunciation of 2.101 common Austrian family names. 3. The pronunciation of all names of the 2.353 Austrian municipalities. 4. An extensive characterisation of the theoretical concepts which the creation of the AGPD and the ADABA-database is based upon. 5. An extensive characterisation of the pronunciation differences between the three major varieties of German which were found in the empirical data. 6. A characterisation of the symbols of the IPA. The ADABA-Database is also part of the Austria Pronouncing Dictionary.

3. The results of project II: The contents of the Austrian Pronouncing Database (ADABA)

ADABA and AGPD are identical in their contents in respect to the total numbers of words (42.000), the number of words which are associated with audio files (12.964), the number of family names (2.101) and the names of the Austrian municipalities (2.353). The differences and additions in ADABA are:

1. The audio-corpus of 12.964 words was pronounced by a total of six speakers - two speakers (male/female) of each national variety. This resulted in a single-word audio corpus of 75.964 files. All 75.964 realisations were transcribed and served as empirical base for the characterisation of the features of Austrian standard pronunciation and the differences between the three major varieties. Transcriptions and audio-realisations are associated and can be the checked against each other by using the graphical user interface of ADABA.

2. A non-audio-corpus which consists of 29.000 words. The transcription of these words was carried out by using the phonetic rules extracted from the audio-corpus.

3. A model-text-corpus of 24 texts spoken by the 2 Austrian and 4 other model speakers. Each speaker real

ised four different texts belonging to different text types. All texts were transcribed and can be played and listened to in parts or as whole. The text types of the model-text-corpus are:

(3.1) A biographical text containing basic biographical data of each model speaker (of about 1-2 min. length). This text type represents the pronunciation of unplanned spontaneous speech of trained speakers.

(3.2) A literary text (1014 words, ca. 8-9 min.) – Das Lächeln der Sphynx (The smile of the sphinx) – by Ingeborg Bachmann – a famous Austrian writer. This text type represents the pronunciation of read speech based on a given text. In addition, the pronunciation is adapted to a text of literary written standard language with an elaborate vocabulary. The particular features of the text in style and vocabulary are emphasised through particular forms of accentuated speech and prosody trying to convey the tragic of the story.

(3.3) A news text (943 words, ca. 8 min.) which gives a summary of domestic and international news of September 12th 2001 which was taken from the videotext pages of the ORF web site. This text type again represents the pronunciation of read speech which is presented as neutral and unemotional as possible. The texts are prepared and in written standard language. The content of the texts are considered as facts and the vocabulary refers to everyday social and political events.

(3.4) 13 phonetically rich sentences (196 words, ca. 1,2 min.) which form a complete text. The vocabulary of the sentences was arranged in a way to represent important features of differences in pronunciation between the three major varieties of German. This text type again represents the pronunciation of read speech which is presented as neutral and unemotional as possible and aims at the comparison of important pronunciation differences.

4. A corpus of 18 biographical model texts (of up to 1,5 min. length) spoken by 18 trained speakers (1 male / 1 female) working as news readers in the 9 regional studios of the Austrian Broadcasting Corporation (ORF) situated in each federal state. Here again the pronunciation is that of unplanned spontaneous speech of trained speakers but with a regional background. They represent a possible regional variation in the pronunciation of Austrian standard speakers working on radio and TV. These texts are not transcribed in IPA but presented as transcript.

5. A corpus of another 4 biographical model texts spoken by 2 trained speakers (1 male / 1 female) each from Switzerland and Germany. They were chosen to show the variation in pronunciation existing between different news readers in the two nations. These texts are presented as transcript.

6. A corpus of 6 texts representing the so called "Interior Austrian language standards" (for a definition of the term see chapter 5) of pronunciations prevailing in larger regions of Austria. The texts come from Carinthia, Vorarlberg, Salzburg, Tyrol, Vienna and the East of Austria each representing forms of pronunciations that are typical for each region and typical for every day conversation. These texts are presented as transcript.

4. The basic theoretical framework - 7 principles

The theoretical concept of the codification of the standard pronunciation of AG is based on seven principles:

1. The functional definition of standard norms: The Austrian pronouncing dictionary should contain the characterisation of the standard varieties of AG and the definition of the varieties should be based on functional criteria. The basic criteria for distinguishing "standard forms" were: These forms are (a) understood nation-wide or inside larger regions and are in general use; (b) they are accepted within defined political units; (c) approved and respected socially; (d) and contributing to the identity of the speakers.

2. The strictly socio-linguistic and descriptive concept of codification: Adopting an extra-linguistic point of view for the definition of linguistic norms.

(a) The description is strictly based on socio-linguistic criteria. Language is considered as a dependant variable whose form and usage is shaped by the social context of the speakers. Linguistic norms are therefore considered as the result of concrete social behaviour shown in the context of defined social structures. (b) The borders of Austrian republic and the borders of the different federal states and regions were determined as the extra-linguistic framework as they play a central role for social orientation and the linguistic identity of the people of this country. (c) The linguistic norms are determined on the basis of a strictly descriptive concept which simply record the linguistic realisations of Austrian speakers carried out in defined social contexts. Normative concepts, looking at how a certain (external) norm is put into practice in Austria were excluded in beforehand in order to avoid the so called "normative circle".

3. The mapping of the general language situation of German and its national varieties: The pluricentricity of German and the specific features of AG.

(a) AG is one of three so called full varieties of German and one of the two non-dominating ones; (b) Austria shares the norms of written German standard language with Germany and Switzerland. For the pronunciation of read language the same phoneme system applies for the three countries. There are substantial differences in the phoneme system of spontaneous speech; (c) The closeness or distance to the system of written language can be taken as *the* central criteria for the characterisation of varieties of pronunciation within a given language community. Formal standard pronunciation is always based on the phoneme system of written language.

4. The mapping of the specific functions of particular pronunciation norms in modern societies: The "media-presentation-norm" of trained speakers on nation-wide radio- and TV-stations was chosen as basis for the characterisation of the formal variety of standard pronunciation in the ÖAWB/ADABA due to its function as nation-wide presence in the electronic media.

The "media-presentation-norm" is defined as the pronunciation of trained speakers – news readers and presenters - realising a norm which is used to present contents on radio and TV-stations broadcasting nation-wide. Due to the high amount of TV and radio consumption the language of the media has also become the predominant model-language for most members of language communities by being exposed to it longer than to any other variety. It is this norm which is omnipresent in daily life and the primary norm of reference when people without specific training in pronunciation speak on radio or TV. This norm is split into two sub-norms: The pronunciation of read speech and the norm of spontaneous speech. AD

ABA contains several texts to show the differences between these sub-norms (see chapter 3.4).

5. The strictly non-prescriptive status of the codified norms. The codified norm is understood as "model-pronunciation", as recommendation and as a point of reference for linguistic orientation.

The corpus of ADABA and the characterisation of pronunciation norms based on it, are seen by us as a recommendation (and not as prescription) for linguistic behaviour in media-presentation situations. The use of these norms or any norm near to it safeguards nation-wide and transnational understandability and also shows the Austrian origin/identity of the speaker. However, parallel to that norm, there are many other regional or situation standards of pronunciation whose value and status within the respective context are functionally equivalent to the "media-presentation-norm".

6. The mapping of the specific language situation and language usage in Austria: The parallel usage of different standards of pronunciation due to different communicative functions: The "Exterior standard" - the norm of linguistic distance - and the "Interior standard(s)" - and the norm of linguistic proximity. This distinction is based on the observation that Austria is a country where an undeclared diglossia ("inner-linguistic multilingualism") is practised between the nation-wide norms based on formal written language and the norms of spoken language that are prevalent in larger regions. The formal norms serve to convey authority, social distance, asymmetric social relations and professionalism, representing institutional roles or acting as expert or superior. The linguistic norms applied are those of linguistic distance - the exterior standard. Opposite to that are all non-formal norms which are used in everyday speech – the interior standard(s) - whose usage is often spread over wide regions. They convey social symmetry, proximity, affiliation, personal commitment, emotionality and personal involvement. They are in-group norms within Austria and function as important identity markers and as markers of affiliation to regions or federal states. A specific feature of Austrian language behaviour is also the frequent switching between the exterior-standard and the interior-standard(s) - often even within a sentence or a conversational turn. This phenomenon has been taken into account by including several texts

(see chapter 3.6) into ADABA to document the specific norms of pronunciation of the interior-standards of AG.

7. Using the media as a uniform context for speech-realisations and as the basis for language documentation and the recordings. It is important to emphasise that this language documentation and its characterisation of pronunciation norms is solely based on realisations of speakers that were produced in a media context (radio, TV). This guarantees a consistent and uniform framework of speech realisation, safeguarding that all speakers conversed under the same conditions.

5. The theoretical framework for choosing model speakers and model text types for the codification of pronunciation

"Media presentation language" and its pronunciation forms can be produced by any professionally trained speaker or untrained speaker speaking in the electronic media. This is the first distinction which had to be made in the codification process. It was based on the assumption that any individual speaker knowing that a large audience is listening, will try to reproduce some kind of language form which is thought to be generally accepted. By doing so, speakers are trying to reproduce their individual "model-standard". Whether the individual pronunciation is exemplary has to be decided in a second run by hearer judgements. It is therefore necessary to distinguish between "model speakers" who are exemplary for the specific speech community and the "other speakers" who are producing non-exemplary forms of pronunciation (which can be widespread but may not be considered to have model status). This led to the conclusion that the codification process had to be controlled on two sides: 1) On the side of the chosen model speakers and 2) on the side of the conditions under which a given form of pronunciation has been or is being produced. For controlling the speaker input, only professionally trained speakers are usually chosen for the codification of a model-pronunciation as their pronunciation is controled. They have also achieved a high amount of steadiness. Figure (1) shows the first step in the selection of model speakers and types of pronunciation: It maps the central domains in the media, the types of speech events and forms of pronunciation associated with them.

Figure 1. Speech events on the media, speaker types and specific realisations of associated pronunciation forms				
1. "PURE VOICES" – PROFESSIONAL NEWS READERS	2. JOURNALISTS AS NEWS READERS (read their own texts)			
ISSUE-RELATED			EMOTION-RELATED	
1.1 Read Language - Not associated with any specific domain Bound to Austrian public	2.1 Read Language - Associated with specific domain – with realisations depending on training, personal formation and domain-specific requirements, strongly bound to Austrian public			
1.1 News, Background-speakers in documentaries and films, Trailer	2.1.1 News Services	2.2.1 Culture / Sciences	2.3.1 Entertainment	2.4.1 Sports
Types of speech: Always prepared, always read, always monologue with a high degree of awareness for abiding to specific pronunciation forms in presentations and announcements (Trailer, Culture programmes)			Always prepared, always read, always monologue with a reduced degree of awareness for abiding to specific pronunciation forms in presentations and announcements	
Types of speech: Never prepared, rarely read, mostly dialogue, with reduced degree of awareness for abiding to specific pronunciation forms, strongly bound to Austrian public	2.2 Spont. Speech –Associated with specific domains			
	2.1.2 Information News Services	2.2.2 Culture / Sciences	2.3.2 Entertainment	2.4.2 Sports
	Often spont. speech	Spont. speech	Spont. speech	Spont. speech
	Possible adaptations to regions and federal states			

The table shows that there are two types of trained speakers working on the electronic media: (a) Professional news readers ("pure voices") and (b) journalists presenting their own texts. A second distinction can be made between the pronunciation of read language and spontaneous speech differentiated by the amount of preparation and control underlying their production. The third criteria is the difference in presentation of content in the more issue-related media formats (news, culture and science programs) versus the more emotion-related formats (entertainment, sports etc.). The latter are not focused on linguistic form but on the adequate presentation of content to a specific target audience. This scheme was used for the primary selection of potential model speakers.

Figure 2 is a much more detailed scheme which outlines central domains of discourse, central text types and types of pronunciation associated with them. This scheme gives an overall outline of all types of speech events and particular pronunciation types. It was used to determine which of these should be included in the codification process at all.

Fig. 2 Outline of basic discourse and text types, types of speech and types of pronunciation associated with them – The theoretical framework for the selection of pronunciation types of Austrian German					
Discourse domain 1 Language of social distance based on written language		**Discourse domain 2** Language of distant social proximity		**Discourse domain 3** Language of social proximity, based on social context	
Public, Issue-related, addressed to out-group		Public or semi-public, Issue- or person-related		Private, person-related, addressed to in-group	
monologue	dialogue	monologue	dialogue	monologue	dialogue
Text types		Text types		Text types	
Read speech, Adapted to forms of written language Read news on radio and TV, Read talk, Read address, Speech, Sermon	Read dialogue of play	Local news on radio and TV, Lecture / talk to work mates	Discussions and public talks on the local media	Read children stories	Any everyday conversation
Spontaneous speech, Face-to-face, Adapted to interlocutor Spont. conversation, Presentation on radio and TV, Reports and documentaries on radio	Discussion on TV in front of audience, Interviews for TV / Radio, Police questioning, Hearing	Speech, Address, Formal report to institutional in-group, Instruction at workplace	Shopping conversation, Conversation in the service industry, Discussion in peer-group	Personal narrative	Private discussion, Private conversation, Private chat, Conversation with friends
Amount of formal training of the speaker					
Trained / Untrained speakers			Untrained speakers		
Language types LF 1	LF 2	LF 3	LF 4	LF 5	LF 6
Language of the media, Language of presentation	Language of the media, Language of presentation, Institutional language	Regional language of the media, Person-related, Institutional language	Language of common everyday conversation and public life, Language of social groups	Read language of untrained speakers	Private everyday language, Language of self-representation, Private, intimate Language
Types of Pronunciation					
PT1	PT2	PT3	PT4	PT5	PT6
Pronunciation of read speech of trained speakers	Pronunciation of media-presentation in spont. discourse of trained speakers	Pronunciation of read speech of trained speakers, regionally slightly adapted	Pronunciation of spont. speech of trained / untrained speakers, regionally slightly adapted	Pronunciation of read language of untrained speakers, regionally slightly adapted	Pronunciation of spont. speech of untrained speakers living in smaller or larger regions

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Only the text types, the speech events and types of pronunciation inside the double lined frames where included in the codification process. The primary reason for this decision was that only these speech events could be controlled sufficiently on the side of the speaker output and on the side of the criteria determining the specific forms of pronunciation. The codification of the model-pronunciation was primarily based on read language and on spontaneous speech of trained speakers. Exemplary texts produced by untrained speakers where included in the text corpus of ADABA to show the differences (see chapter 2).

6. The seven stages of the codification process of AG pronunciation

The codification process went through seven stages: Stage (1) was a preparatory one where the theoretical framework for the selection of model speakers and pronunciation types (as presented above) were developed.

Stage (2) dealt with the selection of model speakers of AG and the other NVG (see chapter 6.1).

Stage (3) dealt with the recording and processing of the acoustic model corpus which was produced by one male and one female speaker for each national variety of German (NVG). The corpora of additional model speakers of AG and the other NVG were collected in a later stage of the project and served to check the general validity of the data of the AG model speakers.

Stage (4) concentrated on the transcription and the characterisation of the phonetic and acoustic features of AG standard pronunciation versus the ones of the other NVG. This was the most tedious and labour-intensive part of the whole project. The single-word-corpus was transcribed three times. This was necessary after it turned out that many substantial differences in the pronunciation of the three NVG became only clear after detailed knowledge of the features of the whole corpus had been gained.

At stage (5), parallel to stage (4), the software for the transcription, storage and the final presentation of the data was developed. The software was gradually improved and adapted to the requirements that came from the transcription of a 80.000 word corpus and 50 texts. It comprises the ADBA-Transcriber and the ADABA-database which are presented in detail in chapter (7).

At stage (6) the non-audio-corpus of 29.000 words of AG was transformed according to the rules found in the audio-corpus and the transcription of the texts finished. The corpus of family names (2.101 words) and the names of the Austrian municipalities (2.353 words) was also added.

At stage (7) the programming of the user interface and the import of the final data into the ADABA-database was carried out. An extensive usability test by software experts linguists and engineers working in the field of signal processing and speech recognition ensured that the functionality of the software was validated.

6.1 The model-speaker selection process

The controlled selection of the model speakers was done in four steps on the basis of the concepts presented above in figure (1) and (2). In step (1) 40 model speakers out of a potential of 500 were selected and asked to record a phonetically rich corpus of 395 words, a short text and a spontaneous characterisation of their curriculum vitae. The speakers were working in all relevant media sections of the national broadcasting corporation (news, sports, culture, science, entertainment etc.) on the national and regional level.

In step (2) 17 of the 40 potential speakers were chosen by the co-ordinators of the project in several rounds of close listening to the texts of the 40 speakers.

In step (3) a web based questionnaire was set up and a large number of schools, organisations, firms and institutions were contacted and asked to participate in the selection of the Austrian model speakers. The questionnaire presented short bits of utterances and single words produced by the speakers asking the participants in the poll to mark their impression on a 7-point scale. Four categories were tested: Whether the pronunciation sounds 1) exemplary or not, 2) natural or unnatural/artificial, 3) Austrian/native or Non-Austrian/non-native, 4) pleasant or unpleasant. A total of 500 persons across the country took part in the poll and yielded a clear and statistically highly significant preference for 2 speakers which then were asked to record the corpus of (originally) 13343 words and 4 texts.

The selection of the German and the Swiss model speakers had to be left to the nomination of "speakers in charge" at German and Swiss broadcasting corporations. This is a shortcoming which we are well aware of. However our funding did not allow a similarly complex and time consuming process of model-speaker selection for the other two NVG too. We had to rely on the judgements of managerial staff of the broadcasting companies which were willing to co-operate with us in the project. This was the case with the Swiss radio DRS and the Südwestfunk in Stuttgart. According to the criteria named by us, a male and a female speaker representing the German and the Swiss variety of media presentation language came to Graz and recorded the corpus.

6. 2 The selection of the model corpus of the Austrian pronunciation dictionary

The model corpus which was read by the model speakers comprises 13343 single words and four texts (see chapter (3) for the text-types). The candidate words for the wordlist for the audio recordings were chosen according to the following criteria: 1) They should be among the most frequently used; (2) They should have a high communicative value in fundamental communicative domains (housing, food, identity, leisure, education etc.); (3) There should also be a list of common inflected word forms as they pose particular pronunciation problems. (4) A list of phonetically rich words and (5) a list of the most common foreign words/loan words used in German should be included as they usually cause a lot of difficulties for non native speakers of German.

For the selection of the wordlist several sources were used: (1) The word list of the Austrian Language Diploma for learners of German as a foreign language which contains 5500 words. This basic vocabulary list was developed on the basis of communicative needs of foreign language taking into account communicative necessity, frequency, structural usefulness and semantic range of the lexical items. 2) A list of the 10.000 most frequent word forms of the corpus of the "Projekt Deutscher Wortschatz"

published in 2001 and based on a corpus of 300 mio. running words; (3) A list of 1.509 phonetically rich words published by Werner König in 1989. (4) A list of 30.000 of the most frequent word forms published by the Institut für deutsche Sprache in Mannheim; (5) A list of 3000 of the most common loan words selected from the Duden Dictionary of foreign words. After all double entries had been removed, the final version of the list included 13343 words which was recorded by the 6 model speakers.

The single word corpus was later reduced to 12.964 words as there were problems with the quality of the recordings etc.

7. The software

7.1 The phonetic database and the user interface

Figure (3) shows a screenshot of the user interface of ADBA – the phonetic database of AG.
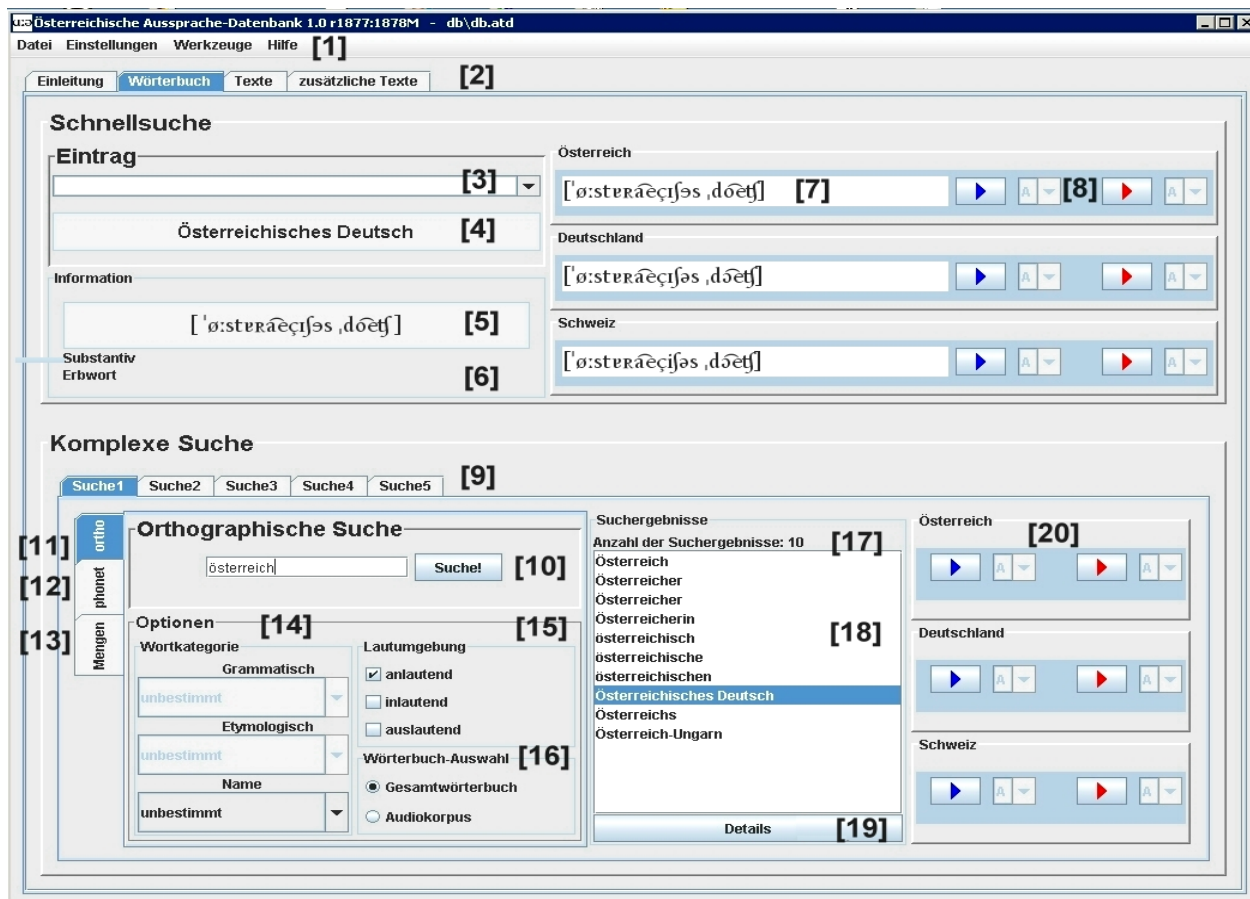

The ADABA-database user interface in detail: (1) The items of this menu give access to the export of search results, to different settings and to phonetic tools like the SAMPA-IPA converter and the SAMPA-Austria table. There is also an extensive help-section. (2) Clicks on the tabs of this menu give access to the phonetic dictionary, the model-speaker texts and the additional texts. (3) Field [3] allows quick searches in the database. (4)-(6) The first entry of the search is shown on field [4], presenting the main transcription (which is identical to the one of AG) in field [5] and grammatical and etymological information of the word in field [6]. (7) The transcription of the realisations of each nation is shown in the fields to the right [7]. If the realisations of both speakers is the same, only one transcription is shown (as in the present example). The audio files can be played by using the play buttons [8] (male/female). If there are several pronunciations per word and per speaker, the field to the left is marked and the variants can also played. (9) The database also allows complex searches. The different searches can be stored by clicking on the tabs of field [9]. (10) Searches are done by writing search items into the search field [10] and pressing the button to the right of it. (11)-

(13): Three main types of searches are available: [11] According to the spelling of words; [12] Phonetic: Two subtypes are available: [12.1] Searches by using phonetic symbols of the IPA (the SAMPA-IPA transformer was included for that); [12.2] Searches by using symbols for sound categories, e.g. K (consonants), V (vowels), F (fricatives) etc. A search by help of sound categories will show all words that contain any sound of the pre-defined sound categories. [13]: Quantity searches: Two or more searches can be stored and the intersection, the set union and the difference quantity of the searches determined. (14) When the option "Audiokorpus" [16] is activated, the searches can also be specified according to grammatical (POS) or etymological criteria and also whether the word is a family name or a place name [14]. (15) All searches can be specified according to the phonetic position of the item (word initial, medial or final position) if any of the options is activated [15]. (17)-(19): The words complying to the search criteria are shown in field [18], the total number of words that were found is given on top of it [17]. Clicking on the bar at the bottom [19] will show the transcription of the marked word. (20) The audio-files can be played by using the play buttons in field (20) or (8).

7.2 The ADABA-Transcriber

The ADABA-Transcriber is an integrated part of the ADABA-Database and was developed during the project to meet the specific requirements of the transcription of the phonetic realisations of six (or more) model speakers in parallel. Figure (3) shows the user interface of the transcriber. The specific features of the transcriber are the following:
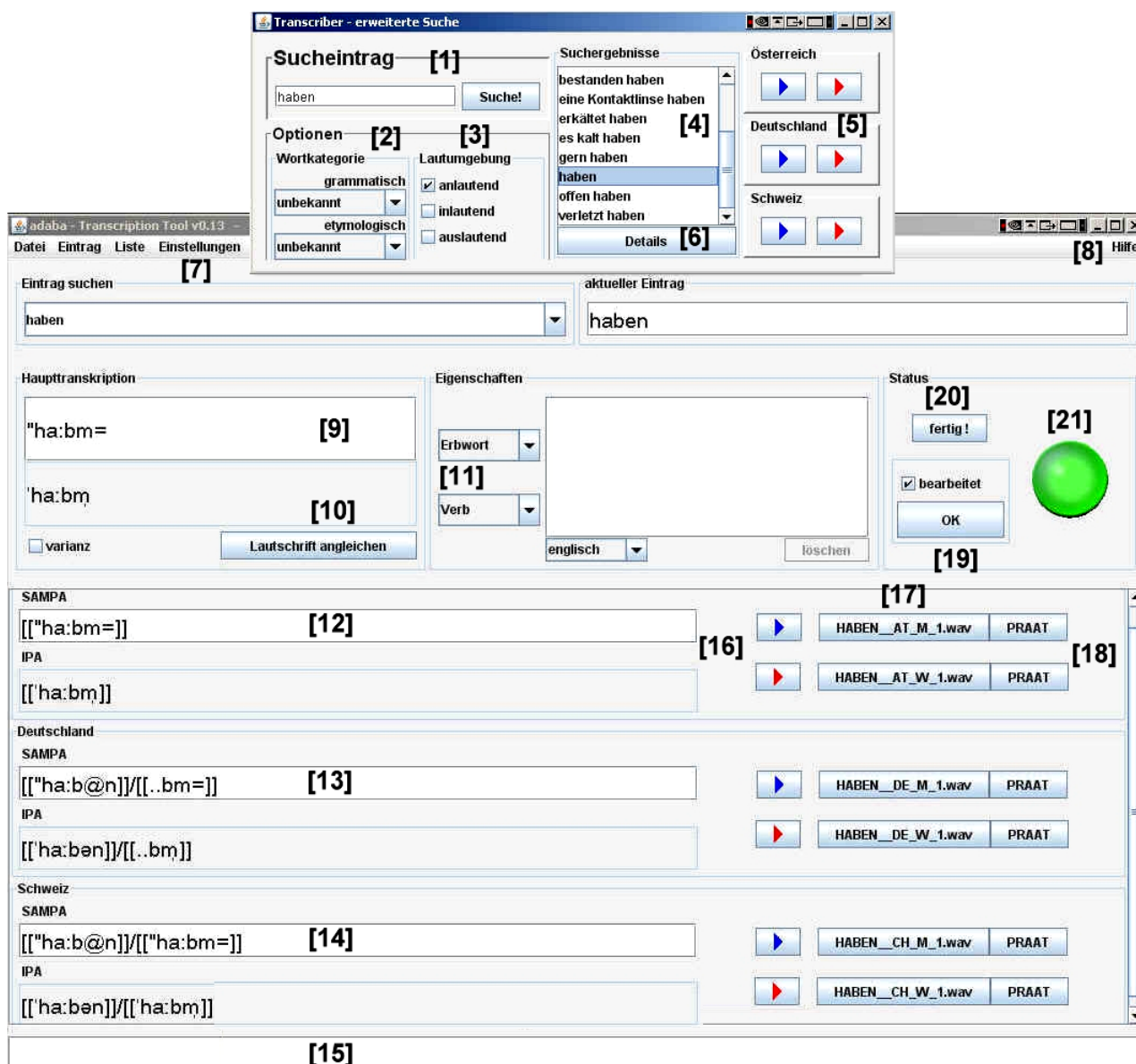
The transcriber consists of two parts: (a) The menu for the extended searches [1] and (b) the transcription menu [7ff]. The menu for the extended searches is in many ways identical to the one of the ADABA database. It consists of search options for grammatical and etymological features [2] and for the position of the phonetic features in the word [3]. The results of a search are shown in a window [4]. The sounds of marked words can be played by clicking on the player-buttons [5]. A click on the button "Details" [6] shows the transcription of the marked word (if available) in the transcription fields below.

The items of the menu bar [7] on top of the transcription menu are identical to the ones in the same position of the ADABA-database. They give access to different menu items for the export/import of data into the database, the addition/deletion of entries from the database etc. The details of the settings are explained in the help-section [8]. A manually inserted or an imported transcription of a word will first appear in field [9] called "main transcrip-

tion". A click on button [10] will transfer this transcription to the transcription fields of the different speakers [12-14]. These fields consist of a line where the transcription can be entered in SAMPA. Pressing the enter-button will transform SAMPA into IPA which is shown beneath. A comment to the transcription/word can be entered in line [15]. Each word can be annotated with grammatical and etymological features by using the respective pull down menus [11]. The audio files which are associated with each word can be played by clicking on button [16]. Each file can also be sent directly to an audio editing program or a phonetic analyser like PRAAT if button [18] is pressed. Any number of external programs can be embedded in the ADABA-transcriber by using the scripts section of the menu bar [7]. Clicking on button [19] stores the data in the database, clicking on button [20] marks the word that the phonetic processing has been finalised.

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8. Summary

The paper presented the concepts and procedures developed and used for the creation of the Austrian pronouncing dictionary and the Austrian pronouncing database ADABA. Further details about the work and ADABA can be found on the web site www.abdaba.at. The latest version of the ADABA-transcriber and the ADABA-database can be downloaded from this web site. The ADABA-transcriber is freeware under a GNU licence. We would like to encourage the scientific community to use and to further develop the transcriber and the ADABA-database.

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