RTVE2020 Database Description

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Abstract. This document presents the RTVE2020 database. The *Corporación Radiotelevisión Española*³ and *Cátedra RTVE de la Universidad de Zaragoza* has released a database with audiovisual and textual documents suitable to be used on the ALBAYZIN evaluation series supported by the *Spanish Thematic Network on Speech Technology* (RTTH)⁴. The database comprises different programs broadcast by Radiotelevisión Española from 2015 to 2019. The programs cover a great variety of scenarios from studio to live broadcast, from read speech to spontaneous speech, different Spanish accents, including Latin-American accents and a great variety of contents including fiction series.

1 Introduction

In 2017, the Corporación Radiotelevisión Española (RTVE) and the Universidad de Zaragoza (UZ) signed an agreement to develop the "Cátedra RTVE de la Universidad de Zaragoza" with the purpose of boosting the technologies associated with the generation of audiovisual metadata. One of the objectives of the Cátedra is to launch a set of technological challenges and provide the necessary data to test the technologies. For this purpose, RTVE released, in 2018, about 586 hours of audio and associated subtitles extracted from different RTVE programs and the whole subtitles broadcasted by the RTVE 24H channel in year 2017. This dataset was used in the IberSpeech-RTVE 2018 challenges. This year 2020, a new set of challenges are organized under the umbrella of the IberSpeech 2020 ⁵. For this purpose, RTVE releases a new dataset of 70 hours of audio and videos with the associated transcriptions. Half of the dataset is labeled in terms of speakers, characters and a set of scene descriptions. Both database, RTVE2018DB and RTVE2020DB are available to the evaluation participants and subject to the terms of a licence agreement with the RTVE. The license agreement can be downloaded from Cátedra RTVE-UZ web page http://catedrartve.unizar.es/rtvedatabase.html

2 Database content

2.1 RTVE2018DB

The RTVE2018 database is a collection of TV shows that belong to diverse genres and broadcast by the public Spanish Television (RTVE) from 2015 to 2018. Table 1 presents the titles, duration, and content of the shows included in the RTVE2018 database. The database is composed

³ http://www.rtve.es

⁴ http://www.rthabla.es

⁵ https://iberspeech2020.eca-simm.uva.es/

of 569 h and 22 min of audio. About 460 h are provided with the subtitles, and about 109 h have been human transcribed. We would like to highlight that in most of the cases, subtitles do not contain verbatim transcriptions of the audio since most of them were generated by a re-speaking procedure (The re-speaker re-utters everything that is being said to a speech-to-text transcription system. Most of the time, the re-speaker summarizes what is being said.). The corpus is divided into four partitions, a training one, two development partitions (dev1 and dev2) and finally, a test partition. Additionally, the corpus includes a set of text files extracted from all the subtitles broadcast by the RTVE 24H Channel during 2017.

The training partition consists of all the audio files without human revised transcriptions, which means that only subtitles are available. The training partition can be used for any evaluation task. For development, two partitions are defined. Partition dev1 contains about 53 h of audio and their corresponding human revised transcriptions. The dev1 partition can be used for either development or training of the speech-to-text systems. Partition dev2 contains about 15 h of audio, human revised transcriptions, speaker changes, and their corresponding speaker labels. Additionally, dev2 contains a 2 h show annotated for multimodal diarization (face and speaker) and enrollment files (pictures, videos, and audio) needed for speaker and face identification. Table 2 shows detailed information about the shows included in the development partitions.

The RTVE2018 database includes a test partition with all the files needed to evaluate systems for speech-to-text and speaker and multimodal diarization. Table 3 presents the content of the test partition. The test set covers diverse genres from broadcast news, live magazines, quiz shows, to documentary series with a diversity of acoustic scenarios. Additionally, the test partition contains the enrollment files for the multimodal diarization challenge. It consists of 10 pictures and a 20 second video of the 39 characters to be identified.

Note that in the current version of the database, the transcriptions aren't synchronized with the audio so the time information of the stm files associated to the audio files are based on dummy segments, only diarization files, rttm, in dev2 and test contain exact time marks for speaker turns.

More info about the use of the RTVE2018 database in the last IberSpeech 2018 can be found in [1].

 $\textbf{Table 1.} \ \textbf{Information about the shows included in the RTVE2018 database}.$

Show	Duration	Show Content		
20H	41:35:50	News of the day.		
Agrosfera	37:34:32	Agrosfera wants to bring the news of the countryside and the sea to farmers, ranchers, fishermen, and rural inhabitants. The program also aims to bring this rural world closer to those who do not inhabit it, but who do enjoy it.		
Al filo de lo Imposible	11:09:57	This show broadcasts documentaries about mountaineering, climbing, and other outdoor risky sports. It is a documentary series in which emotion, adventure, sports, and risk predominate.		
Arranca en Verde	05:38:05	Contest dedicated to road safety. In it, viewers are presented with questions related to road safety in order to disseminate in a pleasant way the rules of the road and thus raise awareness about civic driving and respect for the environment.		
Asuntos Públicos	69:38:00	All the analysis of the news of the day and the live broadcast of the most outstanding information events.		
Comando Actualidad	17:03:41	A show that presents a current topic through the choral gaze of several street reporters. Four journalists who travel to the place where the news occurs show them as they are and bring their personal perspective to the subject.		
Dicho y Hecho	10:06:00	Game show in which a group of 6 comedians and celebrities compete against each other through hilarious challenges.		
España en Comunidad	13:02:59	Show that offers in-depth reports and current information about the different Spanish autonomous communities. It is made by the territorial and production centers of RTVE.		
La Mañana	227:47:00	Live show, with a varied offer of content for the whole family and with the clear vocation of public service.		
La Tarde en 24H Economia	04:10:54	Program about the economy.		
La Tarde en 24H Tertulia	26:42:00	Talk show of political and economic news (4 to 5 people).		
La Tarde en 24H Entrevista	04:54:03	In-depth interviews with personalities from different fields.		
La Tarde en 24H el Tiempo	02:20:12	Weather information of Spain, Europe, and America.		
Latinoamérica en 24H	16:19:00	Analysis and information show focused on Ibero-America, in collaboration with the information services of the international area and the network of correspondents of RTVE.		
Millennium	19:08:35	Debate show of ideas that pretends to be useful to the spectators of today, accompanying them in the analysis of everyday events.		
Saber y Ganar	29:00:10	Daily contest presented that aims to disseminate culture in an entertaining way. Three contestants demonstrate their knowledge and mental agility, through a set of general questions.		
La Noche en 24H	33:11:06	Talk show with the best analysts to understand what has happened throughout the day. It contains interviews with some of the protagonists of the day.		
Total duration	569:22:04			

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Table 2. RTVE2018 development (dev) partitions with shows and duration. S2T, speech-to-text; SD, speaker diarization; MD, multimodal diarization.

dev1	Hours	Track	dev2	Hours	Track
20H	9:13:13	S2T			
Asuntos Públicos	8:11:00	S2T			
Comando Actualidad	7:53:13	S2T			
La Mañana	1:30:00	S2T			
			Millennium	7:42:44	SD, S2T
La noche en 24H	25:44:25	S2T	La noche en $24\mathrm{H}$	7:26:41	$\mathrm{SD},\mathrm{S2T},\mathrm{MD}$
	52:31:51			15:09:25	

Table 3. Test dataset partition with shows and duration.

Show	S2T	SD	MD
Al filo de lo Imposible	4:10:03		
Arranca en Verde	1:00:30		
Dicho y Hecho.	1:48:00		
España en Comunidad	8:09:32	8:09:32	
La Mañana	8:05:00	1:36:31	1:36:31
La Tarde en 24H (Tertulia)	8:52:20	8:52:20	2:28:14
Latinoamérica en 24H	4:06:57	4:06:57	
Saber y Ganar	2:54:53		
	39:07:15	22:45:20	4:04:45

2.2 RTVE2020DB

The RTVE2020 database is a collection of TV shows that belong to diverse genres and broadcast by the public Spanish Television (RTVE) from 2018 to 2019. Table 4 presents the titles nad duration of the shows included in the RTVE2020 database.

The database is composed of 55 h and 40 min of audio. The whole database has been human transcribed and it will be used as *test* partition for the speech to text challenge.

Additionally, 33 h and 21 min of audio and video have been labeled in terms of speaker and character turns, and scene descriptors. The scene descriptors are used to label the video in terms of the scene content. We have defined 5 scene descriptor objects which are: environment, place, screen, season, and time.

- The **environment** descriptor includes two labels, *rural* (countryside scenes) and *urbano* (city scenes).
- The place descriptor includes two labels, interior (indoor scenes) and exterior (outdoor scenes).
- The screen descriptor includes only a label, multipartalla to label scenes containing multiple screens.
- The **season** descriptor includes two labels, *verano* (warm weather scenes) and *invierno* (cold weather scenes).
- The **time** descriptor includes two labels, dia (daylight scenes) and noche (nightlight scenes)

161 characters have been labeled and their corresponding enrollment files (pictures and videos with audio) needed for speaker and face identification are provided. Figure 2.2 shows two examples of scenes with the associated transcription, speaker and character names, and the scene descriptors.

The enrollment material consists of 10 pictures and a 20 second video with the corresponding audio of each known character. Around 4 hours of the database are given as development set (see table 5) and the rest, 29 hours, will be released as test.

All the partitions, train, dev1, dev2 and test of the RTVE2018 database can be used as training or development for testing with the new RTVE2020.

Table 4. Information about the shows included in the RTVE2020 database.

Show	Duration	Show Content	
Ese programa del que usted me habla	01:58:36	A TV program that reviews daily political, cultural, social and sports news from the perspective of comedy.	
Los desayunos de TVE	10:58:34	The daily news, politics, interviews and debate program	
Neverfilms	00:11:41	A webseries that parody humorously trailers of series and movies well known to the public.	
Si fueras tu	00:51:14	Interactive series that tells the story of Alba, a 17-year-old girl who arrives in a new urbanization and discovers that she has a mysterious relationship with a girl who disappeared six months earlier.	
Bajo la red	00:59:01	It is a youth fiction series whose plot is about a chain of favors on the internet	
Comando Actualidad	4:01:31	A show that presents a current topic through the choral gaze of several street reporters. Four journalists who travel to the place where the news occurs show them as they are and bring their personal perspective to the subject.	
Boca norte	01:00:46	A story of young people who dance to the rhythm of trap and set in Barcelona	
Wake-up	00:57:28	A story that combines science fiction, a post-apocalyptic Madrid and lots of action inspired aesthetically and narratively in video games.	
Versión española	02:29:12	Program dedicated to the promotion of Spanish and Latin American cinema.	
Aquí la tierra	10:26:02	A magazine that deals with the influence of climatology and meteorology both personally and globally.	
Mercado central	08:39:47	A Spanish soap opera set in a today's Madrid market.	
Vaya crack	05:06:00	A contest where contestants take multiple quiza designed to test their abilities in one or more of the following intelligence categori musical, physical, social, logical, visual, and linguistic.	
Cómo nos reímos	02:51:42	A program dedicated to the great comedians and their work on RTVE programs.	
Imprescindibles	3:12:31	A documentary series on the most outstanding figures of Spanish culture in the 20th century. The audio corresponeds to raw material and contain to microphone channels, the interviewer and interviewed.	
Millennium	1:56:11	Debate show of ideas that pretends to be useful to the spectators of today, accompanying them in the analysis of everyday events.	
Total duration	55:40:16		

 ${f Fig.\,1.}$ Examples of the metadata included on the labeled material: transcription, speaker and character names, and scene descriptors



Table 5. RTVE2020 development partition for diarization tasks with shows and duration.

Show	Duration
Aquí la tierra Bajo la red	02:56:38 00:59:02 03:55:31

2.3 Database structure

The structure of the RTVE2018 database is as follows:

 $-\ RTVE2018/train$ - a folder with the train dataset.

- RTVE2018/train/audio a folder with the train audio files in AAC⁶ format.
- RTVE2018/train/srt a folder with the subtitles associated with the training audio files in srt^7 format.
- -RTVE2018/dev1 a folder with the development dev1 dataset.
- -RTVE2018/dev1/audio a folder with the development dev1 dataset audio files.
- RTVE2018/dev1/trn a folder with the development dev1 dataset human revised word transcriptions in trn^8 format.
- RTVE2018/dev1/stm a folder with the development dev1 dataset $\rm stm^9$ reference files for ASR scoring.
- RTVE2018/dev2 a folder with the development dev2 dataset.
- RTVE2018/dev2/audio a folder with the development dev2 dataset audio files in AAC format.
- RTVE2018/dev2/trn a folder with the development dev2 dataset human revised word transcriptions in trn format.
- RTVE2018/dev2/stm a folder with the development dev2 dataset stm reference files for ASR scoring.
- RTVE2018/dev2/rttm a folder with the development dev2 dataset reference speaker and face diarization files in $rttm^{10}$ format.
- RTVE2018/dev2/video a folder with the development dev2 dataset audiovisual files in ${\rm mp4^{11}}$ format.
- RTVE2018/dev2/enrollment a folder with the development dev2 dataset enrollment files for person identification in the Speaker and Multimodal Diarization tasks.
- RTVE2018/dev2/enrollment/<name> a folder with the development dev2 enrollment files for <name> person. For each person to be identified, a set of pictures and mp4 videos with audio are provided as enrollment information.
- RTVE2018/test a folder with the test dataset.
- RTVE2018/test/audio a folder with the test dataset audio files in AAC format.
- RTVE2018/test/enrollment a folder with the test dataset enrollment files for person identification in the Speaker and Multimodal Diarization tasks.
- RTVE2018/test/enrollment/<name> a folder with the test enrollment files for <name> person. For each person to be identified, a set of pictures and mp4 videos with audio are provided as enrollment information.
- RTVE2018/test/references a folder with the test reference files. The folder contains subfolders with the rttm and stm reference files.
- $-\ RTVE2018/subtitles$ a folder with text files extracted from subtitles.
- RTVE2018/subtitles/2017 a folder with text files extracted from the subtitles broadcast along 2017 at the RTVE 24H channel. Files are plain text using utf-8 charset. Each line is a sentence.
- RTVE2018/scoring a folder with the scoring scripts.
- RTVE2018/doc a folder with relevant evaluation information: examples output files, evaluation plans, data organization, README file, license agreement, etc.

See section 3.2

 7 https://es.wikipedia.org/wiki/SubRip

See section 3.3

8 each line contains speaker identity (#_speaker) and the word transcriptions. See section 3.4

 9 Reference file format used by sclite NIST scoring tool See section $3.5\,$

¹⁰ A modified version of the NIST format to include the type object FACE. See section 3.6

https://es.wikipedia.org/wiki/H.264/MPEG-4_AVC See section 3.1

 $^{^{6}}$ (LC mp4a), 44100 Hz, stereo, variable bitrate.

The structure of the RTVE2020 database is as follows:

- -RTVE2020/dev a folder with the development dev dataset.
- RTVE2020/dev/audio a folder with the development dev dataset audio files in AAC format. See section 3.2.
- RTVE2020/dev/video a folder with the development dev dataset audiovisual files in mp4 format. See section 3.1.
- RTVE2020/dev/rttm a folder with the development dev dataset reference speaker, face and scene descriptors diarization files in rttm format. See section 3.6.
- RTVE2020/dev/enrollment a folder with the development dev dataset enrollment files for person (speaker and face) identification.
- RTVE2020/dev/enrollment/<name> a folder with the development enrollment files for <name> person. For each person to be identified, a set of pictures and mp4 videos with audio are provided as enrollment information.
- RTVE2020/test a folder with the test dataset.
- RTVE2020/test/audio a folder with the test dataset audio files in AAC format.
- RTVE2020/test/enrollment a folder with the test dataset enrollment files for person (speaker and face) identification.
- RTVE2020/test/enrollment/<name> a folder with the test enrollment files for <name> person. For each person to be identified, a set of pictures and mp4 videos with audio are provided as enrollment information.
- $-\ RTVE2020/test/video$ a folder with the test audiovisual files in mp4 format.
- RTVE2020/test/references a folder with the test reference files. The folder contains subfolders with the rttm and stm reference files.
- -RTVE2020/scoring a folder with the scoring scripts.
- RTVE2020/doc a folder with relevant evaluation information: examples output files, evaluation plans, data organization, README file, license agreement, etc.

3 Database file formats

RTVE databases contain a set of video, audio and text files. All video and audio files are distributed encoded using the mp4 standard. All the text files are distributed using the utf-8 charset.

3.1 Video files (.mp4)

For multimodal diarization task, development and test video files are provided with the audio track in a mp4 container.

The default format is the one used by the on demand Internet channel "RTVE a la carta" ¹². The video stream is encoded using the h264 video coding standard with yuv420p pixel format, aspect ratio 1024x576 [SAR 1:1 DAR 16:9], 25 fps and an average bit rate of 1500 kb/s.

The audio stream is encoded using the mpeg Low Complexity (AAC-LC) audio codec with a sampling rate 44100 Hz, stereo and a variable bit rate ranging from 48 to 96 kb/s

3.2 Audio files (.aac)

All the audio files are provided encoded in the AAC format. The stereo audio signal at 44100 Hz sampling rate per channel has been encoded using the mp4-LC profile with a variable bit rate ranging from 48 to 96 kb/s The audio files have been created by extracting the audio stream from the video files without decoding/encoding using the following ffmpeg command:

ffmpeg -i <name> -vn -acodec copy 'basename <name> .mp4'.aac

where <name> is the mp4 video file containing the audio stream to extract.

¹² http://www.rtve.es/alacarta/

3.3 Subtitles files (.srt)

The subtitles files are distributed in Subrip format. The Subrip format is a text file with .srt extension¹³. The Subrip format consists of four parts, all in plain text:

- 1. A number indicating which subtitle it is in the sequence.
- 2. The time that the subtitle should appear on the screen, and then disappear.
- 3. The subtitle itself.
- 4. A blank line indicating the start of a new subtitle.

```
Here is an example of a Subrip file:

1
00:00:10,000 --> 00:00:13,560
Escuchar el ruido,

2
00:00:13,640 --> 00:00:18,600
hay que escucharlos todos los días.

3
00:00:22,560 --> 00:00:25,320
-La satisfacción de una isla que está desierta

4
00:00:25,360 --> 00:00:30,360
y va a una expedición y puedes hacerla con los medios que tenemos.
```

Subrip files are easily manipulated using the pysrt¹⁴ library in Python.

3.4 Reference Trancription files (.trn)

The human-revised word transcriptions are given in text files. The transcription files use the .trn extension. A TRN format consists of text lines with a speaking turn structure. Each line is a turn beginning with the speaker id (#_<ID>) and the word transcriptions. Here is an example:

```
(#_0) Abuelo.
(#_1000) (Gritan todos) ¡Abuelo!
(#_1) ¿De dónde vienen ustedes?
(#_2) De Galicia.
(#_1) Vienen bien lejos, entonces, aquí a conocer El Torcal
(#_3) A ver lo más bonito que tienen aquí.
(#_4) ¿Están ustedes esperando para subir al castañar?
(#_1000) (Gritan niños) Sí.
(#_4) ¿Y nos dicen que llevan cuánto tiempo?
(#_5) Hora y media.
(#_6) ¿Y toda esta gente a qué viene?
(#_7) Vienen a ver la berrea.
```

¹³ https://matroska.org/technical/specs/subtitles/srt.html

¹⁴ https://github.com/byroot/pysrt

```
(#_1000) (Bramido)
```

- $(\#_{-4})$ Es ahora o nunca. Yo que usted me perdería en ellos.
- (#_8) Los meses fuertes son los meses de primavera y de otoño.
- (#_6) ¿Qué significa, entonces, para ti este este paraje?
- (#_9) Es uno de los sitios más bonitos que he visto.
- (#_10) Es una maravilla, con los colores ocres y...

The speaker ID (# $_{-}1000$) is used as special speaker id mark for relevant non-speech turns as music, laughter, shouting and so on. The non-speech audio is written in parentheses, as (*Gritan todos*)¹⁵.

3.5 ASR reference files (.stm)

The STM format describes the segment time marked files consisting of a concatenation of text segment records from a waveform file¹⁶. Each record is separated by a newline and contains: the waveform's filename and channel identifier [A|B], the talkers ID, begin and end times (in seconds), optional subset label and the text for the segment. Here is an example of stm file:

20H 1 Presentador 2079.102 2086.618 <,,> El premio se les concedió por sus descubrimientos sobre los mecanismos moleculares que controlan los ritmos cardiacos

 $20H\ 1$ Presentador $2086.642\ 2092.578 <,,>$ En la información que van a ver a continuación van a intentar explicar qué es exactamente eso .

 $20 \rm H~1~Voz_off8~2093.900~2101.040<,,>$ Los ritmos circadianos podrían traducirse popularmente como los mecanismos de nuestro reloj biológico interno

3.6 Diarization files (.rttm)

For speaker and multimodal diariation task, the dataset contains Rich Transcription Time Marked (RTTM) files with the ground-truth. The RTTM files are space-separated text files that contains meta-data "Objects" that annotate elements of the recording. Each line represents the annotation of 1 instance of an object. Object types can be used or not used depending on the particular evaluation. Table 6 shows the RTTM field names and values used in the RTVE2018 and RTVE2020 databases. A more detailed description of the format can be found in Appendix C of the 2015 KeyWord Search Evaluation Plan¹⁷. For the sake of clarity new objects have been defined to annotate the face appearances and scene descriptors.

OBJECT File Channel Beg_Time Dur <NA> <NA> Object_Label <NA> <NA> Where:

- OBJECT: A tag indicating that the segments contains information about the beginning, duration, identity, etc. of a segment that belongs to a certain OBJECT.
- file: It is the name of the considered file.
- tbeg: The beginning time of the segment, in seconds, measured from the start time of the file.
- tdur: It indicates the duration of the segment, in seconds.
- Object_Label: It refers to the label asigned to the OBJECT present in the considered segment.

The tag <NA> indicates that the rest of the fields are not used. The numerical representation must be in seconds and hundredth of a second. The decimal delimiter must be '.'.

¹⁵ all screaming

¹⁶ http://www1.icsi.berkeley.edu/Speech/docs/sctk-1.2/infmts.htm

 $^{^{17}\} https://www.nist.gov/sites/default/files/documents/itl/iad/mig/KWS15-evalplan-v05.pdf$

Field 1 2 3 6 9 10 SPKR-INFO file 1 <NA><NA><NA>|unknown speaker_label <NA><NA>tbeg **SPEAKER** file 1 tdur <NA> | <NA> speaker_label <NA>|<NA>FACE-INFO file 1 <NA> <NA><NA> unknown face_label <NA>|<NA>FACE file tbeg tdur <NA> <NA> face_label <NA> | <NA> ENVIRONfile <NA><NA> <NA> unknown rural, urban <NA>|<NA>INFO **ENVIRON** file tbeg tdur <NA> <NA> environ_label <NA> <NA> PLACEfile 1 <NA> <NA> <NA> unknown interior, exte-<NA> <NA> INFO rior PLACE file tbeg tdur <NA> <NA> place_label <NA> <NA> 1 SCREENfile 1 <NA><NA><NA> unknown multipantalla <NA>|<NA>INFO SCREEN tbeg <NA> <NA> <NA> <NA> file tdur screen_label SEASONfile <NA><NA> <NA> unknown inverno, <NA> <NA> INFO ano SEASON file tbeg tdur <NA>|<NA>season_label <NA>|<NA>TIME-INFO file 1 <NA> <NA><NA> unknown dia, noche <NA>|<NA>TIME file 1 tbeg tdur <NA>|<NA>time_label <NA>|<NA>

Table 6. RTTM files names used

4 License

The RTVE data is available to the IberSPEECH-RTVE 2020 Challenge evaluation participants subject to the terms of a licence agreement with the RTVE. The license agreement can be downloaded from Cátedra RTVE-UZ web page (http://catedrartve.unizar.es/rtvedatabase.html). Participants must sign the agreement and send a scanned copy attached to the email. A digital signature is also valid. A copy signed by RTVE representative will be returned following the instructions given in the web page. RTVE authorize the use of the contents released for the call IBERSPEECH-RTVE Challenge 2020, for its use in research works, to all those participants. The authorization will be valid for three years from the date of the public communication of the results of the Challenge 2020. After this period, if necessary, an extension may be requested for the same use.

References

[1] Lleida, E., Ortega A., Miguel A., Bazán-Gil, V., Pérez C., Gómez M., de Prada, A., Albayzin 2018 Evaluation: The IberSpeech-RTVE Challenge on Speech Technologies for Spanish Broadcast Media. Applied Sciences, Vol 9, Num 24, 2019, doi=10.3390/app9245412