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“Bemba”  
Textbook 2



# Copperbelt Bemba:

A collection of phonetic materials on  
nominal tone patterns

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Research Institute for Languages and Cultures of Asia and Africa

ILCAA Intensive Language Course 2023 “Bemba” Textbook 2  
Copperbelt Bemba: A collection of phonetic materials on nominal tone patterns

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## Foreword

This volume serves as a data material on tonal patterns of selected basic nominal words in contemporary Copperbelt Bemba, a Bantu language spoken in Copperbelt region of Zambia as a widely used lingua franca, which is published as an outcome of ILCAA's intensive language course held from August 21 to September 8 in 2023. All the data compiled in this volume were recorded in vocabulary research sessions which were held daily during the course.

Recorded sound files were processed with the computer program for acoustic phonetic analyses Praat (<https://www.fon.hum.uva.nl/praat/>). The entire process, encompassing identification of speech tokens, assignment of text annotations, sound file segmentation into tokens, and creation of plots, was collaboratively conducted by the team of authors.

The initial section of this material comprises a word list accompanied by notes. This section is based on a data table of the collected vocabulary containing word forms, tonal properties, and lexical meanings, which was also created by the team. For detail information on phonetics and phonology of this language, especially phonemic inventory and basic tonal features, see Shinagawa (2024) *Copperbelt Bemba: a sketch grammar*, which is also published as an outcome of the course.

We wish to express gratitude to Subila Chilupula, the co-lecturer of the course, who actively participated in the recording sessions as a speaker of the language. Our appreciation extends to Allison Adelman for precise proofreading of the notes and comments in the word list. Any errors or deficiencies that might persist are of our own responsibility.

March 2024  
The authors

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# Introduction

## 1. About this volume

This material book of nominal tone in Copperbelt Bemba (CB) consists of two parts.

Part I is a list of the lexical items which are among the most basic vocabulary classified as class-A vocabulary in ILCAA's vocabulary questionnaire (ILCAA 1979).<sup>1</sup> As is usually the case in most Bantu languages, nominal words can be realised with various tonal patterns depending on the morphosyntactic environment. Part I thus provides descriptive information on various realisation forms of the basic nouns in five different grammatical contexts, which are briefly explained in Sections 2 and 3.

Part II provides a set of plots of acoustic measurements of each token. The acoustic properties shown in the plot include sound wave, duration, spectrogram (formant), and pitch curve (F0). Each plot is identified with a specific token listed in Part I through a unique token ID. We examined 73 lexemes from the 67 questionnaire entries of class-A vocabulary, i.e., synonymic lexemes were collected for six items. Each lexeme yields at most 10 different tokens, i.e., five different realisations depending on different morphosyntactic contexts for both singular and plural forms. Since not all lexemes have a full set of 10 different forms, the total number of tokens whose phonetic measurements are presented in the form of a plot is 610.

## 2. Structure of an entry

Each entry in Part I has a number of data fields including metadata for each lexical item. Table 1 gives a brief explanation for each data field.

Table 1: Brief explanation of each data field

i. Item number	The item number given in ILCAA's vocabulary questionnaire (ILCAA 1979). If there are multiple entries of synonymic forms, an additional letter is appended, e.g., 0132-a <i>inshilá</i> 'way'; 0132-b <i>umúsébó</i> 'road'.
ii. Heading	The head word of the corresponding number of the questionnaire, which is given in English and Japanese.
iii. Pitch pattern	The surface pitch pattern of the form in isolation is shown. It is based on the surface realisation of the singular form, except for the cl. 5/6 nouns, where the cl. 6 form is adopted as the basis since it is in the 'canonical' template with the V-CV- prefixal cluster. Ø indicates that the entire stem lacks an underlying high tone specification. Tone symbols used here—such as H, <sup>+</sup> H, and L—stand for high, downstepped high, and low tones at the surface level, respectively. These tone symbols are linked not only to a vowel but also to a nasal of an NC sequence, except for the <i>i-N-</i> prefixal cluster of cl. 9/10,

<sup>1</sup> The questionnaire is titled *Linguistic Questionnaire for Asia and Africa 2*, and is available online at <https://online-resources.aa-ken.jp/resources/detail/IOR000138>

	which is regarded as a single TBU. See Section 3 below for further information.
iv. Corresponding form in Guthrie & Mann (1995)	A corresponding word form in the Bemba vocabulary by Guthrie & Mann (1995), which helps to identify the correspondence of tonal property between contemporary CB and the ‘homeland’ Bemba spoken in the 1940’s, from which Guthrie collected the data.
v. Noun class	Noun class as a lexical property inherently assigned to the stem is indicated. For detailed information on each noun class, see the accompanied Sketch Grammar (SG).
vi. Notes	Additional notes on semantic or tonal features are given.
vii. Token-ID	The four-digit number shown here is a part of the entire token ID shown in the bottom tier of the plot, which has the form of “bem-voc-xxxx-y”, in which “xxxx” is the four-digit number shown here, while “y” indicates the repetition number in the recording session.
viii. Forms in isolation	The form of utterance of the word in isolation.
ix. Predicate form	The form used as a predicate noun. In most noun classes, the noun class prefix undergoes compensatory lengthening in the absence of the augment. For cl. 1a/2a and 9/10, the predicator <i>ni=</i> is attached to a full noun, instead of dropping of the augment.
x. PRED preceded by a demonstrative	The predicate form preceded by a counter-distal demonstrative, which makes a copulative clause meaning ‘This is a X’.
xi. Form preceded by an infinitive	This facilitates seeing the tonal realisation of a noun in immediately after the verb (IAV) position, where underlying representation of the Ø-toned nouns is assumed to be realised.
xii. Form followed by a possessive pronoun <sup>2</sup>	This is another environment where the noun is followed by a possessive pronoun to form an NP, where a certain type of noun shows a distinct tone pattern from that observed in isolation (see Table 2 in Section 3 below).

Figure 1 shows a graphic illustration of the structure and arrangement of the data fields in a lexical entry.

<sup>2</sup> We admit that our dataset contains some tokens that are semantically incongruous without specific contextual support, such as ‘my noses’ and ‘my mouths,’ especially in this possessive environment.

	i. Item number	ii. Heading	iii. Pitch pattern	iv. Corresponding form in Guthrie & Mann (1995)
	0031	finger 指		
v. Noun Class	NC 12/13	pitch pattern: HHLLL	Guthrie: ákákòndò 'toe'	
vi. Notes	Notes: ákákòndò is used to denote 'a finger' by younger generations. Older generations use umúmwá to refer to 'a finger'.			
vii. Token-ID		SG		PL
viii. Form in isolation	指 0111	ákákòndò 'a finger'	0116	únikòndò 'fingers'
ix. Predicate form	PRED	0112 káákòndò 'it is a finger'	0117	únikòndò 'they are fingers'
x. PRED preceded by a demonstrative	DEM	0113 aká káákòndò 'this is a finger'	0118	utí-únikòndò 'these are fingers'
xi. Form preceded by an infinitive	INF	0114 úkúmwá ákákòndò 'to see a finger'	0119	úkúmwá únikòndò 'to see fingers'
xii. Form followed by a possessive pronoun	POSS	0115 ákákòndò káandí 'my finger'	0120	únikòndò twaandí 'my fingers'

Figure 1: The structure of an entry in Part I

### 3. General observations on nominal tone patterns

Some basic observations on nominal tone patterns are provided in Section 1.3.1 in SG. The following is an excerpt of that section with some additional information. First, as shown in Table 2 (1-3-1 in the original SG), nominal stems in CB are classified into two categories, i.e., one with no lexical high tone assigned, thus called  $\emptyset$ -toned nouns (or toneless nouns), and one with any lexical high tone assigned, labelled as Type-II in the following table.

Table 2 [1-3-1 in SG] : Comparative list of tone patterns of disyllabic nominal stems (cf. Guthrie & Mann 1995: xi–xii)

	Type-I	Type-IIa	Type-IIb	Type-IIc
tonal description by G	- $\emptyset\emptyset$	- $\emptyset H$	-HH	-H $\emptyset$
in isolation	umúlími 'farmer' cf. umu lími (G: 47)	ílino 'tooth' cf. íli inó (G: 28)	ákásuba 'sun' cf. áka súbá (G: 96)	úlú <sup>+</sup> kópyo 'eyebrow' cf. úlu kópyo (G: 38)
predicative form	múúlími	líino	káásúba	lúúkopyo
immediately after verb	umulimi	ilino	akásuba	ulúkopyo
before adnominal	umúlími	ílino	ákásuba	úlúkopyó

What characterises Type-I nouns is the realisation of a flat high tone from the second tone-bearing unit (TBU), which is morphologically a noun class prefix, to the end of the word in isolated speech. Contrary to the surface realisation, this can be interpreted as a manifestation of the lack of an underlying high tone as their lexical property since no high tone is realised



when they occur in the post-verbal position. This may further suggest that the surface high flat tone realised on the toneless nouns is assumed to be a result of the spreading of a H tone associated with the noun class prefix. This high tone, which realises only when there is no other high tone specified in the same tonal domain, in turn, spreads to the word-final position in an unbounded fashion.

In contrast, the Type-II nouns have an underlying high tone as part of their lexical property and are further categorised into three subgroups depending on the patterns of high tone alignment, which may or may not be differentiated in specific environments (e.g., Type-IIa and Type-IIc may realise in different tonal patterns in isolation, while the underlying difference between Type-IIa and Type-IIb seems to be neutralised).

High tones can be shifted or spread under specific conditions. For example, a lexical high tone assigned to Type-IIa and Type-IIb nominal stems with a canonical CVCV syllable structure usually realises as a word-initial high tone doublet in isolation form, as in *íllino* and *ákásuba*. However, the high tone doublet always shifts to the next TBU when followed by a stem-internal long vowel, e.g., *umúsáalu* ‘vegetables’ (rather than *úmúsaalu*). This rightward shift can also be triggered by a stem-internal NC, which is generally said to cause lengthening of the preceding vowel<sup>3</sup>, e.g., as in *icíbémba* ‘the Bemba language’.

In contrast to ‘canonical’ words with disyllabic stems preceded by a V-CV- prefixal cluster, i.e., an augment followed by a noun class prefix, the trisyllabic nouns, with the structure being either monosyllabic stems preceded by a V-CV- cluster or disyllabic stems preceded by a monosyllabic pre-stem element, e.g. those of cl. 5 disyllabic noun stems which trigger the dropping of the class prefix *li-*, like *ibálá* ‘field’ (\*i-lí-bálá, but its plural counterpart is *amábálá*), show an interesting pattern. The trisyllabic nouns exclusively follow either of the two tonal patterns, namely LHH for Type-I (Ø-toned) noun or HHL for Type-II nouns. However, some of the HHL type nouns can be pronounced with a clear downstepped H on the final syllable, i.e., [HH<sup>+</sup>H]. This may be a phonetic signal that reflect a (diachronic) tonemic contrast, as suggested by 0045 *ifú<sup>+</sup>pá* ‘bone’ [cf. G: ífúpá, PB: \*kúpà] vs. 0050 *úmúti* ‘medicine’ [cf. G: *úmutí*, PB: \*mù-tí].

Another thing that needs special attention is the ambivalent behaviour of a nasal of NC sequence as a TBU. For example, the class 9/10 prefixal cluster *i-N-* in isolated speech always behaves as a single TBU as in, e.g. 0038 *ínkanda* ‘skin’ (\*ínkanda), vs. 0132-a *inshílá* ‘way’ (\*ínshílá), i.e., *N-* is not counted as an independent TBU in these cases. On the other hand, NC in different morphosyntactic environments may behave like an independent TBU, e.g. *ukweeteeshi* ‘what do you have?’ (See Section 4.3 on Interrogative pronouns in SG) vs. *nínkópyo* ‘they are eyebrows’ [= an alternative realisation of the predicate form of 0004 *ín<sup>+</sup>kópyo*]. Thus, in the data field iii. ‘Pitch pattern’, cl. 9/10 prefixal cluster *i-N-* is counted as a single TBU, while word-internal N of NC is counted as an independent TBU.

## References

Bastin, Yvonne, André Coupez, Evariste Mumba, and Thilo C. Schadeberg (eds.) 2002. Bantu lexical reconstructions 3 / Reconstructions lexicales bantoues 3. [Accessible online at] <http://linguistics.africamuseum.be/BLR3.html>

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<sup>3</sup> However, it should be noted that phonetic measurements by Hamann and Kula (2015) clearly show that vowel length before an NC should be regarded as equivalent to a short vowel rather than a lexical long vowel, i.e., the NC does not lengthen vowels, at least phonetically.

- Guthrie, Malcolm and Michael Mann. 1995. *A vocabulary of Ibibemba. African Languages and Cultures. Supplement 2*. London: School of Oriental and African Studies, University of London.
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## Part I. List of items

## 0001. head 頭

NC: 3/4; pitch pattern: HHL; Guthrie: *úmutwé*

		SG		PL
#_#	0001	<i>úmutwe</i>	0006	<i>ímítwe</i>
		‘a head’		‘heads’
PRED	0002	<i>múútwe</i>	0007	<i>mítwe</i>
		‘it is a head’		‘they are heads’
DEM_	0003	<i>uyú múútwe</i>	0008	<i>ishí mítwe</i>
		‘this is a head’		‘these are heads’
INF_	0004	<i>úkúmona úmutwe</i>	0009	<i>úkúmona ímítwe</i>
		‘to see a head’		‘to see heads’
_POSS	0005	<i>úmutwe waandi</i>	0010	<i>ímítwe shaandi</i>
		‘my head’		‘my heads’

## 0002. hair 髮

NC: 3/4; pitch pattern: Ø; Guthrie: *umushishi*Notes: The expected singular form with the 1SG possessive, i.e. *umushíshí waandi* is not attested.Instead, the plural form *imishíshí shaandi* is used to denote ‘my (singular) hair.’

		SG		PL
#_#	0011	<i>umúshíshí</i>	0016	<i>ímíshíshí</i>
		‘a hair’		‘hairs’
PRED	0012	<i>múúshíshí</i>	0017	<i>mítshíshí</i>
		‘it is a hair’		‘they are hairs’
DEM_	0013	<i>uyú múúshíshí</i>	0018	<i>ishí mítshíshí</i>
		‘this is a hair’		‘these are hairs’
INF_	0014	<i>úkúmona umushishi</i>	0019	<i>úkúmona imishishi</i>
		‘to see a hair’		‘to see hairs’
_POSS	0015	N/A	0020	<i>ímíshíshí shaandi</i>
				‘my hairs’

## 0003. forehead 額

NC: 9/10; pitch pattern: HHL; Guthrie: *ímpumí*

		SG		PL
#_#	0021	<i>ímpumí</i>	0026	N/A
		‘a forehead’		
PRED	0022	<i>nímpumí</i>	0027	N/A
		‘it is a forehead’		
DEM_	0023	<i>iyí nímpumí</i>	0028	<i>ishí nímpumí</i>
		‘this is a forehead’		‘these are foreheads’
INF_	0024	<i>úkúmona ímpumí</i>	0029	N/A
		‘to see a forehead’		
_POSS	0025	<i>ímpumí yaandi</i>	0030	<i>ímpumí shaandi</i>
		‘my forehead’		‘my foreheads’

## 0004. eyebrow 眉

NC: 11/10; pitch pattern: HH<sup>+</sup>HL; Guthrie: *úlukópyo*

Notes: This word is also used to refer to ‘eyelash.’ The predicate form *nín<sup>+</sup>kópyo* can also be realised as *nínkópyo*.

		SG		PL
#_#	0031	<i>úlú<sup>+</sup>kópyo</i>	0036	<i>ín<sup>+</sup>kópyo</i>
		‘an eyebrow’		‘eyebrows’
PRED	0032	<i>lúú<sup>+</sup>kópyo</i>	0037	<i>nín<sup>+</sup>kópyo</i>
		‘it is an eyebrow’		‘they are eyebrows’
DEM_	0033	<i>ulú lúú<sup>+</sup>kópyo</i>	0038	<i>ishí nín<sup>+</sup>kópyo</i>
		‘this is an eyebrow’		‘these are eyebrows’
INF_	0034	<i>úkúmona úlú<sup>+</sup>kópyo</i>	0039	<i>úkúmona ín<sup>+</sup>kópyo</i>
		‘to see an eyebrow’		‘to see eyebrows’
_POSS	0035	<i>úlú<sup>+</sup>kópyo lwaandi</i>	0040	<i>ín<sup>+</sup>kópyo shaandi</i>
		‘my eyebrow’		‘my eyebrows’

## 0005. eye 目

NC: 5/6; pitch pattern: HLL; Guthrie: *íliinsó*

		SG		PL
#_#	0041	<i>íliinso</i> 'an eye'	0046	<i>áméenso</i> 'eyes'
PRED	0042	<i>líínsó</i> 'it is an eye'	0047	<i>mééńso</i> 'they are eyes'
DEM_	0043	<i>ilí líínsó</i> 'this is an eye'	0048	<i>ayá mééńso</i> 'these are eyes'
INF_	0044	<i>úkúmona íliinso</i> 'to see an eye'	0049	<i>úkúmona áméenso</i> 'to see eyes'
_POSS	0045	<i>íliinso lyaandi</i> 'my eye'	0050	<i>áméenso yaandi</i> 'my eyes'

## 0007. ear 耳

NC: 15/6; pitch pattern: HHL; Guthrie: *úkútwí*

		SG		PL
#_#	0051	<i>úkútwi</i> 'an ear'	0056	<i>ámátwi</i> 'ears'
PRED	0052	<i>kúútwi</i> 'it is an ear'	0057	<i>máátwi</i> 'they are ears'
DEM_	0053	<i>ukú kúútwi</i> 'this is an ear'	0058	<i>ayá máátwi</i> 'these are ears'
INF_	0054	<i>úkúmona úkútwi</i> 'to see an ear'	0059	<i>úkúmona ámátwi</i> 'to see ears'
_POSS	0055	<i>úkútwi kwaandi</i> 'my ear'	0060	<i>ámátwi yaandi</i> 'my ears'

## 0008. nose 鼻

NC: 3/4; pitch pattern: Ø; Guthrie: *umooná*

		SG		PL
#_#	0061	<i>umóóná</i> 'a nose'	0066	<i>imyóóná</i> 'noses'
PRED	0062	<i>móóná</i> 'it is a nose'	0067	<i>myóóná</i> 'they are noses'
DEM_	0063	<i>uyú móóná</i> 'this is a nose'	0068	<i>ishí myóóná</i> 'these are noses'
INF_	0064	<i>úkúmona umooná</i> 'to see a nose'	0069	<i>úkúmona imyooná</i> 'to see noses'
_POSS	0065	<i>umóóná waandi</i> 'my nose'	0070	<i>imyóóná shaandi</i> 'my noses'

## 0009. mouth 口

NC: 12/13; pitch pattern: Ø; Guthrie: *icinwa*

		SG		PL
#_#	0071	<i>akánwá</i> 'a mouth'	0076	<i>utúnwá</i> 'mouths'
PRED	0072	<i>káánwá</i> 'it is a mouth'	0077	<i>túúnwá</i> 'they are mouths'
DEM_	0073	<i>aká káánwá</i> 'this is a mouth'	0078	<i>utú túúnwá</i> 'these are mouths'
INF_	0074	<i>úkúmona akanwa</i> 'to see a mouth'	0079	<i>úkúmona utunwa</i> 'to see mouths'
_POSS	0075	<i>akánwá kaandi</i> 'my mouth'	0080	<i>utúnwá twaandi</i> 'my mouths'

## 0013. tooth 齒

NC: 5/6; pitch pattern: HHLL; Guthrie: *ílinó*

		SG		PL
#_#	0081	<i>ílino</i> 'a tooth'	0086	<i>áméeno</i> 'teeth'
PRED	0082	<i>líino</i> 'it is a tooth'	0087	<i>mééno</i> 'they are teeth'
DEM_	0083	<i>íli líino</i> 'this is a tooth'	0088	<i>ayá mééno</i> 'these are teeth'
INF_	0084	<i>úkúmona ílino</i> 'to see a tooth'	0089	<i>úkúmona áméeno</i> 'to see teeth'
_POSS	0085	<i>ílino lyaandi</i> 'my tooth'	0090	<i>áméeno yaandi</i> 'my teeth'

## 0017. face 顏

NC: 7/8; pitch pattern: HHLL; Guthrie: *íliinsó*

Notes: This word also refers to an 'image.' 'face' is also denoted by *imféesi*, which is an apparent loanword from English.

		SG		PL
#_#	0091	<i>ícínso</i> 'a face'	0096	<i>ífünso</i> 'faces'
PRED	0092	<i>cíínso</i> 'it is a face'	0097	<i>fíínso</i> 'they are faces'
DEM_	0093	<i>íci cíínso</i> 'this is a face'	0098	<i>ífi fíínso</i> 'these are faces'
INF_	0094	<i>úkúmona ícínso</i> 'to see a face'	0099	<i>úkúmona ífünso</i> 'to see faces'
_POSS	0095	<i>ícínso caandi</i> 'my face'	0100	<i>ífünso fyaandi</i> 'my faces'



## 0030. hand 手

NC: 3/4; pitch pattern: Ø; Guthrie: *umunwe* ‘finger’

		SG		PL
#_#	0101	<i>umúnwé</i> ‘a hand’	0106	<i>imínwé</i> ‘hands’
PRED	0102	<i>múúnwé</i> ‘it is a hand’	0107	<i>mínwé</i> ‘they are hands’
DEM_	0103	<i>uyú múúnwé</i> ‘this is a hand’	0108	<i>ishí mínwé</i> ‘these are hands’
INF_	0104	<i>úkúmona umunwe</i> ‘to see a hand’	0109	<i>úkúmona iminwe</i> ‘to see hands’
_POSS	0105	<i>umúnwé waandi</i> ‘my hand’	0110	<i>imínwé shaandi</i> ‘my hands’

## 0031. finger 指

NC: 12/13; pitch pattern: HHLLL; Guthrie: *ákakóndó* ‘toe’Notes: *ákakondo* is used to denote ‘a finger’ by younger generations. Older generations use *umúnwé* to refer to ‘a finger’.

		SG		PL
#_#	0111	<i>ákakondo</i> ‘a finger’	0116	<i>útúkondo</i> ‘fingers’
PRED	0112	<i>káákóndo</i> ‘it is a finger’	0117	<i>túúkóndo</i> ‘they are fingers’
DEM_	0113	<i>aká káákóndo</i> ‘this is a finger’	0118	<i>utú túúkóndo</i> ‘these are fingers’
INF_	0114	<i>úkúmona ákákondo</i> ‘to see a finger’	0119	<i>úkúmona útúkondo</i> ‘to see fingers’
_POSS	0115	<i>ákakondo kaandi</i> ‘my finger’	0120	<i>útúkondo twaandi</i> ‘my fingers’

## 0033-a. leg 脚

NC: 15/6; pitch pattern: Ø; Guthrie: *ukuulu*

		SG		PL
#_#	0121	<i>ukúúlu</i> 'a leg'	0126	<i>amóólú</i> 'legs'
PRED	0122	<i>kúúlu</i> 'it is a leg'	0127	<i>móólú</i> 'they are legs'
DEM_	0123	<i>ukú kúúlu</i> 'this is a leg'	0128	<i>ayá móólú</i> 'these are legs'
INF_	0124	<i>úkúmona ukuulu</i> 'to see a leg'	0129	<i>úkúmona amoolu</i> 'to see legs'
_POSS	0125	<i>ukúúlu kwaandi</i> 'my leg'	0130	<i>amóólú yaandi</i> 'my legs'

## 0033-b. foot 足

NC: 11/6; pitch pattern: Ø; Guthrie: *ulukasa*

		SG		PL
#_#	0131	<i>ulúkásá</i> 'a foot'	0136	<i>amákásá</i> 'feet'
PRED	0132	<i>lúúkásá</i> 'it is a foot'	0137	<i>máákásá</i> 'they are feet'
DEM_	0133	<i>ulú lúúkásá</i> 'this is a foot'	0138	<i>ayá máákásá</i> 'these are feet'
INF_	0134	<i>úkúmona ulukasa</i> 'to see a foot'	0139	<i>úkúmona amakasa</i> 'to see feet'
_POSS	0135	<i>ulúkásá lwaandi</i> 'my foot'	0140	<i>amákásá yaandi</i> 'my feet'

## 0038. skin 肌

NC: 9/10; pitch pattern: HLL; Guthrie: *ínkánda*

Notes: This word refers not only to human skins but also to skins of chickens. There is another term that refers to skins of different kinds of animals.

		SG		PL
#_#	0141	<i>ínkánda</i> 'a skin'	0146	<i>ínkánda</i> 'skins'
PRED	0142	<i>nínkánda</i> 'it is a skin'	0147	<i>nínkánda</i> 'they are skins'
DEM_	0143	<i>iyí nínkánda</i> 'this is a skin'	0148	<i>ishí nínkánda</i> 'these are skins'
INF_	0144	<i>úkúmona ínkánda</i> 'to see a skin'	0149	<i>úkúmona ínkánda</i> 'to see skins'
_POSS	0145	<i>ínkánda yaandi</i> 'my skin'	0150	<i>ínkánda shaandi</i> 'my skins'

## 0042. body hair 体毛

NC: 9/14; pitch pattern: HLL; Guthrie: *ipipi*

		SG		PL
#_#	0151	<i>ípipi</i> 'body hair (sg.)'	0156	<i>ubúpípi / úbúpípi</i> 'body hair'
PRED	0152	N/A	0157	<i>búúpípi</i> 'it is body hair'
DEM_	0153	N/A	0158	<i>ubú búúpípi</i> 'this is body hair'
INF_	0154	N/A	0159	<i>úkúmona úbúpípi/ úkúmona ubúpípi</i> 'to see body hair'
_POSS	0155	N/A	0160	<i>úbúpípi bwaandi/ ubúpípi bwaandi</i> 'my body hair'

## 0044. blood 血

NC: 3/4; pitch pattern: Ø; Guthrie: *umulopa*Notes: The plural form *imílópá* is used to denote, e.g., ‘shedding blood.’

		SG		PL
#_#	0161	<i>umúlópá</i> ‘blood’	0166	<i>imílópá</i> ‘blood (pl.)’
PRED	0162	<i>múúlópá</i> ‘it is blood’	0167	<i>mílópá</i> ‘it is blood (pl.)’
DEM_	0163	<i>uyú múúlópá</i> ‘this is blood’	0168	<i>ishí mílópá</i> ‘this is blood (pl.)’
INF_	0164	<i>úkúmona umulopa</i> ‘to see blood’	0169	<i>úkúmona imilopa</i> ‘to see blood (pl.)’
_POSS	0165	<i>umúlópá waandi</i> ‘my blood’	0170	<i>imílópá shaandi</i> ‘my blood (pl.)’

## 0045. bone 骨

NC: 5/6; pitch pattern: HHH<sup>+</sup>H; Guthrie: *ífúpá*Notes: Bones of fish and snakes are referred to by *imyúhngá* ‘thorns’

		SG		PL
#_#	0171	<i>ífú<sup>+</sup>pá</i> ‘a bone’	0176	<i>ámáfú<sup>+</sup>pá</i> ‘bones’
PRED	0172	<i>líífú<sup>+</sup>pá</i> ‘it is a bone’	0177	<i>mááfú<sup>+</sup>pá</i> ‘they are bones’
DEM_	0173	<i>ilí líífú<sup>+</sup>pá</i> ‘this is a bone’	0178	<i>ayá mááfú<sup>+</sup>pá</i> ‘these are bones’
INF_	0174	<i>úkúmona ífú<sup>+</sup>pá</i> ‘to see a bone’	0179	<i>úkúmona ámáfú<sup>+</sup>pá</i> ‘to see bones’
_POSS	0175	<i>ífú<sup>+</sup>pá lyaandi</i> ‘my bone’	0180	<i>ámáfú<sup>+</sup>pá yaandi</i> ‘my bones’

## 0046. flesh 肉

NC: 9/10; pitch pattern: Ø; Guthrie: *innama?*Notes: CL10 *inámá* refers to a variety of meat.

		SG		PL
#_#	0181	<i>inámá</i> 'flesh'	0186	<i>inámá</i> 'flesh (pl.)'
PRED	0182	<i>nínámá</i> 'it is flesh'	0187	<i>nínámá</i> 'they are flesh (pl.)'
DEM_	0183	<i>iyí nínámá</i> 'this is flesh'	0188	<i>ishí nínámá</i> 'these are flesh (pl.)'
INF_	0184	<i>úkúmona inama</i> 'to see flesh'	0189	<i>úkúmona inama</i> 'to see flesh (pl.)'
_POSS	0185	<i>inámá yaandi</i> 'my flesh'	0190	<i>inámá shaandi</i> 'my flesh (pl.)'

## 0047. body 体

NC: 3/4; pitch pattern: Ø; Guthrie: *umubili*

Notes: This word refers to a 'living body', while a 'dead body,' i.e., 'corpse,' is referred to by a different term.

		SG		PL
#_#	0191	<i>umúbílí</i> 'a body'	0196	<i>imíbílí</i> 'bodies'
PRED	0192	<i>múúbílí</i> 'it is a body'	0197	<i>míbílí</i> 'they are bodies'
DEM_	0193	<i>uyú múúbílí</i> 'this is a body'	0198	<i>ishí míbílí</i> 'these are bodies'
INF_	0194	<i>úkúmona umubili</i> 'to see a body'	0199	<i>úkúmona imibili</i> 'to see bodies'
_POSS	0195	<i>umúbílí waandi</i> 'my body'	0200	<i>imíbílí shaandi</i> 'my bodies'

## 0048. disease 病氣

NC: 14/6; pitch pattern: HHLHL; Guthrie: *úbulwéle*

		SG		PL
#_#	0201	<i>úbulwéle</i> 'a disease'	0206	<i>ámálwéle</i> 'diseases'
PRED	0202	<i>búulwéle</i> 'it is a disease'	0207	<i>máálwéle</i> 'they are diseases'
DEM_	0203	<i>ubú búulwéle</i> 'this is a disease'	0208	<i>ayá máalwéle</i> 'these are diseases'
INF_	0204	<i>úkúmona úbulwéle</i> 'to see a disease'	0209	<i>úkúmona ámálwéle</i> 'to see diseases'
_POSS	0205	<i>úbulwéle bwaandi</i> 'my disease'	0210	<i>ámálwéle yaandi</i> 'my diseases'

## 0050. medicine 藥

NC: 3/4; pitch pattern: HHL; Guthrie: *úmutí*

		SG		PL
#_#	0211	<i>úmutí</i> 'a (type of) medicine'	0216	<i>ímítí</i> '(types of) medicines'
PRED	0212	<i>múúti</i> 'it is a (type of) medicine'	0217	<i>múúti</i> 'they are (types of) medicines'
DEM_	0213	<i>uyú múúti</i> 'this is a (type of) medicine'	0218	<i>ishí múúti</i> 'these are (types of) medicines'
INF_	0214	<i>úkúmona úmutí</i> 'to see a (type of) medicine'	0219	<i>úkúmona ímítí</i> 'to see (types of) medicines'
_POSS	0215	<i>úmutí yaandi</i> 'my medicine'	0220	<i>ímítí shaandi</i> 'my (types of) medicines'

## 0053. salt 鹽

NC: 3/-; pitch pattern: HLL; Guthrie: *úmucélé*

		SG		PL
#_#	0221	<i>úmúcele</i>	0226	N/A
		‘salt’		
PRED	0222	<i>múucéle</i>	0227	N/A
		‘it is salt’		
DEM_	0223	<i>uyú múucéle</i>	0228	N/A
		‘this is salt’		
INF_	0224	<i>úkúmona úmúcele</i>	0229	N/A
		‘to see salt’		
_POSS	0225	<i>úmúcele waandi</i>	0230	N/A
		‘my salt’		

## 0054. oil 油

NC: 5/6; pitch pattern: HLL; Guthrie: *ámáfúta*

		SG		PL
#_#	0231	<i>ífúta</i>	0236	<i>ámáfúta</i>
		‘oil’		‘(a variety of) oil’
PRED	0232	<i>lífúta</i>	0237	<i>mááfúta</i>
		‘it is oil’		‘it is (a variety of) oil’
DEM_	0233	<i>ilí lífúta</i>	0238	<i>ayá mááfúta</i>
		‘this is oil’		‘this is (a variety of) oil’
INF_	0234	<i>úkúmona ífúta</i>	0239	<i>úkúmona ámáfúta</i>
		‘to see oil’		‘to see (a variety of) oil’
_POSS	0235	<i>ífúta lyaandi</i>	0240	<i>ámáfúta yaandi</i>
		‘my oil’		‘my (variety of) oil’

## 0055. liquor 酒

NC: 14/-; pitch pattern: HLL; Guthrie: *úbwálwá*

		SG		PL
#_#	0241	<i>úbwáalwa</i>		0246 N/A
		‘liquor’		
PRED	0242	<i>bwáálwa</i>		0247 N/A
		‘it is liquor’		
DEM_	0243	<i>ubú bwáálwa</i>		0248 N/A
		‘this is liquor’		
INF_	0244	<i>úkúmona úbwáalwa</i>		0249 N/A
		‘to see liquor’		
_POSS	0245	<i>úbwáalwa bwaandi</i>		0250 N/A
		‘my liquor’		

## 0056. tobacco タバコ

NC: 9/9; pitch pattern: Ø; Guthrie: *fwaka*

Notes: No augment. Possibly a loanword.

		SG		PL
#_#	0251	<i>fwáaká</i>		0256 N/A
		‘tobacco’		
PRED	0252	<i>nífwáaká</i>		0257 N/A
		‘it is tobacco’		
DEM_	0253	<i>iyí nífwáaká</i>		0258 N/A
		‘this is tobacco’		
INF_	0254	<i>úkúmona fwáaká</i>		0259 N/A
		‘to see tobacco’		
_POSS	0255	<i>fwaaká yaandi</i>		0260 N/A
		‘my tobacco’		



## 0059. food 食物

NC: 7/8; pitch pattern: HLHHL

Notes: The plural (cl. 8) form *ífyáákúlya* is used as a lexical item that denotes ‘a food,’ while the singular (cl. 7) form is used as a phrase meaning ‘something to eat.’

		SG		PL
#_#	0261	<i>ífyáákúlya</i>		0266 <i>ícaákúlya</i>
		‘something to eat’		‘food’
PRED	0262	<i>fyáákúlya</i>		0267 <i>caákúlya</i>
		‘it is something to eat’		‘it is food’
DEM_	0263	<i>ífi fyáákúlya</i>		0268 <i>ící caákúlya</i>
		‘this is something to eat’		‘this is food’
INF_	0264	<i>úkúmona ífyáákúlya</i>		0269 <i>úkúmona ícaákúlya</i>
		‘to see something to eat’		‘to see food’
_POSS	0265	<i>ífyáákúlya fyaandi</i>		0270 <i>ícaákúlya caandi</i>
		‘my something to eat’		‘my food’

## 0061. egg 卵

NC: 5/6; pitch pattern: HHL; Guthrie: *íliní*

		SG		PL
#_#	0271	<i>íliní</i>		0276 <i>ámáni</i>
		‘an egg’		‘eggs’
PRED	0272	<i>líliní</i>		0277 <i>mááni</i>
		‘it is an egg’		‘they are eggs’
DEM_	0273	<i>ilí líliní</i>		0278 <i>ayá mááni</i>
		‘this is an egg’		‘these are eggs’
INF_	0274	<i>úkúmona íliní</i>		0279 <i>úkúmona ámáni</i>
		‘to see an egg’		‘to see eggs’
_POSS	0275	<i>íliní lyaandi</i>		0280 <i>ámáni yaandi</i>
		‘my egg’		‘my eggs’

## 0063-a. small bird 鳥 (小さい)

NC: 12/13; pitch pattern: Ø; Guthrie: *akooni*

		SG		PL
#_#	0281	<i>akóóní</i> 'a bird'	0286	<i>utóóní</i> 'birds'
PRED	0282	<i>kóóní</i> 'it is a bird'	0287	<i>tóóní</i> 'they are birds'
DEM_	0283	<i>aká kóóní</i> 'this is a bird'	0288	<i>utú tóóní</i> 'these are birds'
INF_	0284	<i>úkúmona akooni</i> 'to see a bird'	0289	<i>úkúmona utooni</i> 'to see birds'
_POSS	0285	<i>akóóní kaandi</i> 'my bird'	0290	<i>utóóní twaandi</i> 'my birds'

## 0063-b. big bird 鳥 (大きい)

NC: 7/8; pitch pattern: Ø; Guthrie: *icooni*

		SG		PL
#_#	0291	<i>icóóní</i> 'a bird'	0296	<i>ifyóóní</i> 'birds'
PRED	0292	<i>cóóní</i> 'it is a bird'	0297	<i>fyóóní</i> 'they are birds'
DEM_	0293	<i>icí cóóní</i> 'this is a bird'	0298	<i>ifí fyóóní</i> 'these are birds'
INF_	0294	<i>úkúmona icooni</i> 'to see a bird'	0299	<i>úkúmona ifyooni</i> 'to see birds'
_POSS	0295	<i>icóóní caandi</i> 'my bird'	0300	<i>ifyóóní fyaandi</i> 'my birds'

## 0071. sword 刀

NC: 11/10; pitch pattern: HHLLL; Guthrie: *úlupanga*

		SG		PL
#_#	0301	<i>úlupanga</i> 'a sword'	0306	<i>ímpanga</i> 'swords'
PRED	0302	<i>lúupanga</i> 'it is a sword'	0307	<i>nímpanga</i> 'they are swords'
DEM_	0303	<i>úlú lúupanga</i> 'this is a sword'	0308	<i>ishí nímpanga</i> 'these are swords'
INF_	0304	<i>úkúmona úlupanga</i> 'to see a sword'	0309	<i>úkúmona ímpanga</i> 'to see swords'
_POSS	0305	<i>úlupanga lwaandi</i> 'my sword'	0310	<i>ímpanga shaandi</i> 'my swords'

## 0077-a. thread 糸

NC: 14/14; pitch pattern: HHLL; Guthrie: *úlushíshí*

		SG		PL
#_#	0311	<i>úbúshishi</i> 'thread'	0316	N/A
PRED	0312	<i>búúshíshí</i> 'it is thread'	0317	N/A
DEM_	0313	<i>ubú búúshíshí</i> 'this is thread'	0318	N/A
INF_	0314	<i>úkúmona úbúshishi</i> 'to see thread'	0319	N/A
_POSS	0315	<i>úbúshishi bwaandi</i> 'my thread'	0320	N/A

## 0077-b. thread 糸

NC: 9/6; pitch pattern: HHL

Notes: Non-canonical form (&lt; (eng) cotton?).

		SG		PL
#_#	0321	<i>kóótóni</i>	0326	<i>ámákootóni</i>
		‘thread’		‘a variety of threads’
PRED	0322	<i>ni kóótóni</i>	0327	<i>máakootóni</i>
		‘it is thread’		‘they are a variety of threads’
DEM_	0323	<i>iyí níkóótóni</i>	0328	<i>ayá máakootóni</i>
		‘this is thread’		‘these are a variety of threads’
INF_	0324	<i>úkúmona kóótóni</i>	0329	<i>úkúmona ámákóótóni</i>
		‘to see thread’		‘to see a variety of threads’
_POSS	0325	<i>kóótóni yaandi</i>	0330	<i>ámákootóni yaandi</i>
		‘my thread’		‘my variety of threads’

## 0079. clothing 着物, 衣服

NC: 7/8; pitch pattern: HLLHLLL

Notes: The plural form is exclusively used to mean ‘clothes.’ The singular form is used in the phrase ‘something worn,’ which seems not to be used as a lexical item.

		SG		PL
#_#	0331	N/A	0336	<i>ífyakúfwaala</i>
				‘clothes’
PRED	0332	N/A	0337	<i>fyaakúfwaala</i>
				‘they are clothes’
DEM_	0333	N/A	0338	<i>ifí fyáákúfwaala</i>
				‘these are clothes’
INF_	0334	N/A	0339	<i>úkúmona ifyaakúfwaala</i>
				‘to see clothes’
_POSS	0335	N/A	0340	<i>ífyakúfwaala fyaandi</i>
				‘my clothes’

## 0080-a. paper 紙

NC: 5/6; pitch pattern: HLLHL

Notes: This form can also refer to ‘an official document.’

		SG		PL
#_#	0341	<i>ípeepála</i> ‘paper’	0346	<i>ámápeepála</i> ‘paper (pl.)’
PRED	0342	<i>lípeepála</i> ‘it is paper’	0347	<i>máápeepála</i> ‘it is paper (pl.)’
DEM_	0343	<i>ilí lípeepála</i> ‘this is paper’	0348	<i>ayá máapeepála</i> ‘this is paper (pl.)’
INF_	0344	<i>úkúmona ípeepála</i> ‘to see paper’	0349	<i>úkúmona ámapeepála</i> ‘to see paper (pl.)’
_POSS	0345	<i>ípeepála lyaandi</i> ‘my paper’	0350	<i>ámápeepála yaandi</i> ‘my paper (pl.)’

## 0080-b. paper 紙

NC: 7/8; pitch pattern: HLLHL

		SG		PL
#_#	0351	<i>ícípeepála</i> ‘paper’	0356	<i>íípeepála</i> ‘paper (pl.)’
PRED	0352	<i>cípeepála</i> ‘it is paper’	0357	<i>fípeepála</i> ‘they are paper (pl.)’
DEM_	0353	<i>ící cípeepála</i> ‘this is paper’	0358	<i>ifí fípeepála</i> ‘these are paper (pl.)’
INF_	0354	<i>úkúmona ícípeepála</i> ‘to see paper’	0359	<i>úkúmona íípeepála</i> ‘to see paper (pl.)’
_POSS	0355	<i>ícípeepála caandi</i> ‘my paper’	0360	<i>íípeepála fyaandi</i> ‘my paper (pl.)’

## 0081. thing もの

NC: 7/8; pitch pattern: Ø; Guthrie: *icintu*

		SG		PL
#_#	0361	<i>icíntú</i> 'a thing'	0366	<i>ifíntú</i> 'things'
PRED	0362	<i>cííntú</i> 'it is a thing'	0367	<i>fííntú</i> 'they are things'
DEM_	0363	<i>icí cííntú</i> 'this is a thing'	0368	<i>ifí fííntú</i> 'these are things'
INF_	0364	<i>úkúmona icintu</i> 'to see a thing'	0369	<i>úkúmona ifintu</i> 'to see things'
_POSS	0365	<i>icíntú caandi</i> 'my thing'	0370	<i>ifíntú fyaandi</i> 'my things'

## 0083. insect 虫

NC: 7/8; pitch pattern: LHHLL

		SG		PL
#_#	0371	<i>icíshúishi</i> 'an insect'	0376	<i>ifíshúishi</i> 'insects'
PRED	0372	<i>cííshúishi</i> 'it is an insect'	0377	<i>fííshúishi</i> 'they are insects'
DEM_	0373	<i>icí cííshúishi</i> 'this is an insect'	0378	<i>ifí fííshúishi</i> 'these are insects'
INF_	0374	<i>úkúmona icíshúishi</i> 'to see an insect'	0379	<i>úkúmona ifíshúishi</i> 'to see insects'
_POSS	0375	<i>icíshúishi caandi</i> 'my insect'	0380	<i>ifíshúishi fyaandi</i> 'my insects'

## 0089. fish 魚

NC: 5/6; pitch pattern: HLL; Guthrie: *ísábí*Notes: The form *ámá<sup>+</sup>sábi* means ‘a variety of fish.’

		SG		PL
#_#	0381	<i>ísá<sup>+</sup>bí</i>	0386	<i>ámásabi</i>
		‘fish’		‘fish (pl.)’
PRED	0382	<i>líísá<sup>+</sup>bí</i>	0387	<i>máásabi</i>
		‘it is fish’		‘they are fish (pl.)’
DEM_	0383	<i>ilí líísá<sup>+</sup>bí</i>	0388	<i>ayá máásabi</i>
		‘this is fish’		‘these are fish (pl.)’
INF_	0384	<i>úkúmona ísá<sup>+</sup>bí</i>	0389	<i>úkúmona ámásabi</i>
		‘to see fish’		‘to see fish (pl.)’
_POSS	0385	<i>ísá<sup>+</sup>bí lyaandi</i>	0390	<i>ámásabi yaandi</i>
		‘my fish’		‘my fish (pl.)’

## 0094. dog 犬

NC: 9/10; pitch pattern: HL; Guthrie: *ímbwá*

		SG		PL
#_#	0391	<i>ímbwa</i>	0396	<i>ímbwa</i>
		‘a dog’		‘dogs’
PRED	0392	<i>nímbwa</i>	0397	<i>nímbwa</i>
		‘it is a dog’		‘they are dogs’
DEM_	0393	<i>iyí nímbwa</i>	0398	<i>ishí nímbwa</i>
		‘this is a dog’		‘these are dogs’
INF_	0394	<i>úkúmona ímbwa</i>	0399	<i>úkúmona ímbwa</i>
		‘to see a dog’		‘to see dogs’
_POSS	0395	<i>ímbwá yaandi</i>	0400	<i>ímbwá shaandi</i>
		‘my dog’		‘my dogs’

## 0112. house 家

NC: 9/6; pitch pattern: HLL; Guthrie: *inyandá/inganlá*

Notes: \*-*gàndá* ‘house; village; chief’s enclosure’ is reconstructed in Proto-Bantu (cf. Bastin et al. 2002). This historical \**N-g* sequence at the prefix-stem boundary is assumed to be simplified to a single nasal *ŋ* through application of Ganda’s law. In the plural form \**g* seems to have dropped, followed by *y* insertion to avoid a hiatus (\**amaanda*). *ŋ* can be lengthened instead of the preceding fused vowels being shortened, as in [úkúmonéŋŋánda].

		SG		PL
#_#	0401	<i>íng’ánda</i> ‘a house’	0406	<i>ámáyánda</i> ‘houses’
PRED	0402	<i>níng’ánda</i> ‘it is a house’	0407	<i>máyánda</i> ‘they are houses’
DEM_	0403	<i>íli níng’ánda</i> ‘this is a house’	0408	<i>áyá mááyánda</i> ‘these are houses’
INF_	0404	<i>úkúmona íng’ánda</i> ‘to see a house’	0409	<i>úkúmona ámáyánda</i> ‘to see houses’
_POSS	0405	<i>íng’ánda yaandi</i> ‘my house’	0410	<i>ámáyánda yaandi</i> ‘my houses’



## 0117. money お金

NC: 9/10; pitch pattern: H<sup>+</sup>HL

		SG		PL
#_#	0411	<i>ím<sup>+</sup>píya</i>	0416	<i>ím<sup>+</sup>píya</i>
		‘money’		‘money (pl.)’
PRED	0412	<i>ním<sup>+</sup>píya</i>	0417	<i>ním<sup>+</sup>píya</i>
		‘it is money’		‘it is money (pl.)’
DEM_	0413	<i>iyí ním<sup>+</sup>píya</i>	0418	<i>ishí ním<sup>+</sup>píya</i>
		‘this is money’		‘this is money (pl.)’
INF_	0414	<i>úkúmona ím<sup>+</sup>píya</i>	0419	<i>úkúmona ím<sup>+</sup>píya</i>
		‘to see money’		‘to see money (pl.)’
_POSS	0415	<i>ím<sup>+</sup>píya yaandi</i>	0420	<i>ím<sup>+</sup>píya shaandi</i>
		‘my money’		‘my money (pl.)’

## 0118. tree 木

NC: 7/8; pitch pattern: LHHHL

		SG		PL
#_#	0421	<i>icíímúti</i>	0426	<i>ifíímúti</i>
		‘a tree’		‘trees’
PRED	0422	<i>cíímúti</i>	0427	<i>fíímúti</i>
		‘it is a tree’		‘they are trees’
DEM_	0423	<i>icí cíímúti</i>	0428	<i>ifí fíímúti</i>
		‘this is a tree’		‘these are trees’
INF_	0424	<i>úkúmona icíímúti</i>	0429	<i>úkúmona ifíímúti</i>
		‘to see a tree’		‘to see trees’
_POSS	0425	<i>icíímúti caandi</i>	0430	<i>ifíímúti fyaandi</i>
		‘my tree’		‘my trees’

## 0121. grass 草

NC: 7/8; pitch pattern: HHLL; Guthrie: *ícaaní*

		SG		PL
#_#	0431	<i>ícaáni</i> 'grass'	0436	<i>ífyáani</i> 'grass (pl.)'
PRED	0432	<i>cááni</i> 'it is grass'	0437	<i>fyáani</i> 'it is grass (pl.)'
DEM_	0433	<i>icí cááni</i> 'this is grass'	0438	<i>ifí fyáani</i> 'this is grass (pl.)'
INF_	0434	<i>úkúmona ícaáni</i> 'to see grass'	0439	<i>úkúmona ífyáani</i> 'to see grass (pl.)'
_POSS	0435	<i>ícaáni caandi</i> 'my grass'	0440	<i>ífyáani fyaandi</i> 'my grass (pl.)'

## 0124. leaf 葉

NC: 5/6; pitch pattern: Ø; Guthrie: *ibuula*

		SG		PL
#_#	0441	<i>ibúúlá</i> 'a leaf'	0446	<i>amábúúlá</i> 'leaves'
PRED	0442	<i>líbúúlá</i> 'it is a leaf'	0447	<i>máábúúlá</i> 'they are leaves'
DEM_	0443	<i>ilí líbúúlá</i> 'this is a leaf'	0448	<i>ayá máábúúlá</i> 'these are leaves'
INF_	0444	<i>úkúmona ibuula</i> 'to see a leaf'	0449	<i>úkúmona amabuula</i> 'to see leaves'
_POSS	0445	<i>ibúúlá lyaandi</i> 'my leaf'	0450	<i>amábúúlá yaandi</i> 'my leaves'

## 0125. flower 花

NC: 5/6; pitch pattern: Ø; Guthrie: *iluba*

		SG		PL
#_#	0451	<i>ilúbá</i> 'a flower'	0456	<i>amálúbá</i> 'flowers'
PRED	0452	<i>lílúbá</i> 'it is a flower'	0457	<i>máálúbá</i> 'they are flowers'
DEM_	0453	<i>ilí lílúbá</i> 'this is a flower'	0458	<i>ayá máálúbá</i> 'these are flowers'
INF_	0454	<i>úkúmona iluba</i> 'to see a flower'	0459	<i>úkúmona amaluba</i> 'to see flowers'
_POSS	0455	<i>ilúbá lyaandi</i> 'my flower'	0460	<i>amálúbá yaandi</i> 'my flowers'

## 0126. fruit 実

NC: 7/8; pitch pattern: Ø; Guthrie: *icisabo*

		SG		PL
#_#	0461	<i>icísábó</i> 'a fruit'	0466	<i>ifísábó</i> 'fruits'
PRED	0462	<i>cíísábó</i> 'it is a fruit'	0467	<i>fíísábó</i> 'they are fruits'
DEM_	0463	<i>icí cíísábó</i> 'this is a fruit'	0468	<i>ifí fíísábó</i> 'these are fruits'
INF_	0464	<i>úkúmona icisabo</i> 'to see a fruit'	0469	<i>úkúmona ifisabo</i> 'to see fruits'
_POSS	0465	<i>icísábó caandi</i> 'my fruit'	0470	<i>ifísábó fyaandi</i> 'my fruits'

## 0127. seed 種

NC: 11/6; pitch pattern: HHLL; Guthrie: *úluséké*

		SG		PL
#_#	0471	<i>úluséke</i> 'a seed'	0476	<i>ámáseke</i> 'seeds'
PRED	0472	<i>lúúséke</i> 'it is a seed'	0477	<i>mááséke</i> 'they are seeds'
DEM_	0473	<i>ulú lúúséke</i> 'this is a seed'	0478	<i>ayá mááséke</i> 'these are seeds'
INF_	0474	<i>úkúmona úluséke</i> 'to see a seed'	0479	<i>úkúmona ámáseke</i> 'to see seeds'
_POSS	0475	<i>úluséke lwaandi</i> 'my seed'	0480	<i>ámáseke yaandi</i> 'my seeds'

## 0129. field 畑

NC: 5/6; pitch pattern: Ø; Guthrie: *ibala* 'garden'

		SG		PL
#_#	0481	<i>ibálá</i> 'a field'	0486	<i>amábálá</i> 'fields'
PRED	0482	<i>líibálá</i> 'it is a field'	0487	<i>máábálá</i> 'they are fields'
DEM_	0483	<i>ilí líibálá</i> 'this is a field'	0488	<i>ayá máábálá</i> 'these are fields'
INF_	0484	<i>úkúmona ibala</i> 'to see a field'	0489	<i>úkúmona amabala</i> 'to see fields'
_POSS	0485	<i>ibálá lyaandi</i> 'my field'	0490	<i>amábálá yaandi</i> 'my fields'

## 0132-a. way 道

NC: 9/10; pitch pattern: Ø; Guthrie: *inshila*

		SG		PL
#_#	0491	<i>inshílá</i> 'a way'	0496	<i>inshílá</i> 'ways'
PRED	0492	<i>nínshílá</i> 'it is a way'	0497	<i>nínshílá</i> 'they are ways'
DEM_	0493	<i>iyí nínshílá</i> 'this is a way'	0498	<i>ishí nínshílá</i> 'these are ways'
INF_	0494	<i>úkúmona inshila</i> 'to see a way'	0499	<i>úkúmona inshila</i> 'to see ways'
_POSS	0495	<i>inshílá yaandi</i> 'my way'	0500	<i>inshílá shaandi</i> 'my ways'

## 0132-b. road 道

NC: 3/4; pitch pattern: Ø; Guthrie: *umusebo*

		SG		PL
#_#	0501	<i>umúsébo</i> 'a road'	0506	N/A
PRED	0502	N/A	0507	<i>músébo</i> 'they are roads'
DEM_	0503	<i>uyú músébo</i> 'this is a road'	0508	<i>ishí músébo</i> 'these are roads'
INF_	0504	<i>úkúmona umusebo</i> 'to see a road'	0509	<i>úkúmona imisebo</i> 'to see roads'
_POSS	0505	<i>umúsébo waandi</i> 'my road'	0510	<i>imúsébo shaandi</i> 'my roads'

## 0135. river 川

NC: 3/4; pitch pattern: Ø; Guthrie: *umumana*

		SG		PL
#_#	0511	<i>umúmáná</i> 'a river'	0516	<i>imímáná</i> 'rivers'
PRED	0512	<i>múúmáná</i> 'it is a river'	0517	<i>míímáná</i> 'they are rivers'
DEM_	0513	<i>uyú múúmáná</i> 'this is a river'	0518	<i>ishí míímáná</i> 'these are rivers'
INF_	0514	<i>úkúmona umumana</i> 'to see a river'	0519	<i>úkúmona imimana</i> 'to see rivers'
_POSS	0515	<i>umúmáná waandi</i> 'my river'	0520	<i>imímámá shaandi</i> 'my rivers'

## 0136. mountain 山

NC: 11/10; pitch pattern: Ø; Guthrie: *ulupili* 'hill'

		SG		PL
#_#	0521	<i>ulúpílí</i> 'a mountain'	0526	<i>impílí</i> 'mountains'
PRED	0522	<i>lúúpílí</i> 'it is a mountain'	0527	<i>nímpílí</i> 'they are mountains'
DEM_	0523	<i>ulú lúúpílí</i> 'this is a mountain'	0528	<i>ishí nímpílí</i> 'these are mountains'
INF_	0524	<i>úkúmona ulupili</i> 'to see a mountain'	0529	<i>úkúmona impili</i> 'to see mountains'
_POSS	0525	<i>ulúpílí lwaandi</i> 'my mountain'	0530	<i>impílí shaandi</i> 'my mountains'

## 0143. water 水

NC: -/6; pitch pattern: HLLLL; Guthrie: *áma+inshí*

	SG			PL	
#_#	0531	N/A	0536	<i>áméenshi</i>	'water'
PRED	0532	N/A	0537	<i>mééńshi</i>	'it is water'
DEM_	0533	N/A	0538	<i>ayá mééńshi</i>	'this is water'
INF_	0534	N/A	0539	<i>úkúmona áméenshi</i>	'to see water'
_POSS	0535	N/A	0540	<i>áméenshi yaandi</i>	'my water'

## 0145. stone 石

NC: 5/6; pitch pattern: Ø; Guthrie: *ilibwe*

	SG			PL	
#_#	0541	<i>ilibwé</i>	0546	<i>amábwé</i>	'stones'
		'a stone'			
PRED	0542	<i>líbwé</i>	0547	<i>máábwé</i>	'they are stones'
		'it is a stone'			
DEM_	0543	<i>ilí líbwé</i>	0548	<i>ayá máábwé</i>	'these are stones'
		'this is a stone'			
INF_	0544	<i>úkúmona ilibwe</i>	0549	<i>úkúmona amabwe</i>	'to see stones'
		'to see a stone'			
_POSS	0545	<i>ilibwé lyaandi</i>	0550	<i>amábwé yaandi</i>	'my stones'
		'my stone'			

## 0146. earth 土

NC: 5/6; pitch pattern: LHHL; Guthrie: *ílobá*

Notes: The plural form is used to denote ‘soil’ as a general term. The singular *íloba* refers to a specific type of soil or clay, which is edible and which pregnant women often consume to take minerals. Tonal realisation of the plural form seems to be affected by the (phonetic) lengthening of the stem, i.e., [amáló·ba].

		SG		PL
#_#	0551	<i>íloba</i>		0556 <i>amálóba</i>
		‘(a specific type of) soil’		‘soil’
PRED	0552	<i>líloba</i>		0557 <i>máálóba</i>
		‘it is (a specific type of) soil’		‘it is soil’
DEM_	0553	<i>ilí líloba</i>		0558 <i>ayá máálóba</i>
		‘this is (a specific type of) soil’		‘this is soil’
INF_	0554	<i>úkúmona íloba</i>		0559 <i>úkúmona amáloba</i>
		‘to see (a specific type of) soil’		‘to see soil’
_POSS	0555	<i>íloba lyaandi</i>		0560 <i>amálóba yaandi</i>
		‘my (specific type of) soil’		‘my soil’

## 0151. fire 火

NC: 3/-; pitch pattern: Ø; Guthrie: *umulilo*

		SG		PL
#_#	0561	<i>umúlíló</i>		0566 N/A
		‘a fire’		
PRED	0562	<i>múúlíló</i>		0567 N/A
		‘it is fire’		
DEM_	0563	<i>uyú múúlíló</i>		0568 N/A
		‘this is fire’		
INF_	0564	<i>úkúmona umulilo</i>		0569 N/A
		‘to see fire’		
_POSS	0565	<i>umúlíló waandi</i>		0570 N/A
		‘my fire’		



## 0152. wind 風

NC: 3/-; pitch pattern: Ø; Guthrie: *umweela*

		SG		PL
#_#	0571	<i>umwéélá</i>		0576 N/A
		‘a wind’		
PRED	0572	<i>mwéélá</i>		0577 N/A
		‘it is wind’		
DEM_	0573	<i>uyú mwéélá</i>		0578 N/A
		‘this is wind’		
INF_	0574	<i>úkúmona umwela</i>		0579 N/A
		‘to see wind’		
_POSS	0575	<i>umúélá waandi</i>		0580 N/A
		‘my wind’		

## 0153. cloud 雲

NC: 5/6; pitch pattern: Ø; Guthrie: *ikumbi*

		SG		PL
#_#	0581	<i>íkúmbí</i>		0586 <i>amákúmbí</i>
		‘a cloud’		‘clouds’
PRED	0582	<i>líkúmbí</i>		0587 <i>máákúmbí</i>
		‘it is a cloud’		‘they are clouds’
DEM_	0583	<i>ilí líkúmbí</i>		0588 <i>ayá máákúmbí</i>
		‘this is a cloud’		‘these are clouds’
INF_	0584	<i>úkúmona ikumbi</i>		0589 <i>úkúmona amakumbi</i>
		‘to see a cloud’		‘to see clouds’
_POSS	0585	<i>íkúmbí lyaandi</i>		0590 <i>amákúmbí yaandi</i>
		‘my cloud’		‘my clouds’

## 0155. rain 雨

NC: 9/-; pitch pattern: HH<sup>+</sup>H; Guthrie: *ímfulá*

		SG		PL
#_#	0591	<i>ímfulá</i>		0596 N/A
		‘rain’		
PRED	0592	<i>nímfulá</i>		0597 N/A
		‘it is rain’		
DEM_	0593	<i>iyí nímfulá</i>		0598 N/A
		‘this is rain’		
INF_	0594	<i>úkúmona ímfulá</i>		0599 N/A
		‘to see rain’		
_POSS	0595	<i>ímfulá yaandi</i>		0600 N/A
		‘my rain’		

## 0157. sky 空

NC: 3/4; pitch pattern: Ø; Guthrie: *umuulu* ‘top’Notes: The plural form *imyúúlú* denotes ‘heaven.’

		SG		PL
#_#	0601	<i>umúúlú</i>		0606 <i>imyúúlú</i>
		‘sky’		‘heaven’
PRED	0602	<i>múúlú</i>		0607 <i>myúúlú</i>
		‘it is sky’		‘it is heaven’
DEM_	0603	<i>uyú múúlú</i>		0608 <i>ishí myúúlú</i>
		‘this is sky’		‘this is heaven’
INF_	0604	<i>úkúmona umuulu</i>		0609 <i>úkúmona imyuulu</i>
		‘to see sky’		‘to see heaven’
_POSS	0605	<i>umúúlú waandi</i>		0610 <i>imyúúlú shaandi</i>
		‘my sky’		‘my heaven’

## 0159. sun 太陽

NC: 12/-; pitch pattern: HHLL; Guthrie: *ákasúba*

		SG		PL
#_#	0611	<i>ákasuba</i>		0616 N/A
			'the sun'	
PRED	0612	<i>káásúba</i>		0617 N/A
			'it is the sun'	
DEM_	0613	<i>aká káásúba</i>		0618 N/A
			'this is the sun'	
INF_	0614	<i>úkúmona ákasuba</i>		0619 N/A
			'to see the sun'	
_POSS	0615	<i>ákasuba kaandi</i>		0620 N/A
			'my sun'	

## 0160. moon 月

NC: 3/4; pitch pattern: HHLL; Guthrie: *úmwéshi*

		SG		PL
#_#	0621	<i>úmwéeshi</i>		0626 <i>ímyéeshi</i>
			'the moon/a month'	'months'
PRED	0622	<i>mwéeshi</i>		0627 <i>myéeshi</i>
			'it is the moon/a month'	'they are months'
DEM_	0623	<i>uyu mwéeshi</i>		0628 <i>ishí myéeshi</i>
			'this is the moon/a month'	'these are months'
INF_	0624	<i>úkúmona úmwéeshi</i>		0629 <i>úkúmona ímyéeshi</i>
			'to see the moon/a month'	'to see months'
_POSS	0625	<i>úmwéeshi waandi</i>		0630 <i>ímyéeshi shaandi</i>
			'my moon/month'	'my months'

## 0162. star 星

NC: 9/10; pitch pattern: HHLL; Guthrie: *ulútandá*

		SG		PL
#_#	0631	<i>íntánda</i> 'a star'	0636	<i>íntánda</i> 'stars'
PRED	0632	<i>níntánda</i> 'it is a star'	0637	<i>níntánda</i> 'they are stars'
DEM_	0633	<i>iyi níntánda</i> 'this is a star'	0638	<i>ishí níntánda</i> 'these are stars'
INF_	0634	<i>úkúmona íntánda</i> 'to see a star'	0639	<i>úkúmona íntánda</i> 'to see stars'
_POSS	0635	<i>íntánda yaandi</i> 'my star'	0640	<i>íntánda shaandi</i> 'my stars'

## 0163. day 日

NC: 3/4; pitch pattern: Ø; Guthrie: *umulungu* 'week'

		SG		PL
#_#	0641	<i>umúlúngú</i> 'a day'	0646	<i>imílúngú</i> 'days'
PRED	0642	<i>múúlúngú</i> 'it is a day'	0647	<i>mílúngú</i> 'they are days'
DEM_	0643	<i>uyú múúlúngú</i> 'this is a day'	0648	<i>ishí mílúngú</i> 'these are days'
INF_	0644	<i>úkúmona umulungu</i> 'to see a day'	0649	<i>úkúmona imilungu</i> 'to see days'
_POSS	0645	<i>umúlúngú waandi</i> 'my day'	0650	<i>imílúngú shaandi</i> 'my days'

0167. year 年

NC: 3/4; pitch pattern: HLL; Guthrie: *úmwaká*

		SG		PL
#_#	0661	<i>úmwáaka</i> 'a year'	0666	<i>ímyáaka</i> 'years'
PRED	0662	<i>mwáaka</i> 'it is a year'	0667	<i>myáaka</i> 'they are years'
DEM_	0663	<i>uyú mwáaka</i> 'this is a year'	0668	<i>ishí myáaka</i> 'these are years'
INF_	0664	<i>úkúmona úmwáaka</i> 'to see a year'	0669	<i>úkúmona ímyáaka</i> 'to see years'
_POSS	0665	<i>úmwáaka waandi</i> 'my year'	0670	<i>ímyáaka shaandi</i> 'my years'

## 0168. morning 朝

NC: 11/-; pitch pattern: HHLHL

		SG		PL
#_#	0671	<i>úlúceélo</i>		0676 N/A
		‘morning’		
PRED	0672	<i>lúúceélo</i>		0677 N/A
		‘it is morning’		
DEM_	0673	<i>ulú lúuceélo</i>		0678 N/A
		‘this is morning’		
INF_	0674	<i>úkúmona úlúceélo</i>		0679 N/A
		‘to see morning’		
_POSS	0675	<i>úlúceeló lwaandi</i>		0680 N/A
		‘my morning’		

## 0169. afternoon 午後

NC: 7/-; pitch pattern: Ø; Guthrie: *icuungulo* ‘evening, night’

		SG		PL
#_#	0681	<i>icúúngúló</i>		0686 N/A
		‘afternoon’		
PRED	0682	<i>cúúúngúló</i>		0687 N/A
		‘it is afternoon’		
DEM_	0683	<i>icí cúúúngúló</i>		0688 N/A
		‘this is afternoon’		
INF_	0684	<i>úkúmona icungulo</i>		0689 N/A
		‘to see afternoon’		
_POSS	0685	<i>icúúngúlo caandi</i>		0690 N/A
		‘my afternoon’		

## 0171. night 夜

NC: 14/10; pitch pattern: HLL; Guthrie: *ínshíkú* (CL9/10? also ‘day’)

Notes: Whereas the plural form *ínshiku* is realised as HLL, the expected realisation would be *ínshí<sup>h</sup>kú* based on the correspondence with the form *ínshíkú* in Guthrie & Mann’s (1995) description.

		SG		PL
#_#	0691	<i>úbúshiku</i>	0696	<i>ínshiku</i>
		‘night’		‘nights’
PRED	0692	<i>búúshíku</i>	0697	<i>nínshiku</i>
		‘it is night’		‘they are nights’
DEM_	0693	<i>ubú búúshíku</i>	0698	<i>ishí nínshíku</i>
		‘this is night’		‘these are nights’
INF_	0694	<i>úkúmona úbúshíku</i>	0699	<i>úkúmona ínshiku</i>
		‘to see night’		‘to see nights’
_POSS	0695	<i>úbúshiku bwaandi</i>	0700	<i>ínshiku shaandi</i>
		‘my night’		‘my nights’

## 0172. yesterday 昨日 / 0173. tomorrow 明日

NC: 9/-; pitch pattern: Ø

		SG		PL
#_#	0701	<i>mailo</i>	0706	N/A
		‘yesterday / tomorrow’		
PRED	0702	<i>nimailo</i>	0707	N/A
		‘it is yesterday / tomorrow’		
DEM_	0703	N/A	0708	N/A
INF_	0704	N/A	0709	N/A
_POSS	0705	N/A	0710	N/A

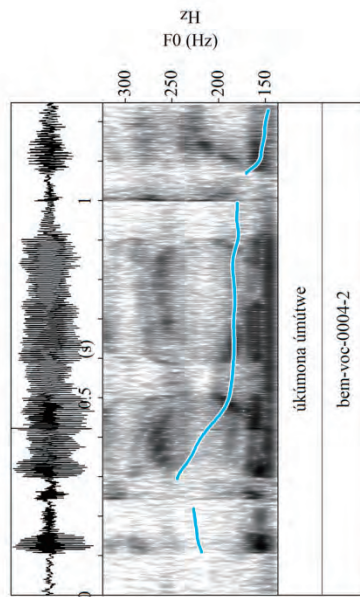
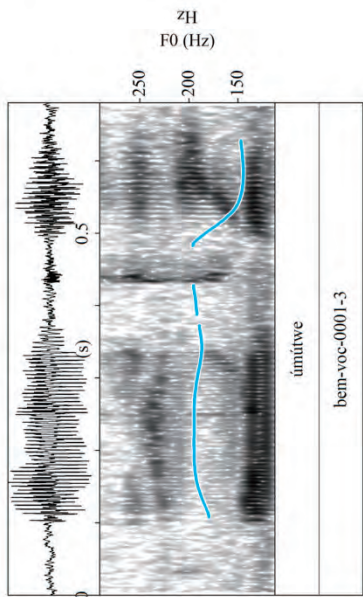
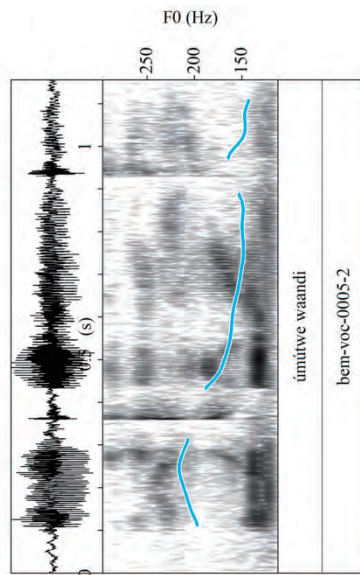
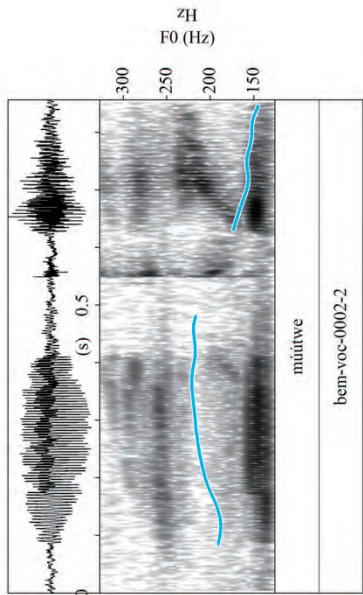
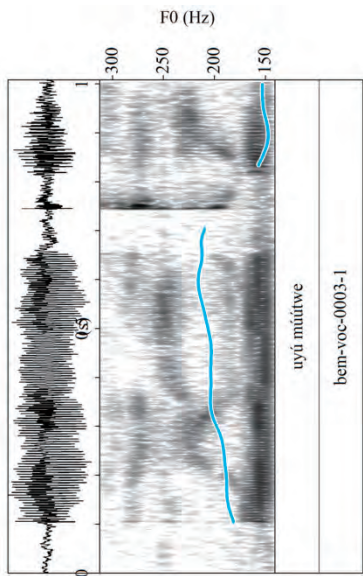
0174. today 今日

NC: 9/-; pitch pattern: HLH; Guthrie: *íleeló*

		SG		PL
#_#	0716	<i>léeló</i>	0721	N/A
		'today'		
PRED	0717	<i>níleelo</i>	0722	N/A
		'it is today'		
DEM_	0718	N/A	0723	N/A
INF_	0719	N/A	0724	N/A
_POSS	0720	N/A	0725	N/A

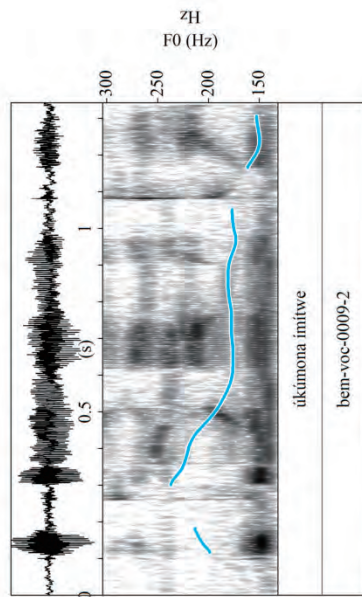
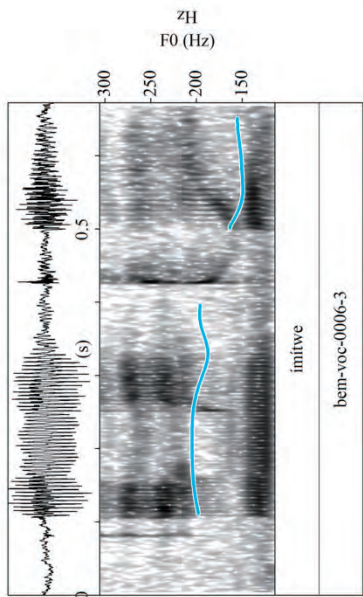
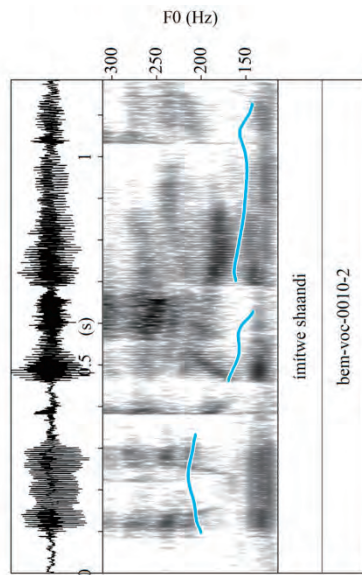
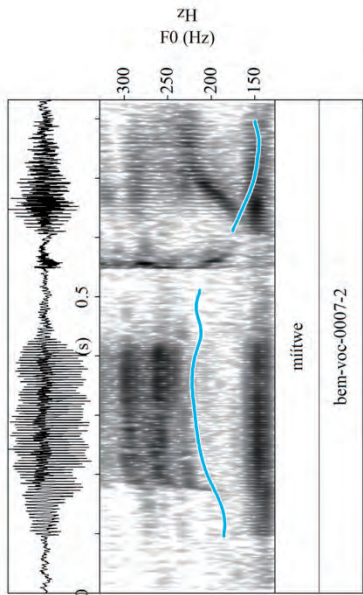
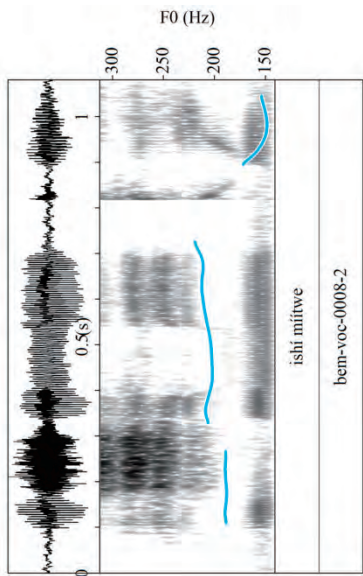


## Part II. Plots of phonetic data



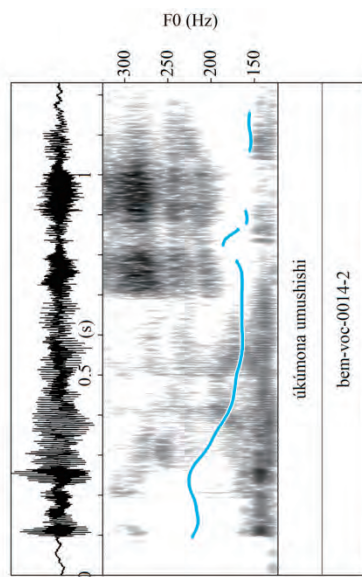
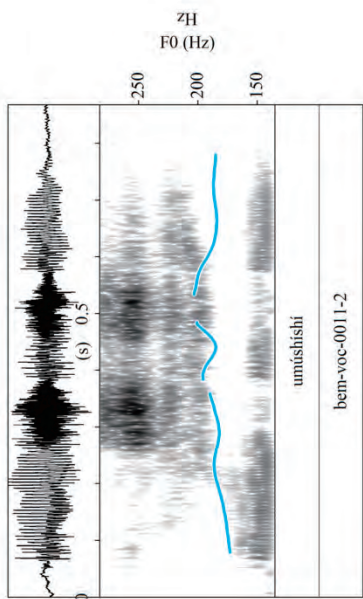
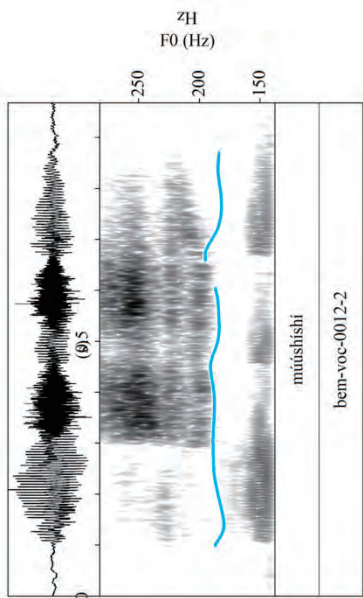
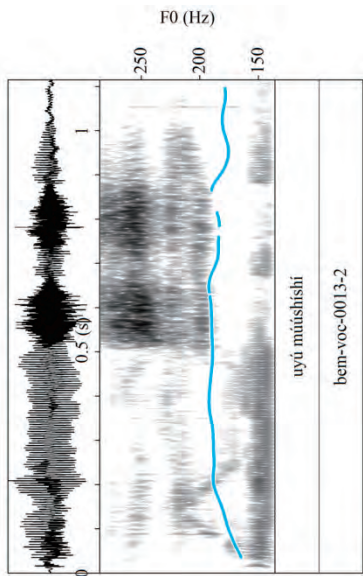
ZH

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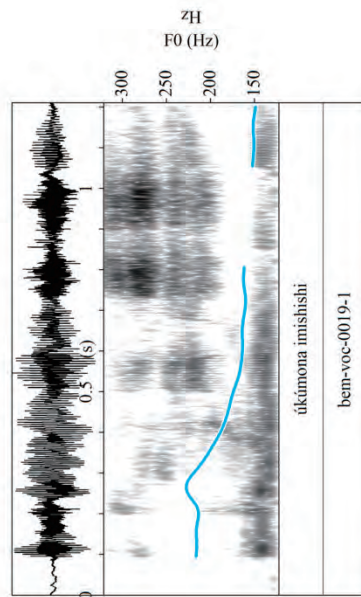
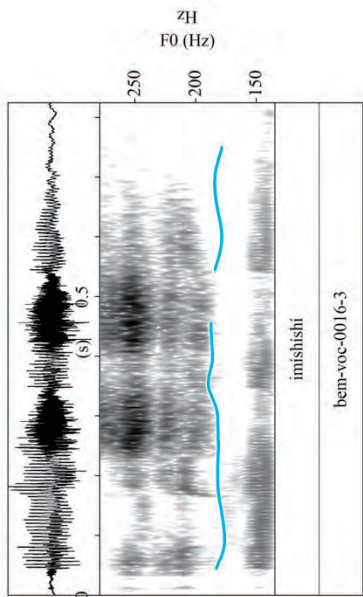
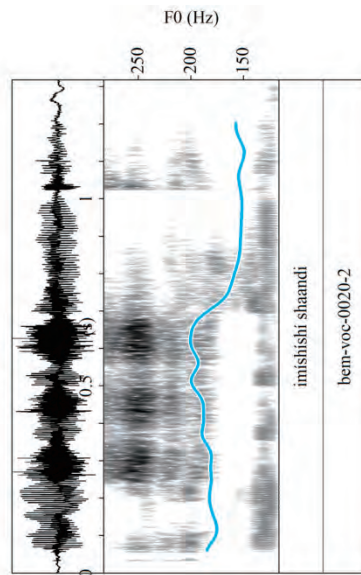
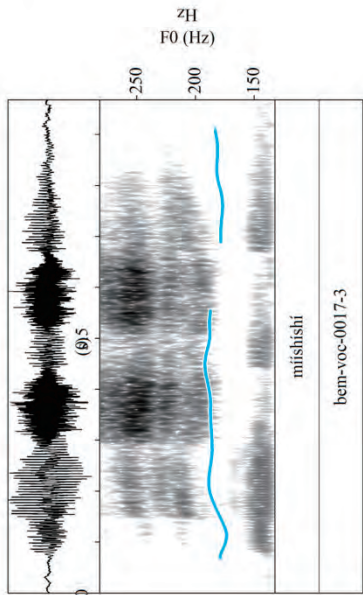
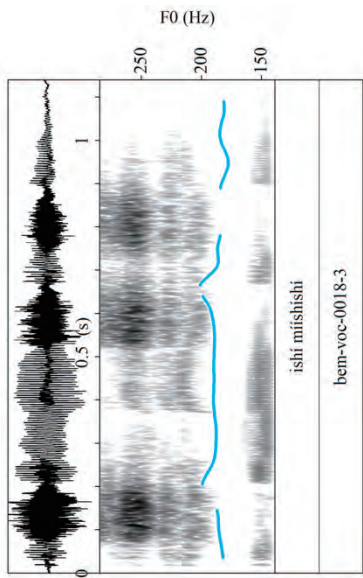
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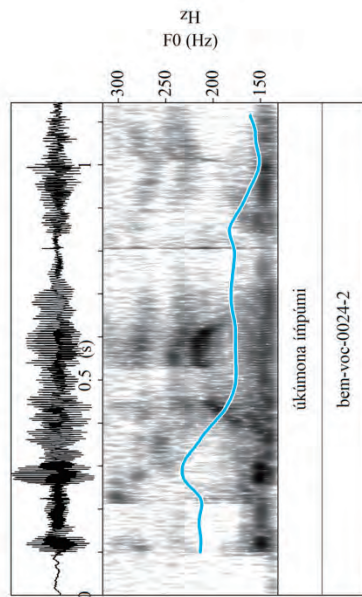
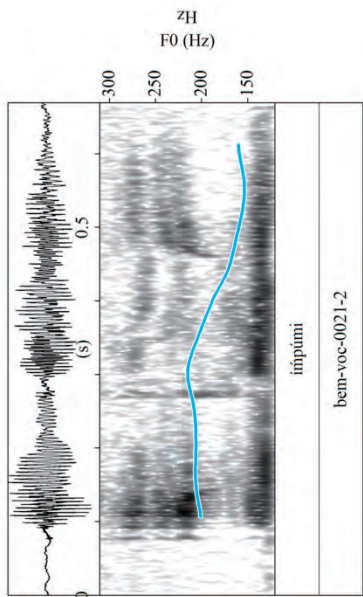
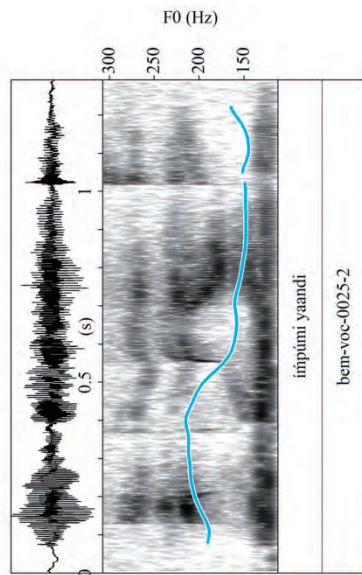
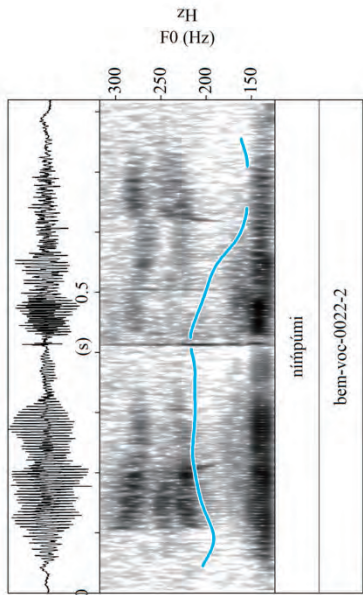
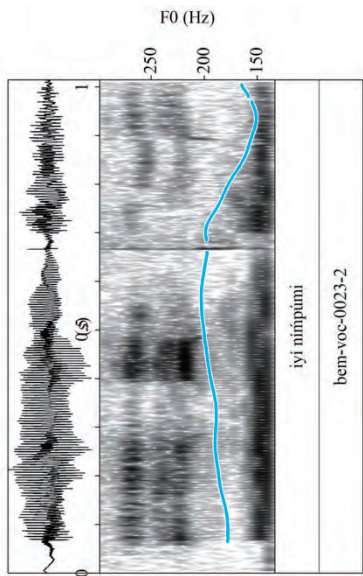
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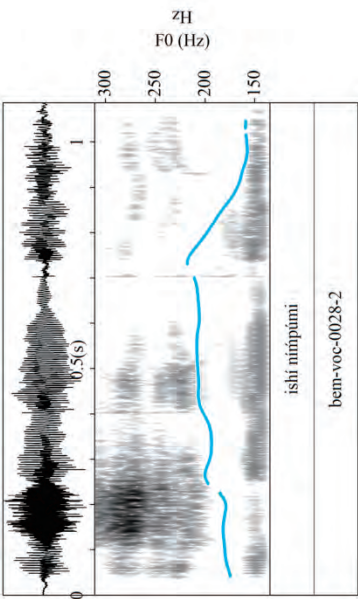
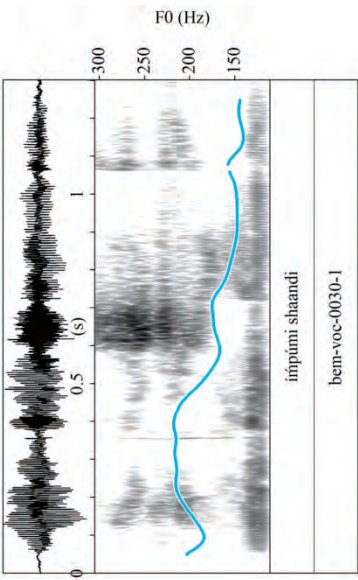
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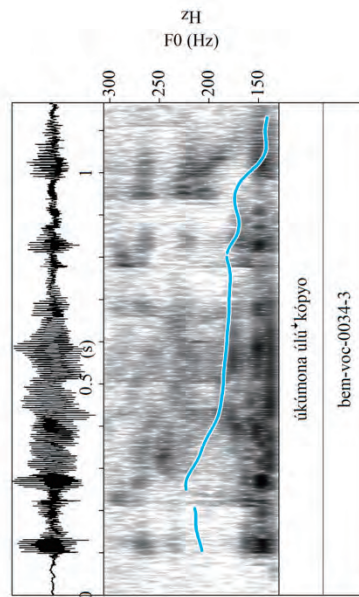
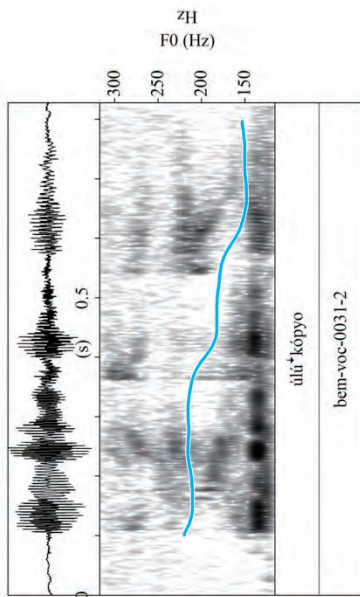
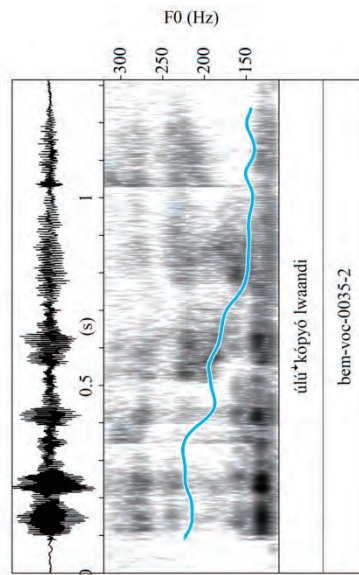
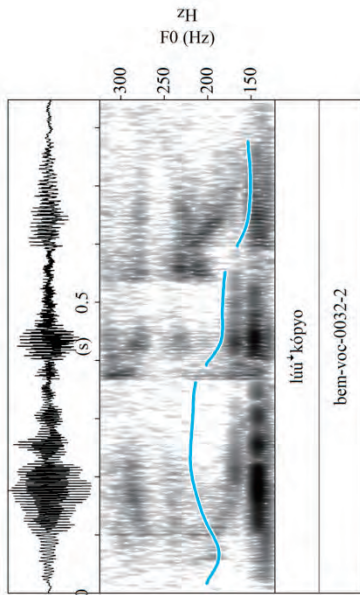
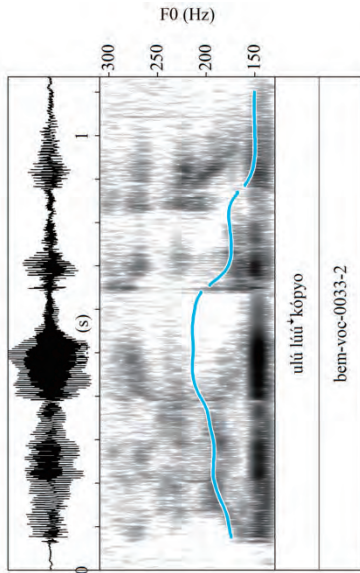


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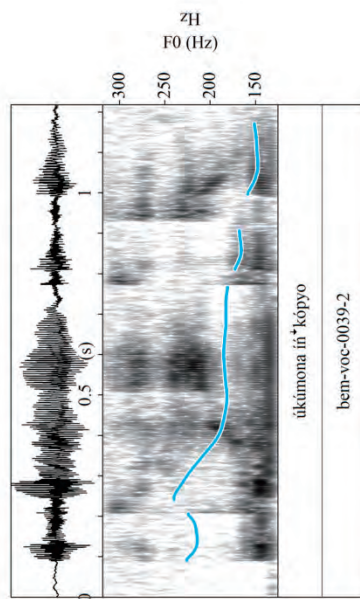
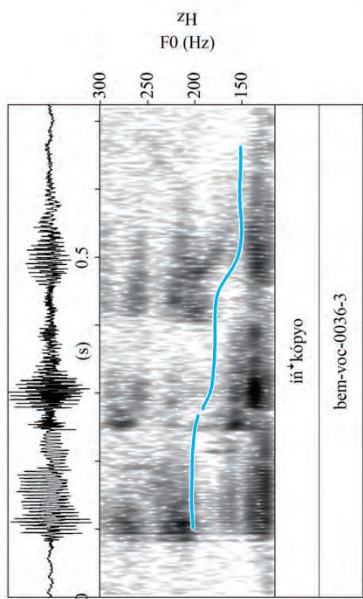
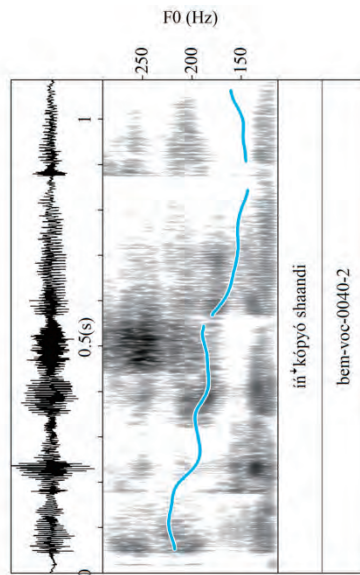
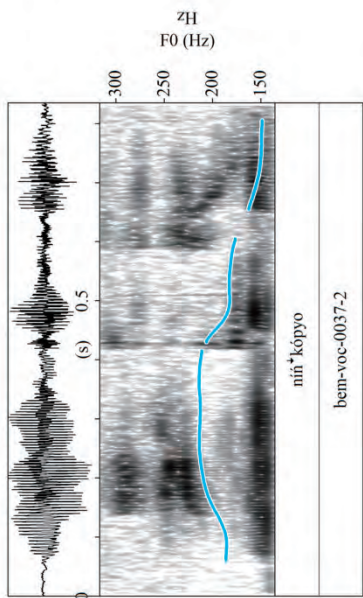
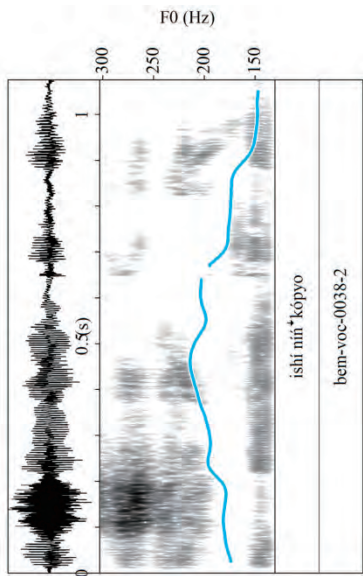
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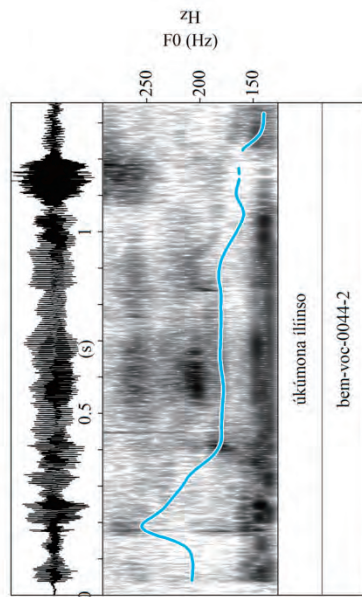
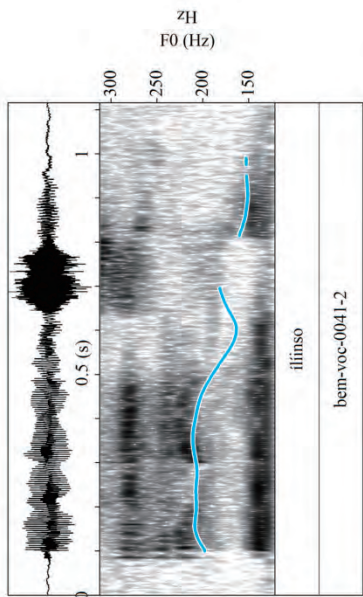
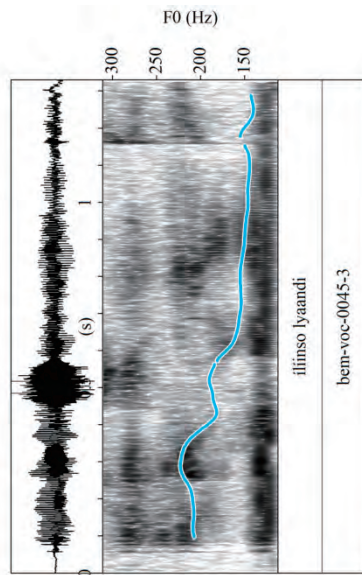
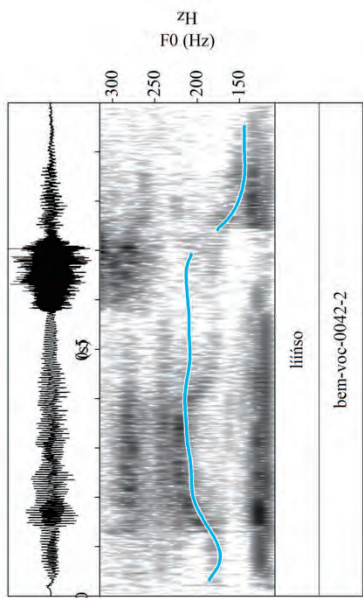
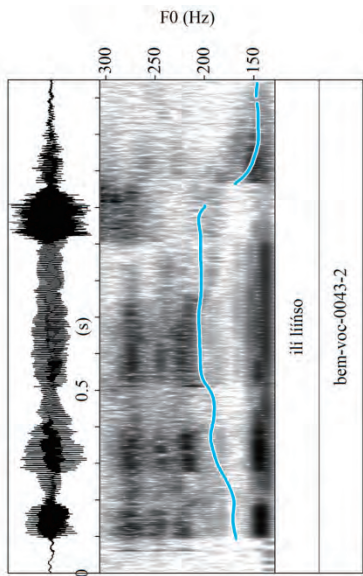
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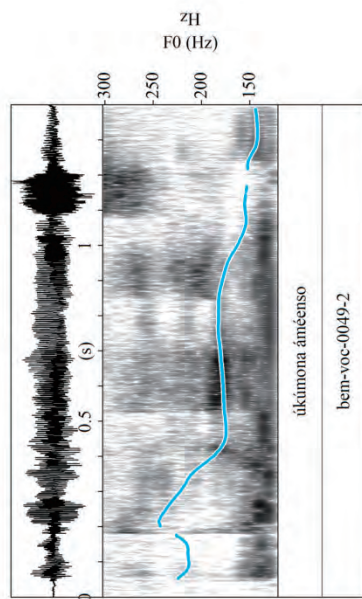
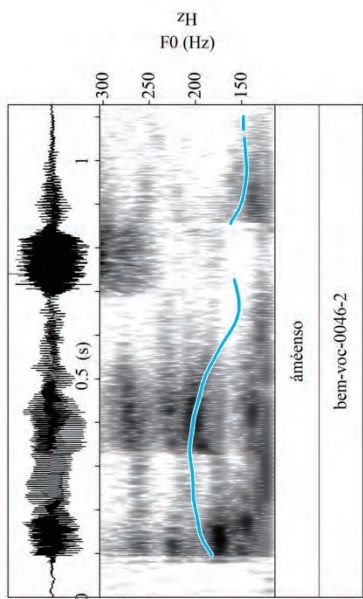
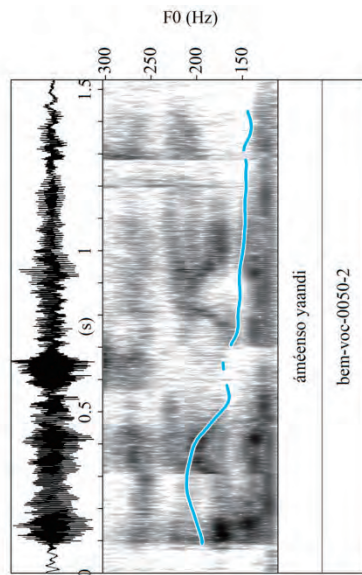
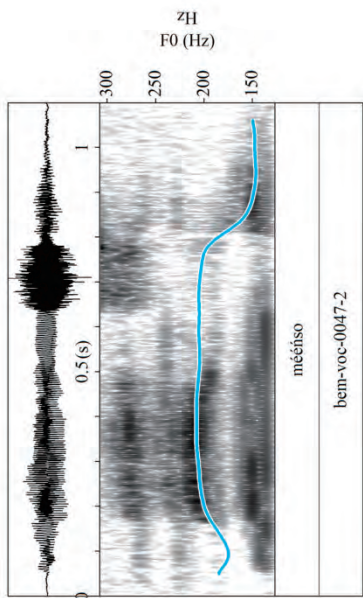
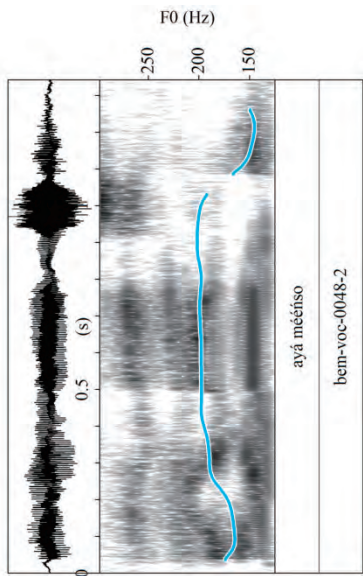
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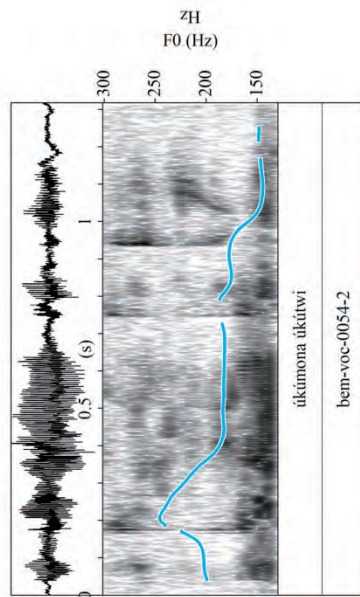
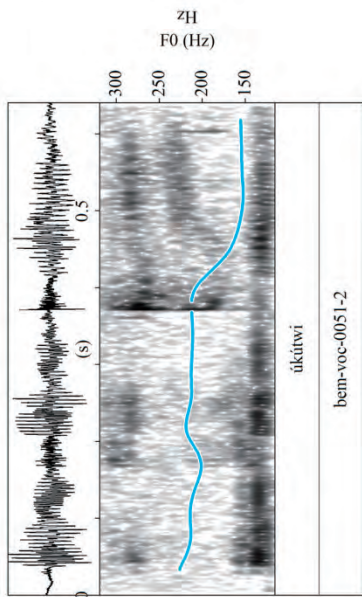
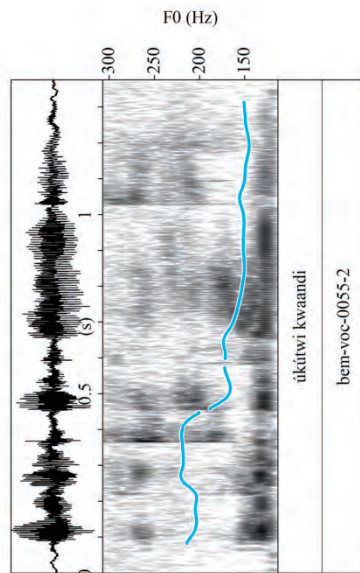
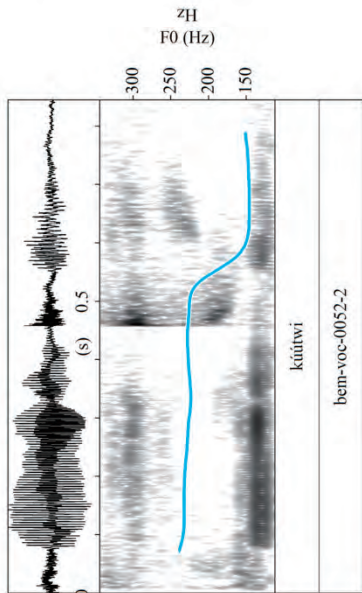
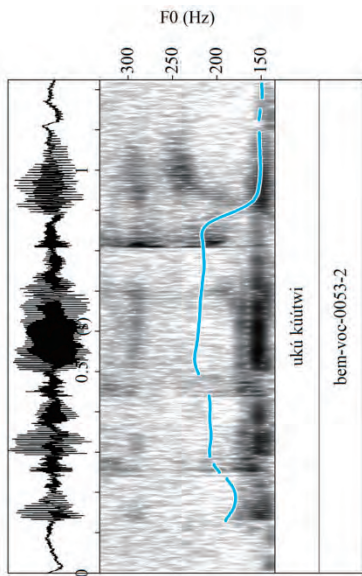
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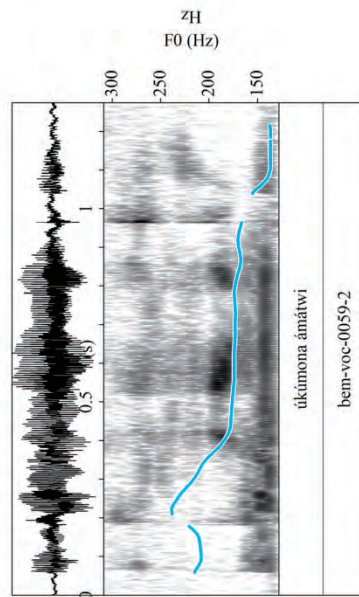
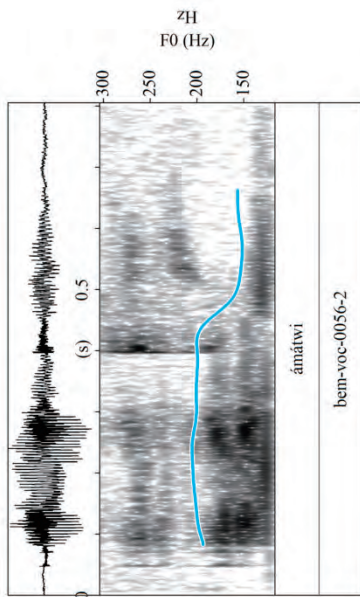
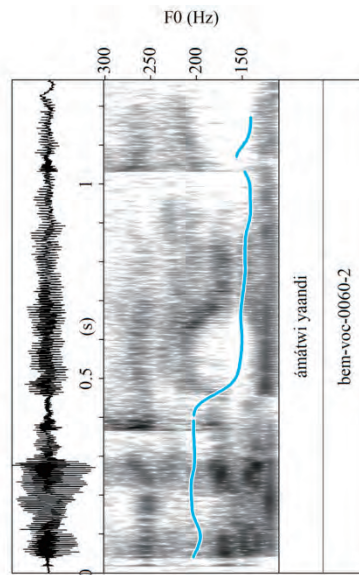
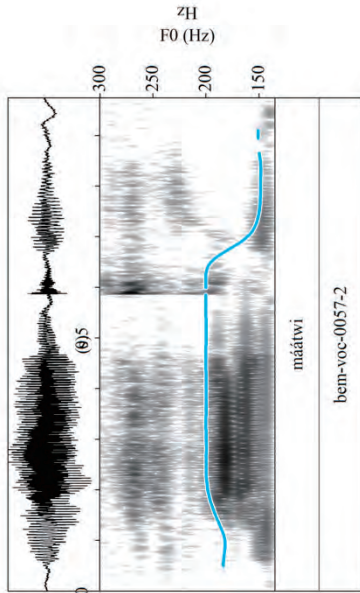
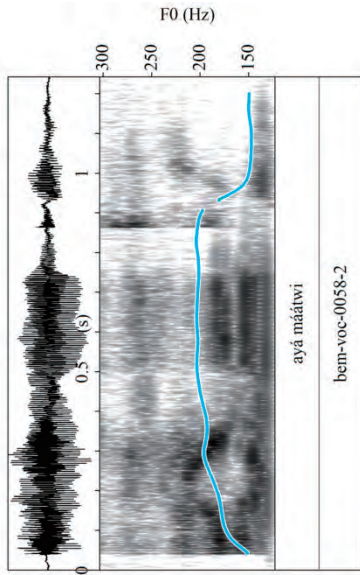
ZH

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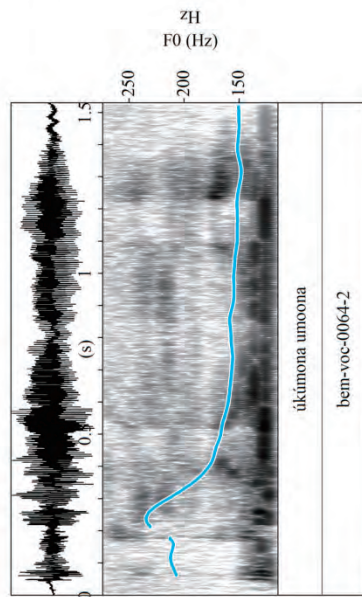
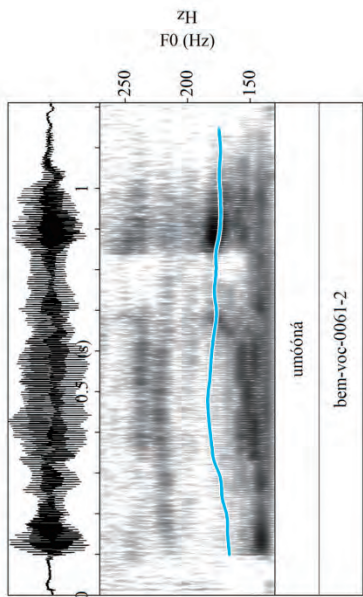
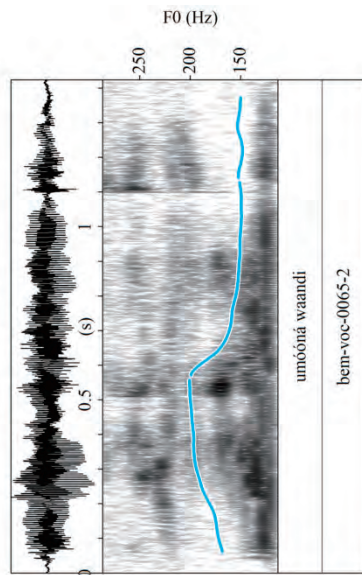
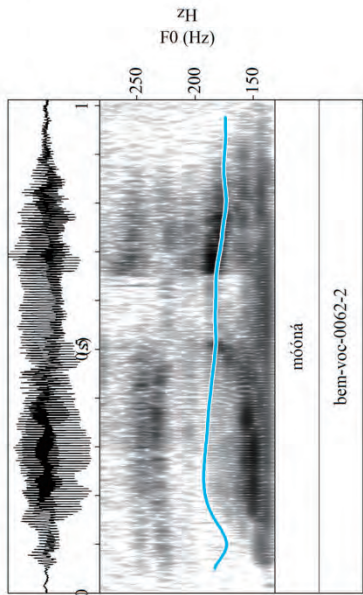
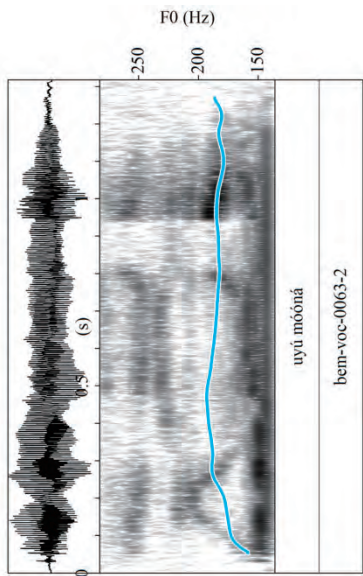
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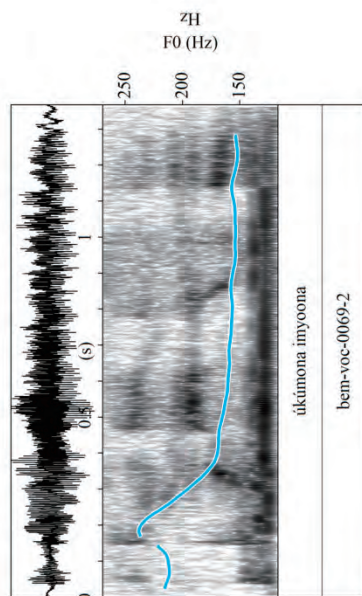
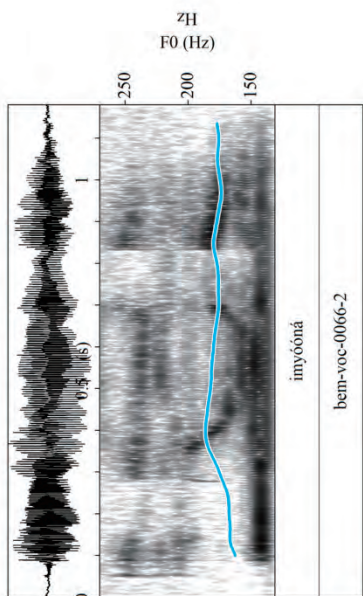
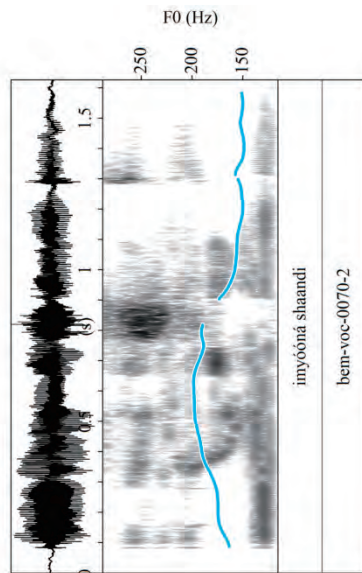
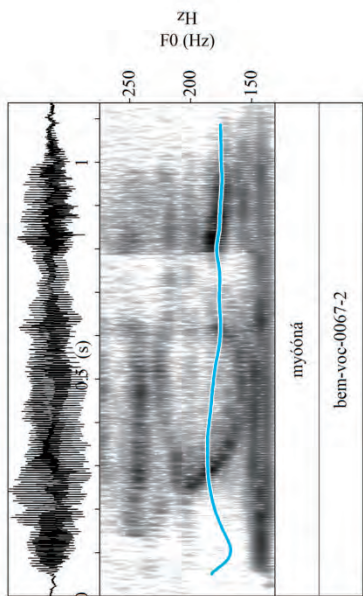
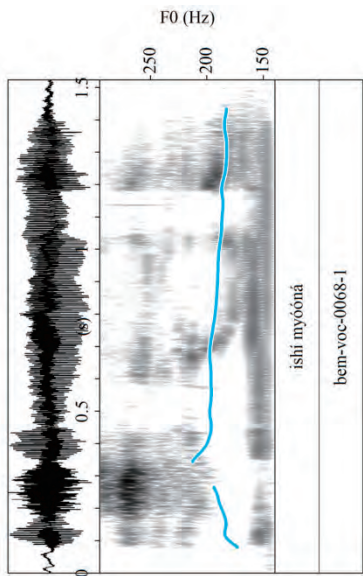
ZH

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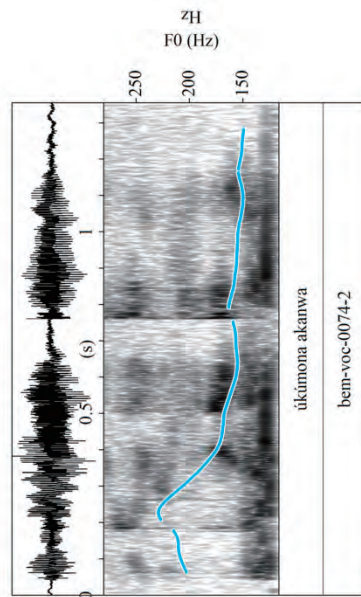
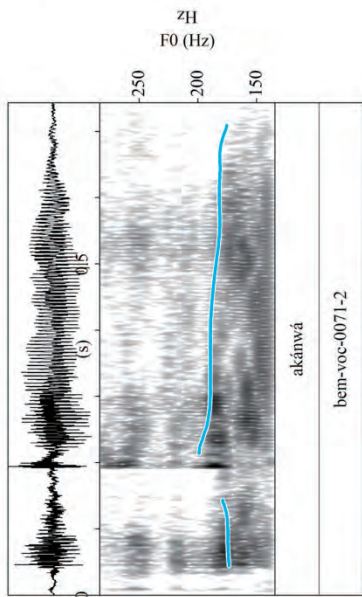
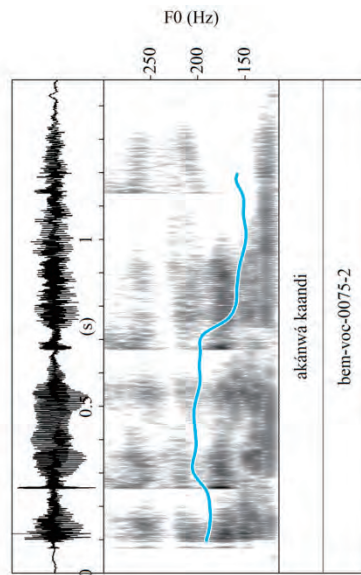
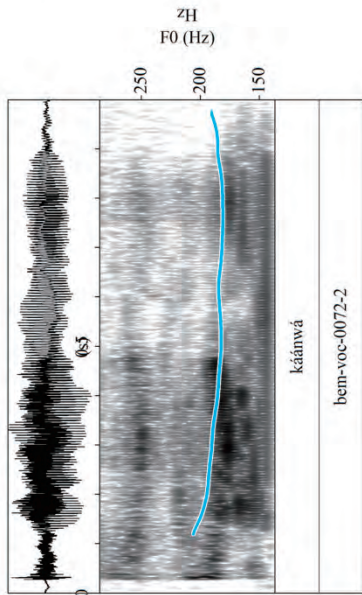
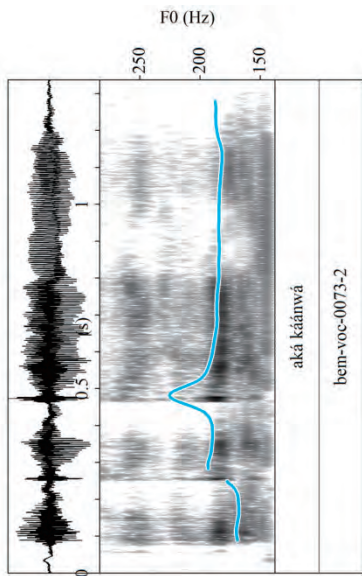
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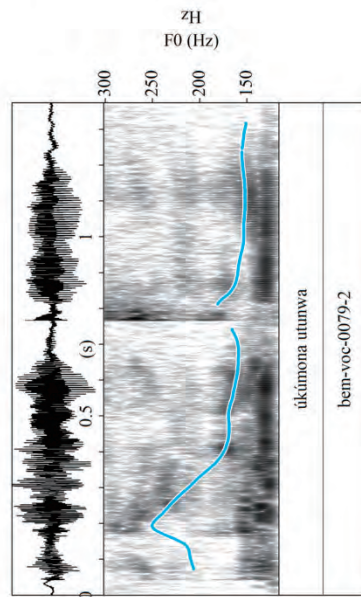
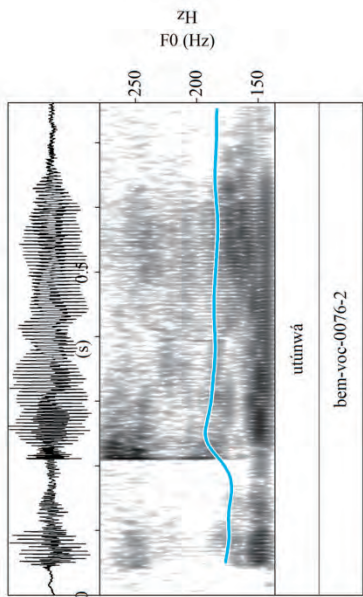
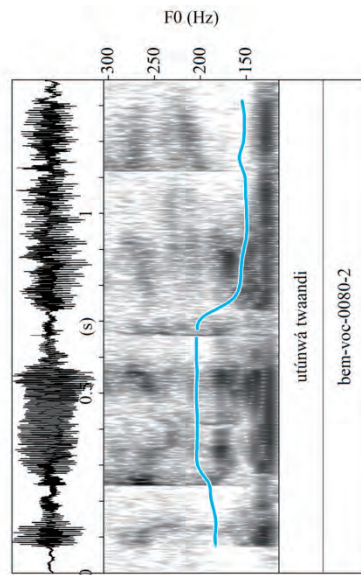
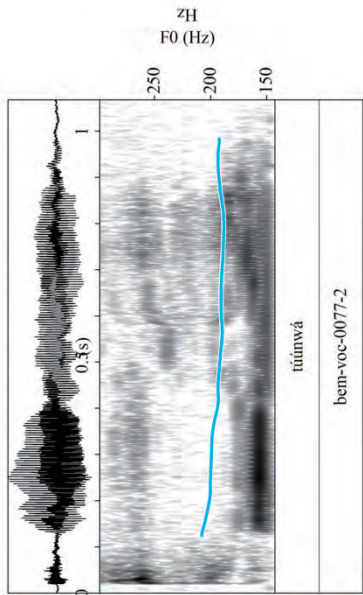
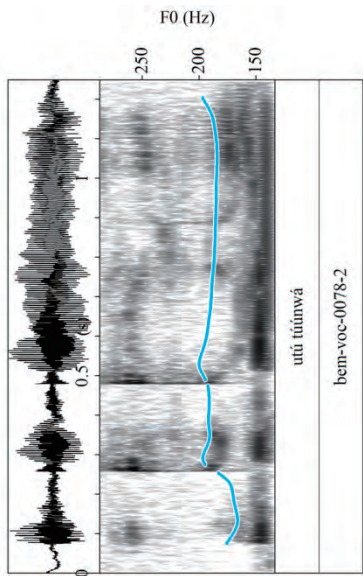
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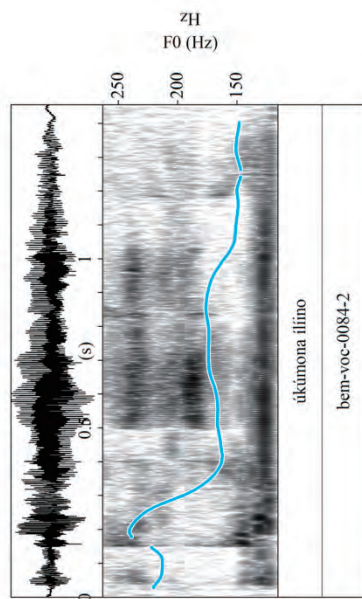
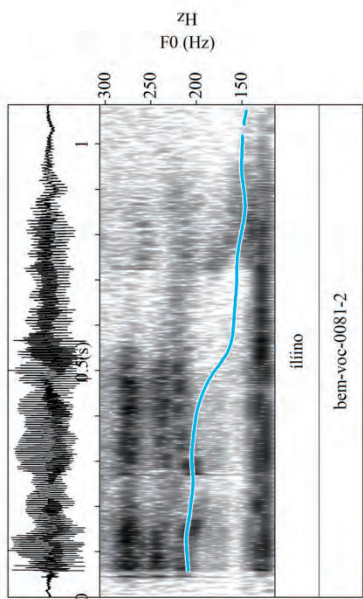
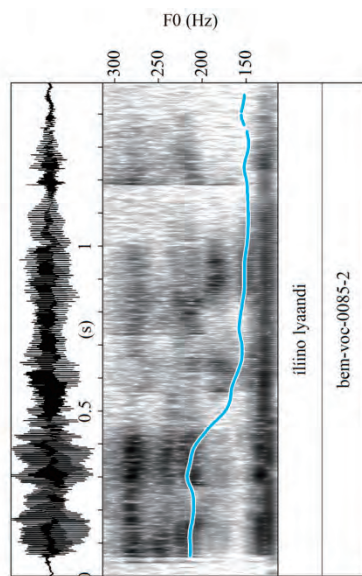
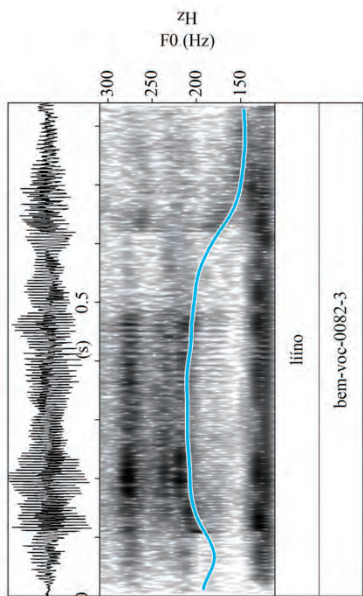
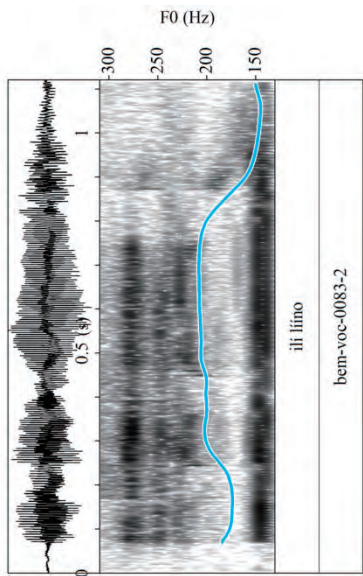
ZH





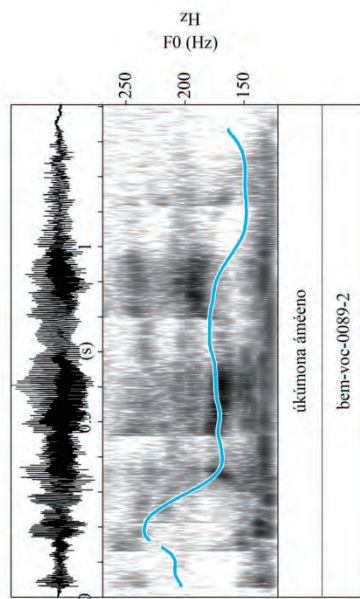
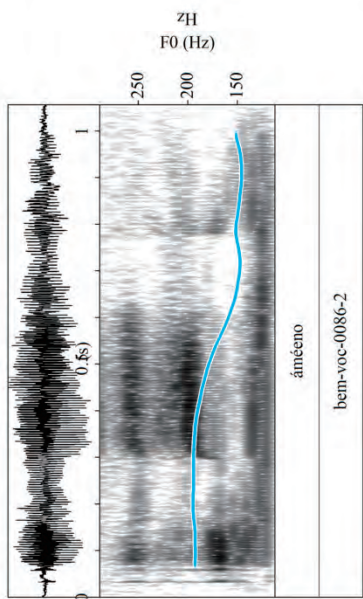
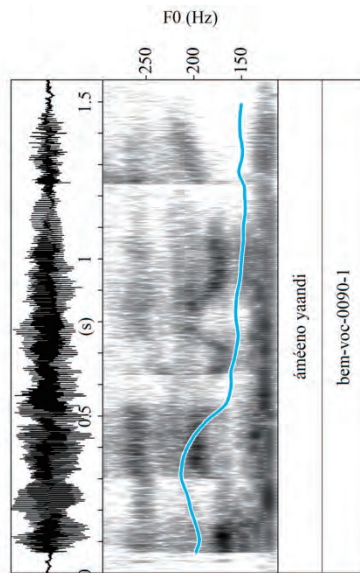
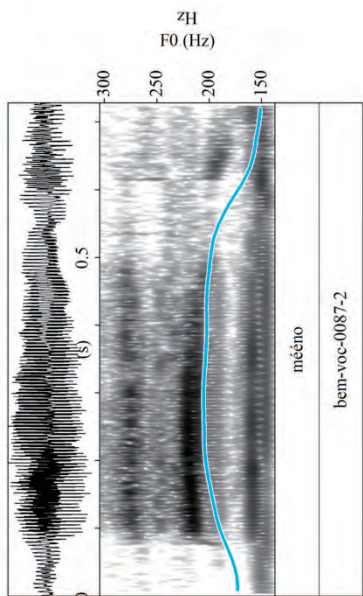
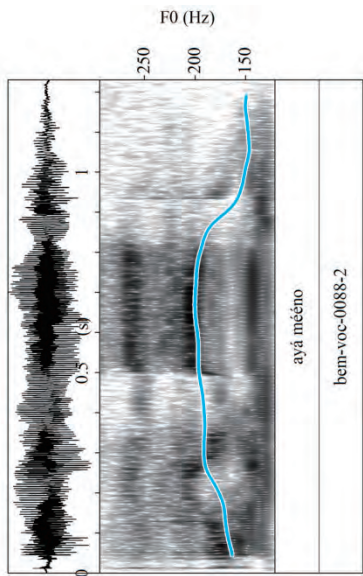
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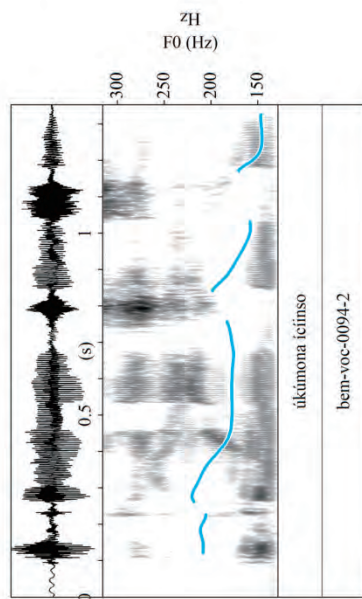
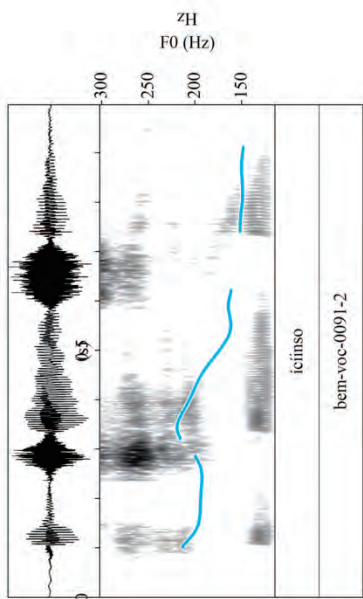
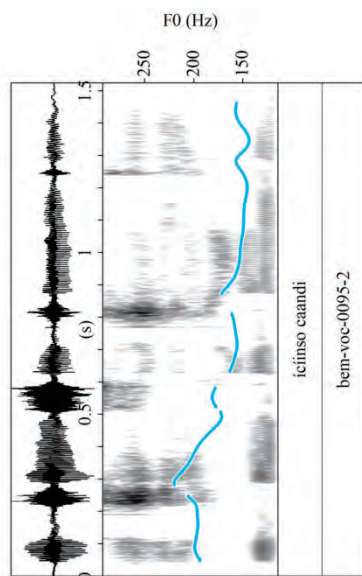
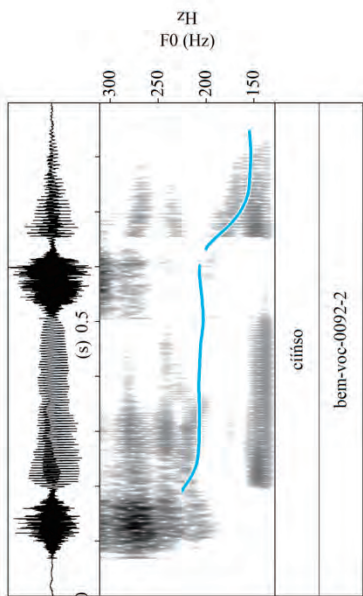
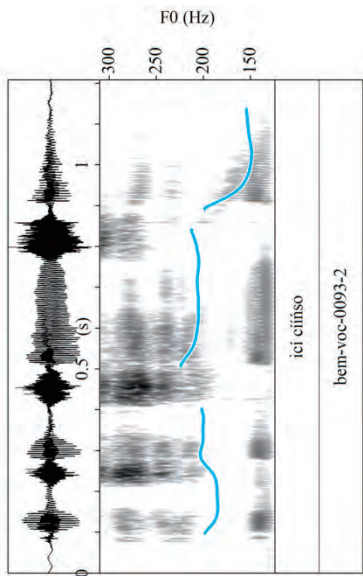
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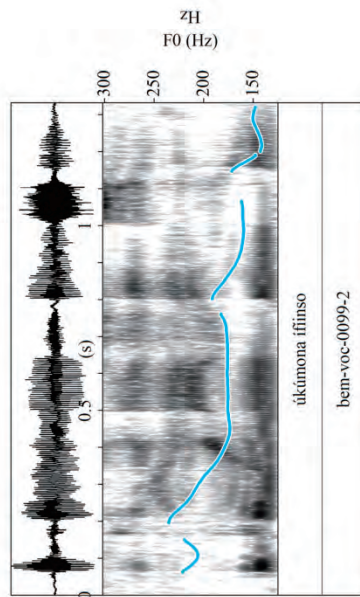
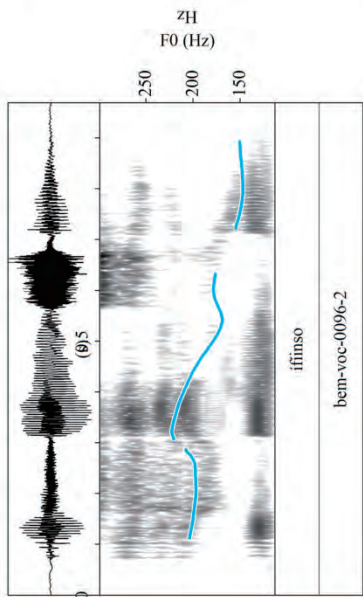
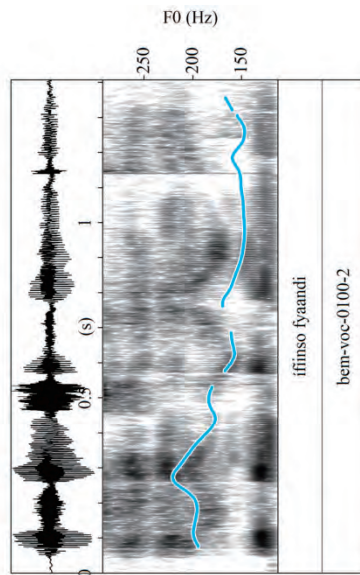
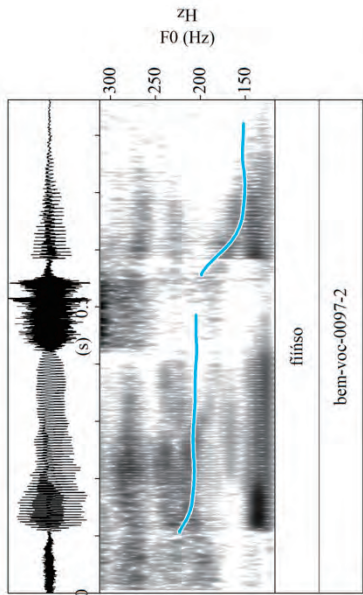
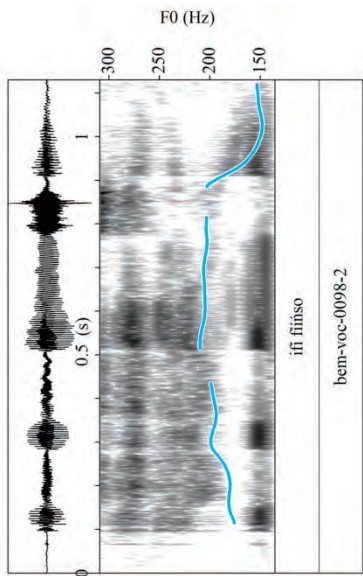
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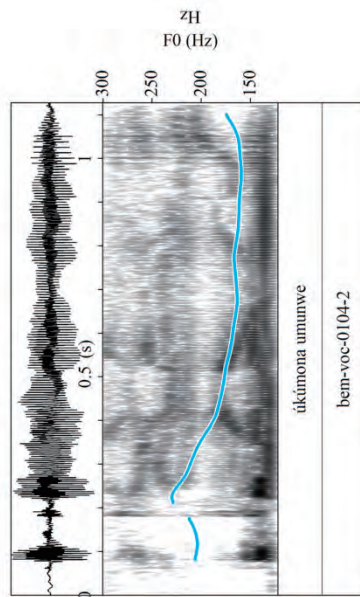
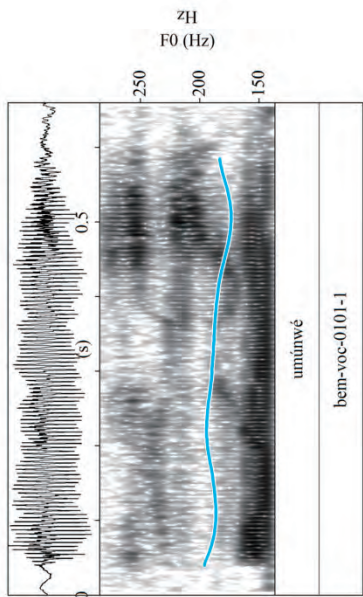
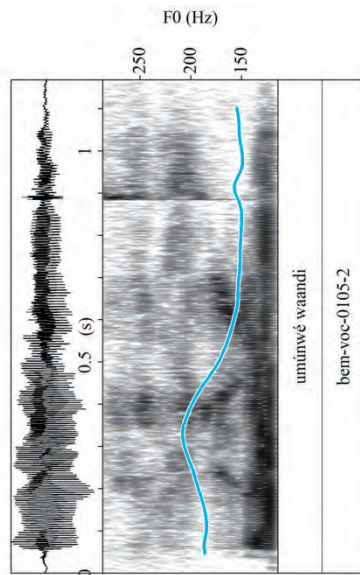
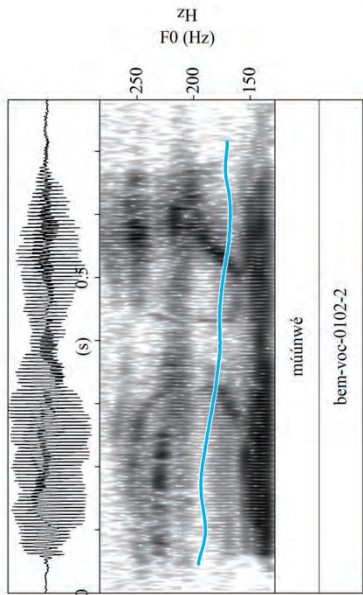
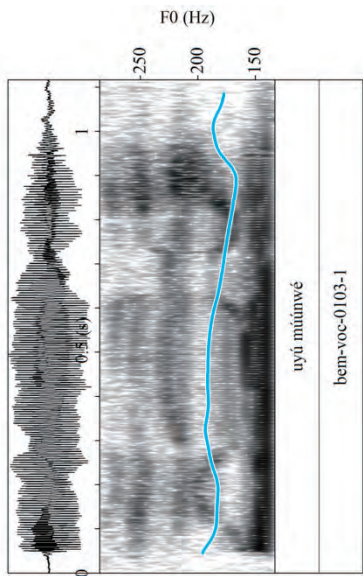
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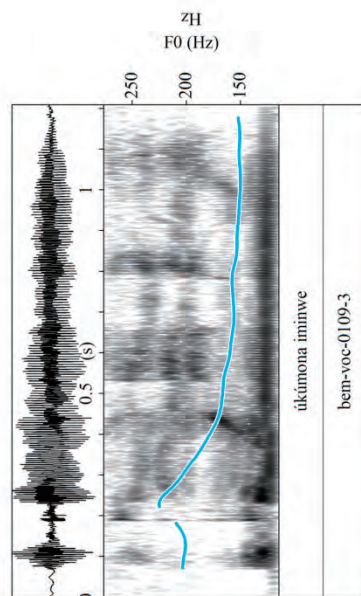
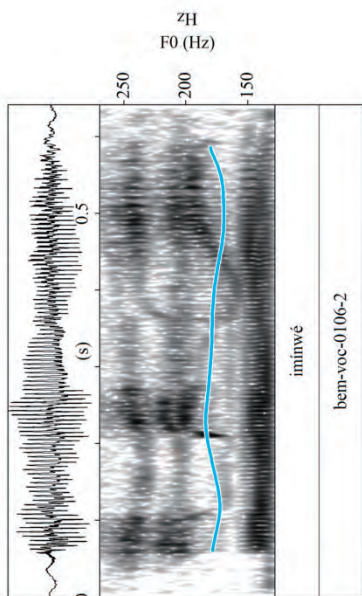
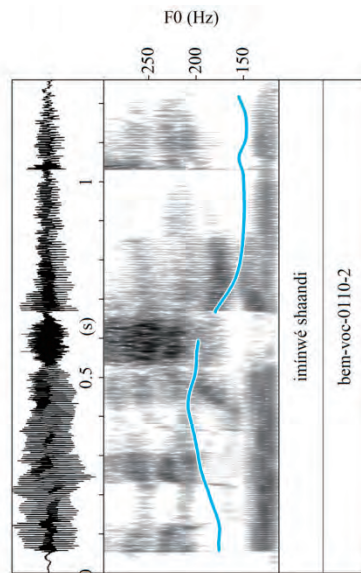
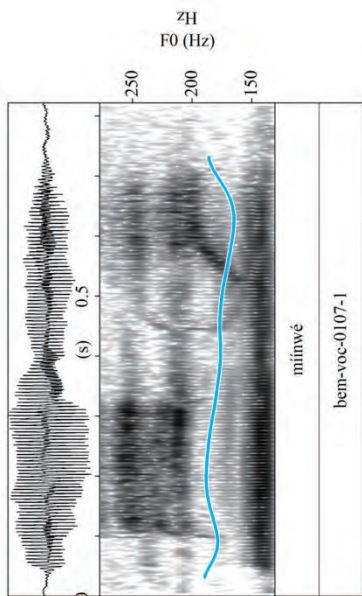
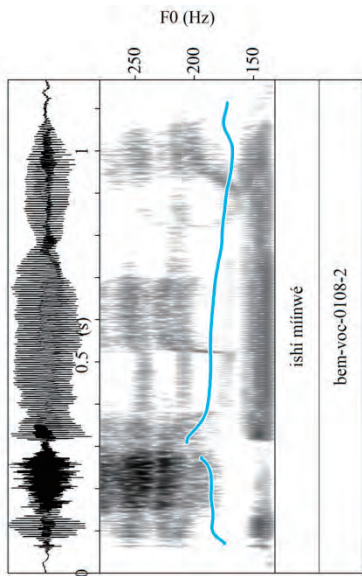
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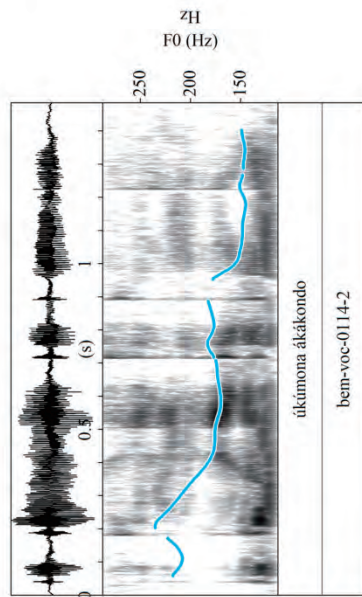
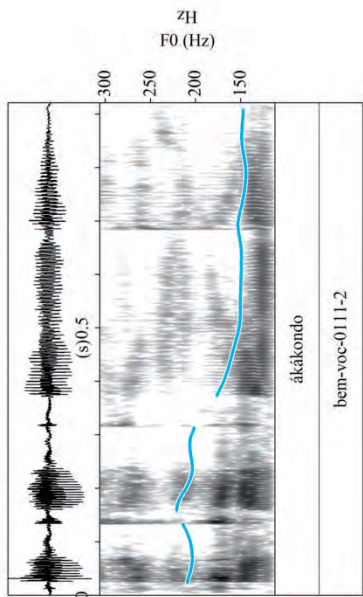
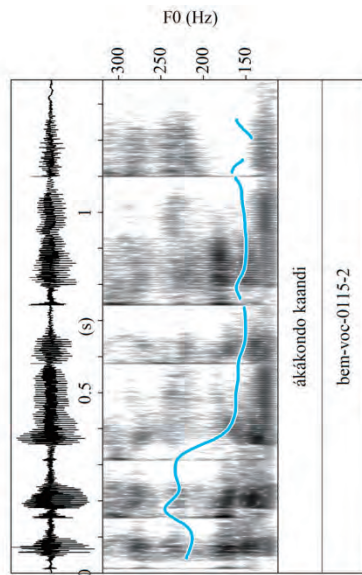
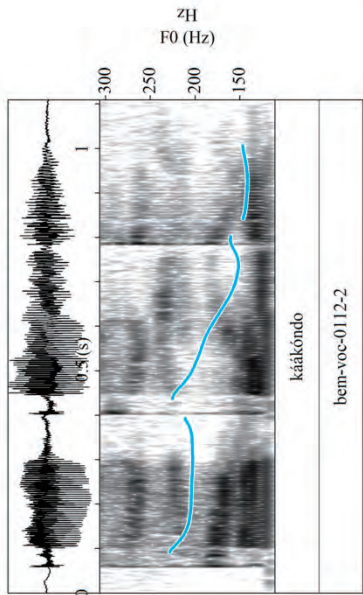
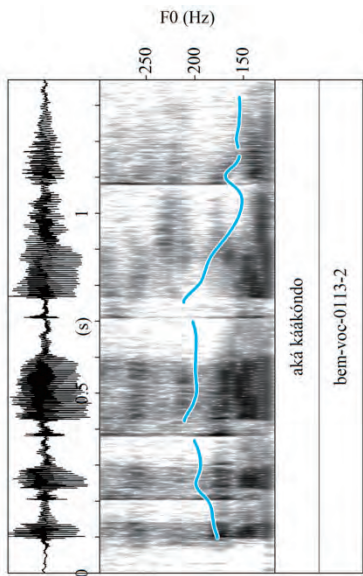
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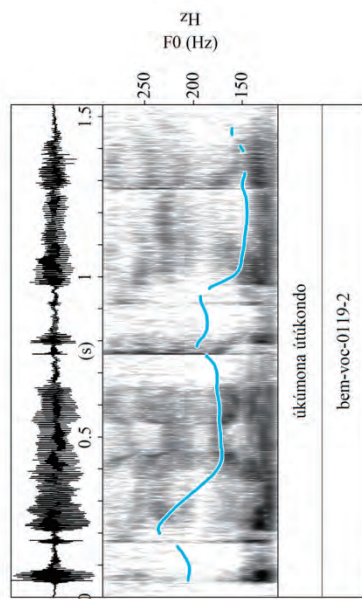
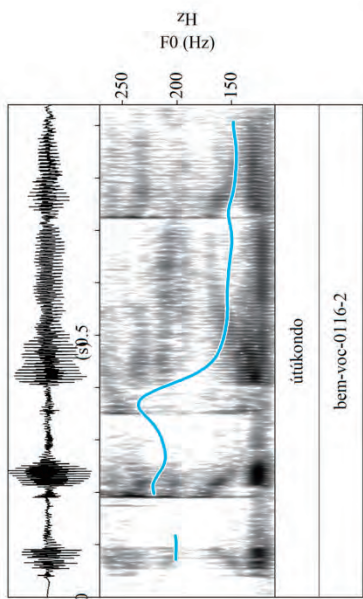
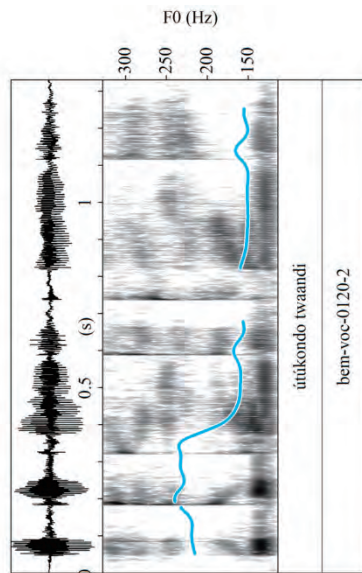
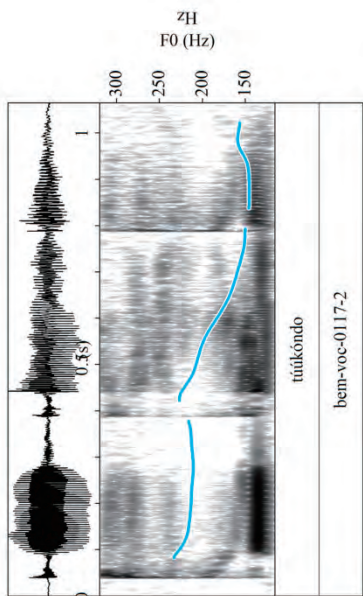
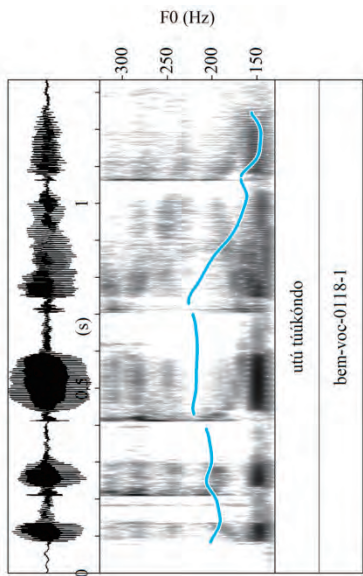
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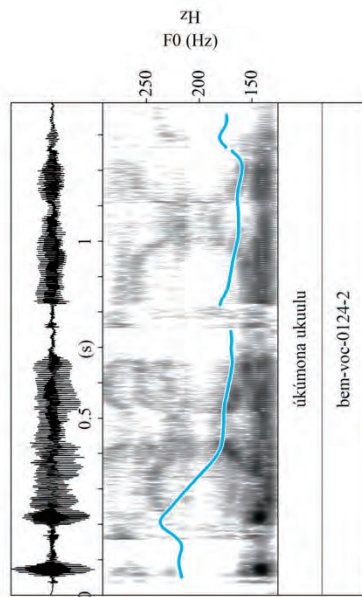
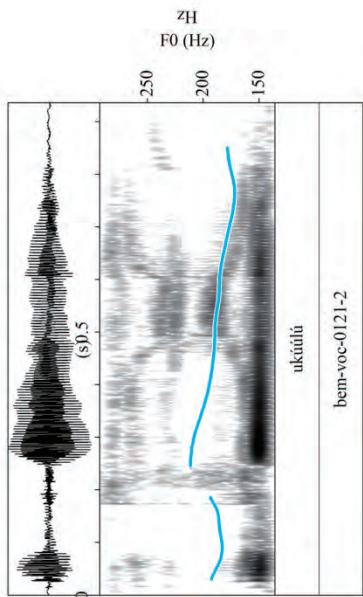
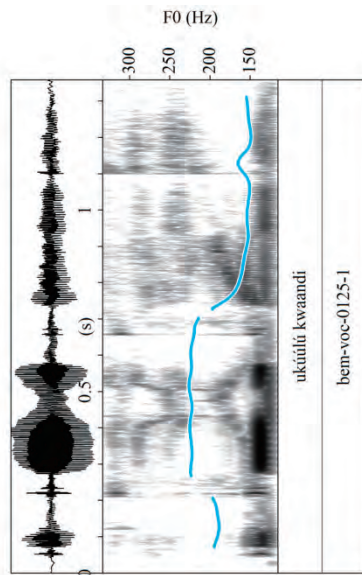
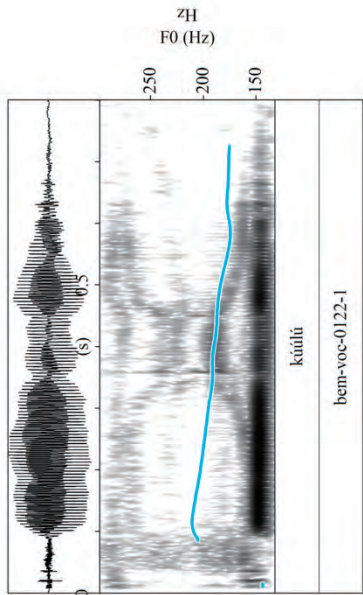
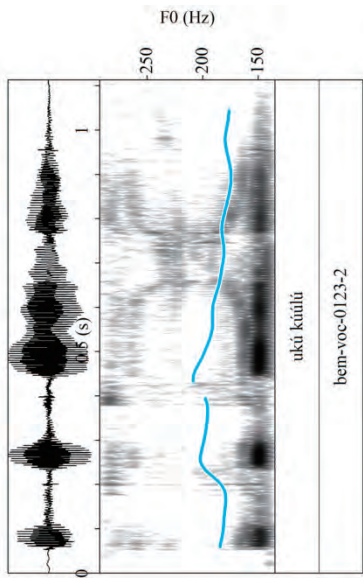
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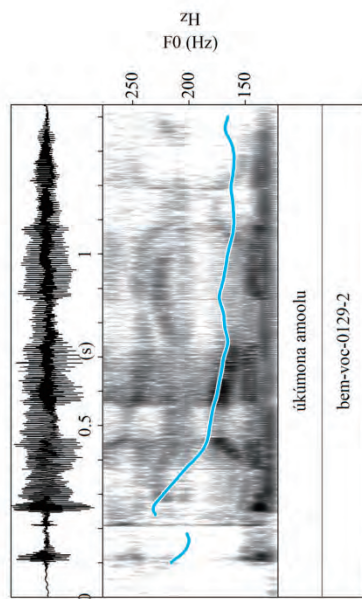
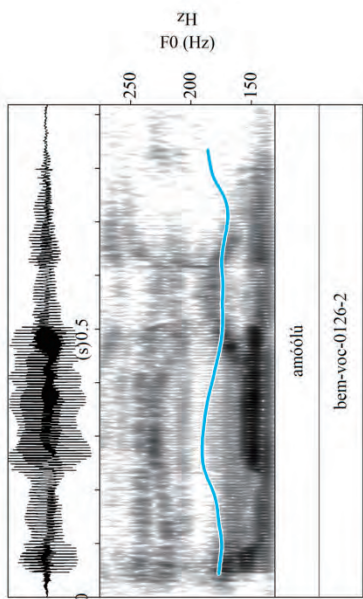
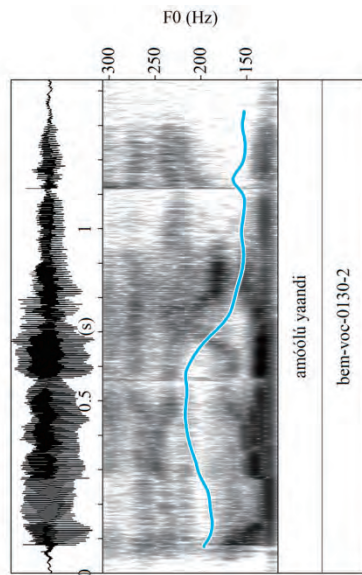
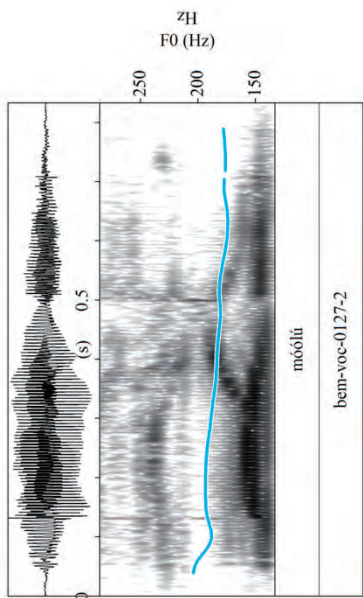
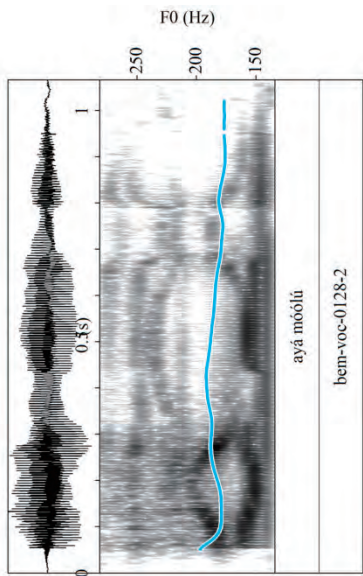
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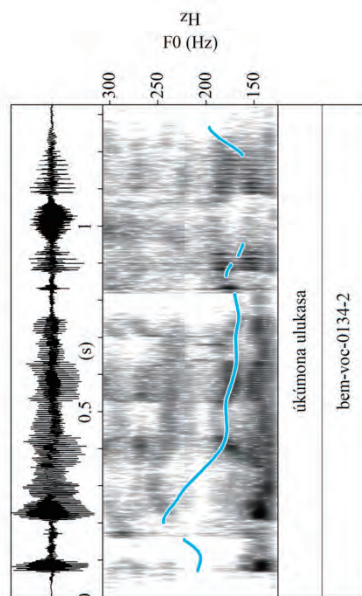
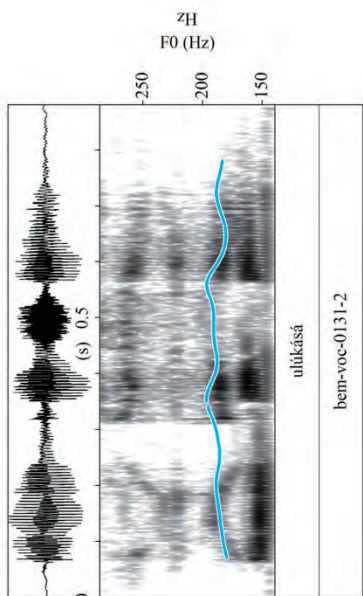
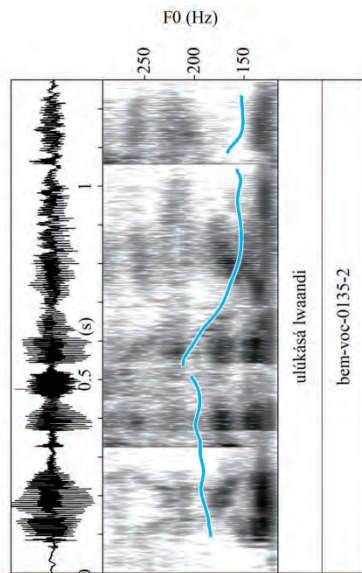
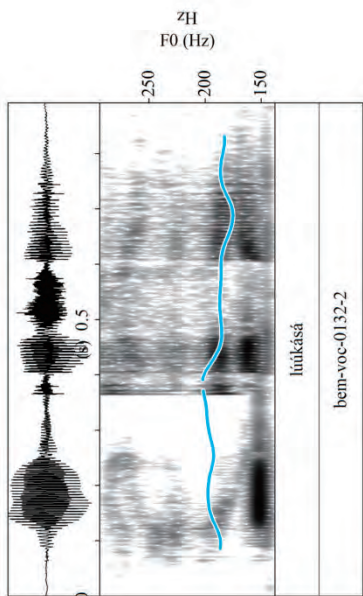
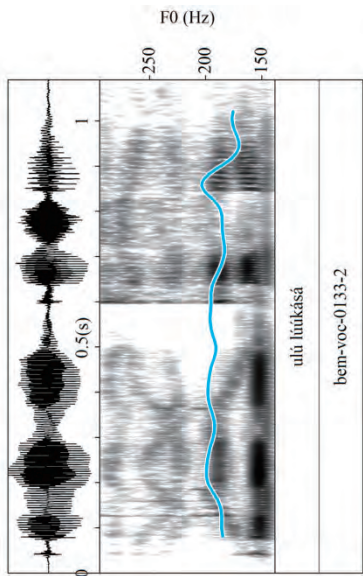
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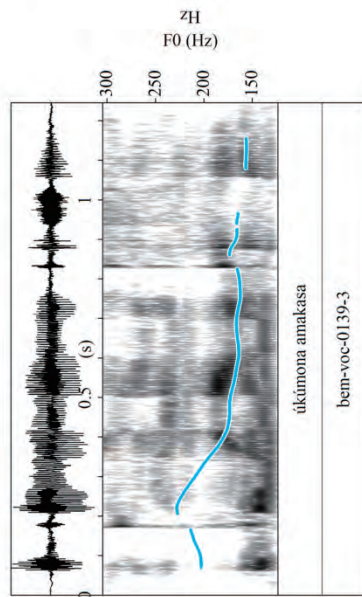
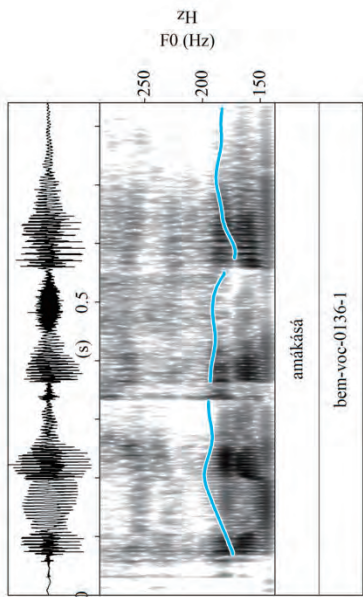
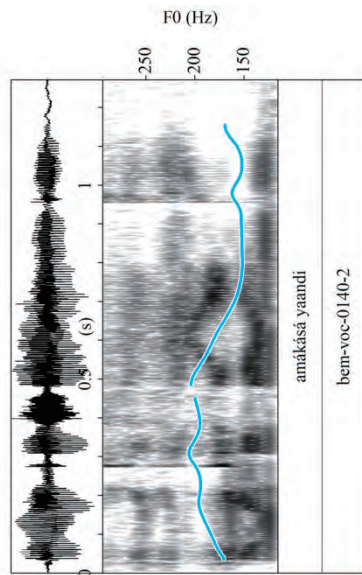
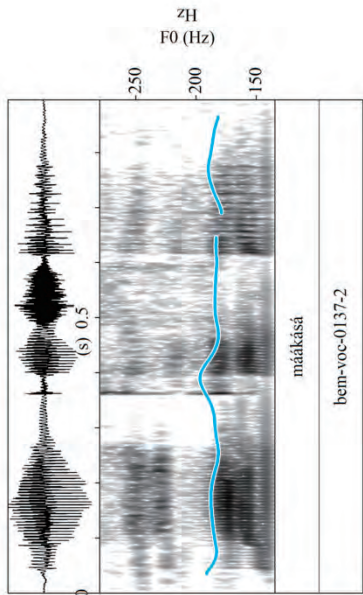
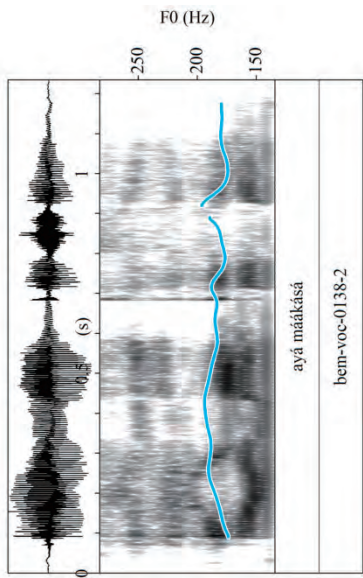
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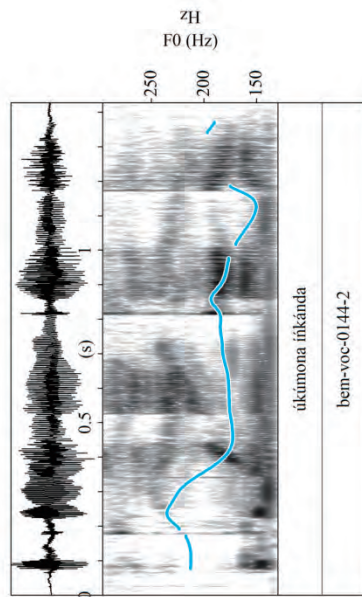
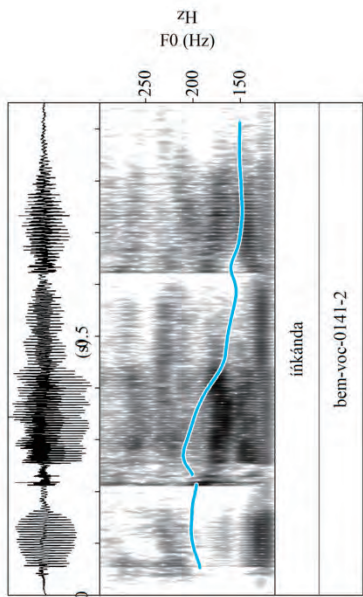
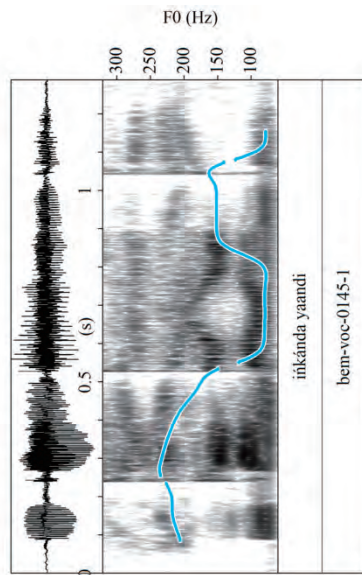
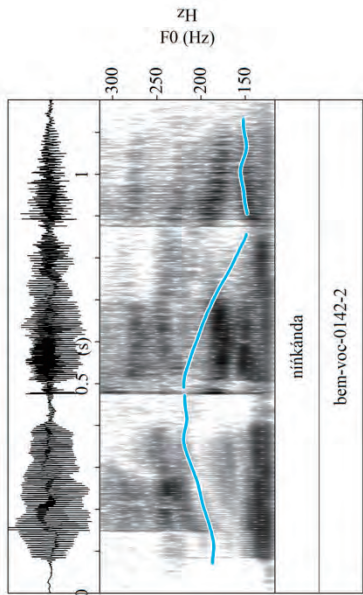
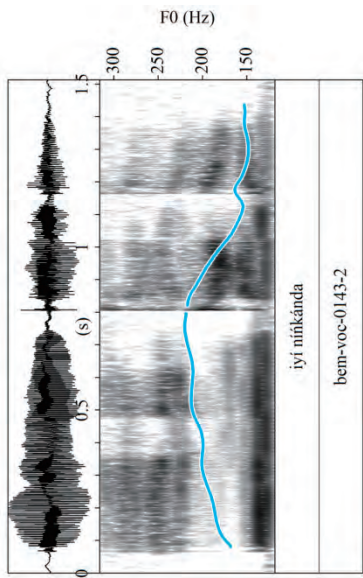
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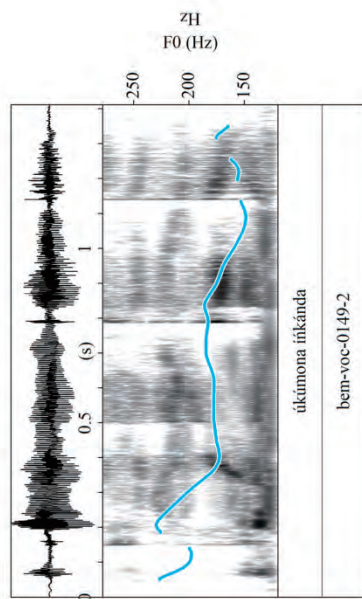
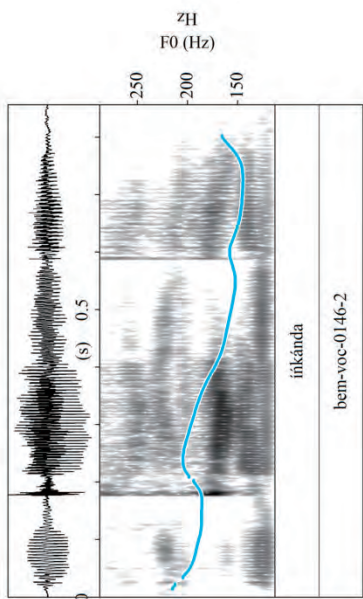
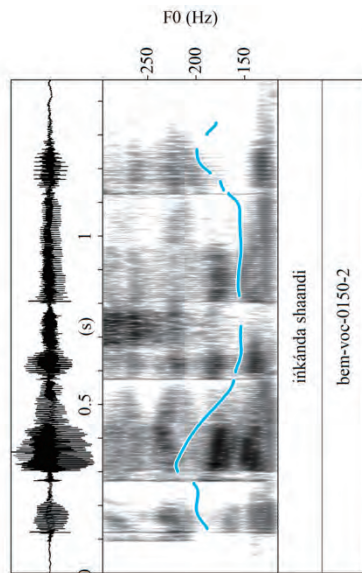
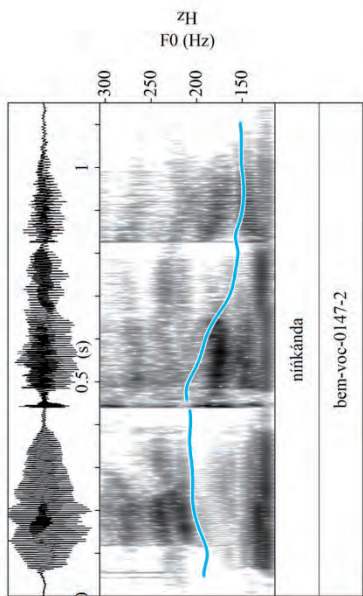
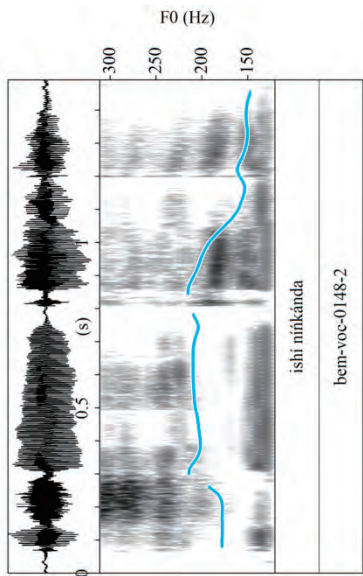
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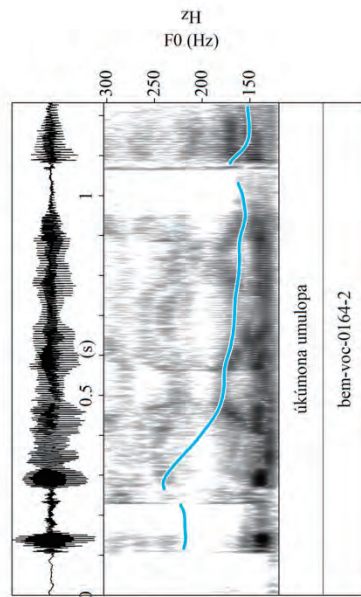
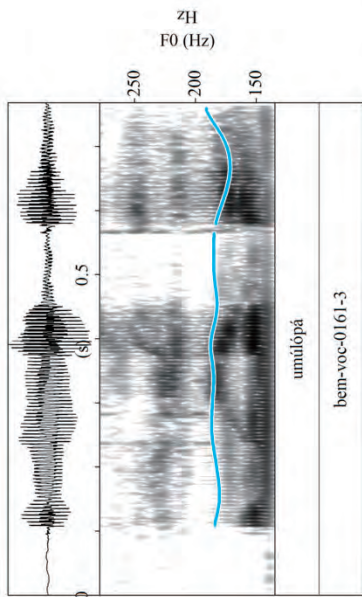
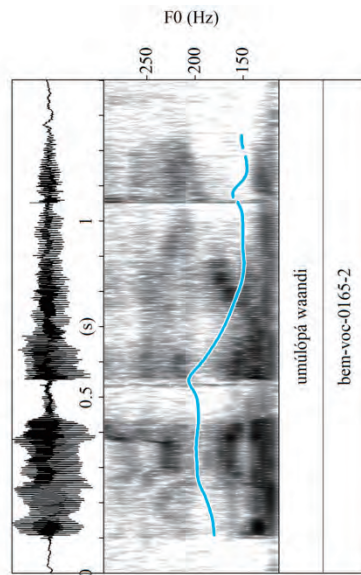
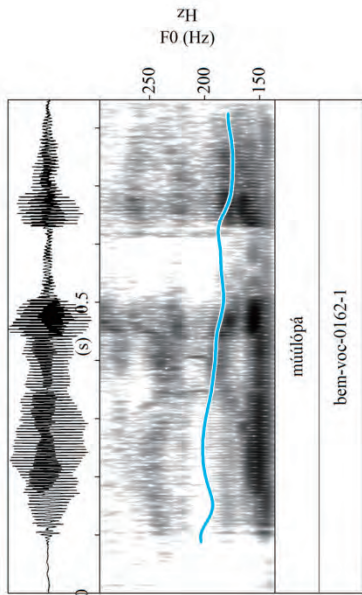
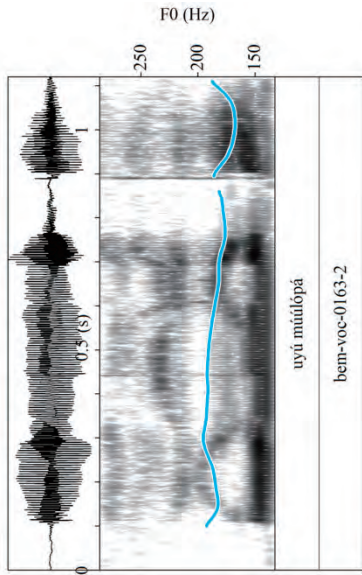
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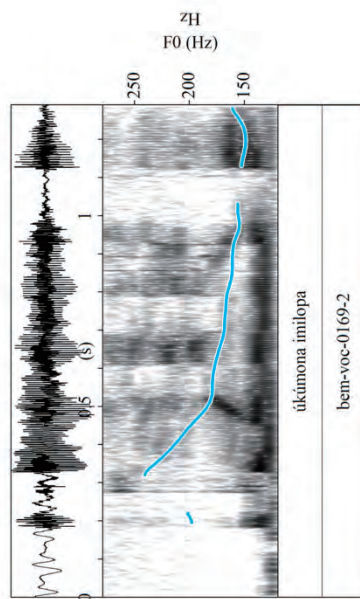
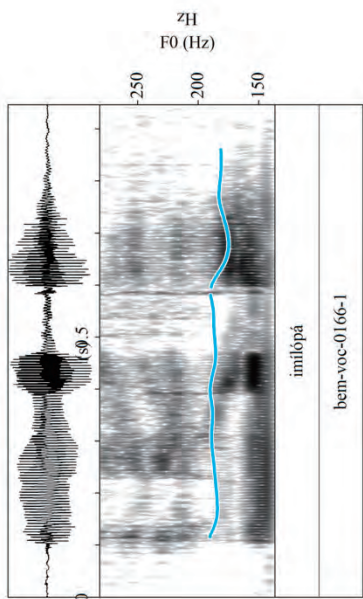
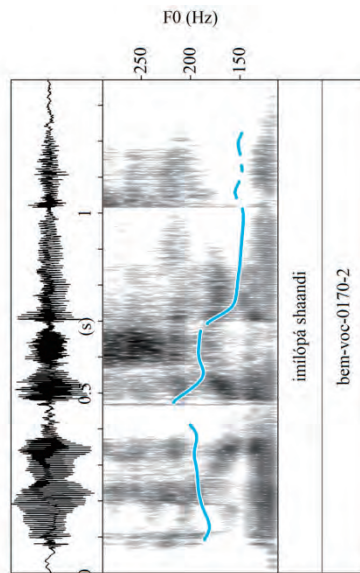
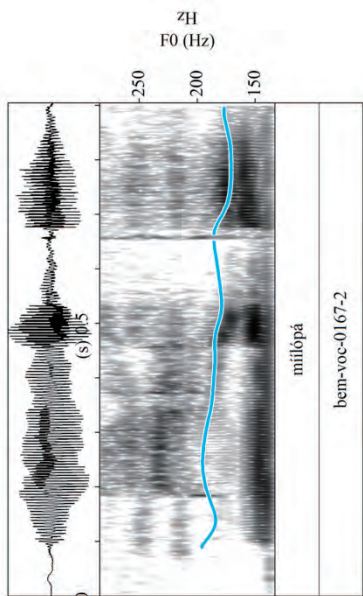
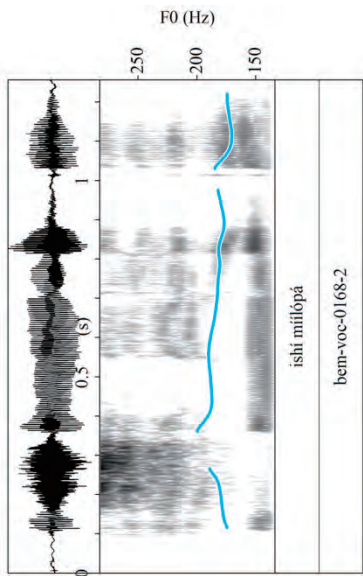
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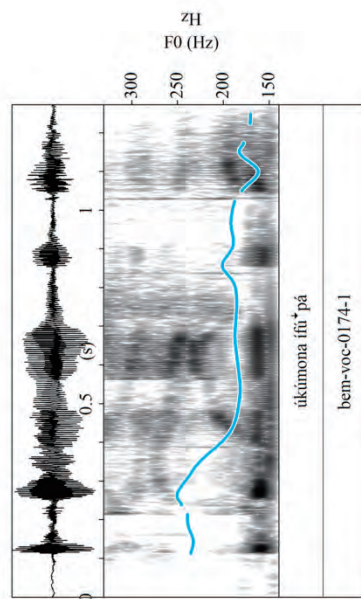
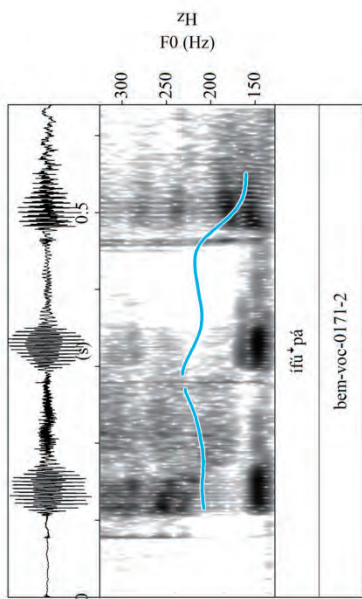
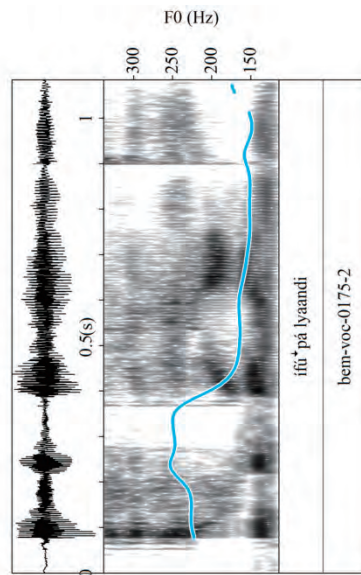
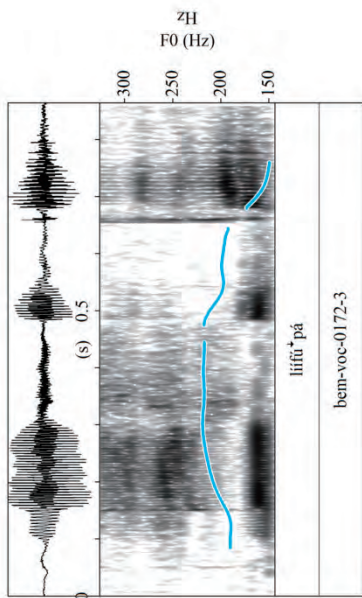
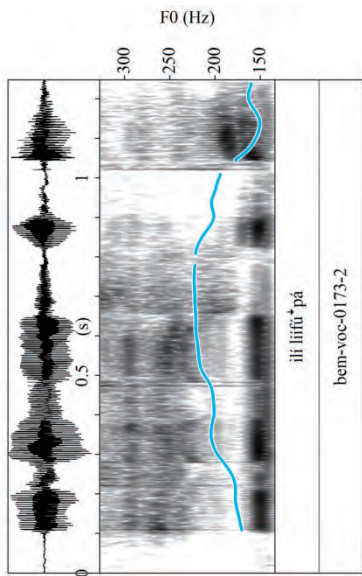
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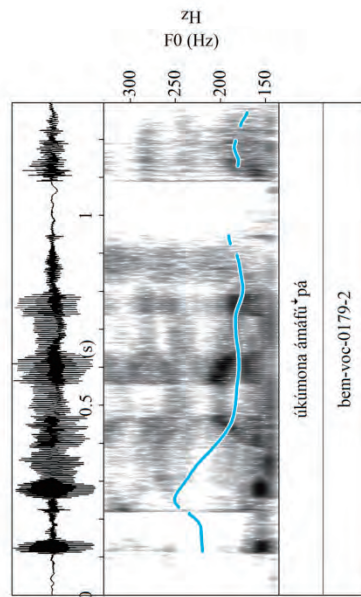
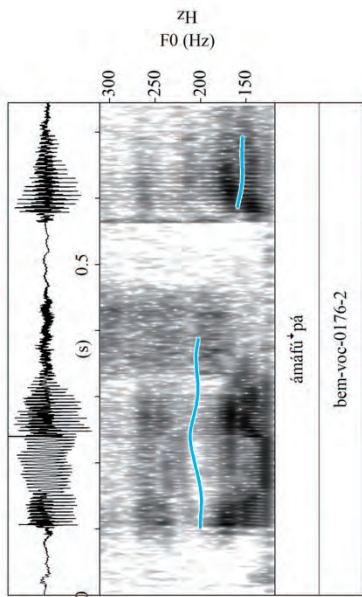
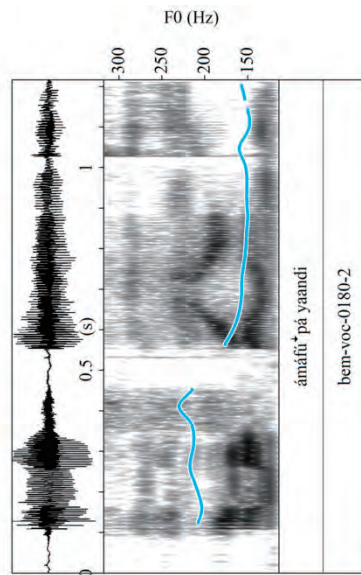
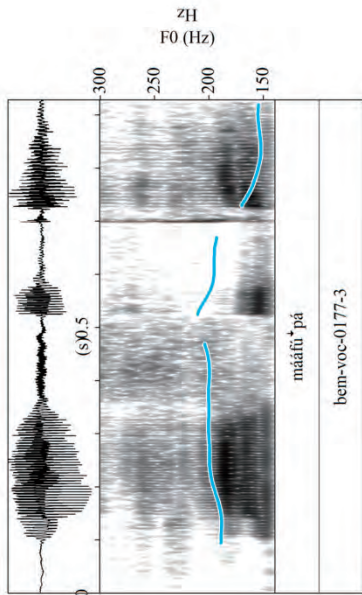
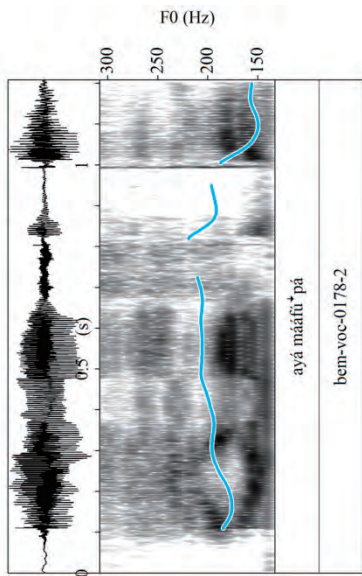
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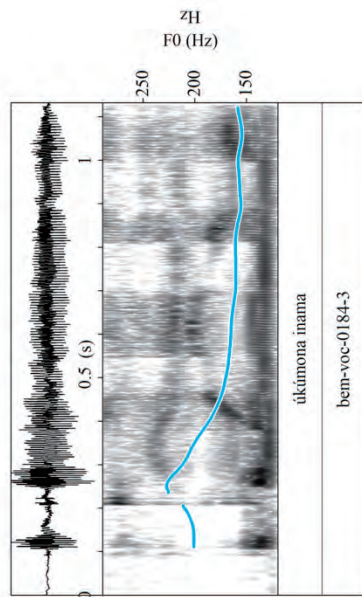
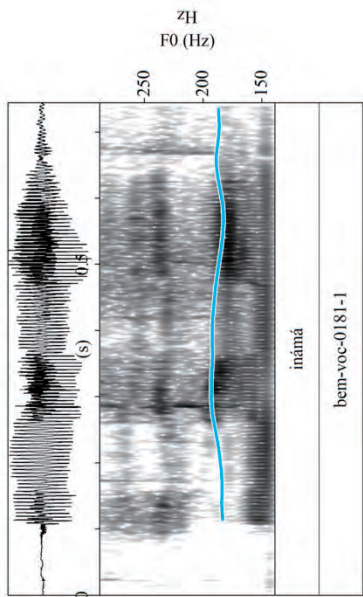
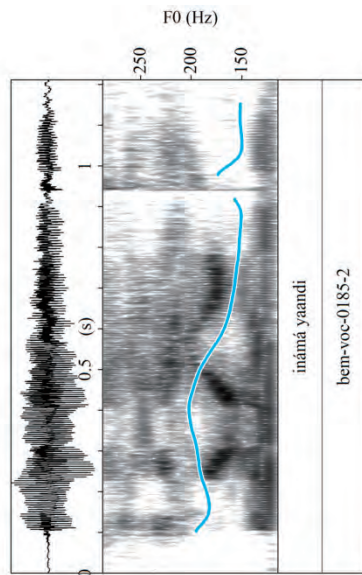
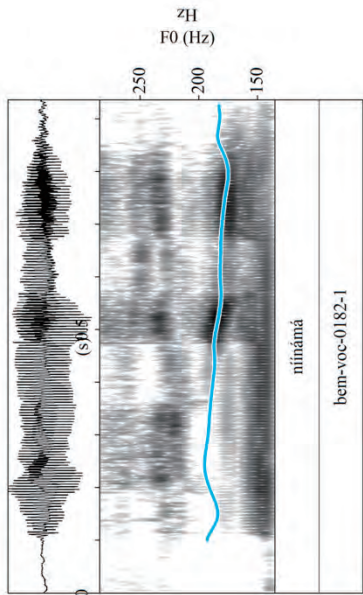
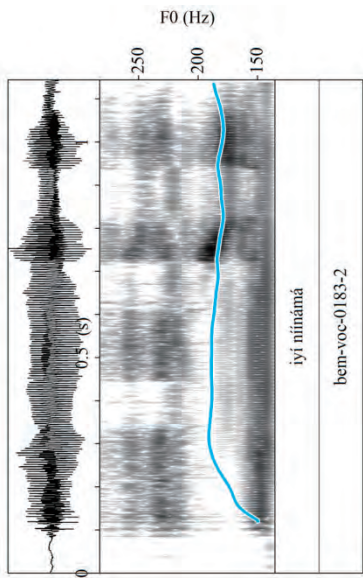
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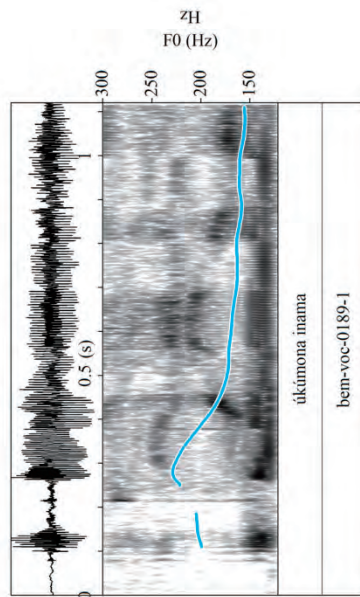
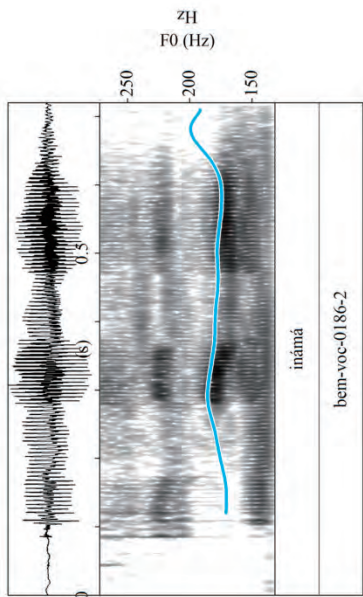
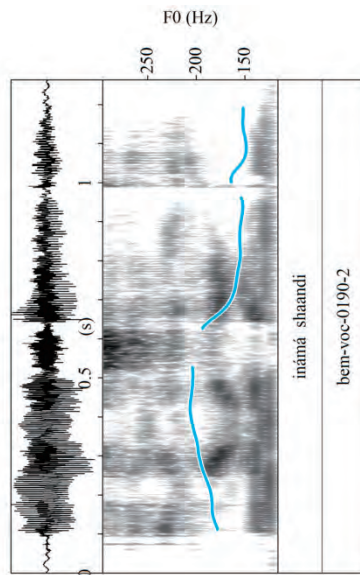
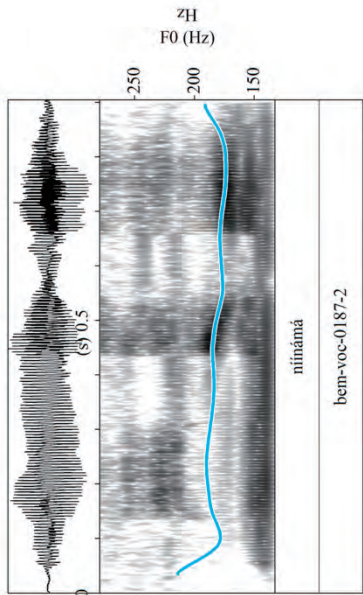
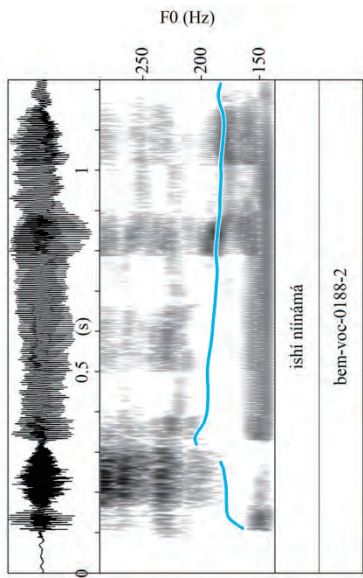
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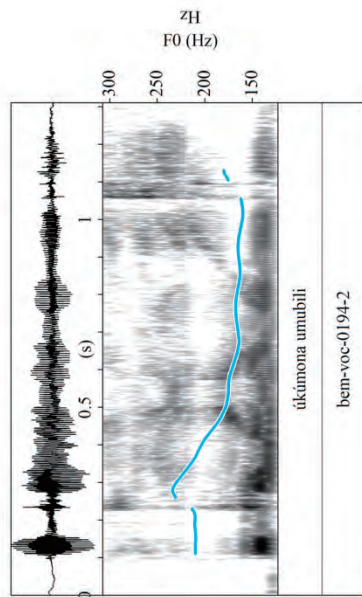
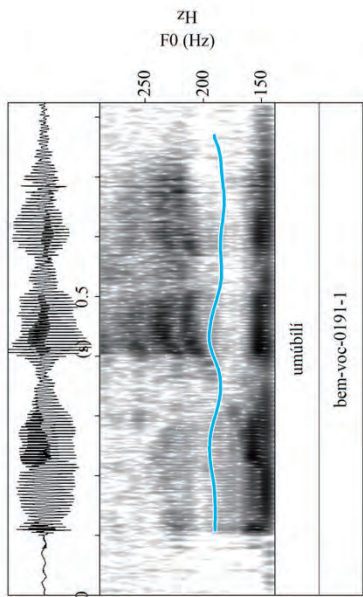
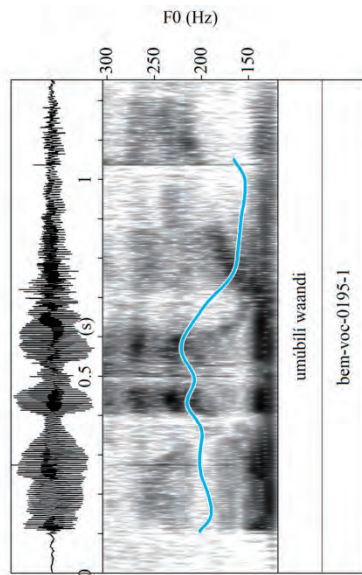
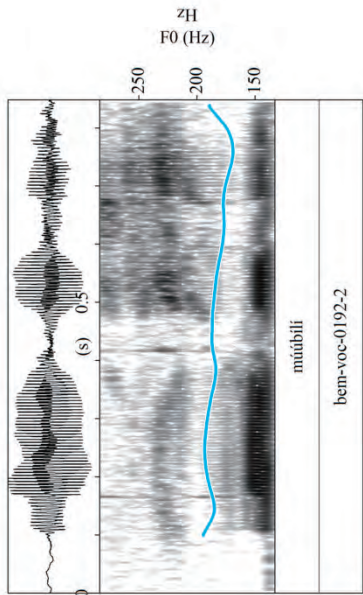
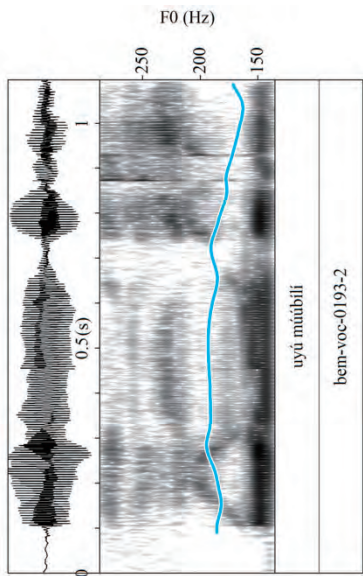
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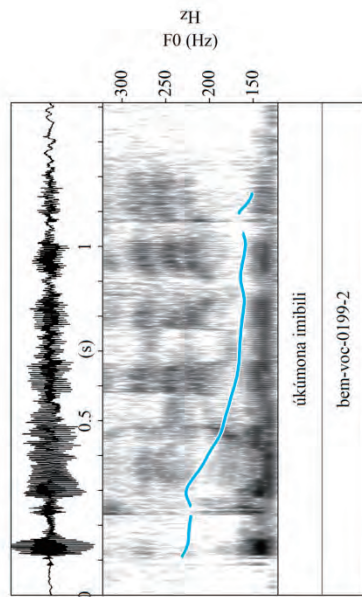
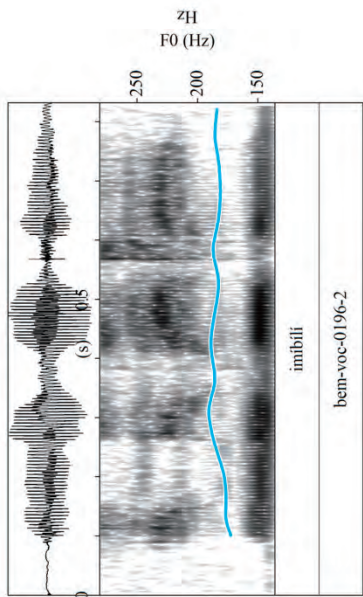
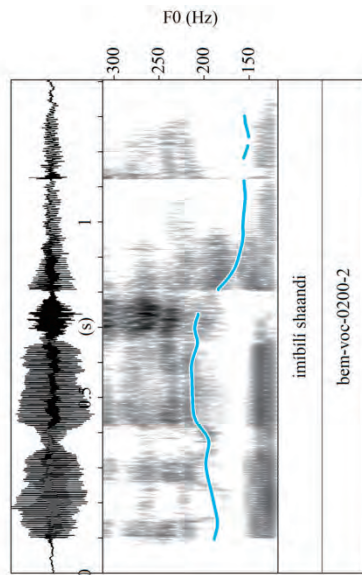
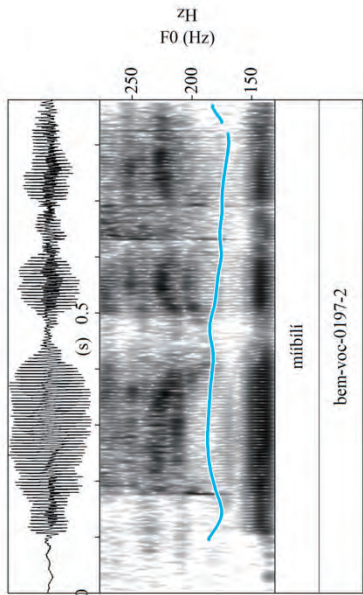
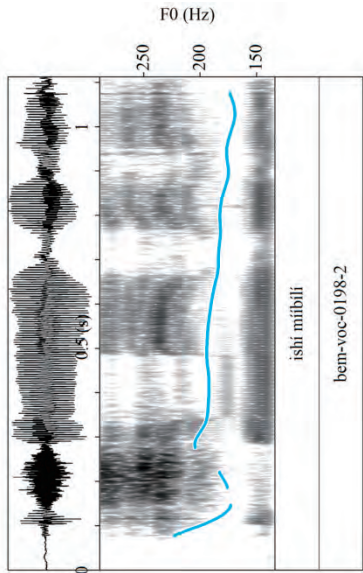
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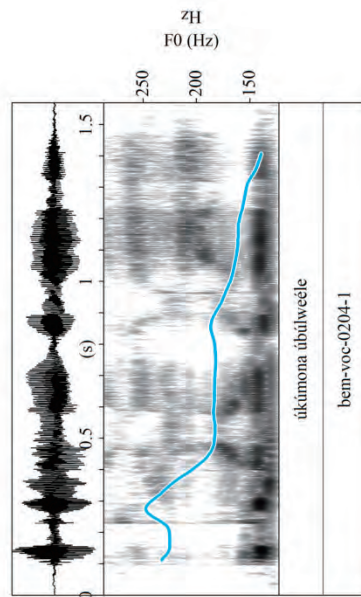
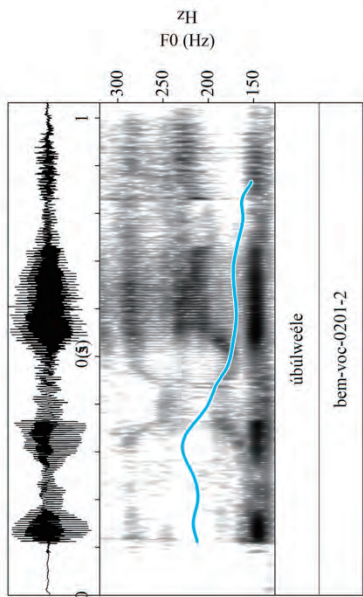
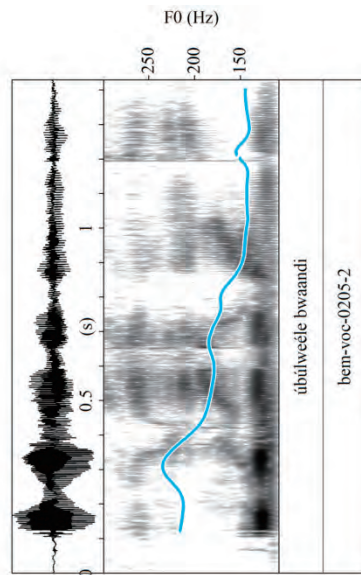
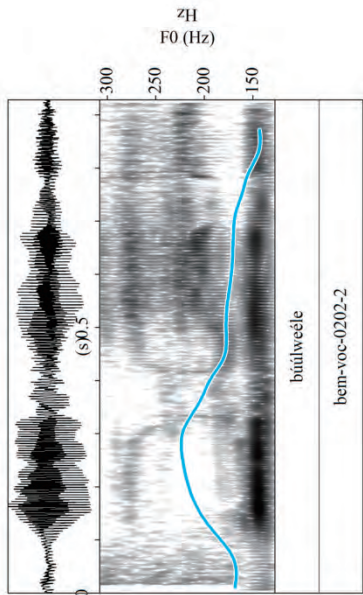
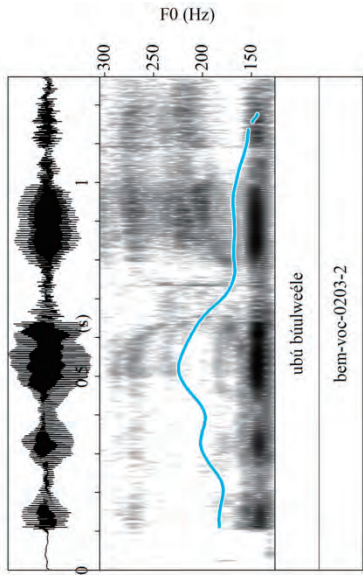
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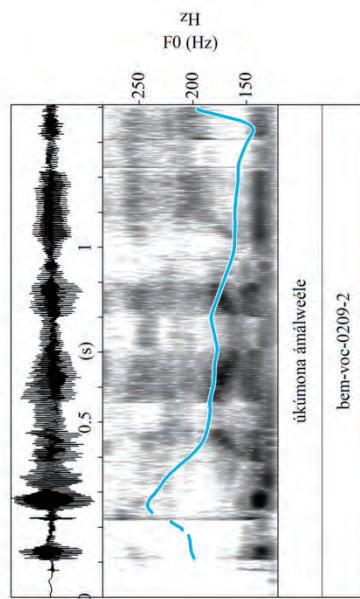
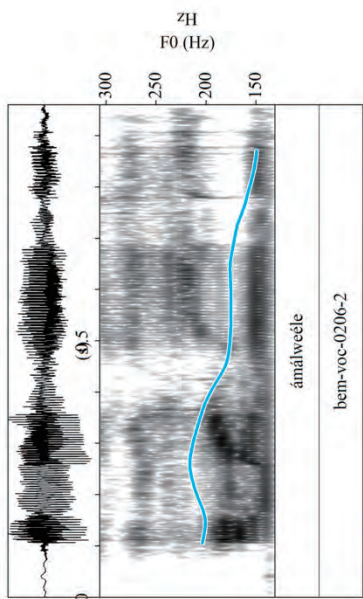
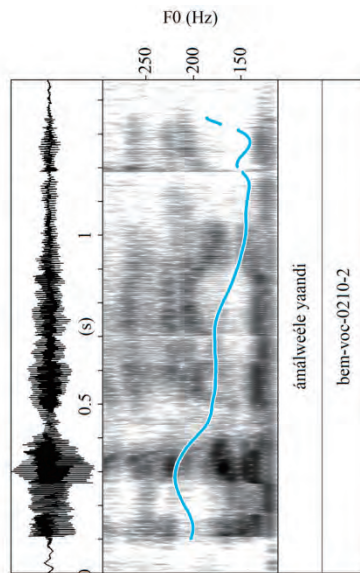
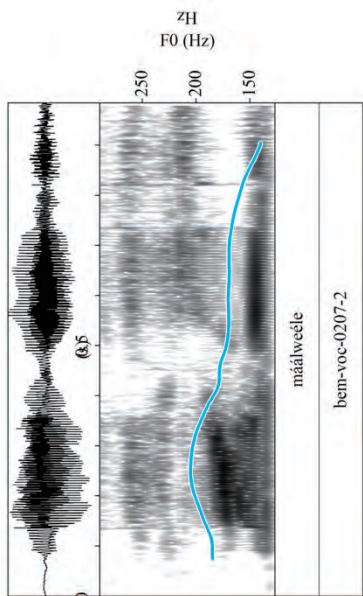
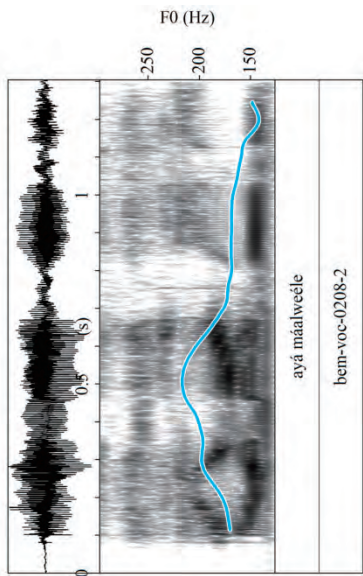
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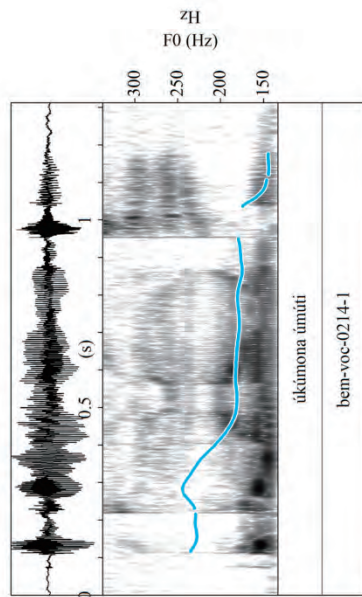
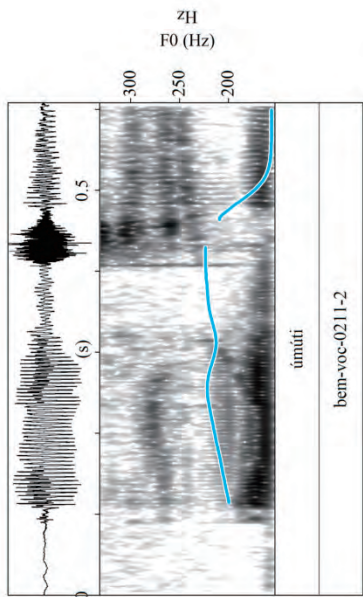
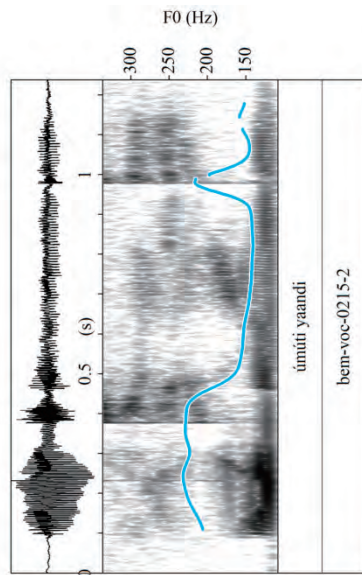
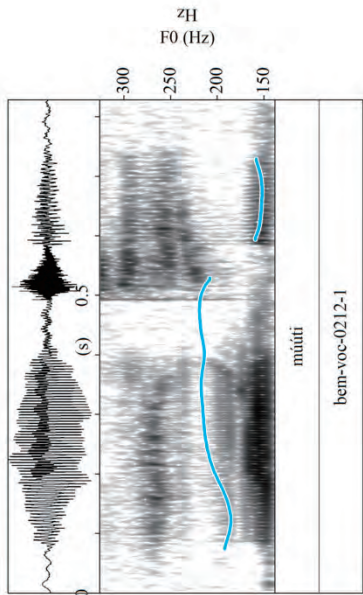
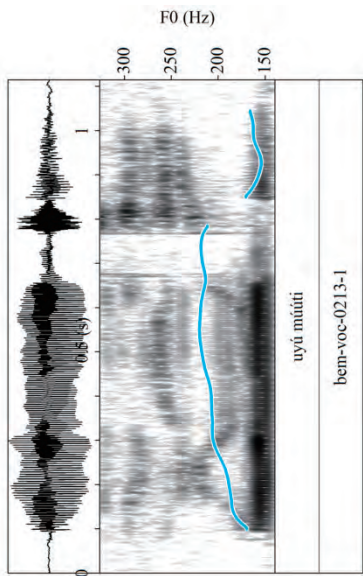
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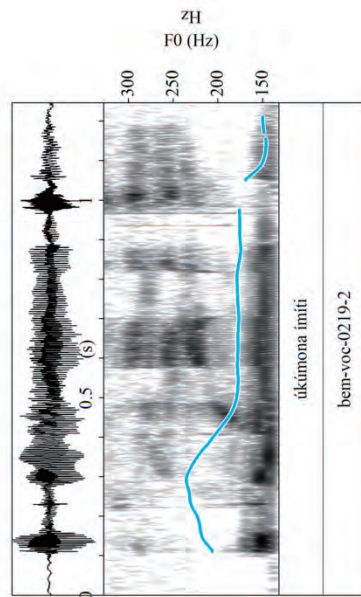
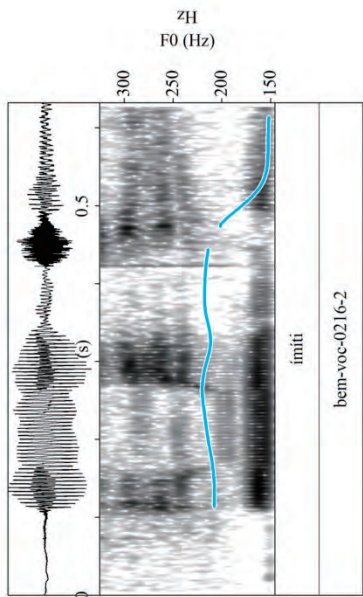
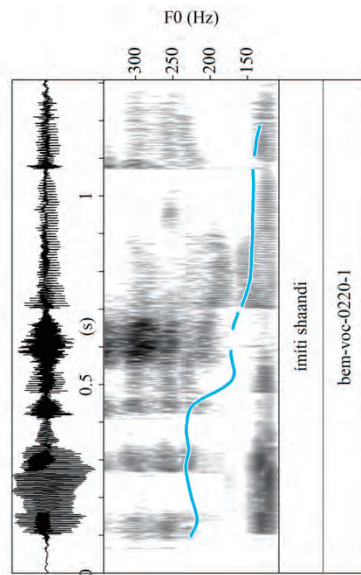
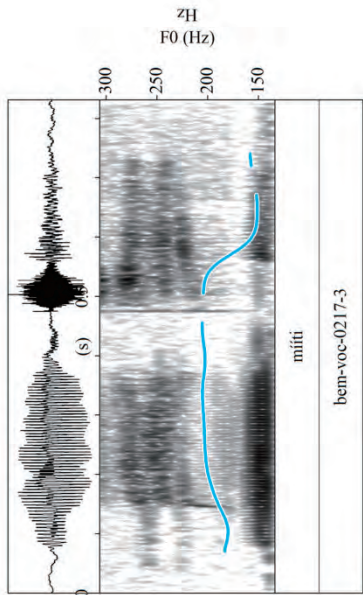
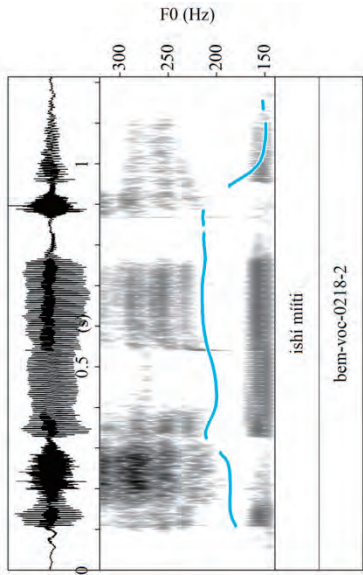
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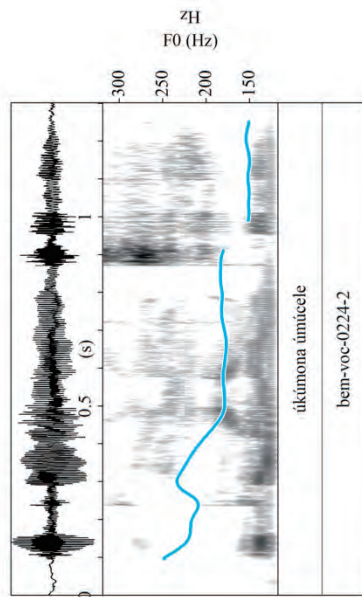
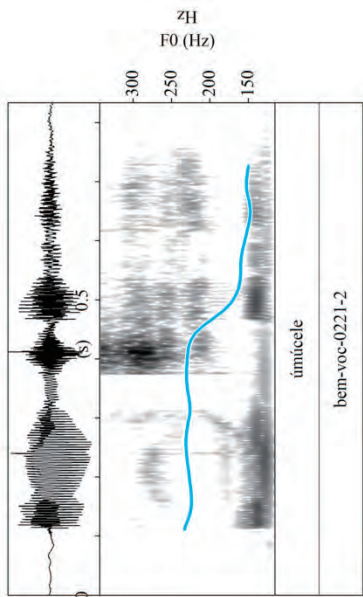
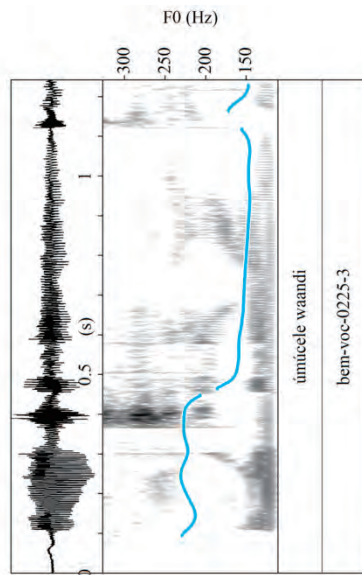
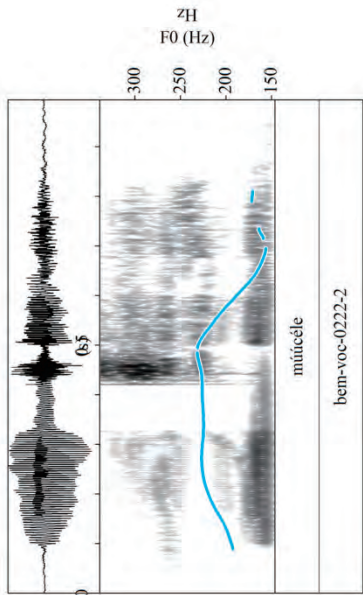
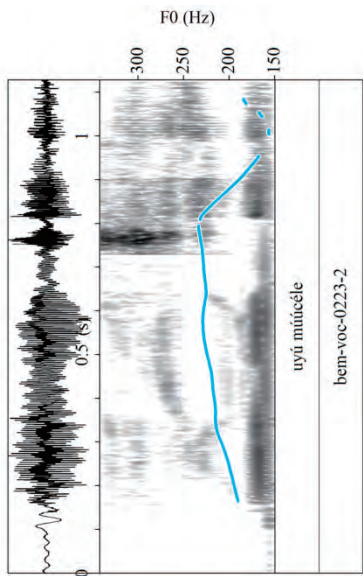
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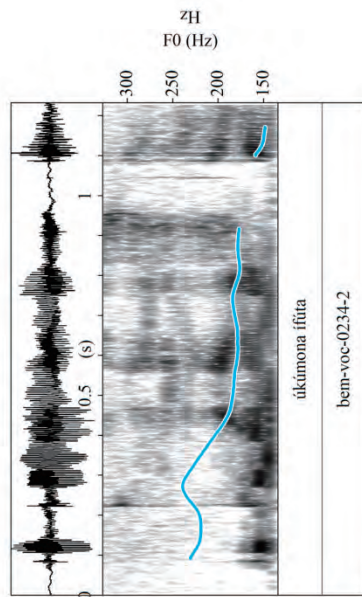
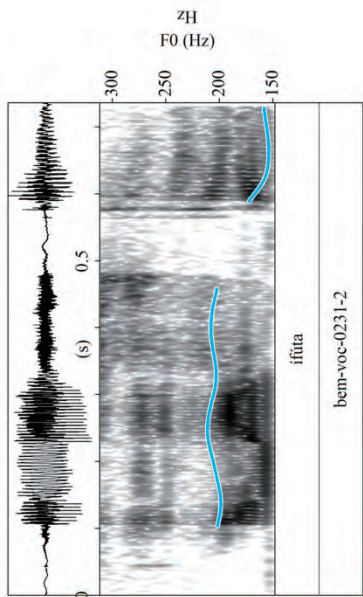
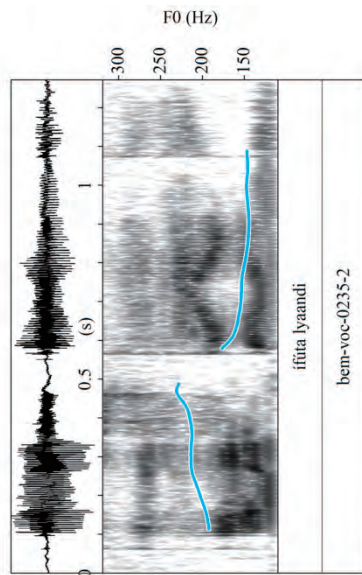
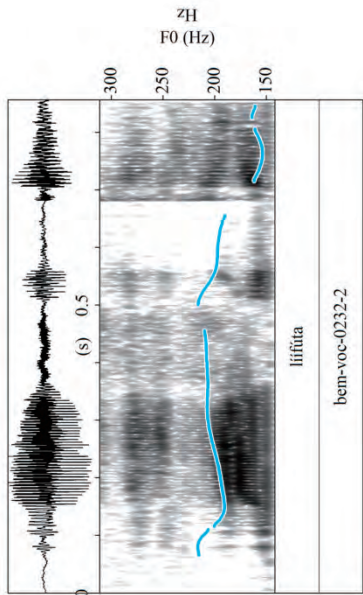
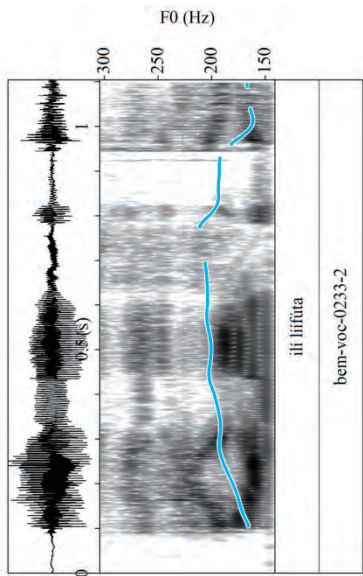
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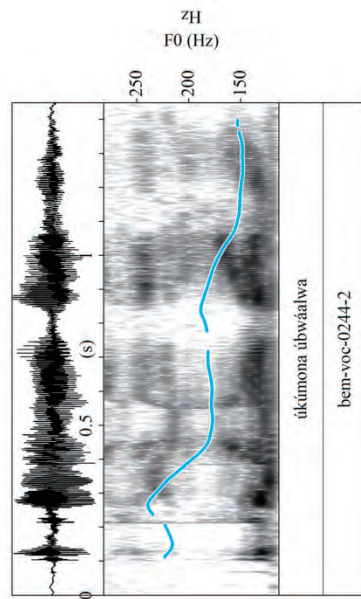
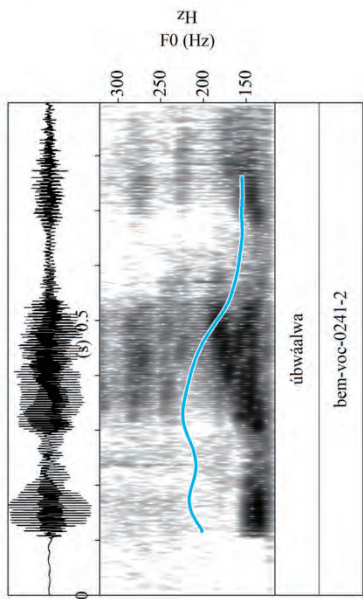
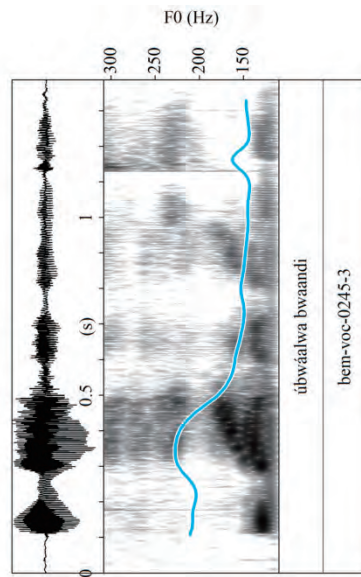
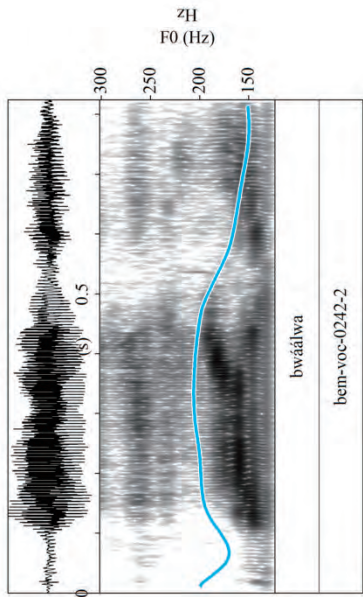
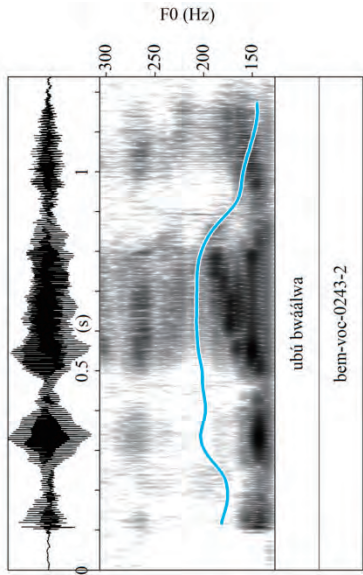
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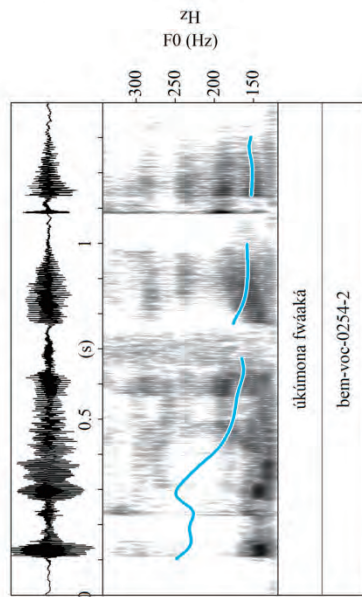
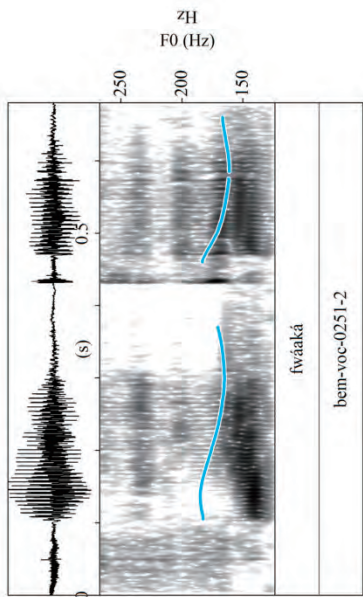
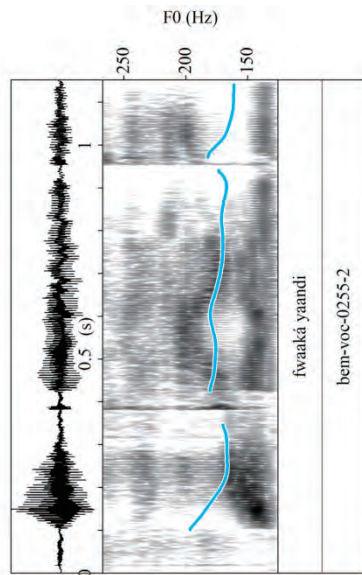
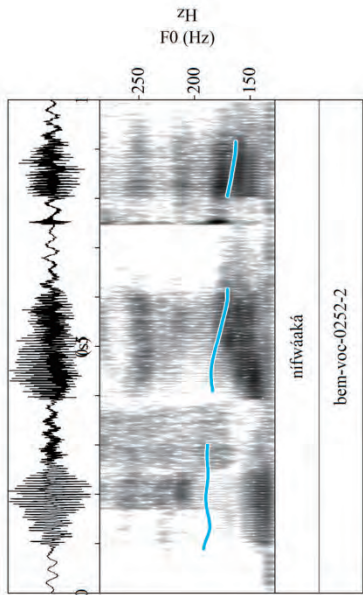
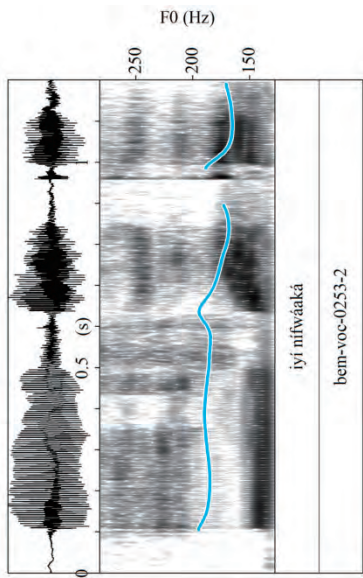
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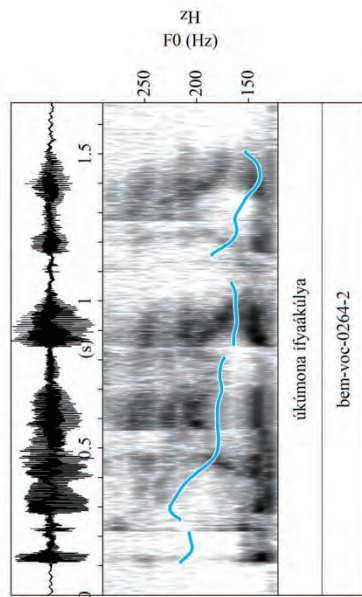
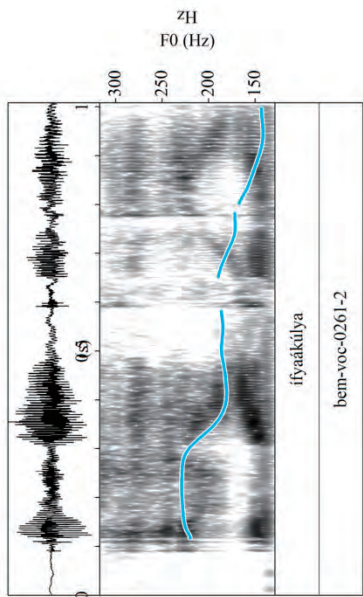
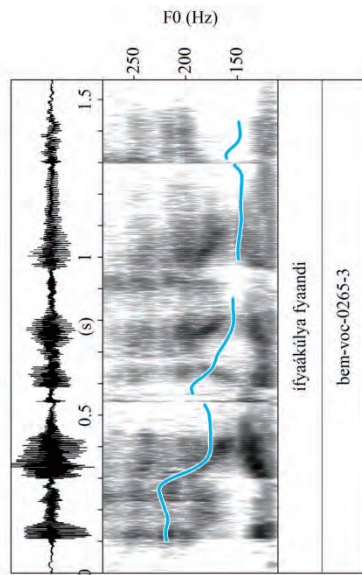
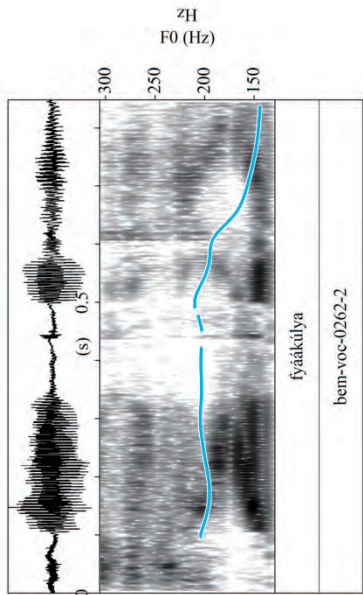
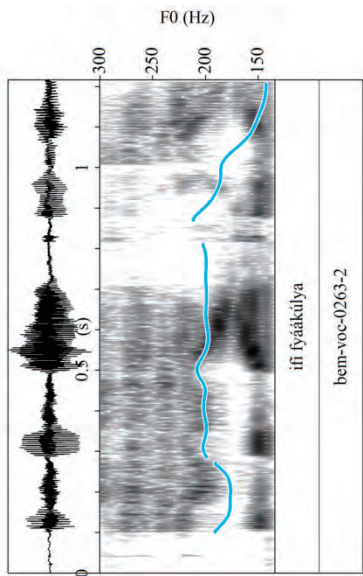
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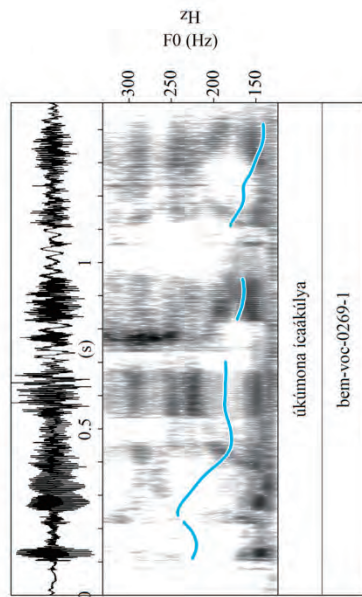
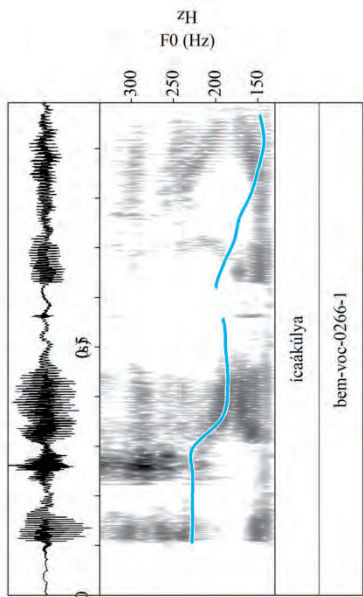
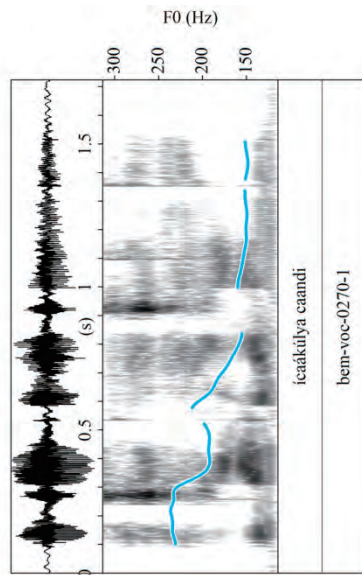
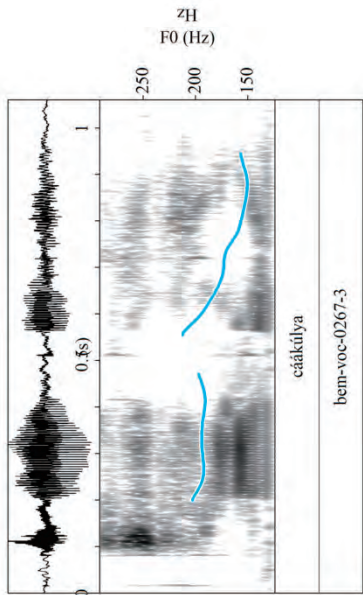
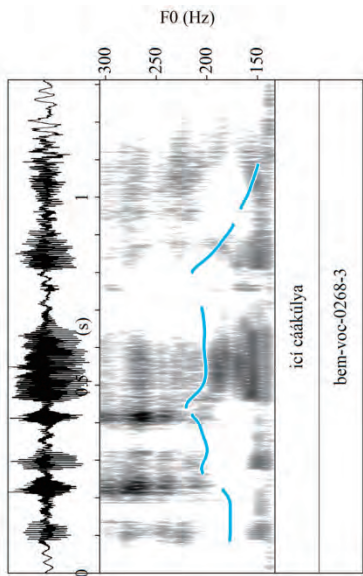
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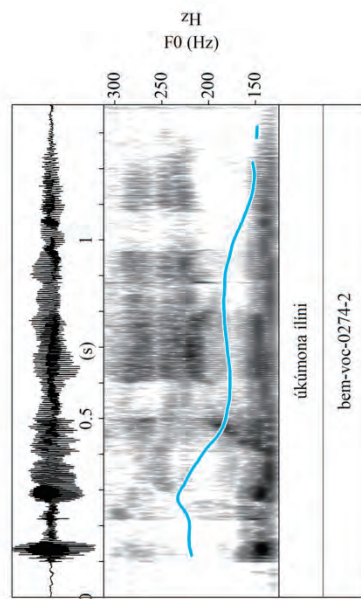
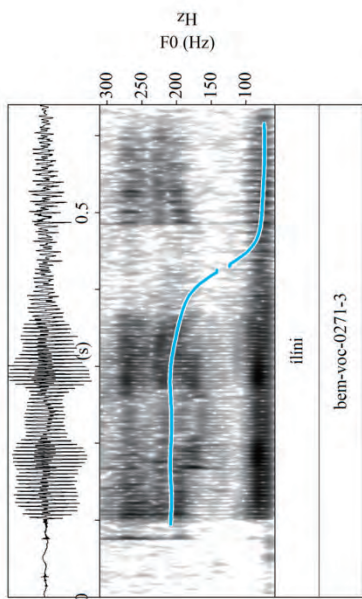
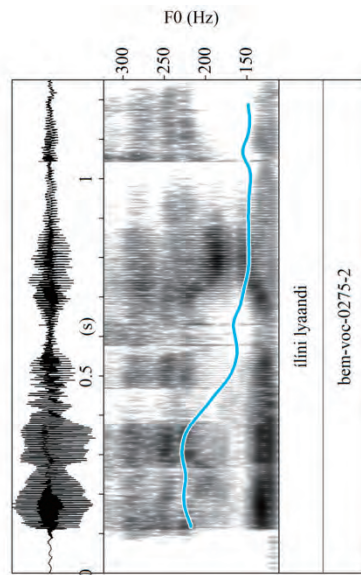
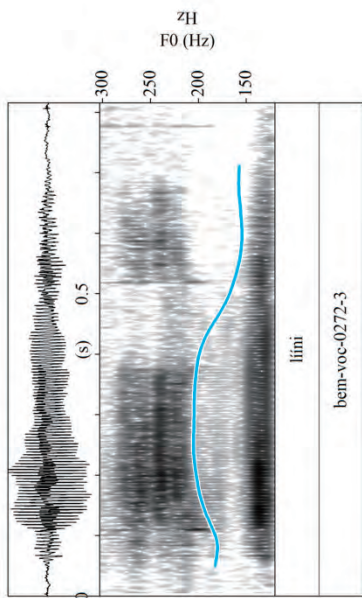
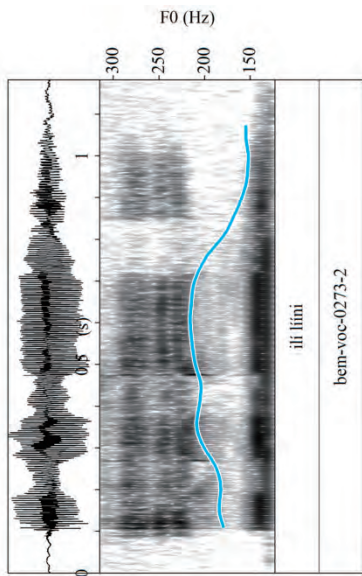
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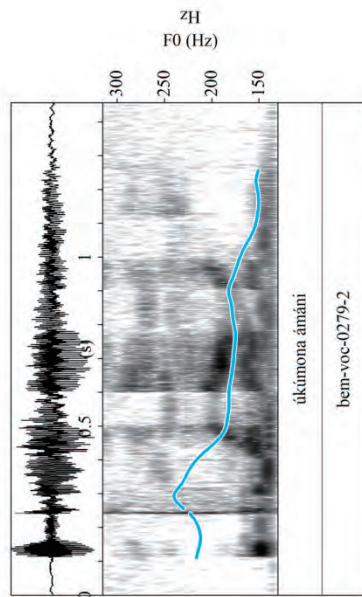
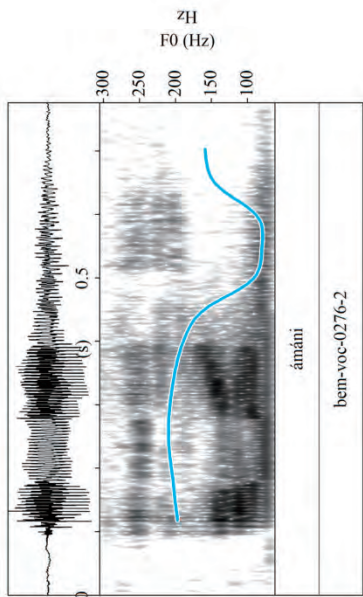
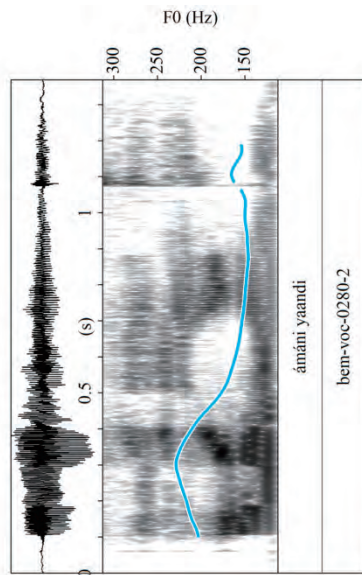
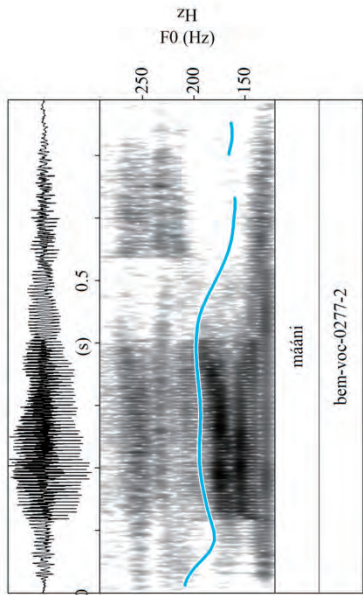
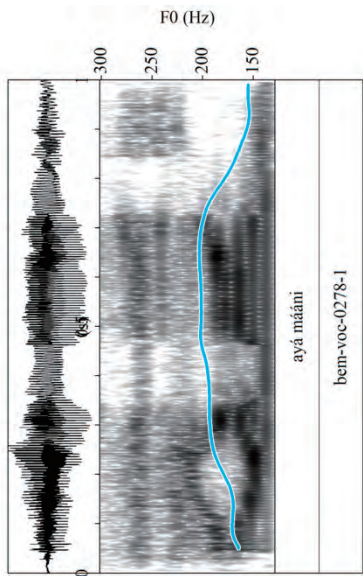
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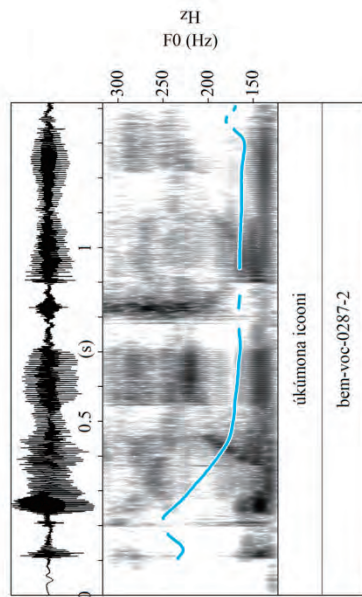
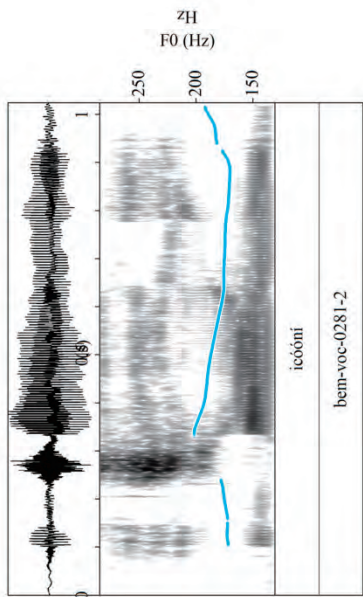
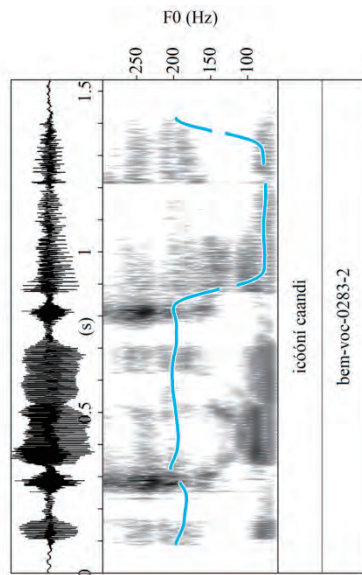
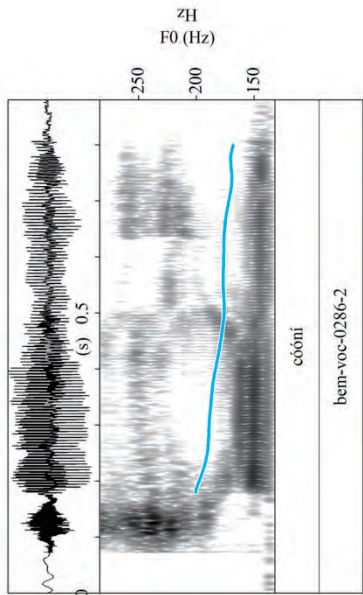
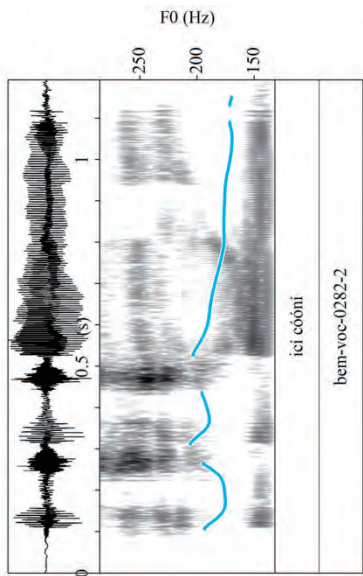
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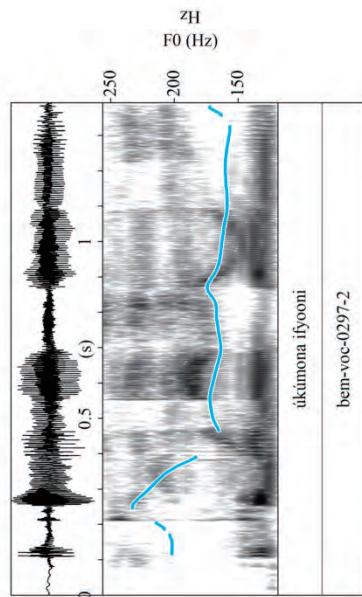
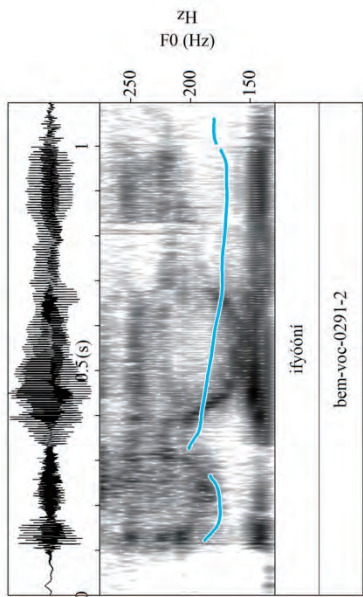
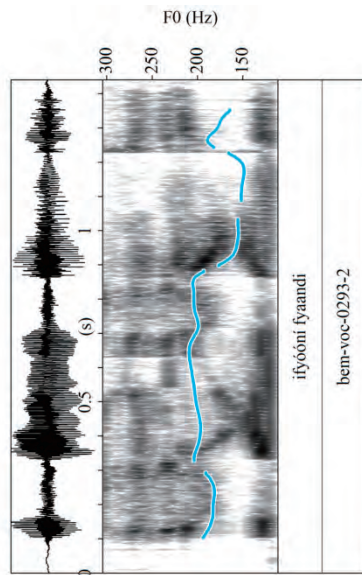
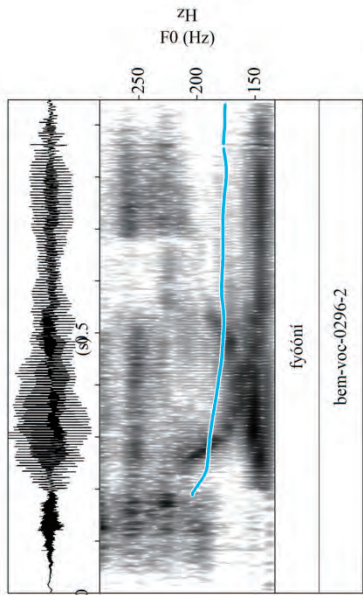
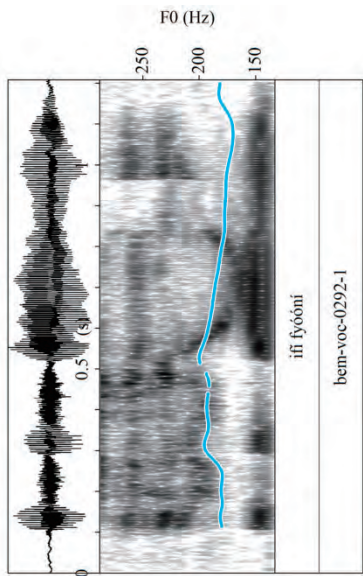
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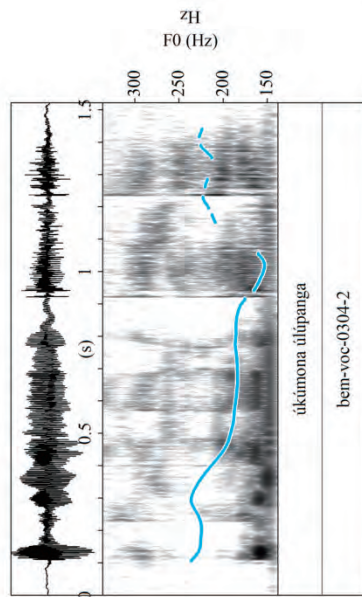
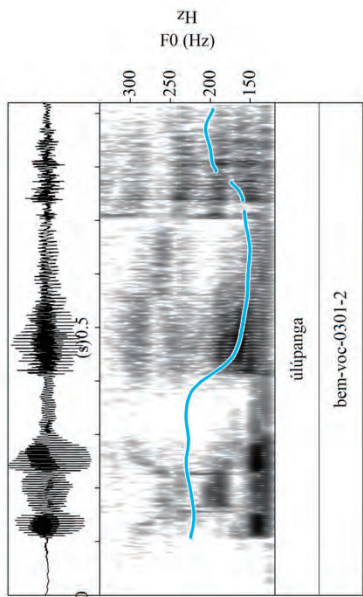
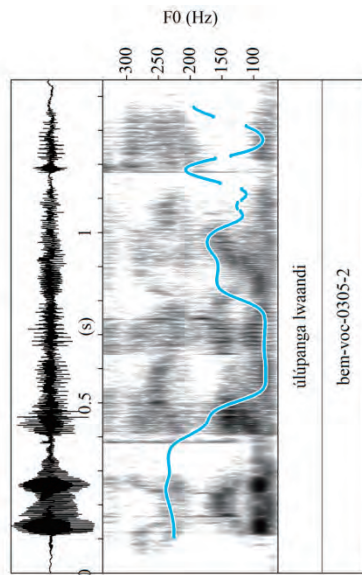
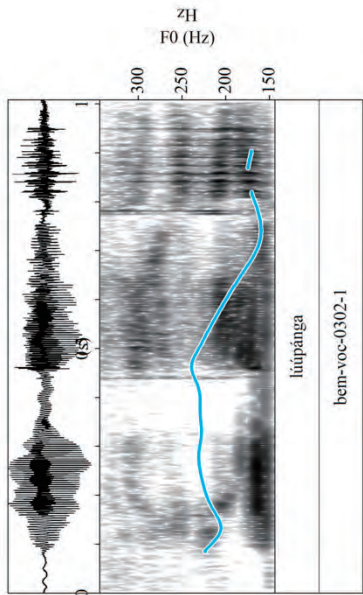
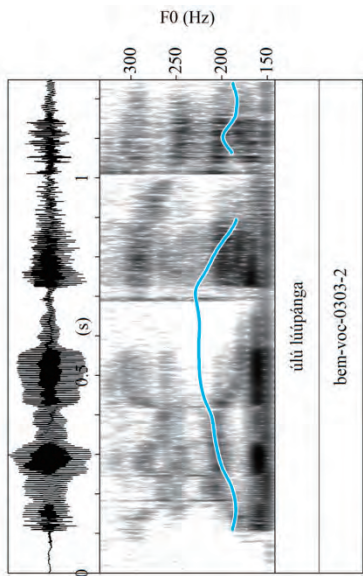
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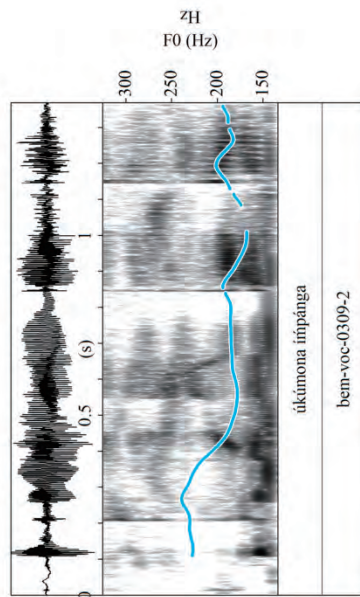
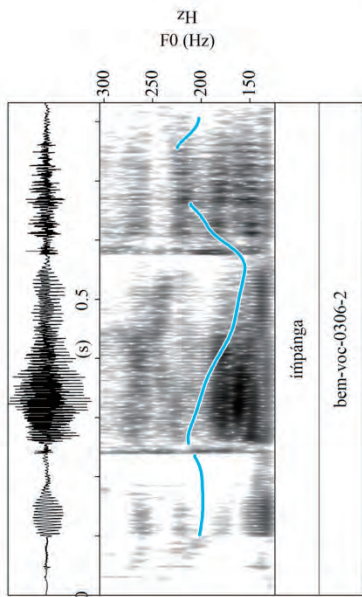
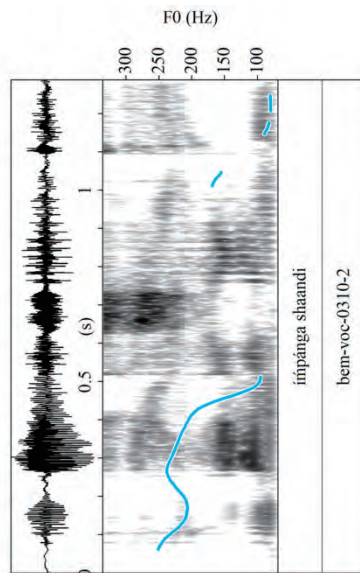
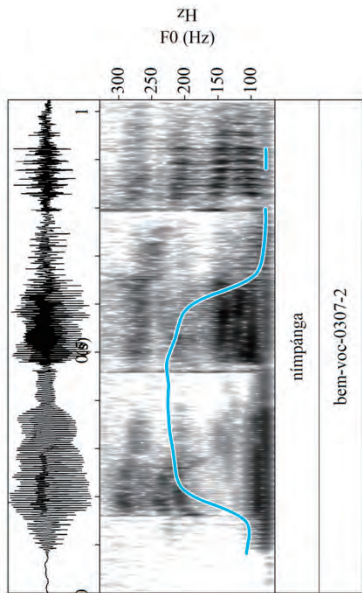
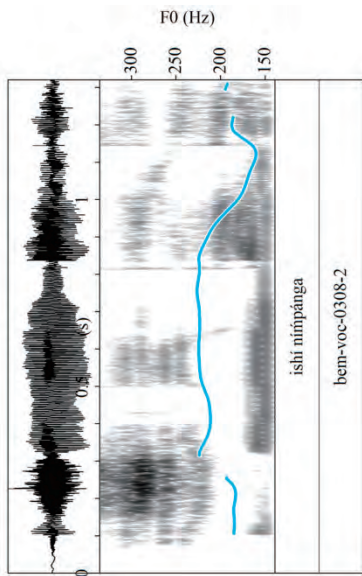
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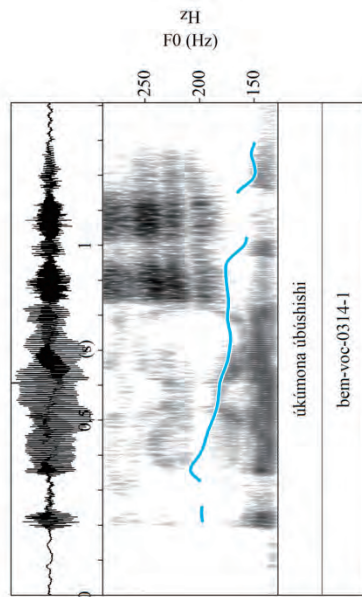
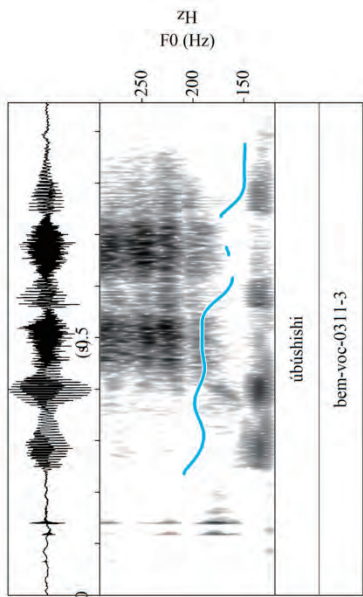
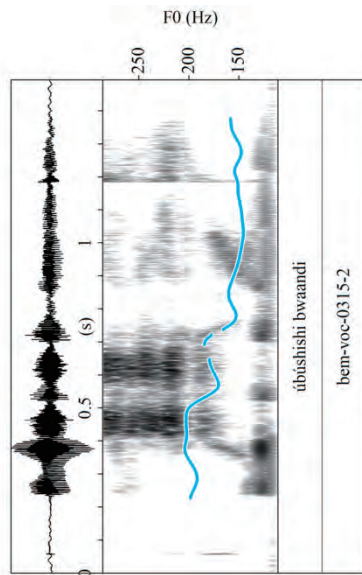
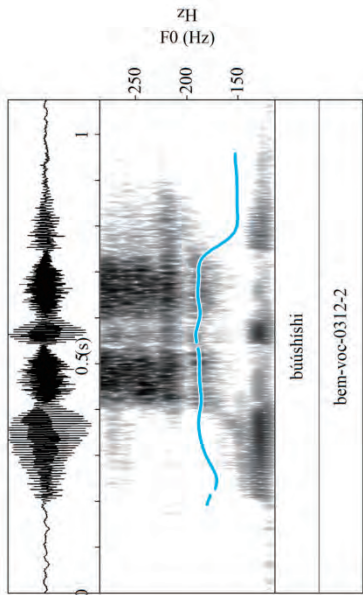
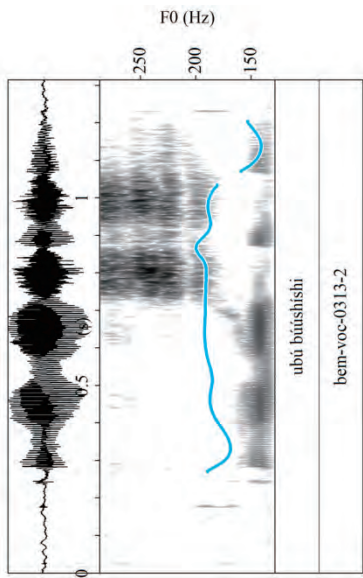
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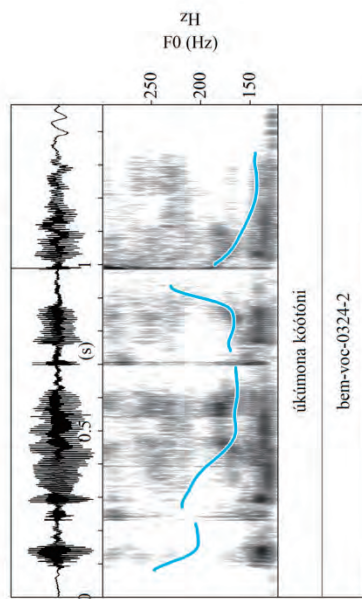
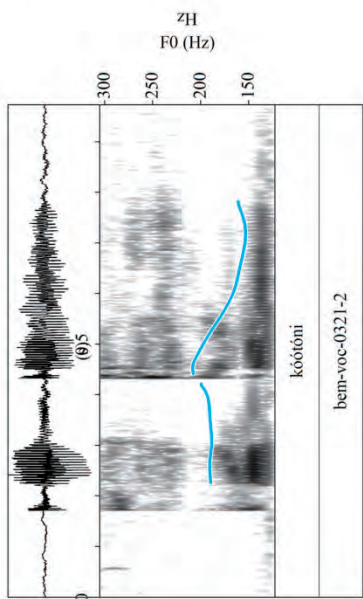
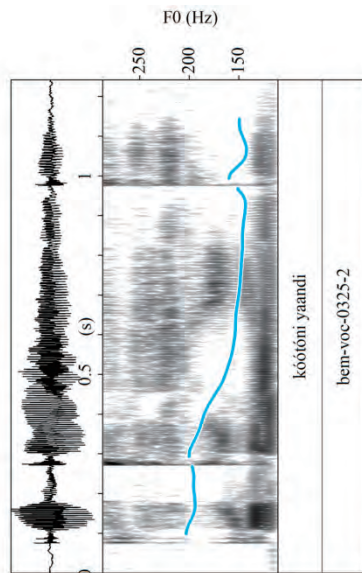
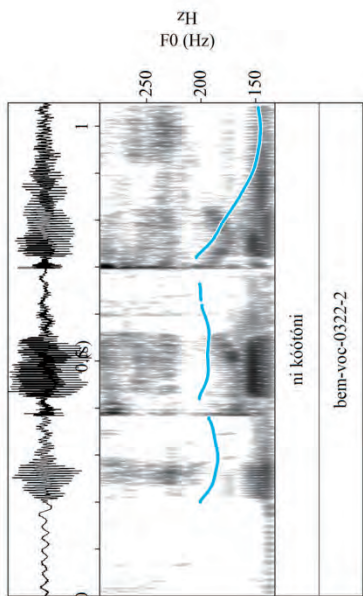
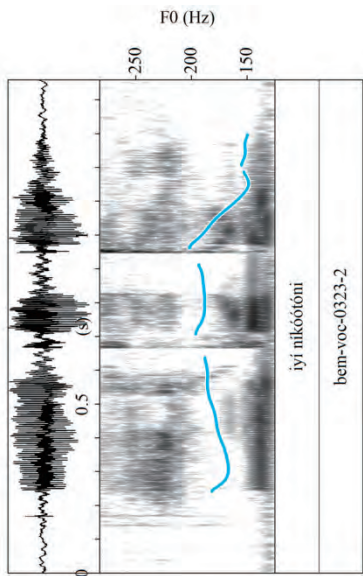
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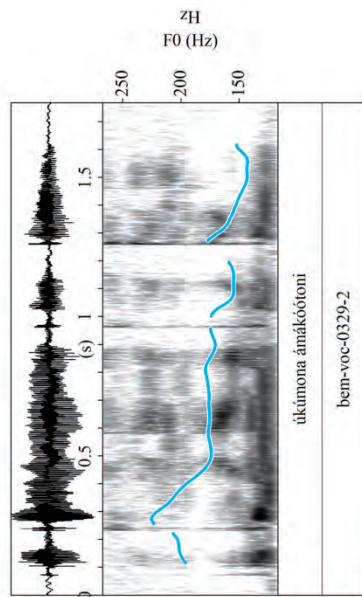
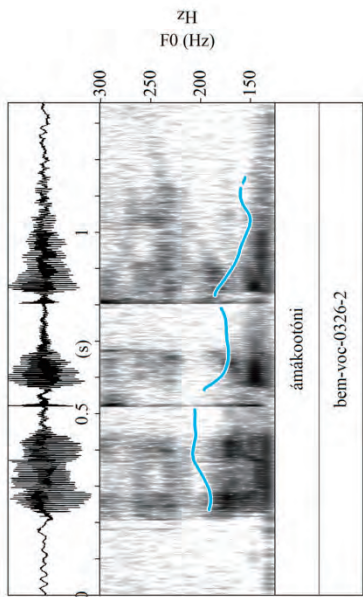
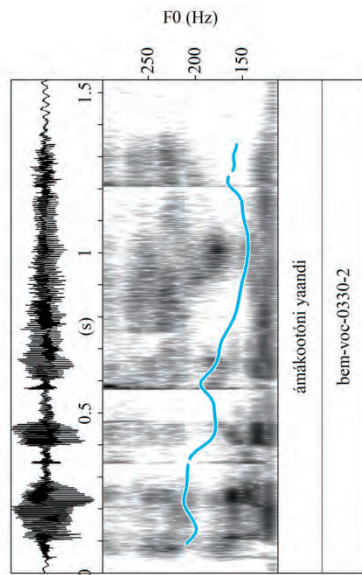
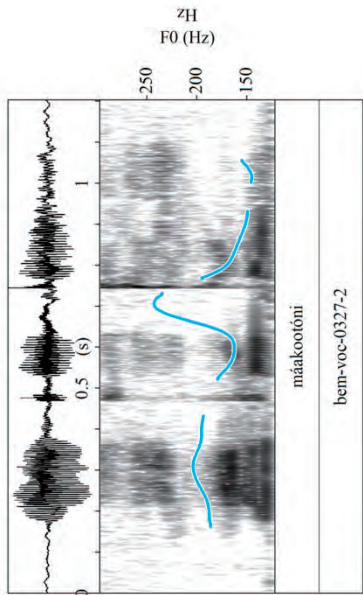
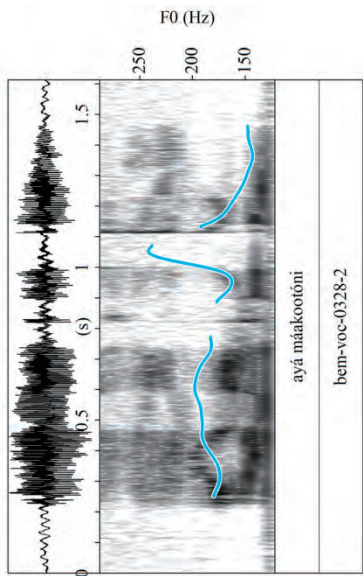
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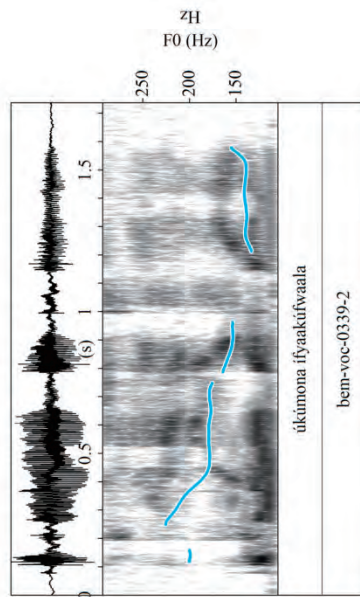
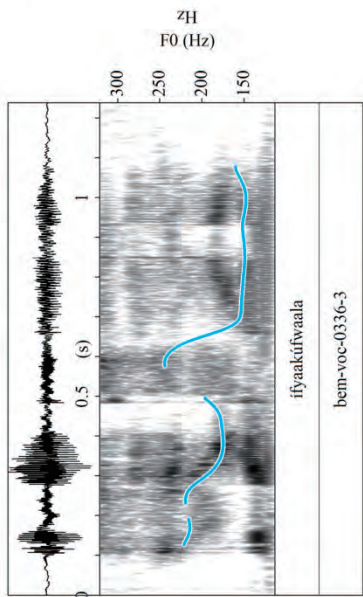
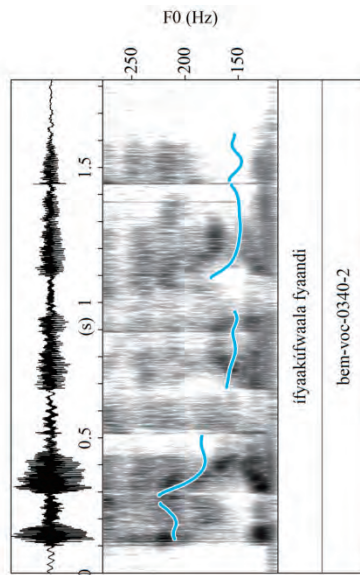
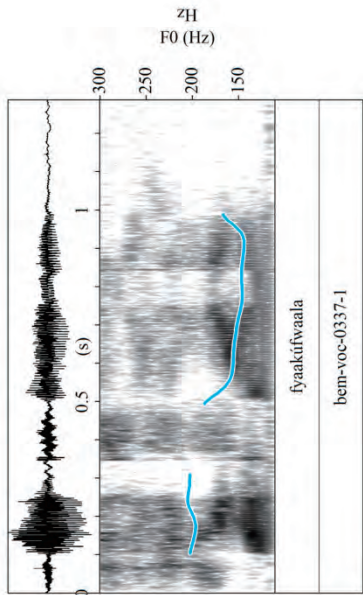
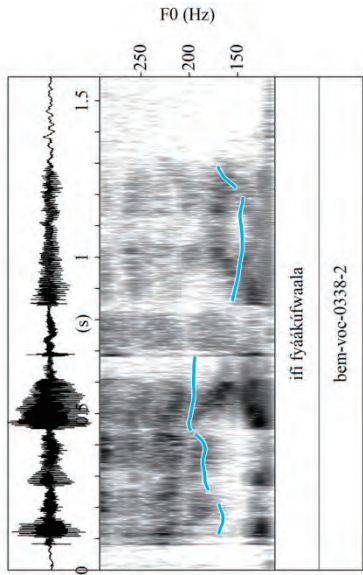
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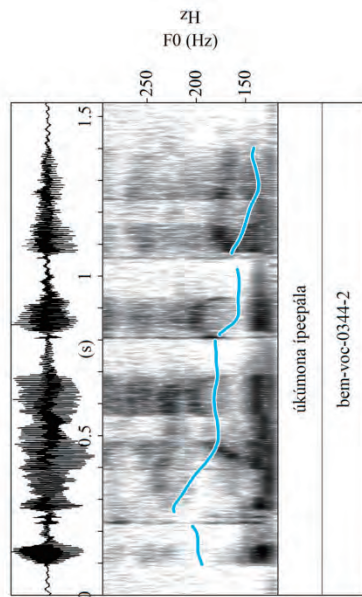
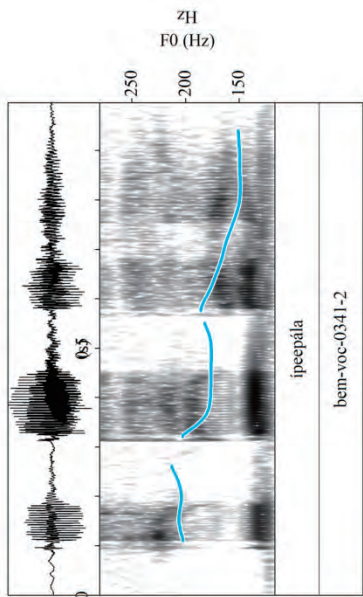
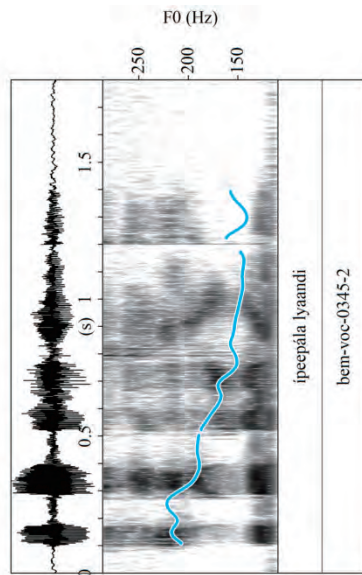
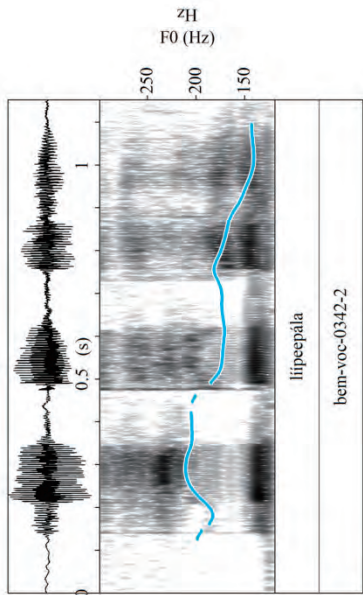
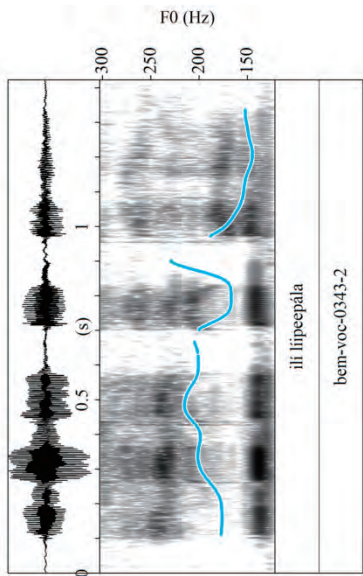
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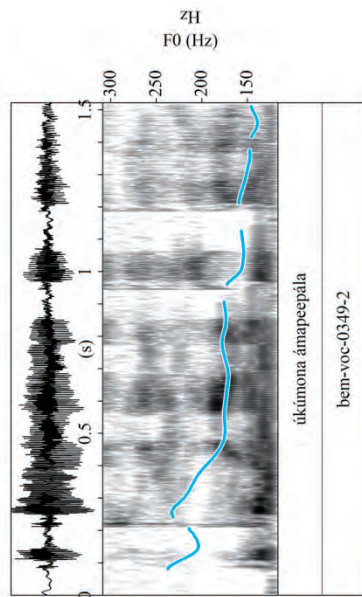
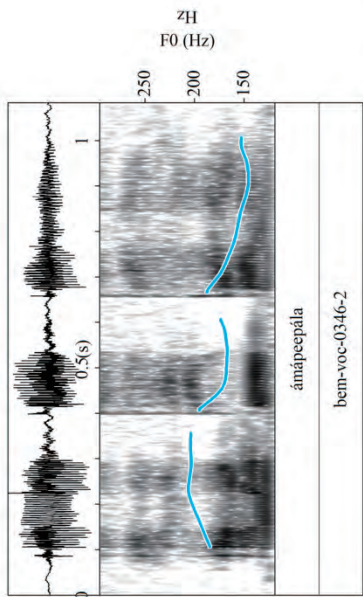
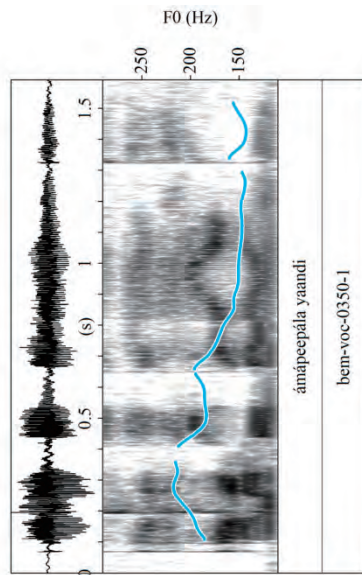
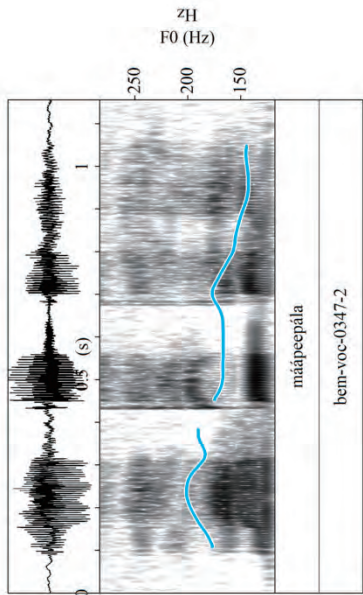
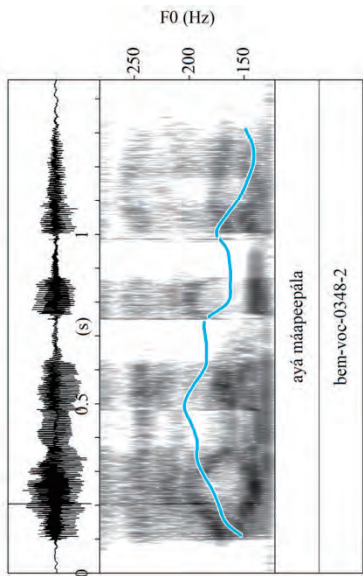
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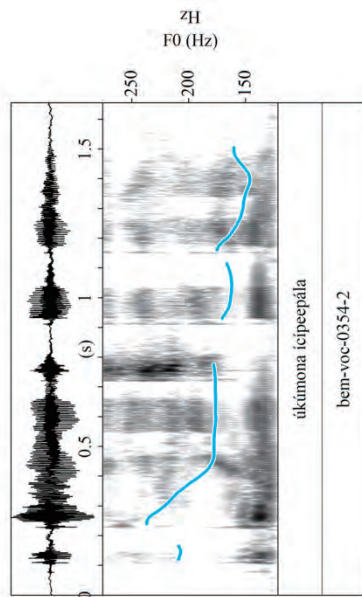
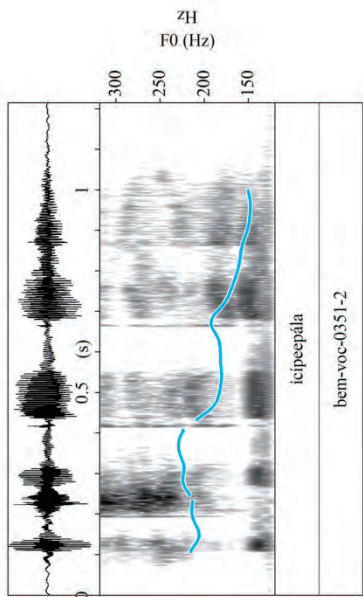
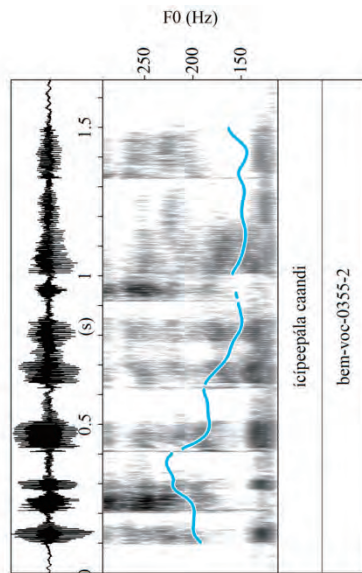
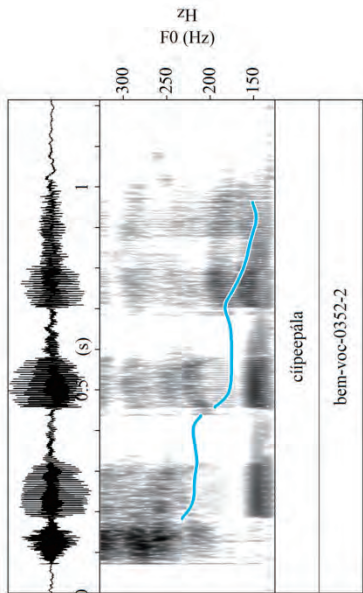
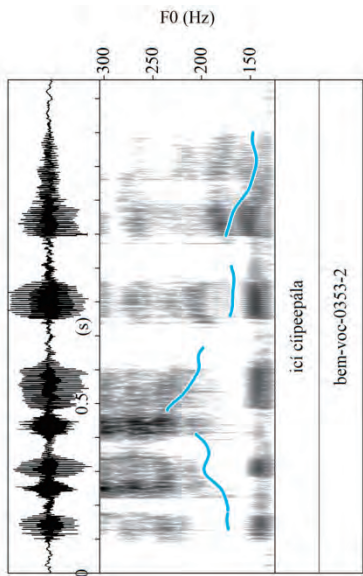
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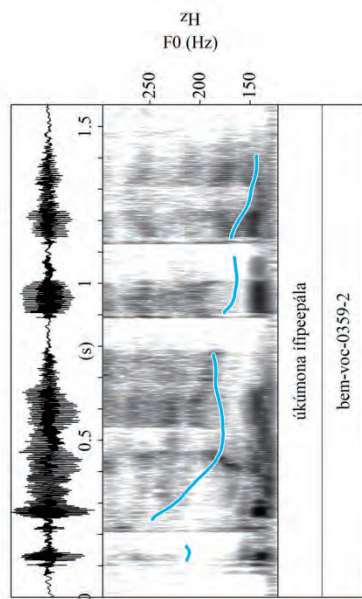
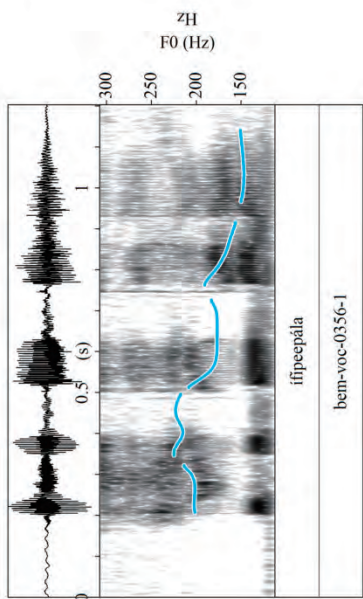
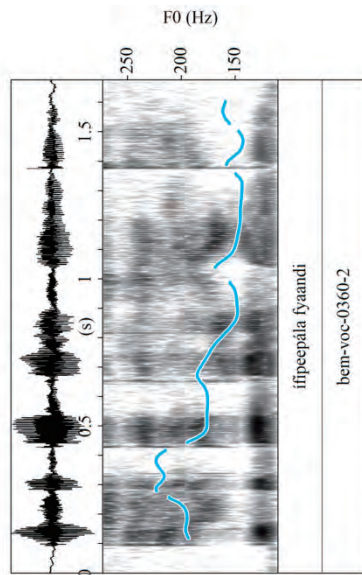
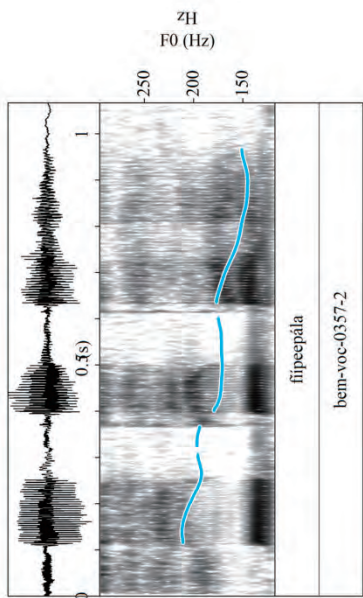
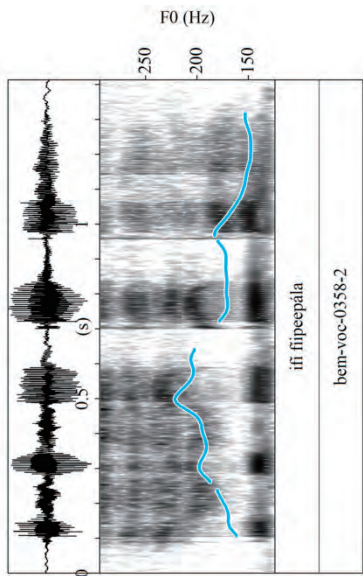
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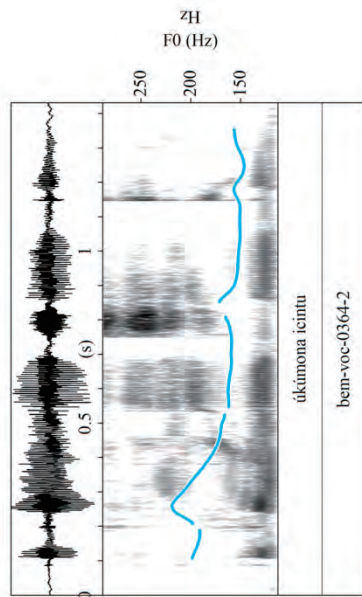
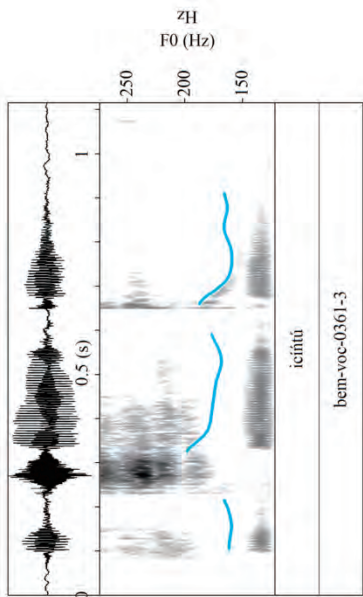
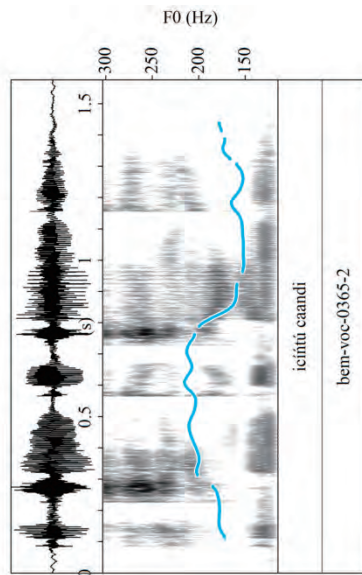
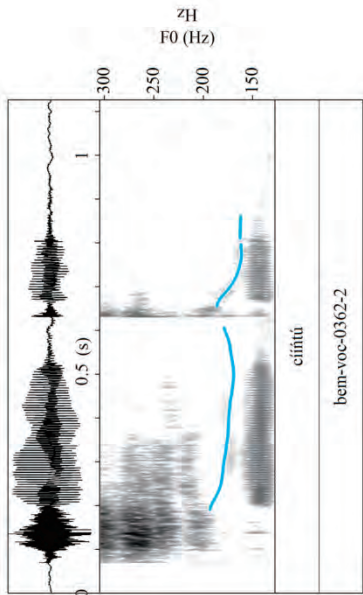
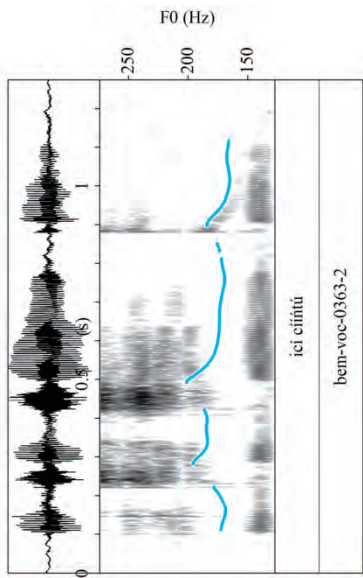
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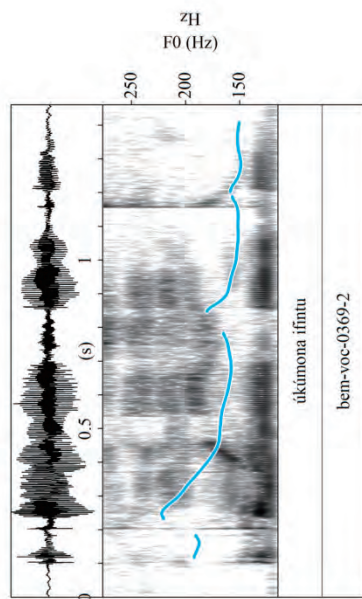
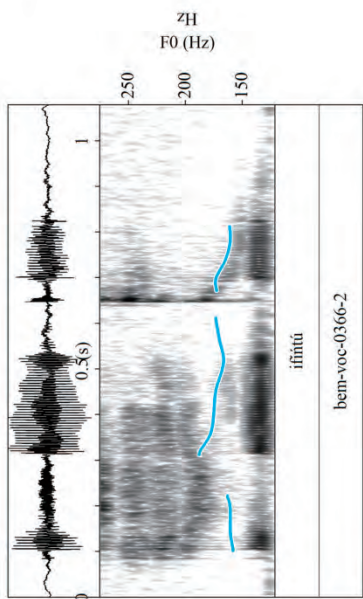
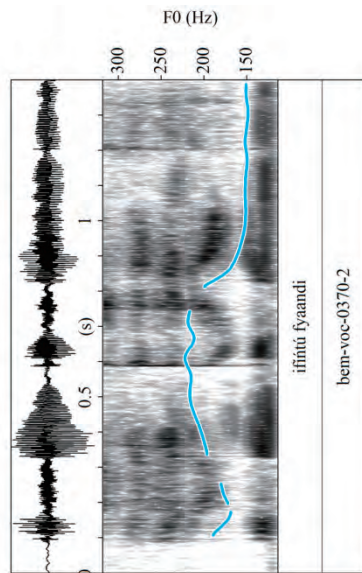
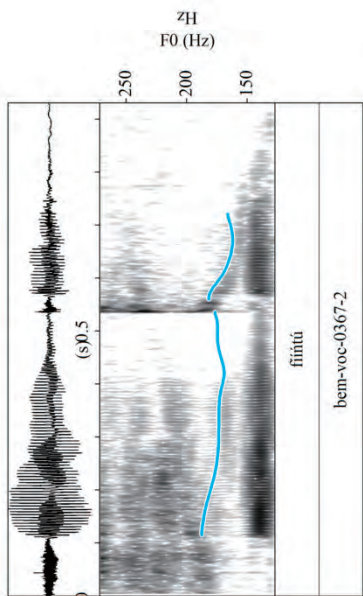
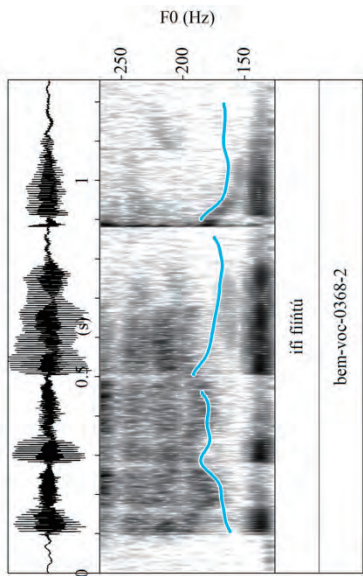
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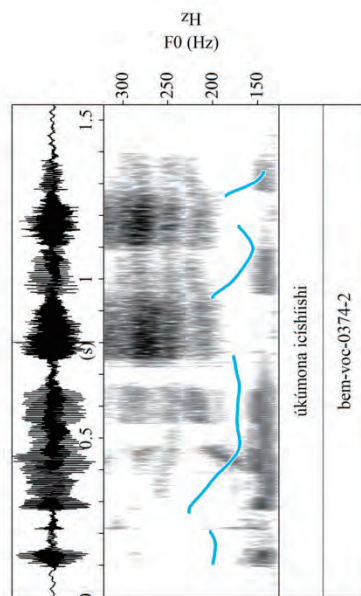
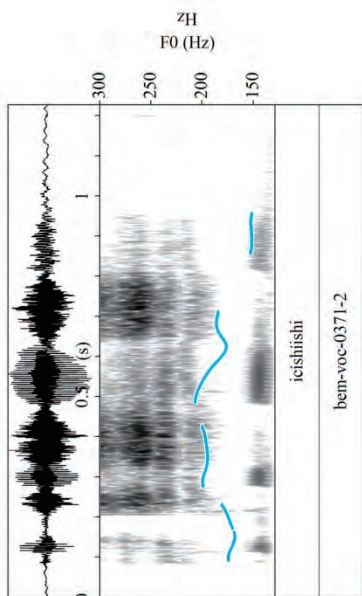
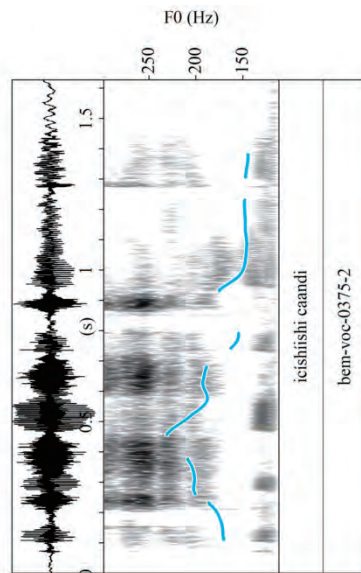
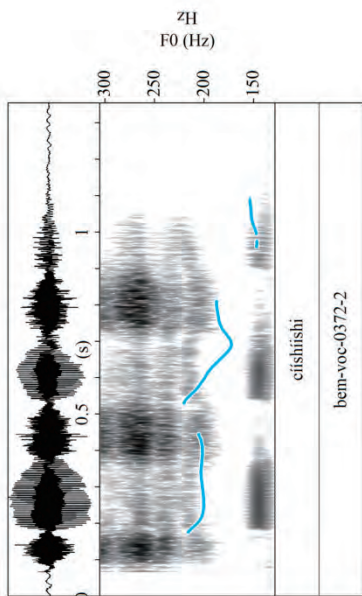
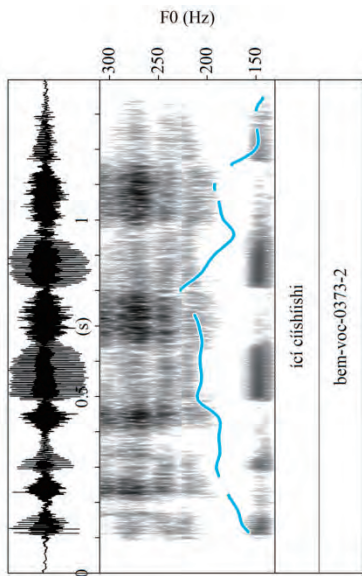
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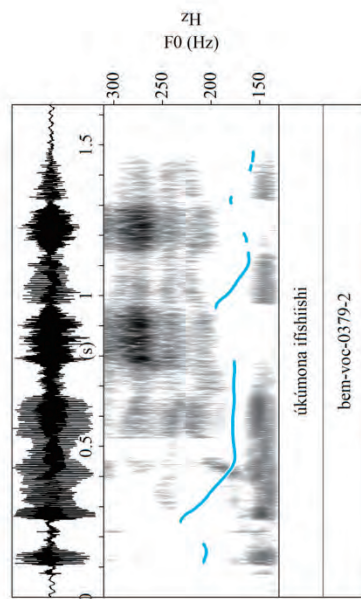
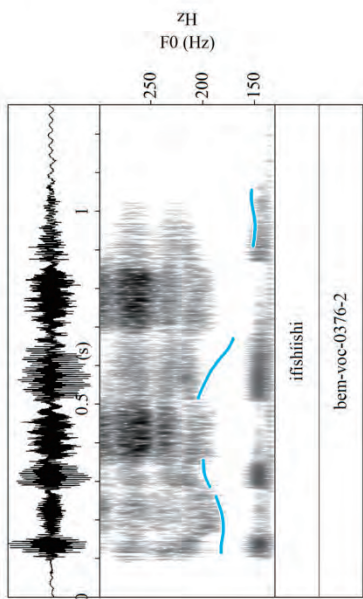
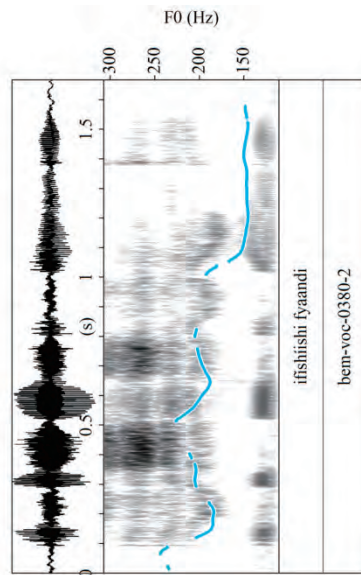
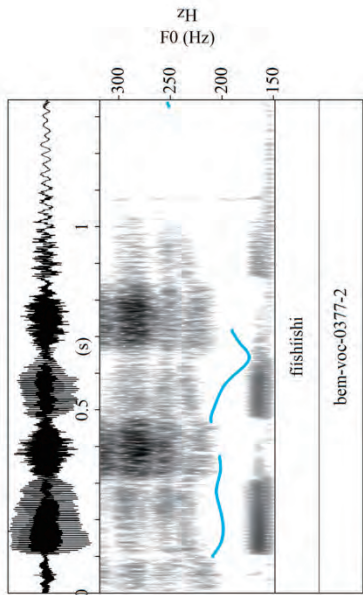
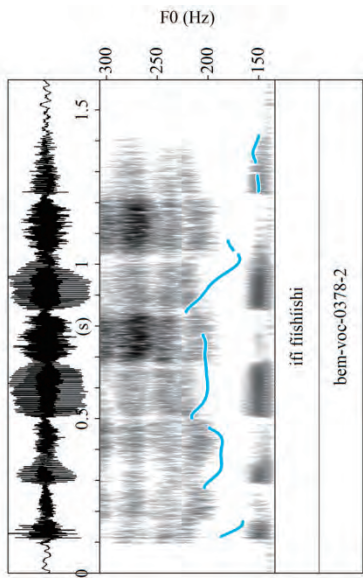
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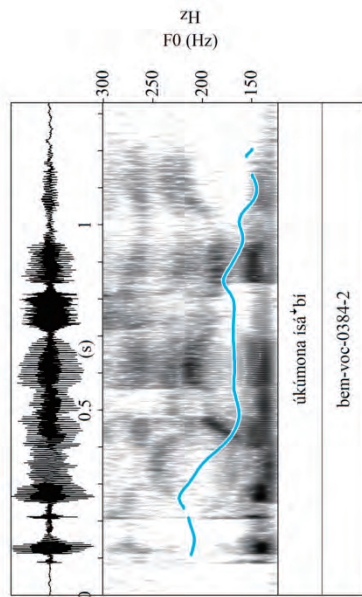
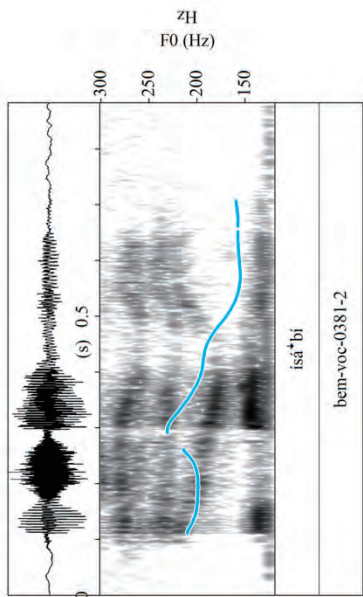
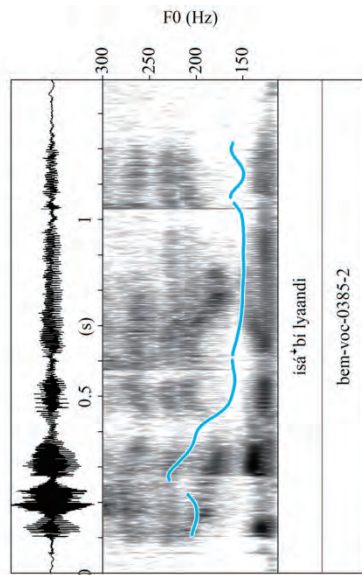
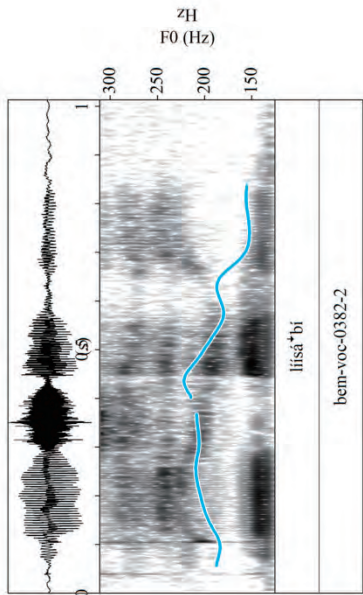
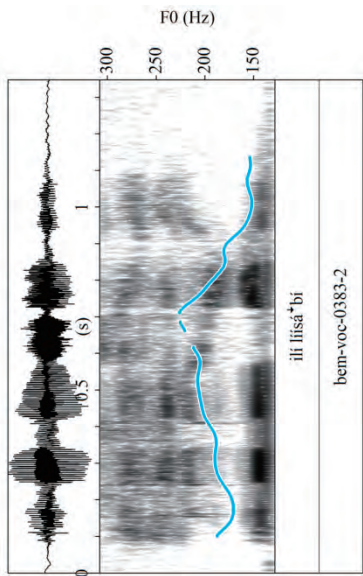
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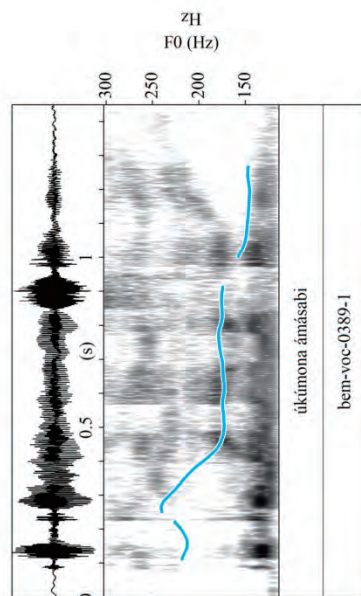
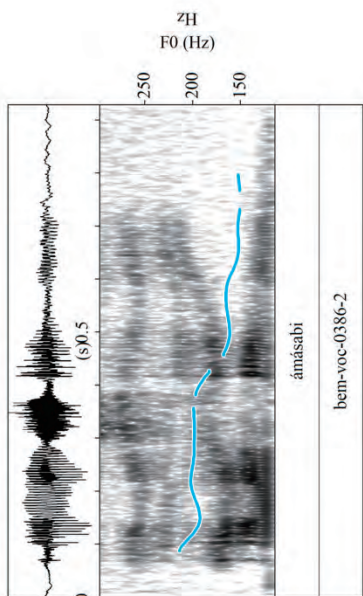
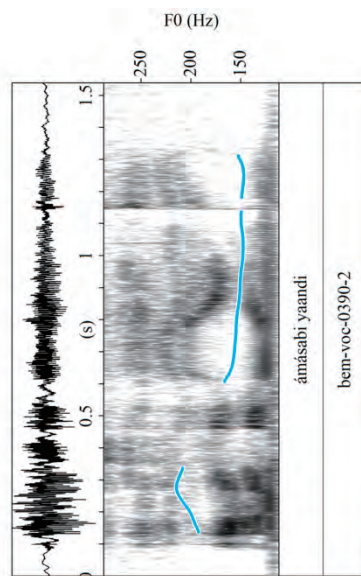
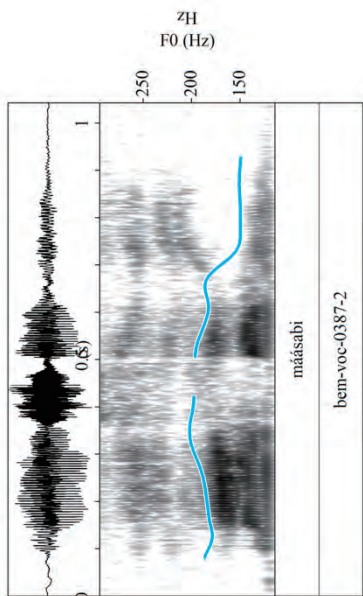
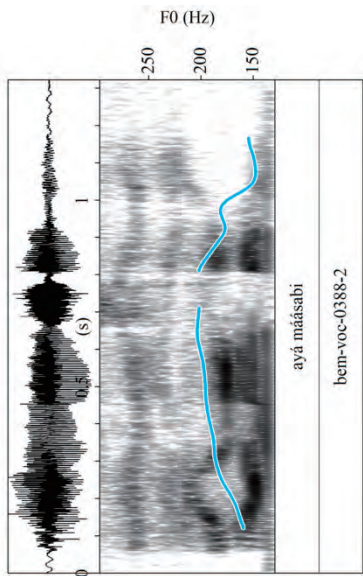
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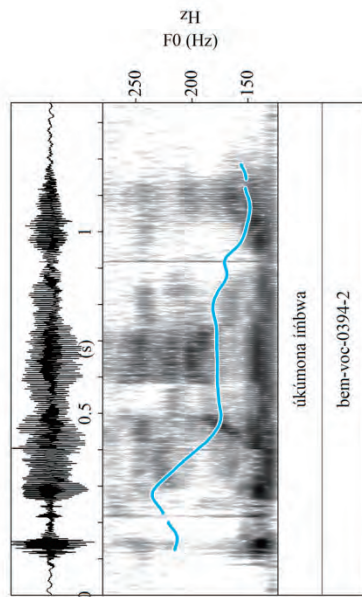
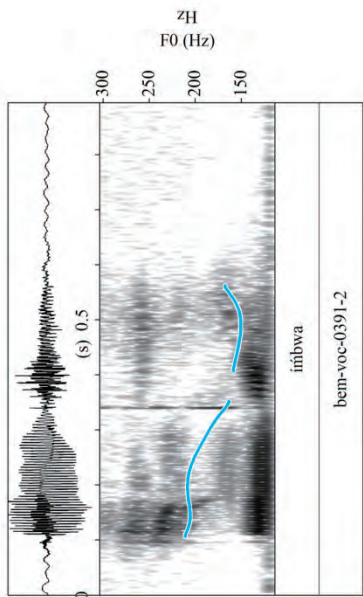
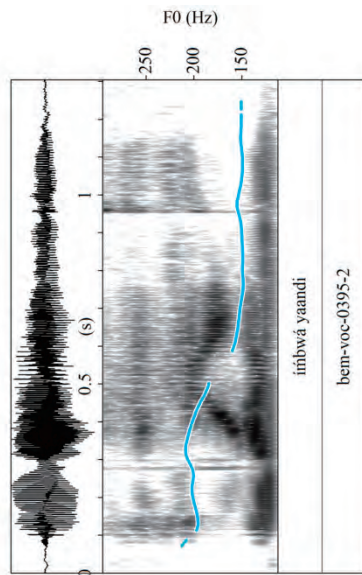
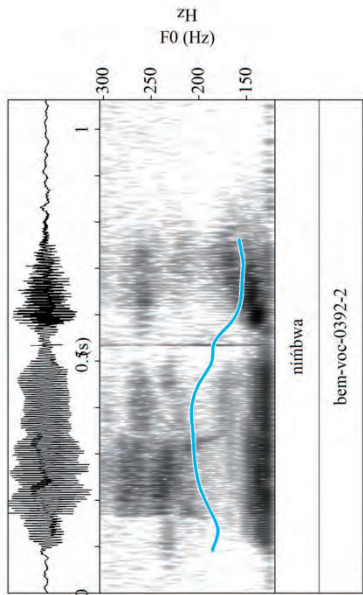
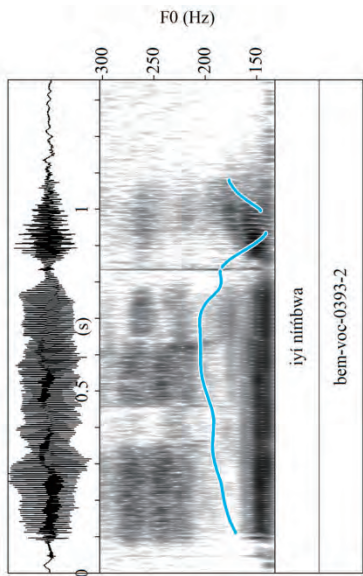
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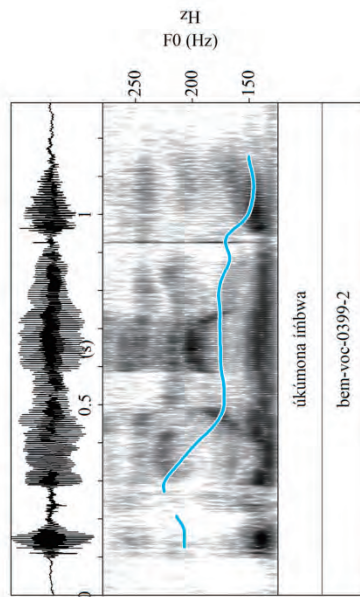
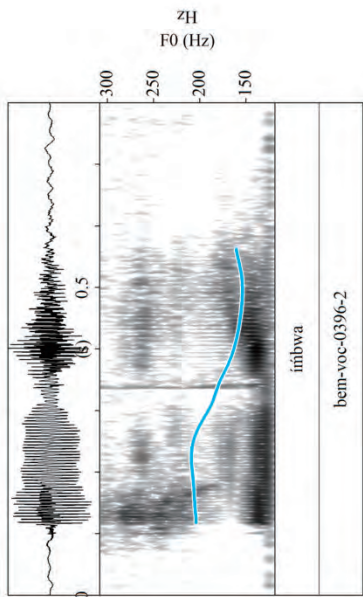
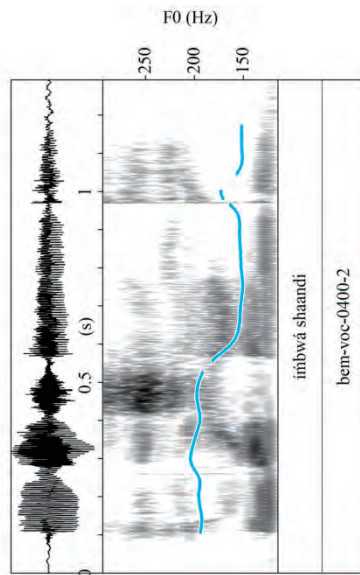
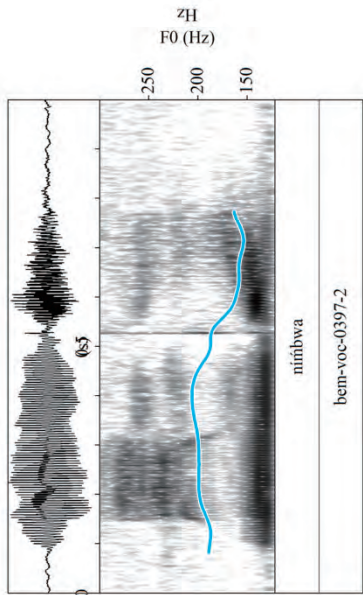
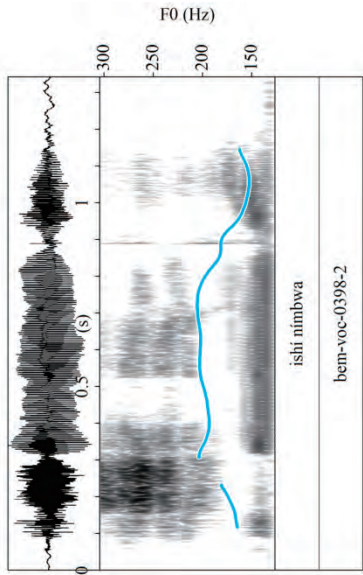
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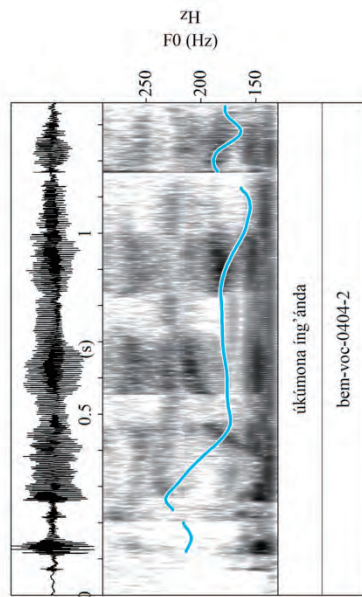
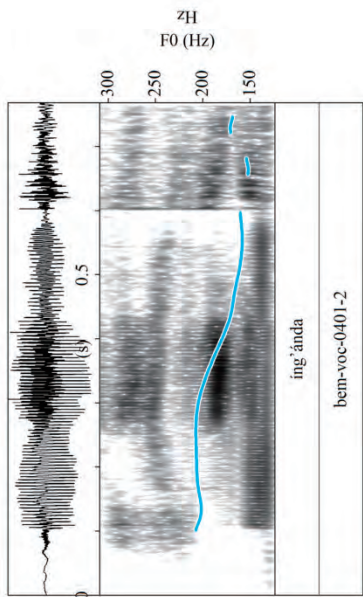
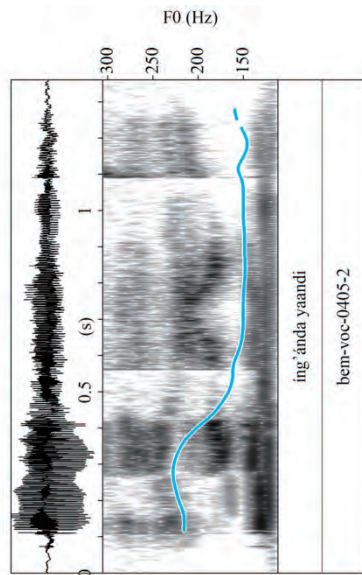
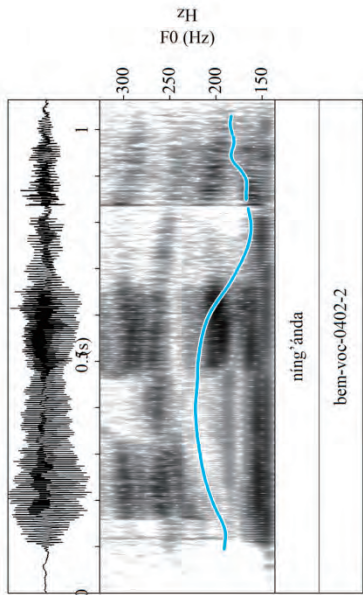
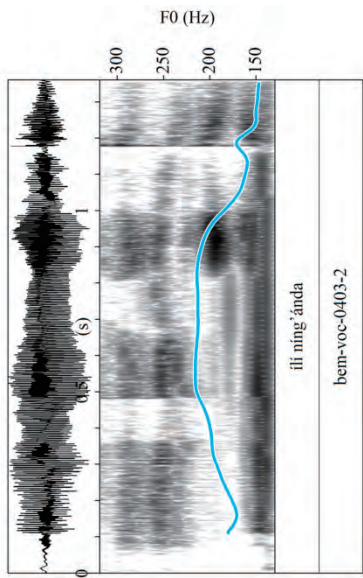
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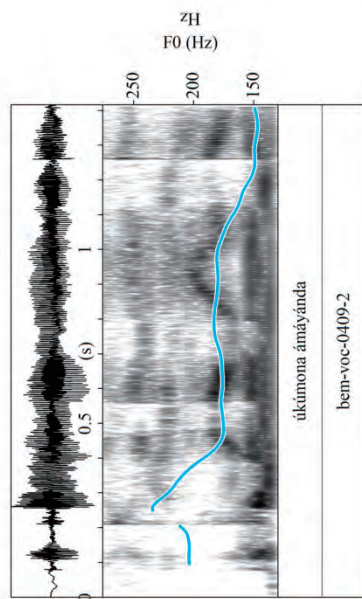
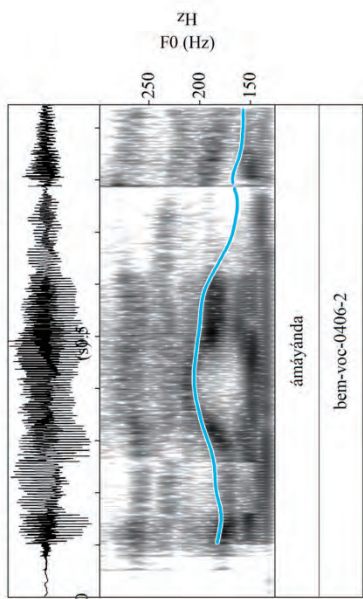
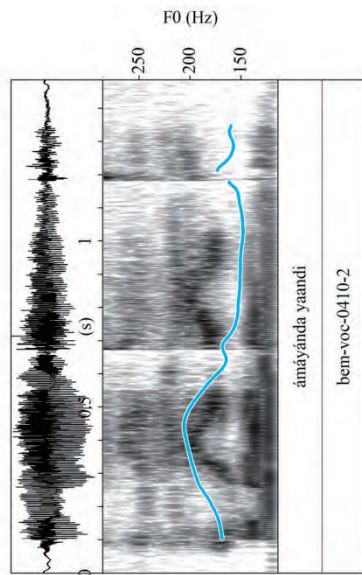
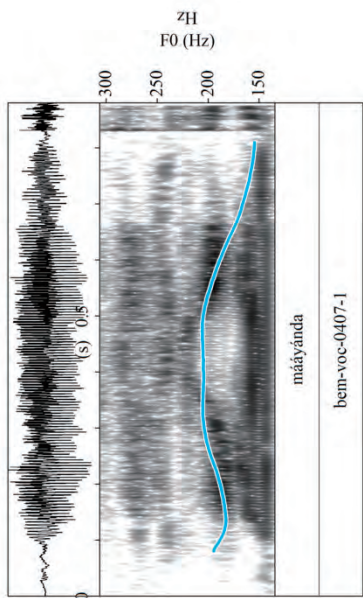
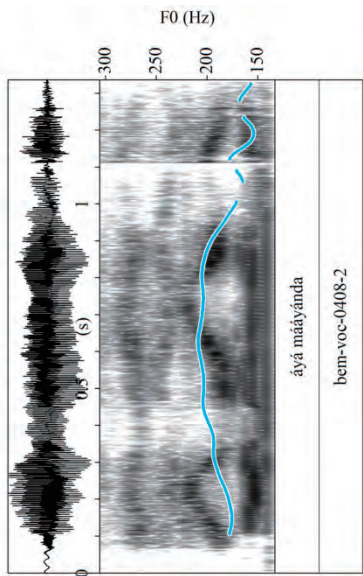
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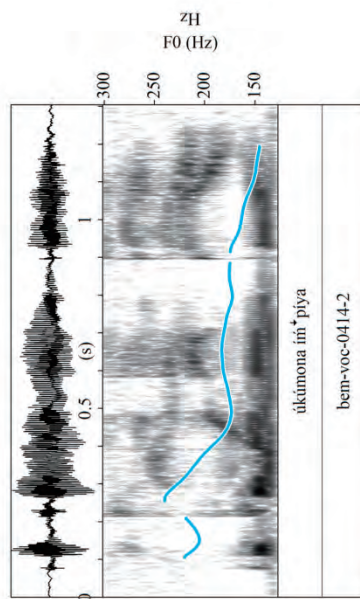
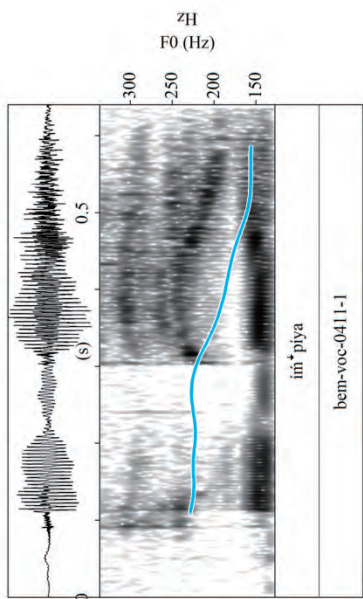
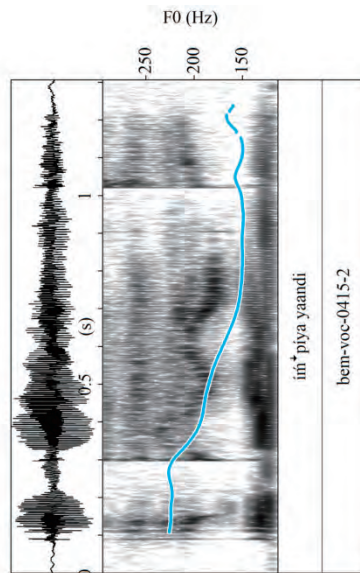
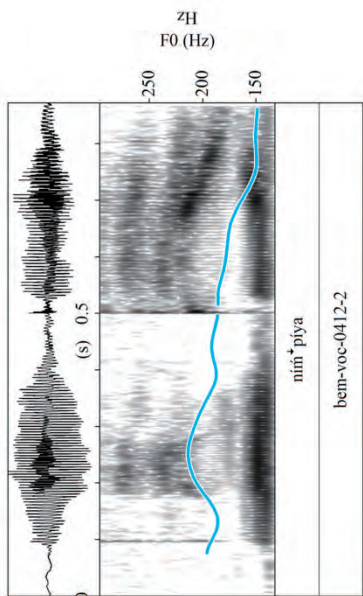
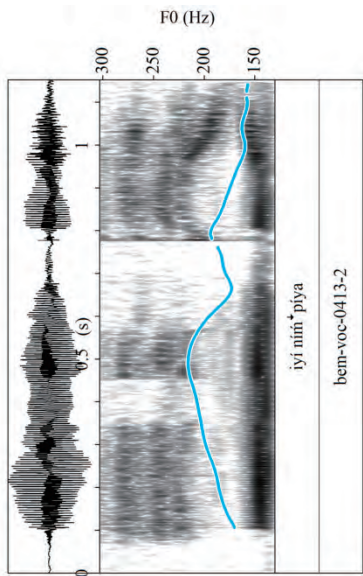
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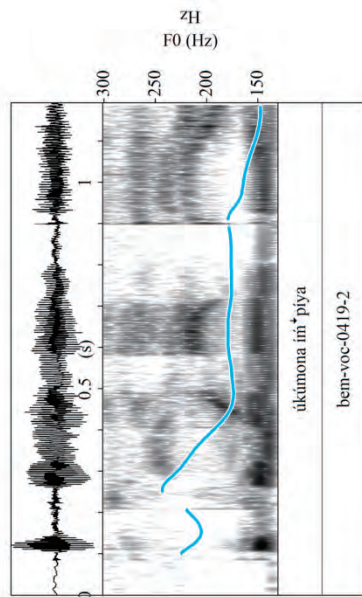
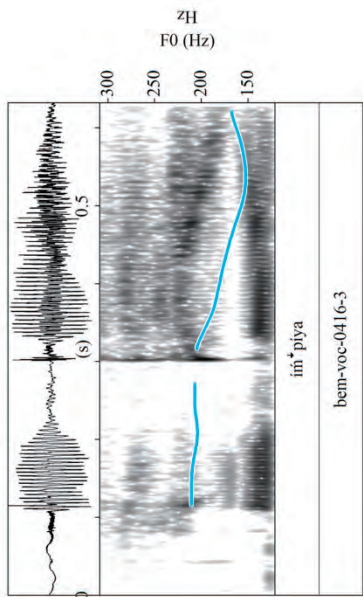
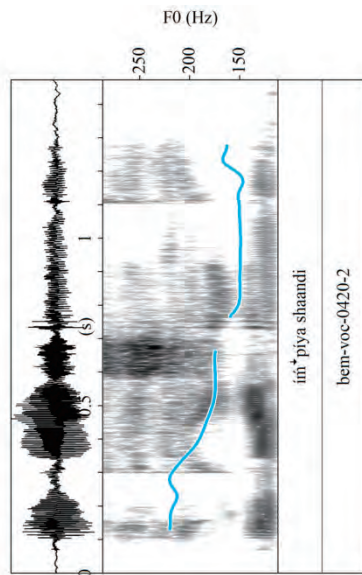
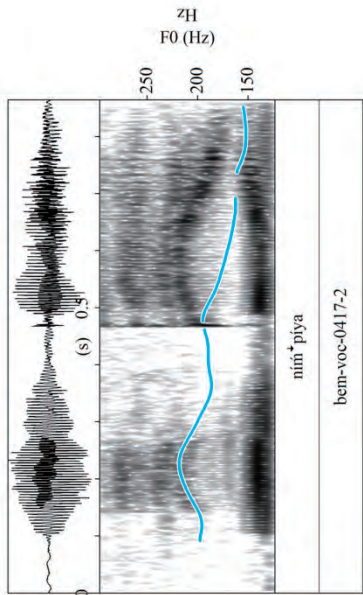
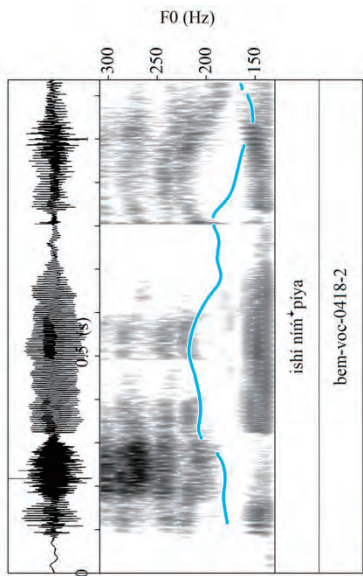
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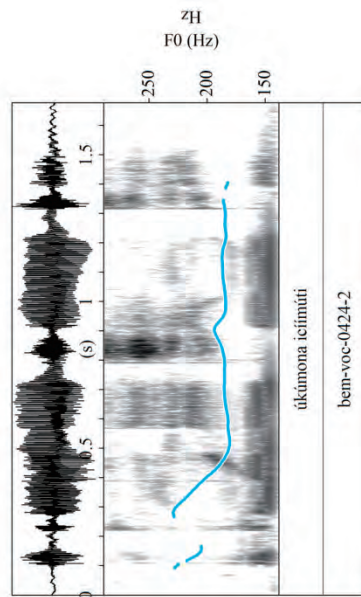
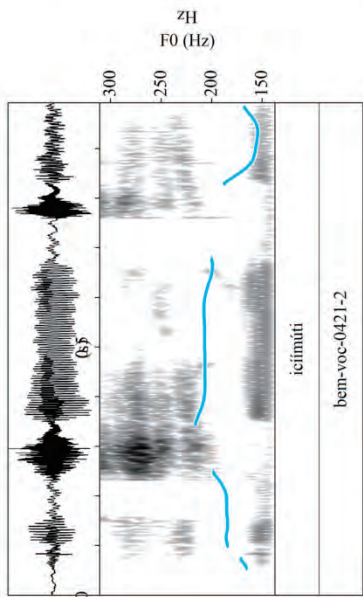
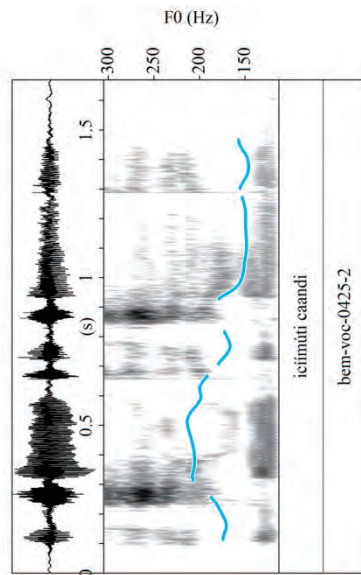
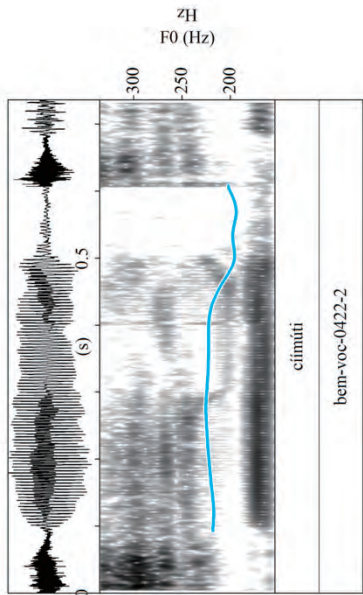
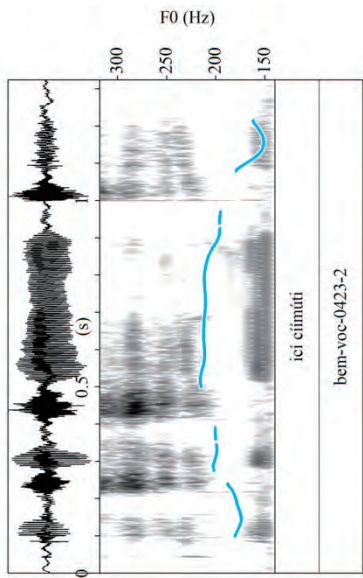
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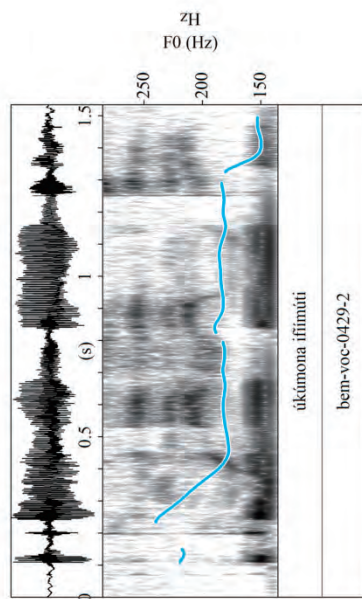
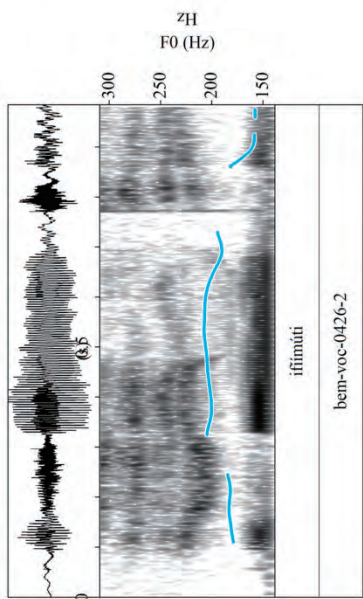
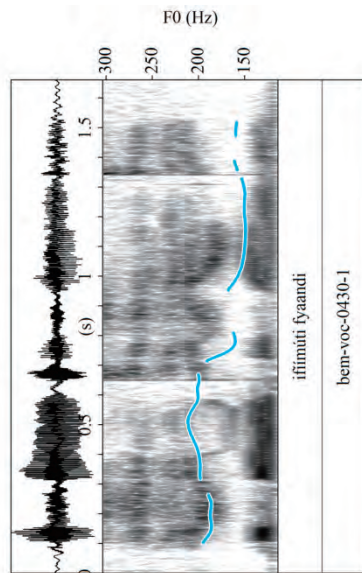
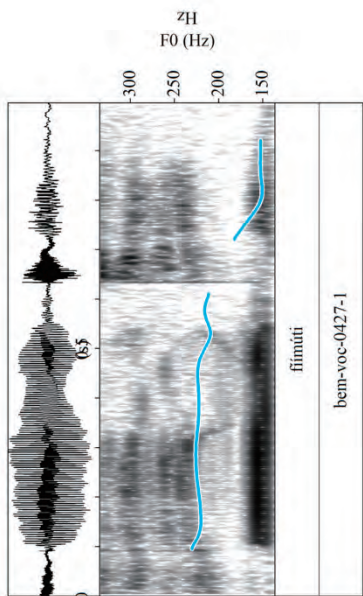
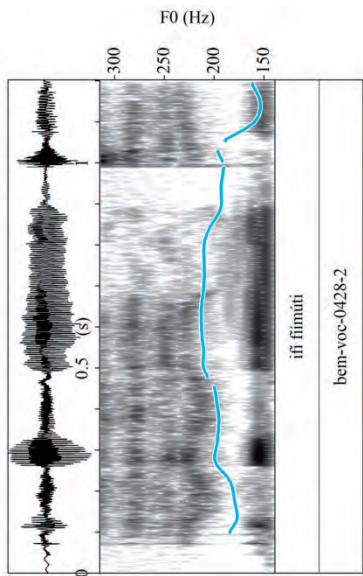
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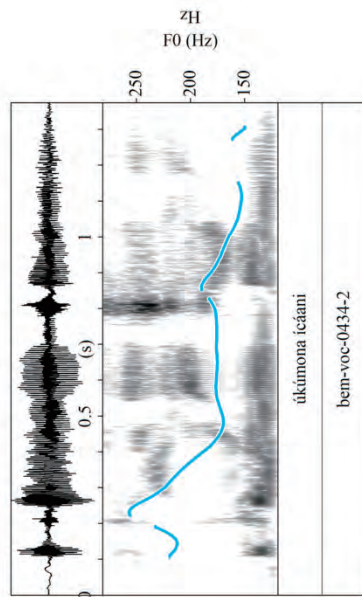
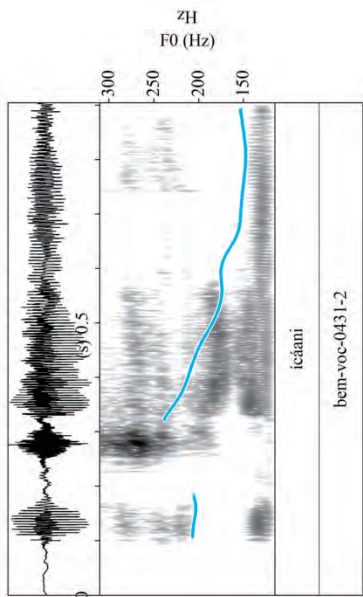
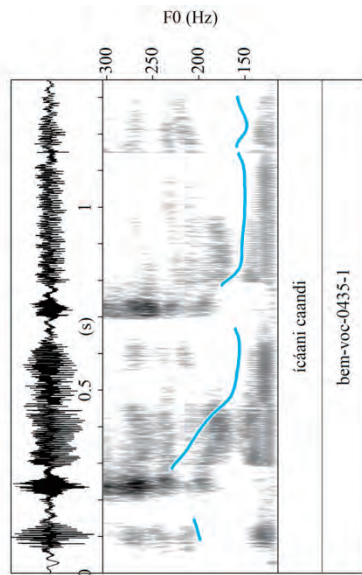
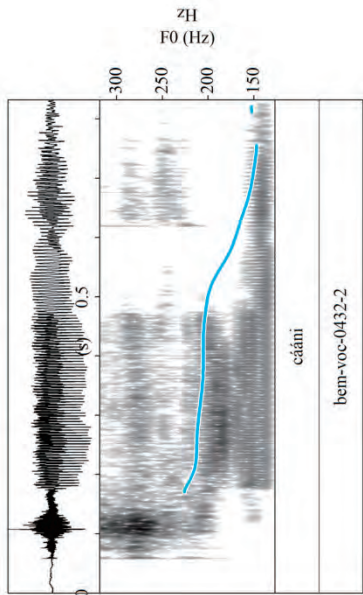
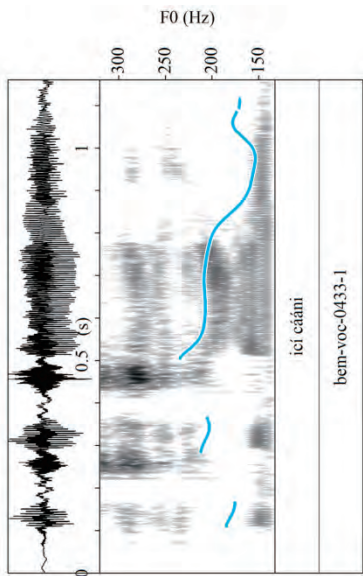
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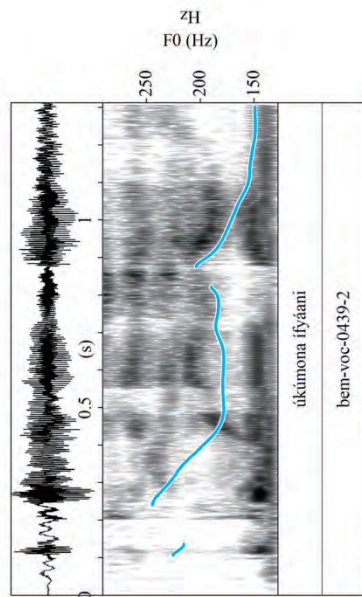
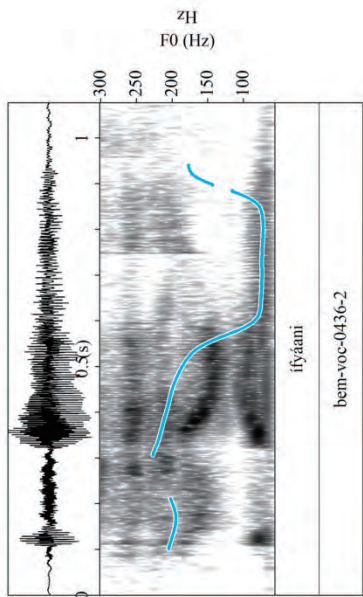
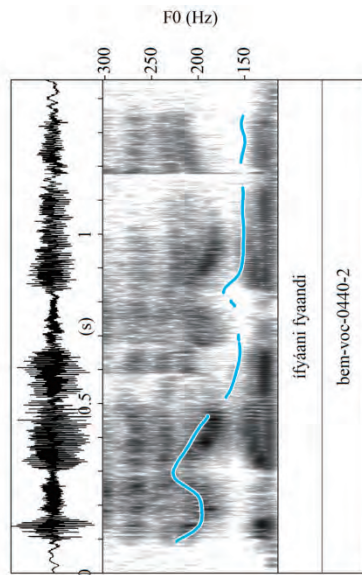
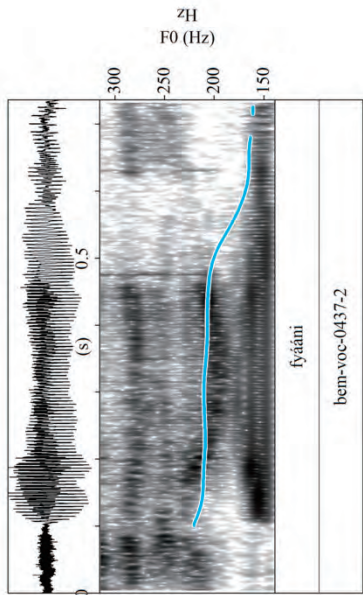
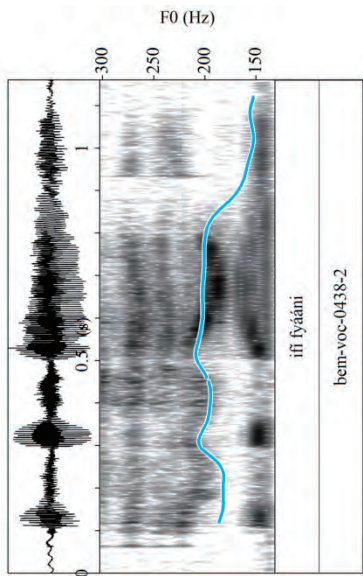
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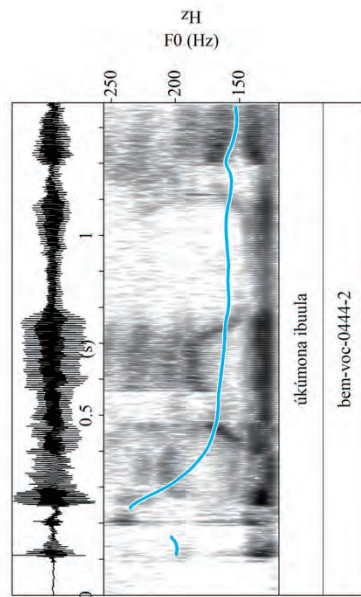
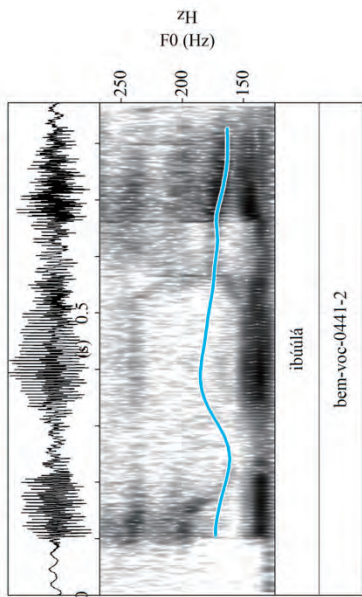
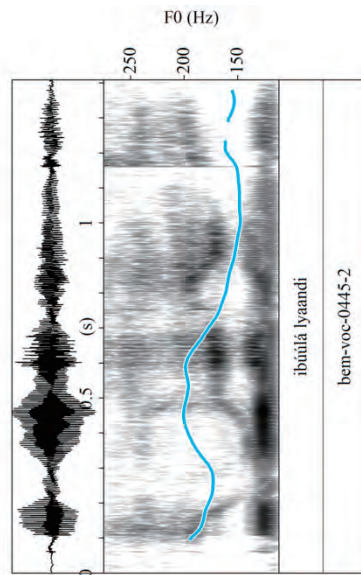
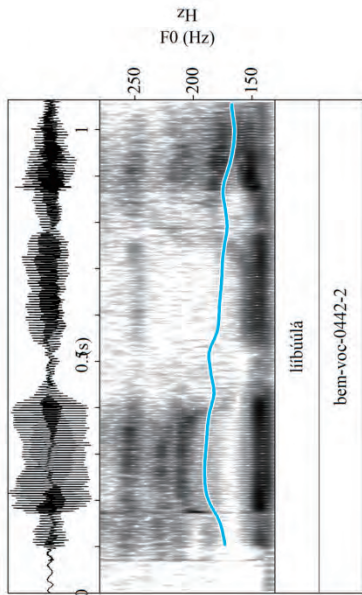
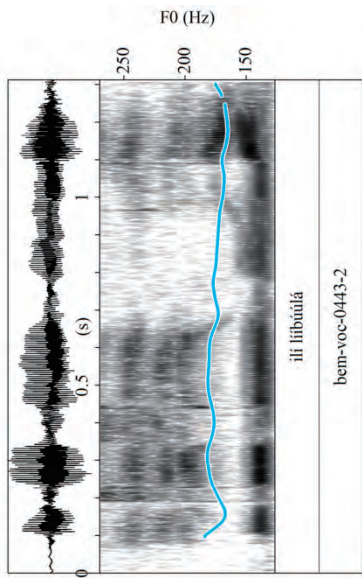
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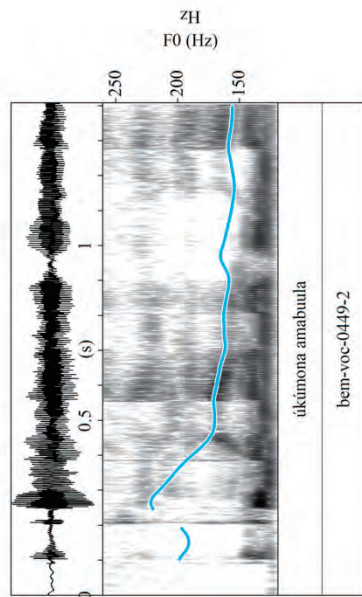
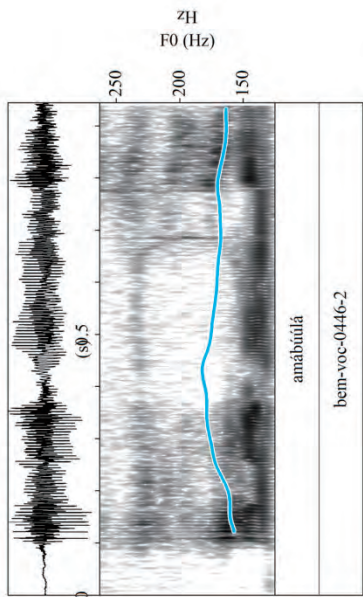
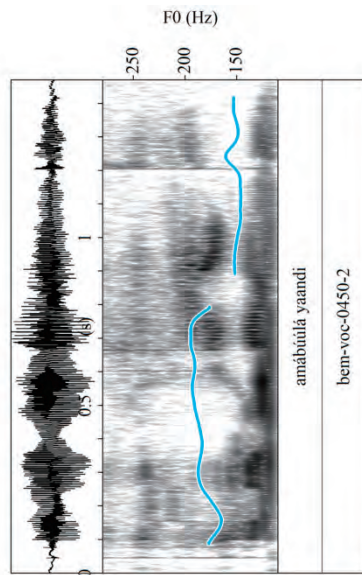
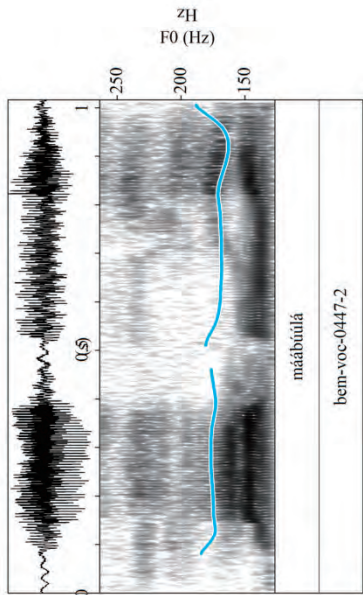
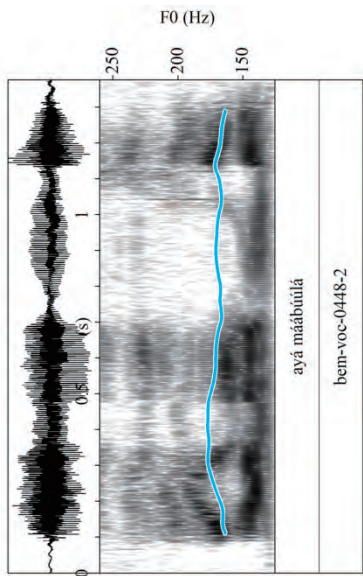
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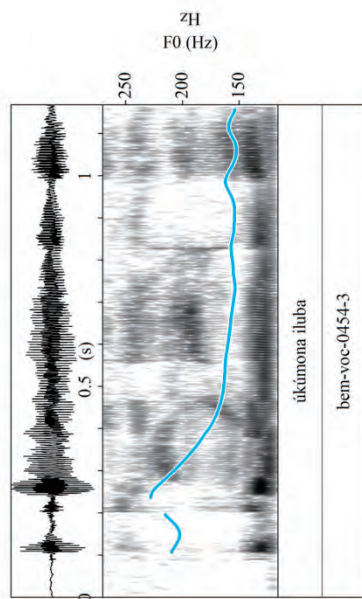
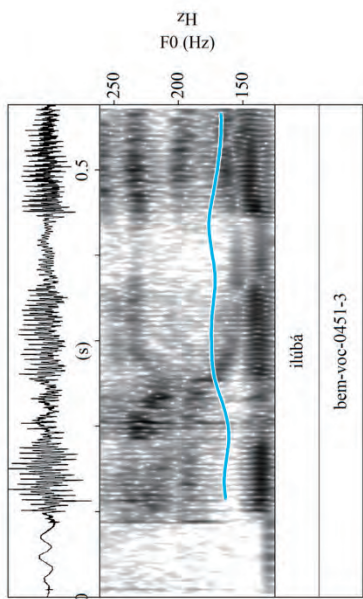
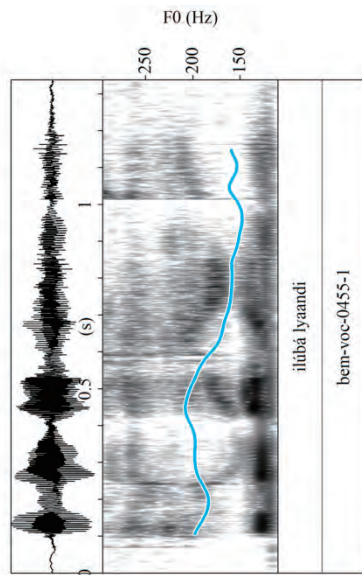
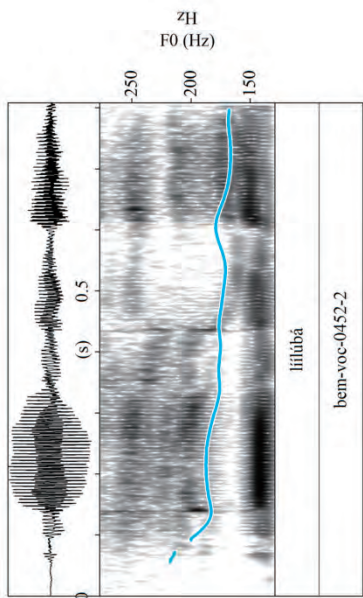
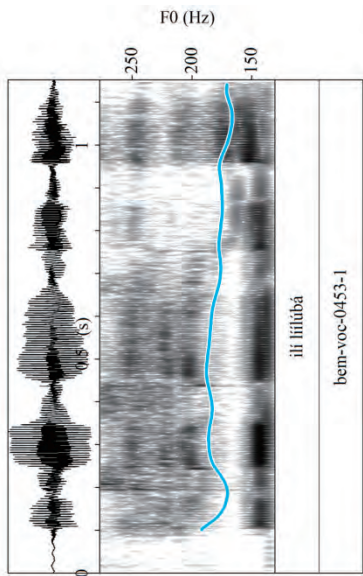
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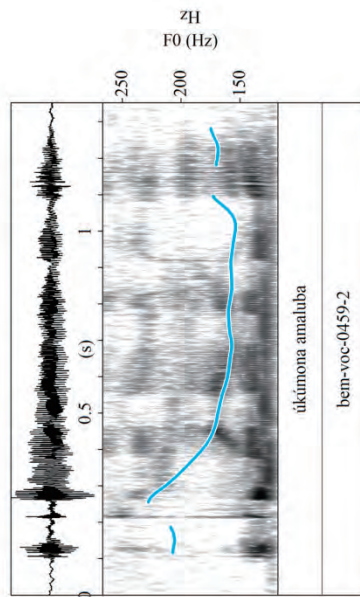
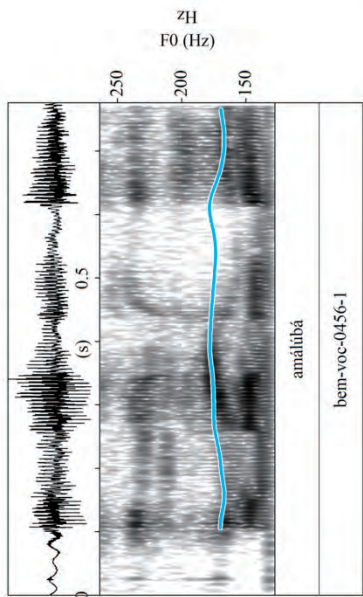
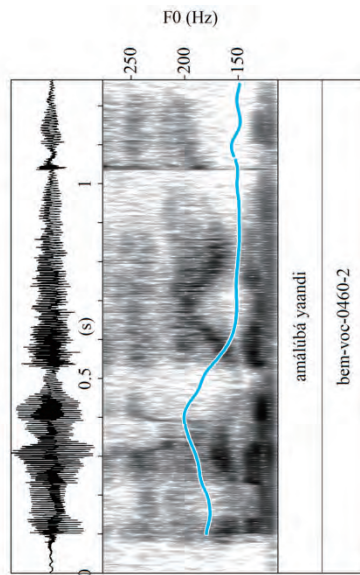
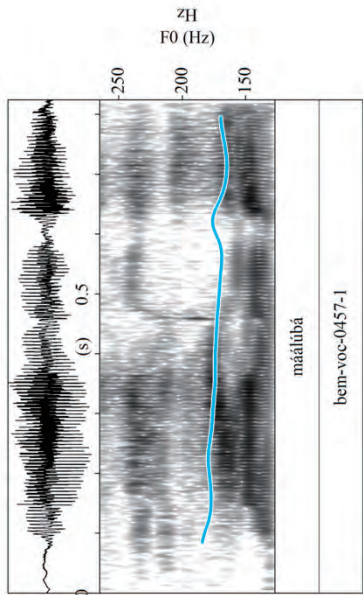
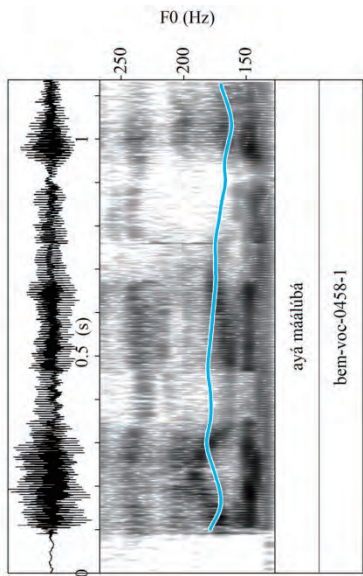
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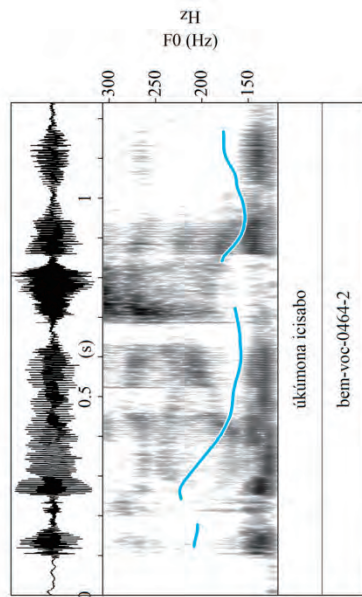
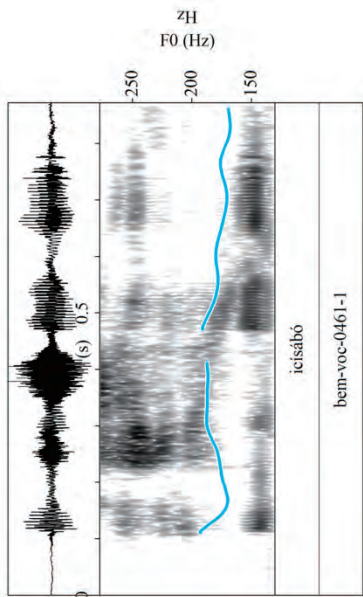
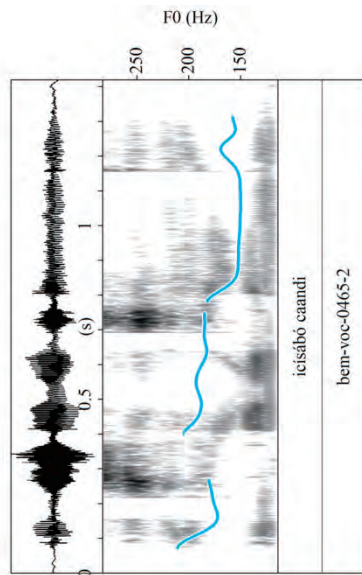
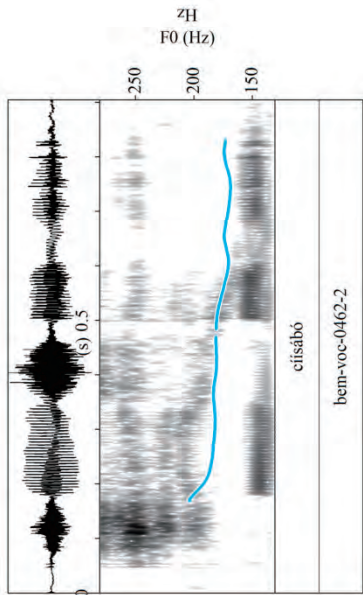
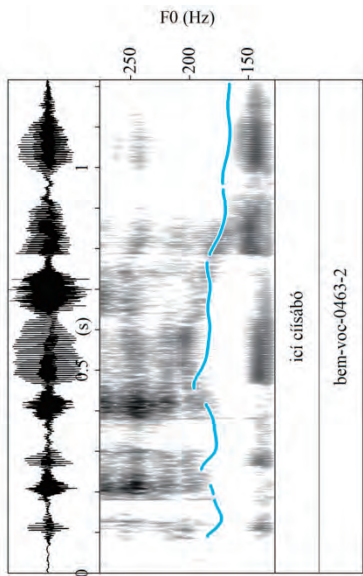
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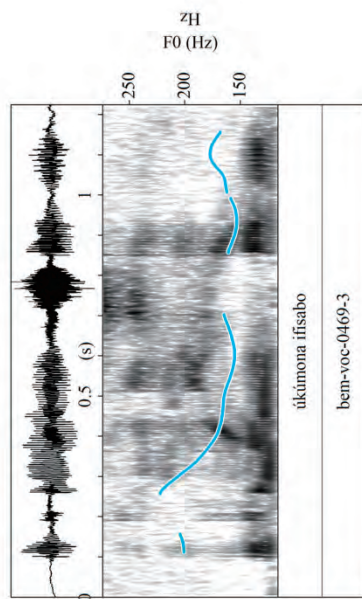
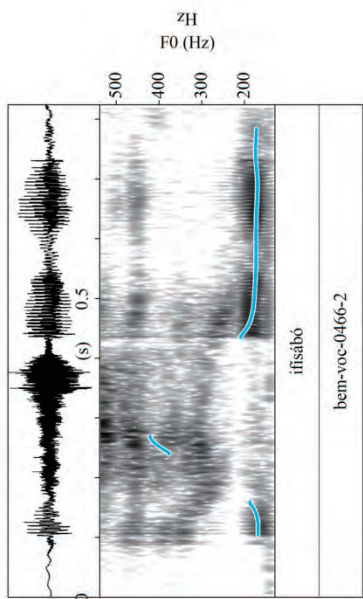
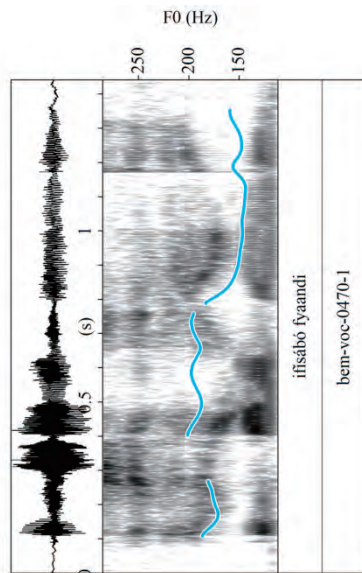
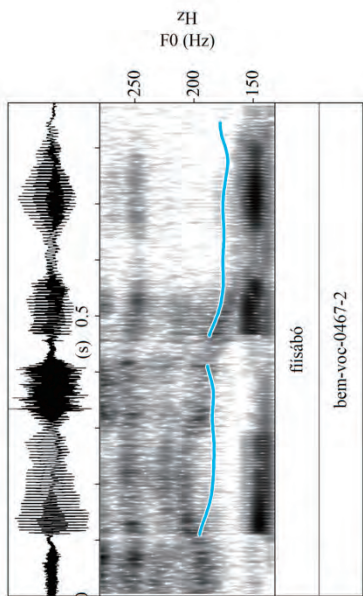
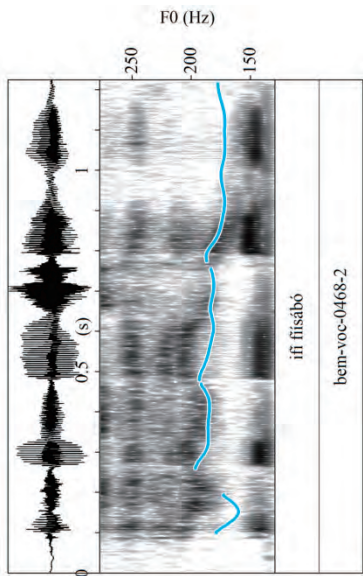
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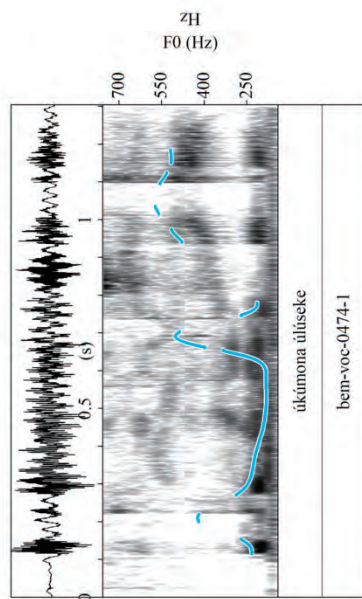
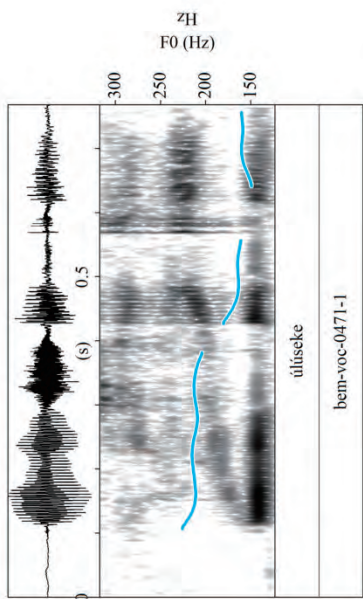
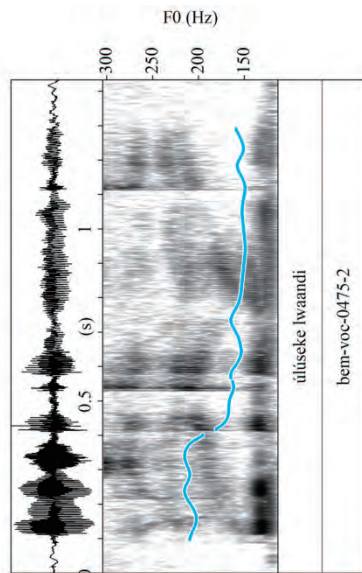
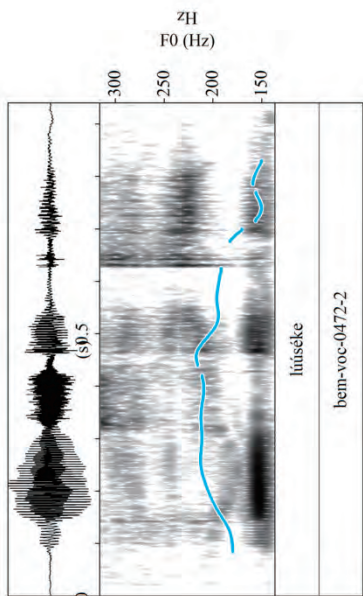
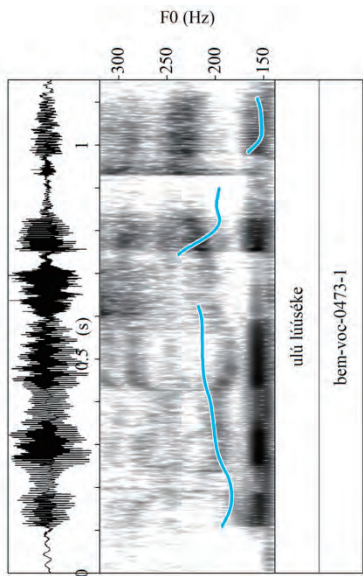
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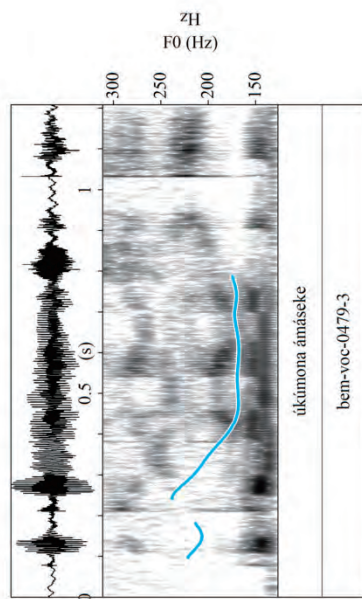
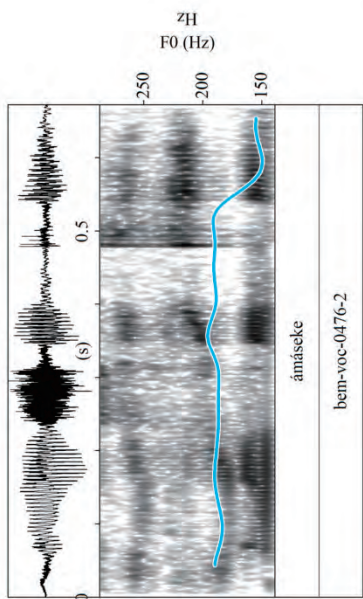
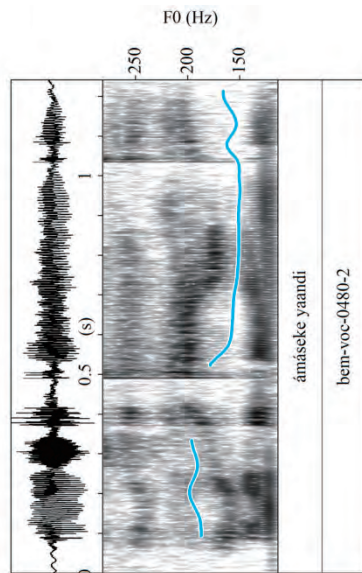
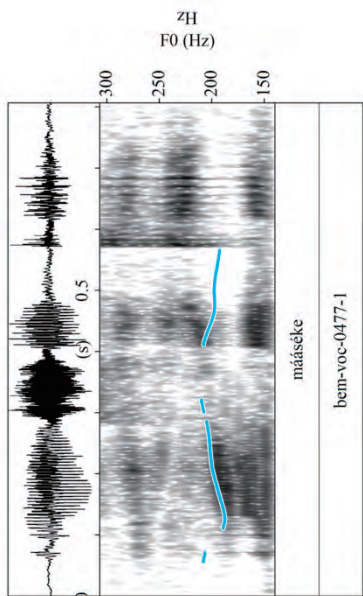
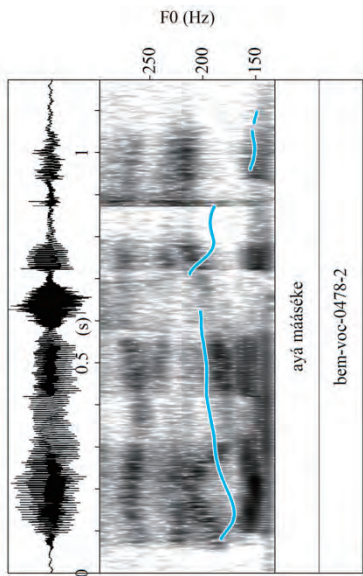
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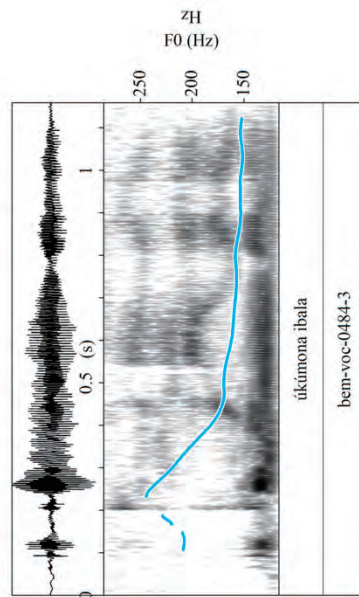
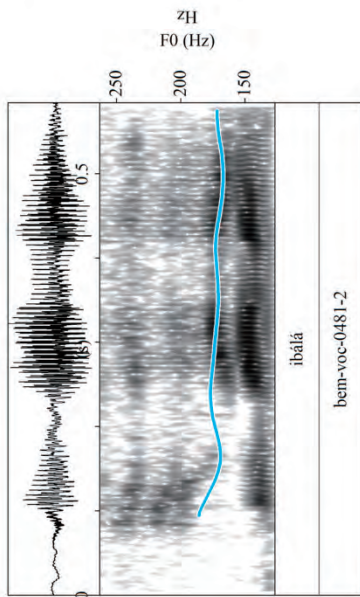
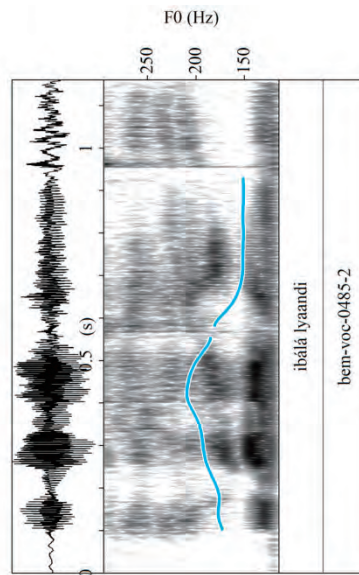
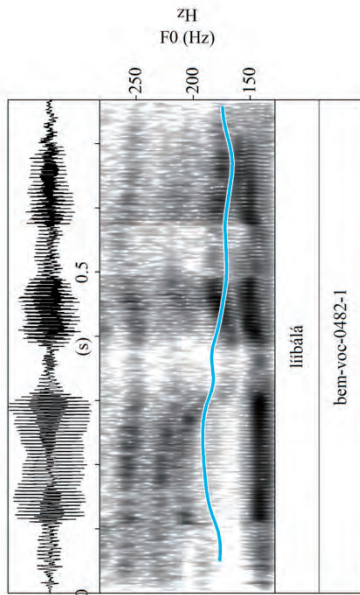
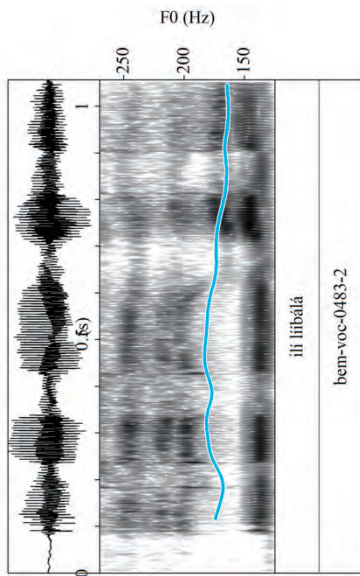
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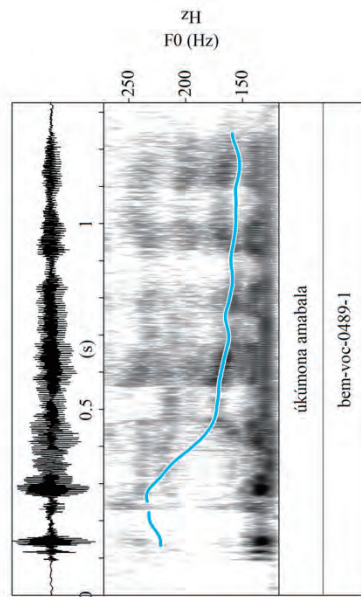
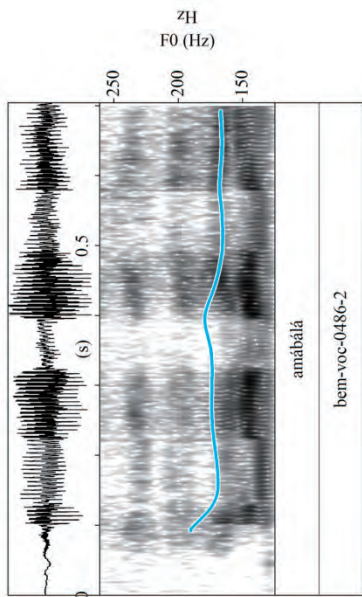
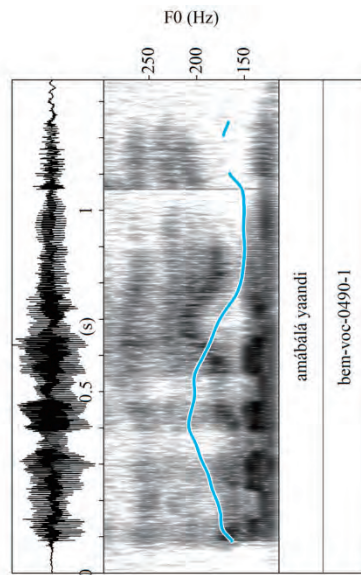
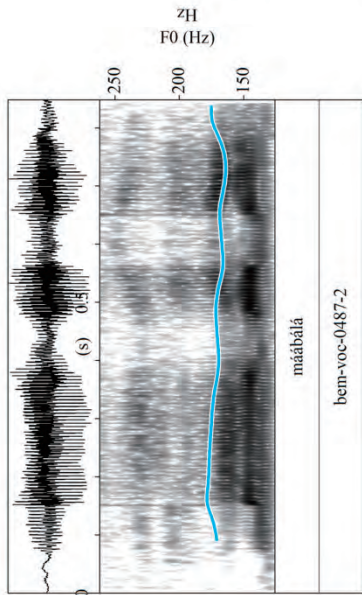
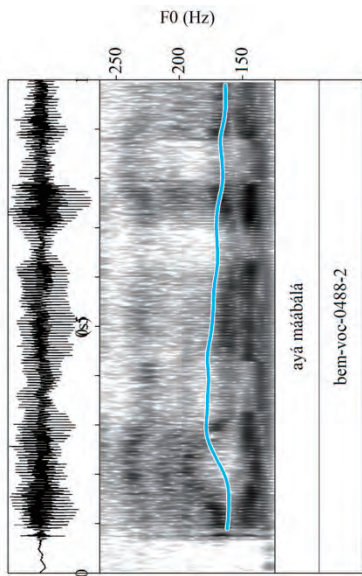
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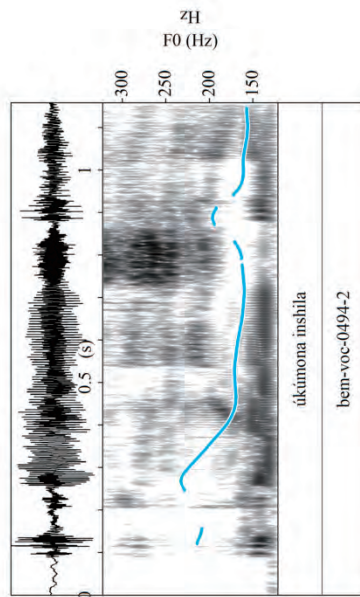
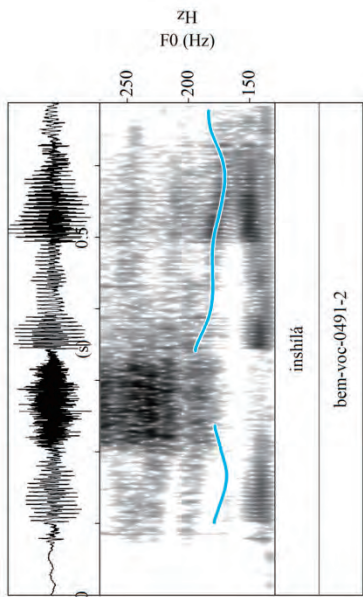
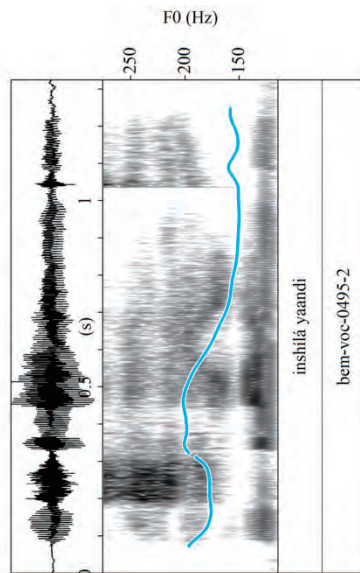
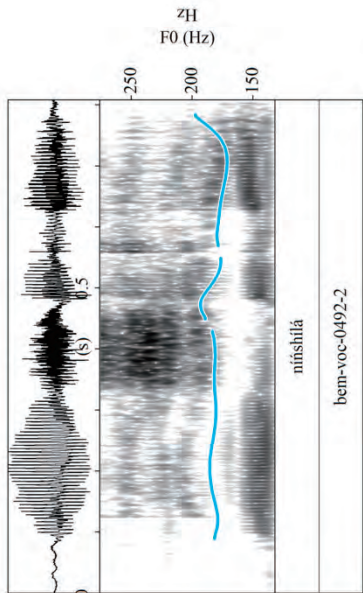
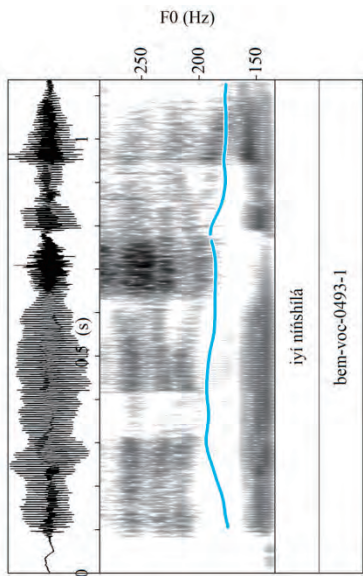
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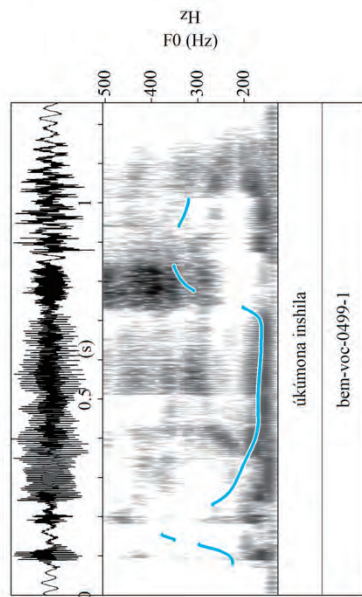
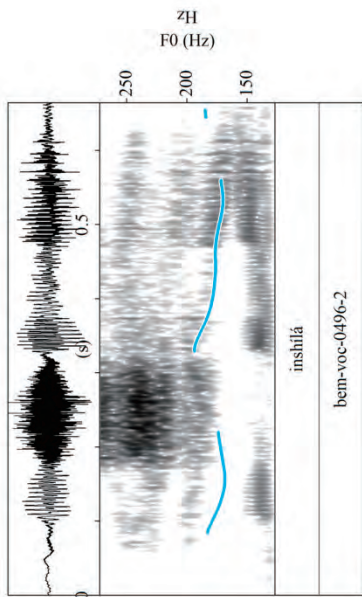
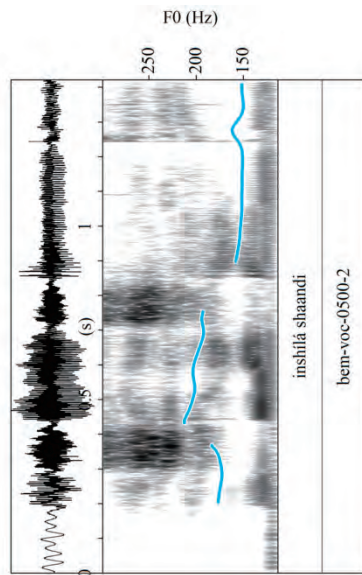
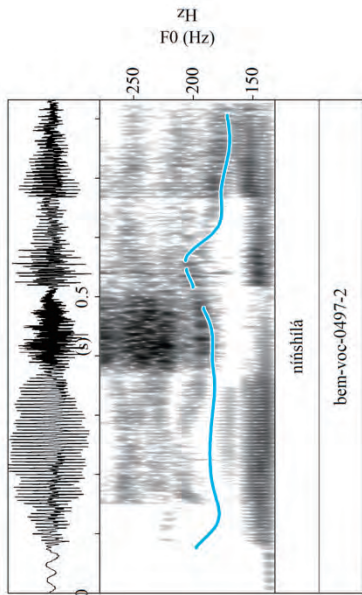
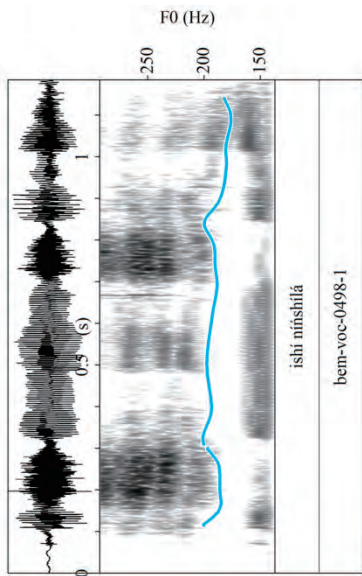
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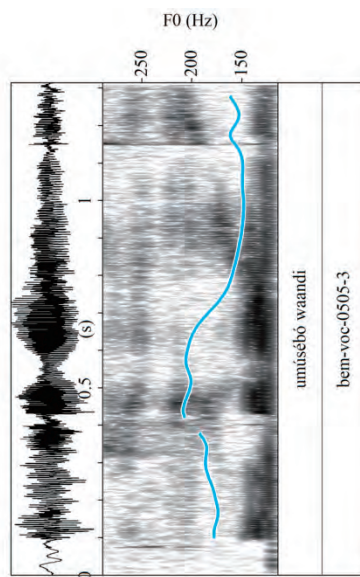
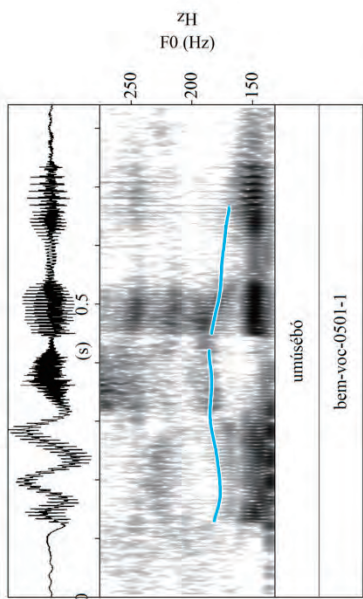
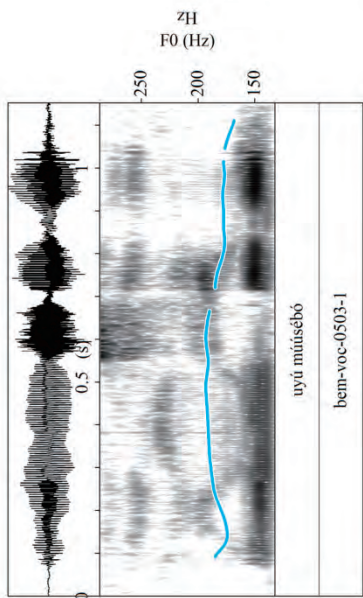
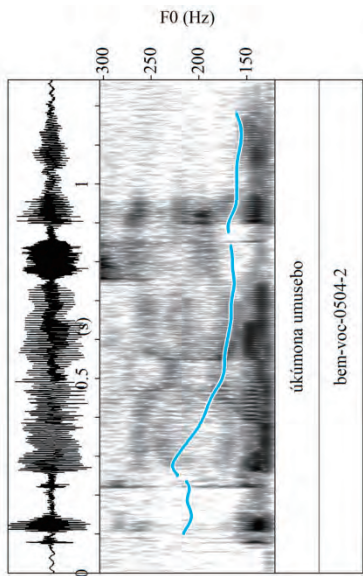
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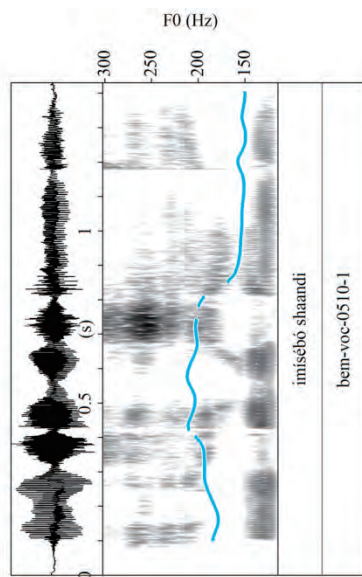
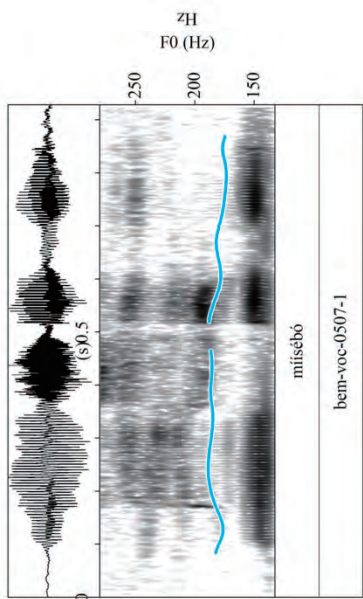
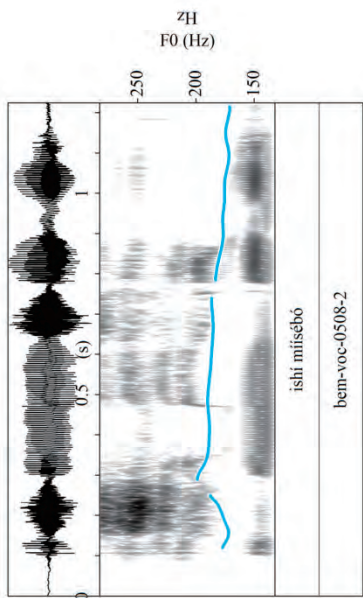
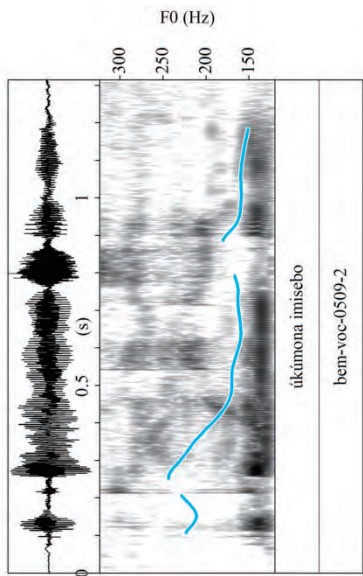
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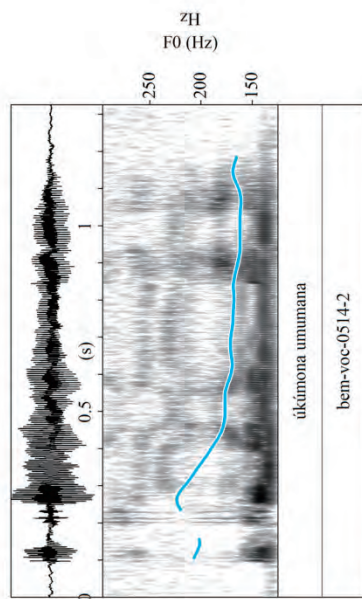
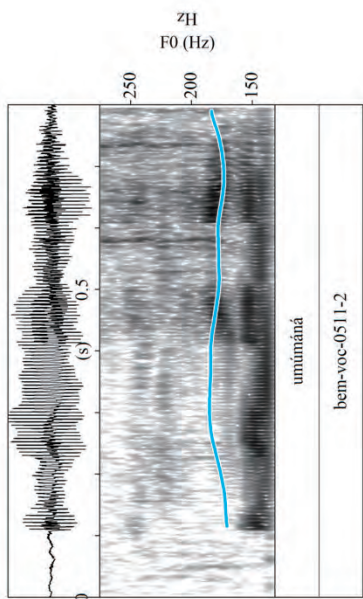
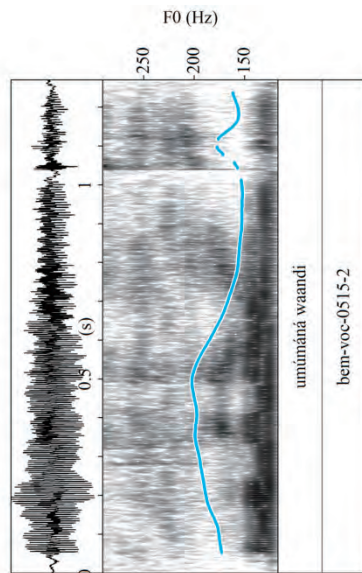
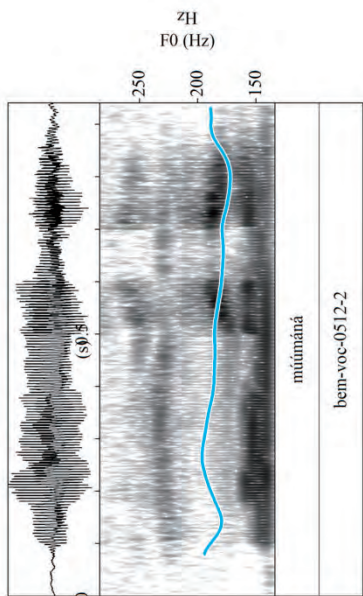
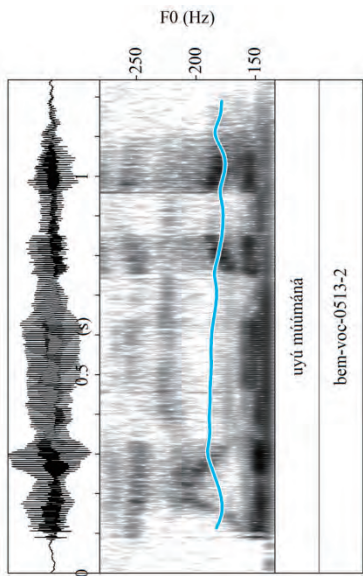
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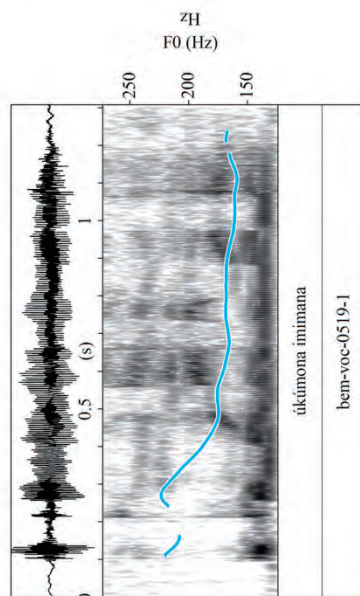
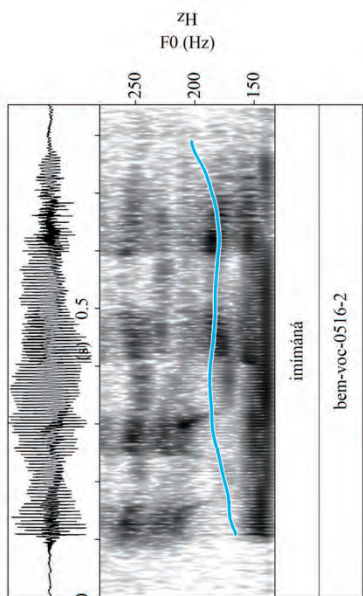
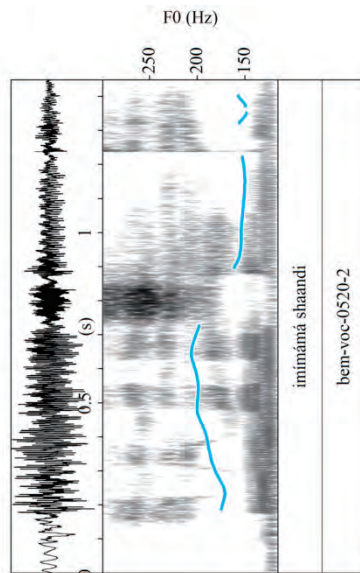
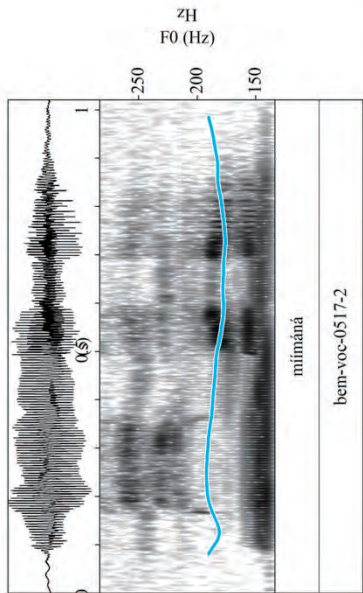
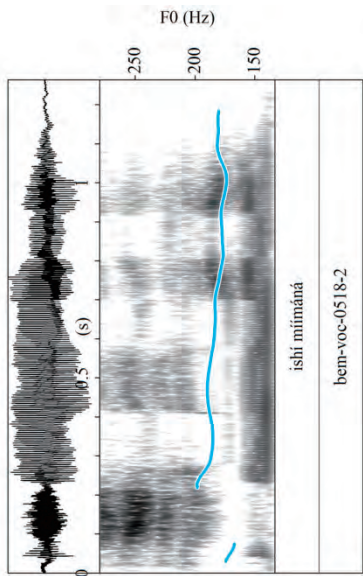
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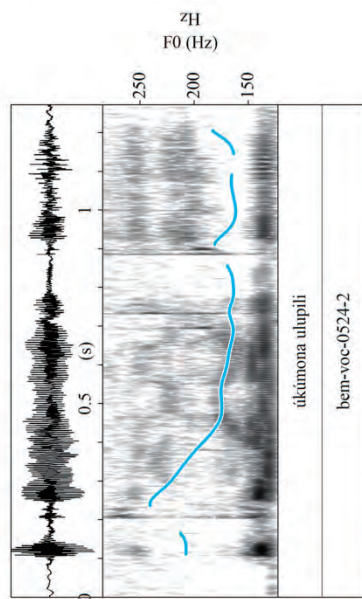
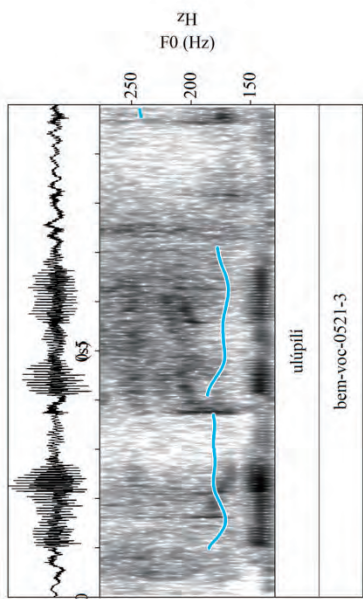
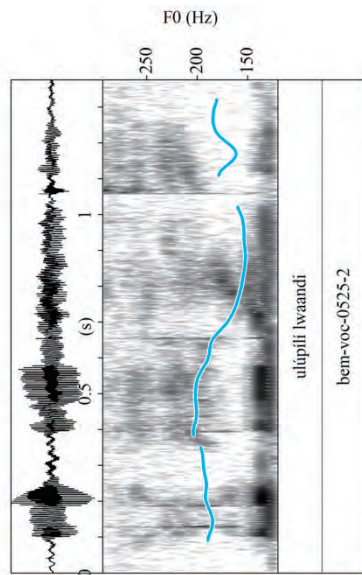
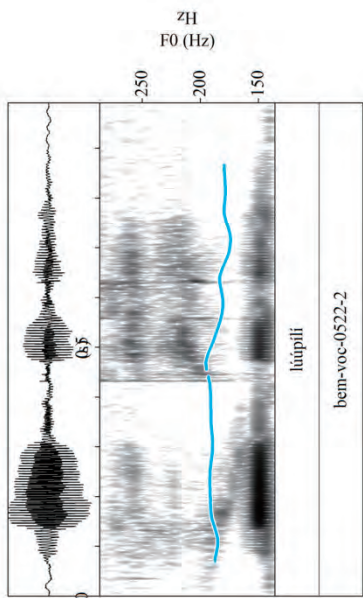
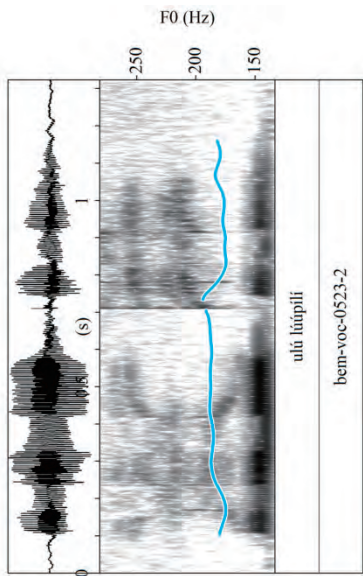
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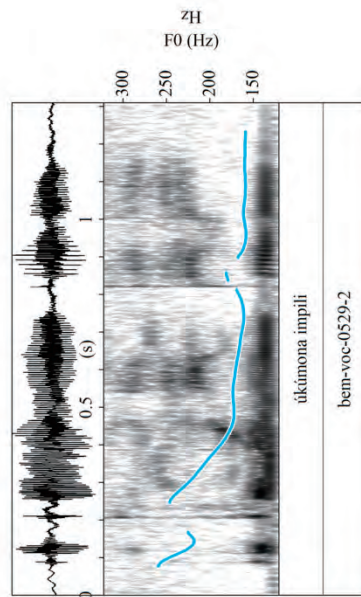
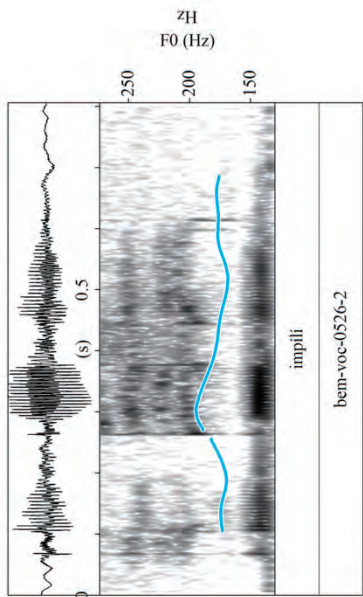
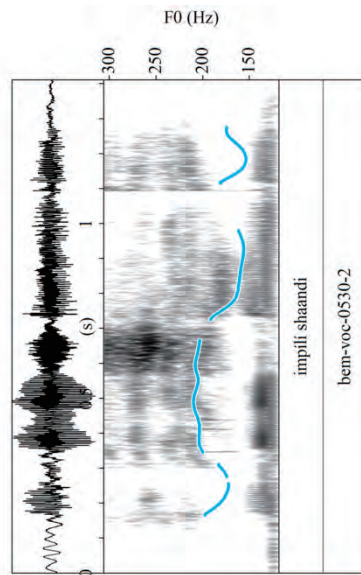
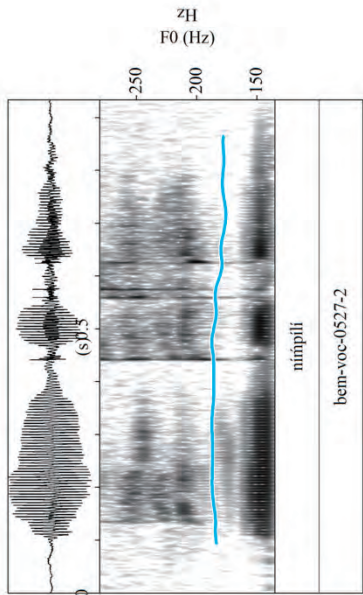
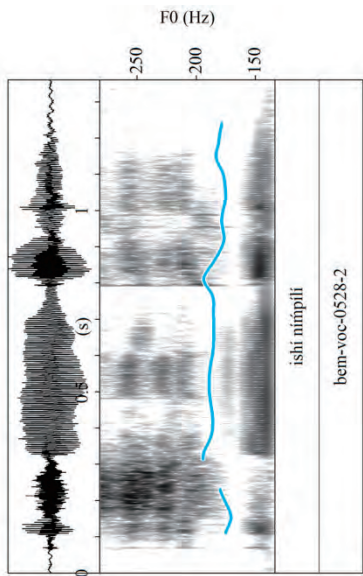
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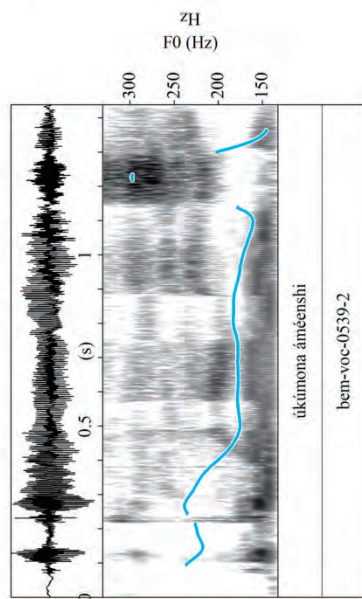
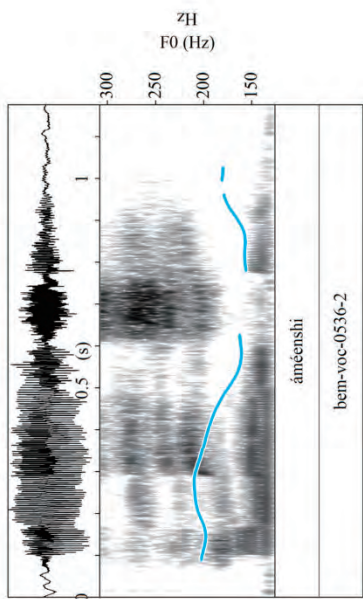
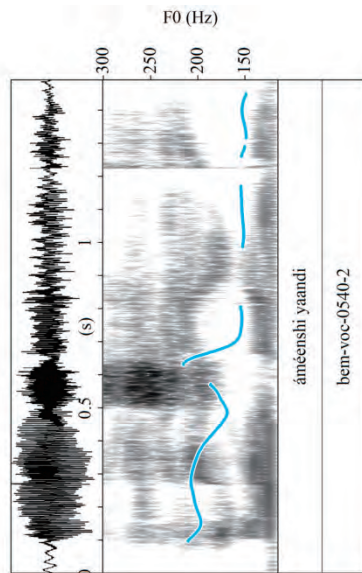
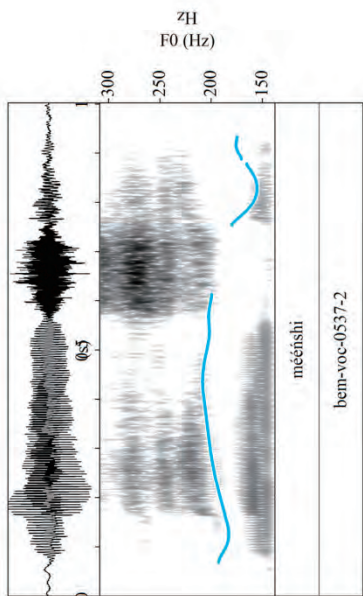
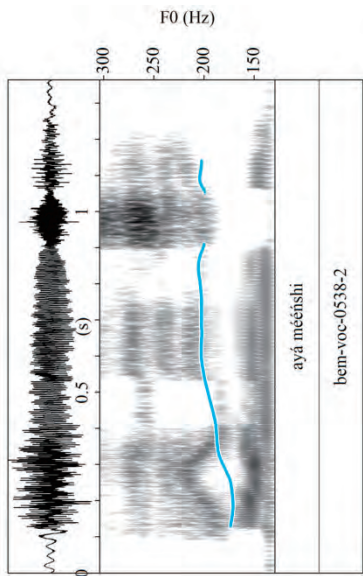
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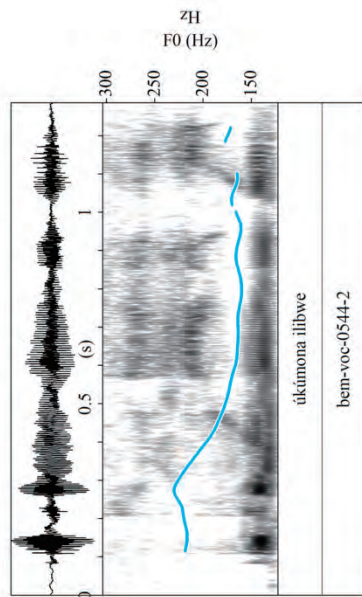
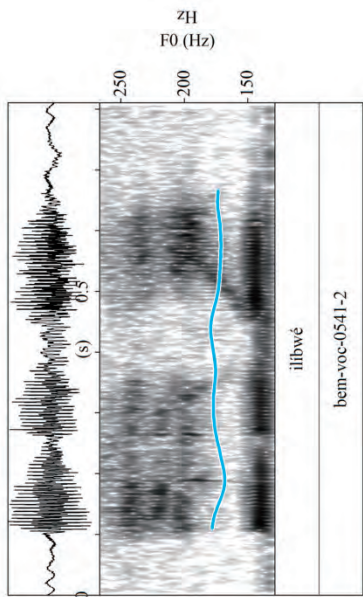
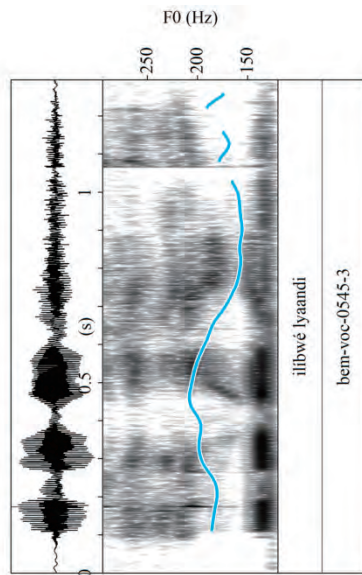
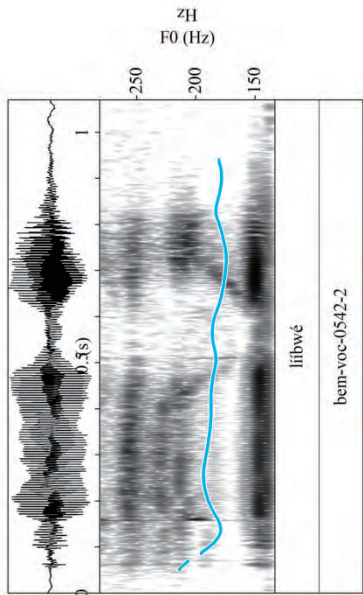
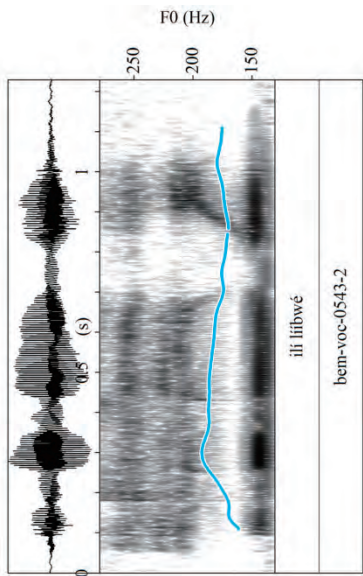
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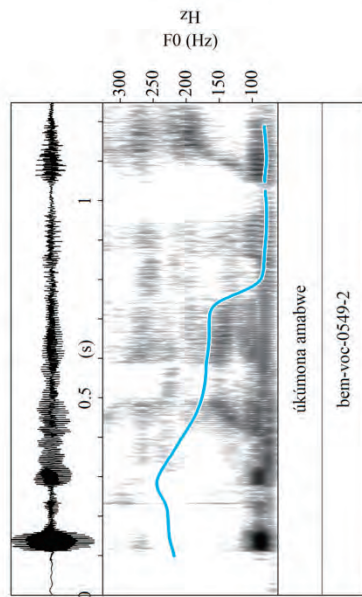
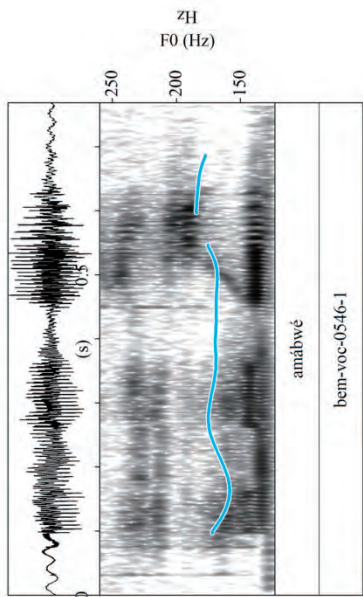
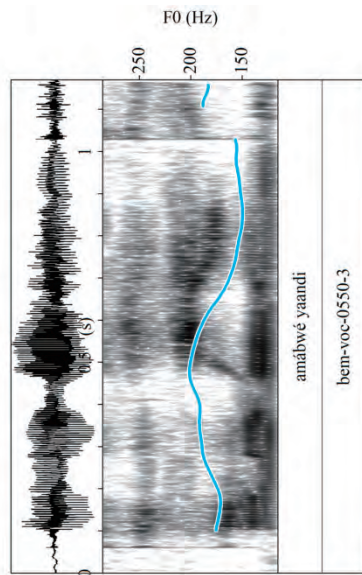
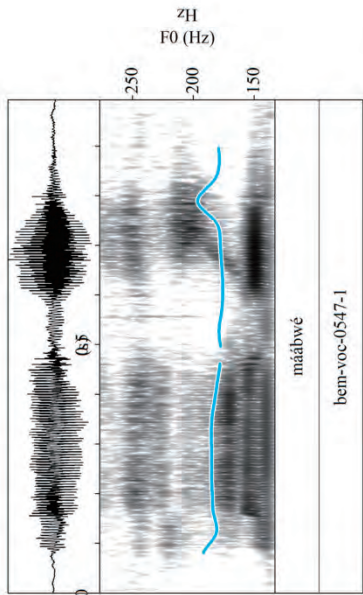
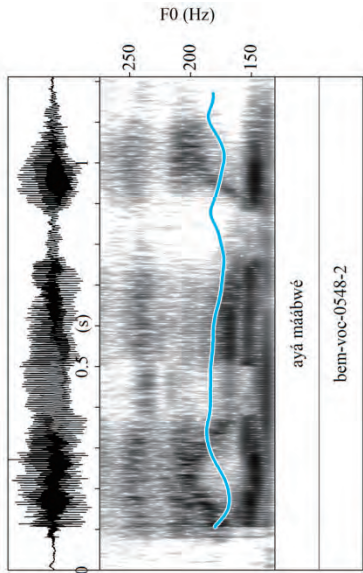
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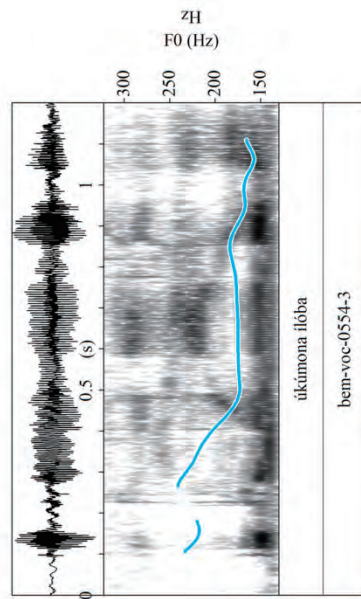
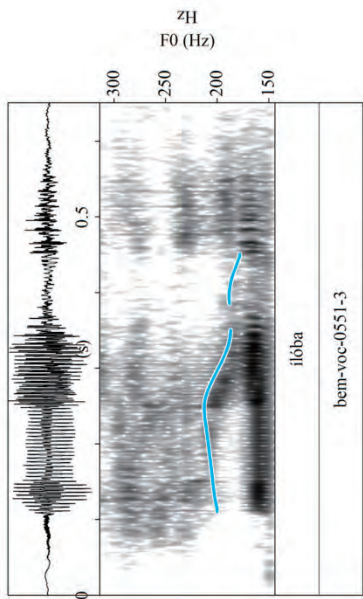
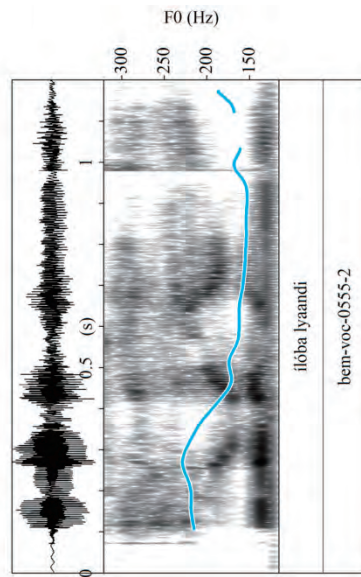
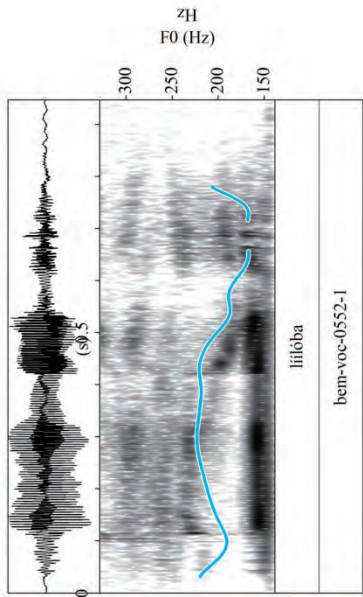
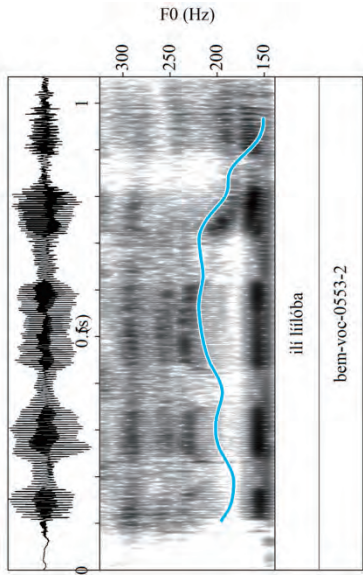
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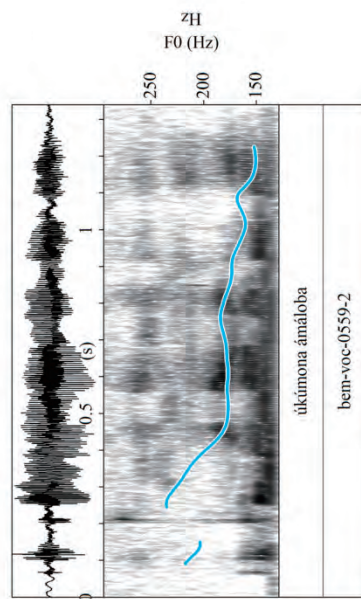
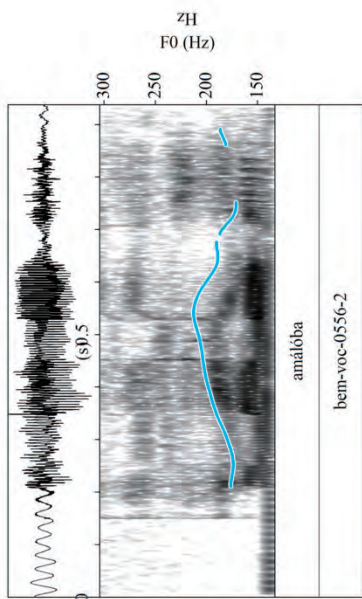
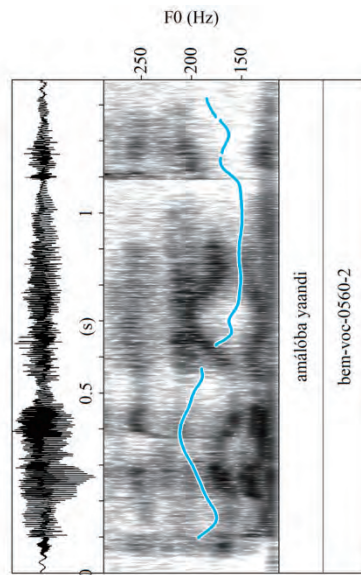
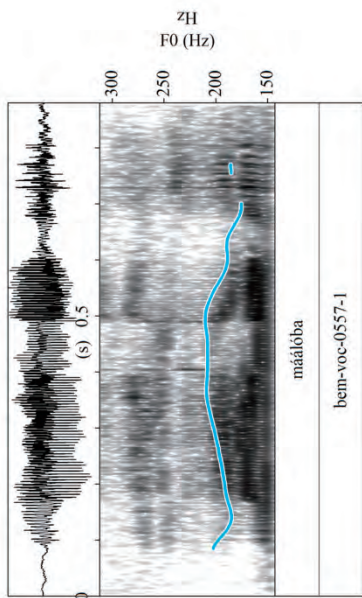
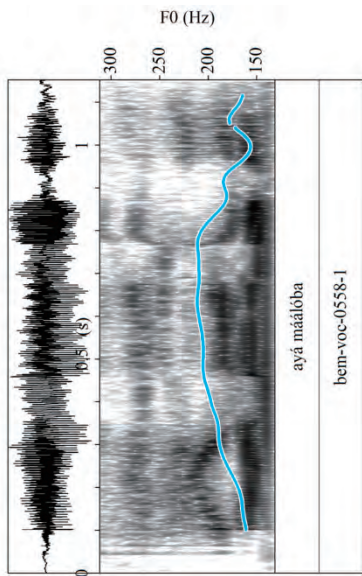
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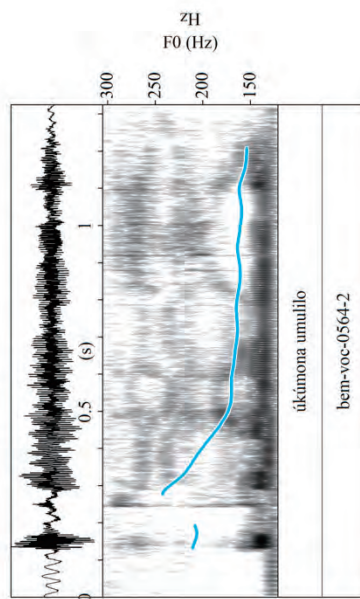
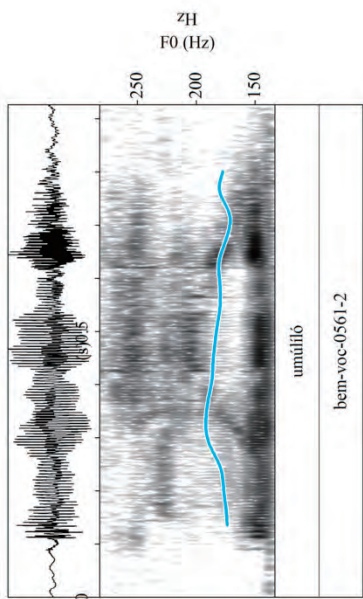
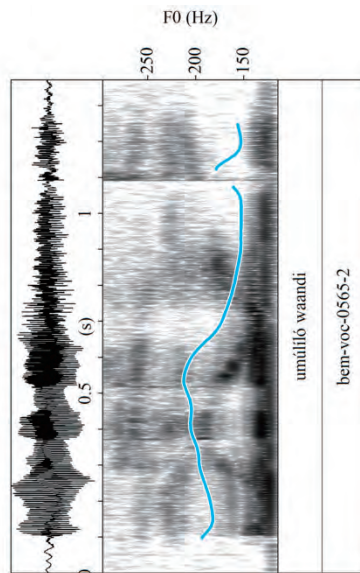
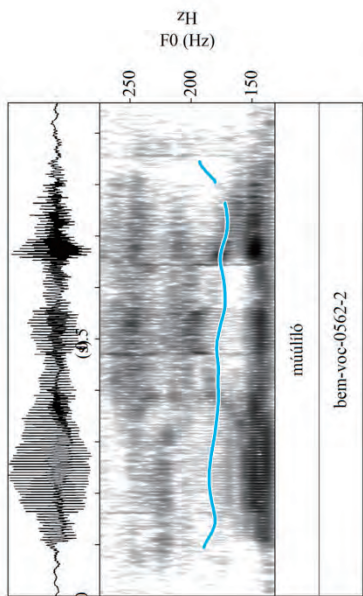
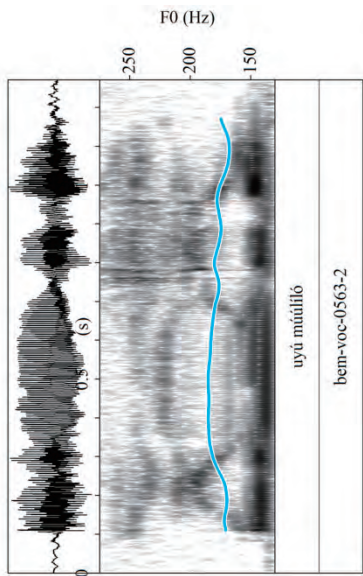
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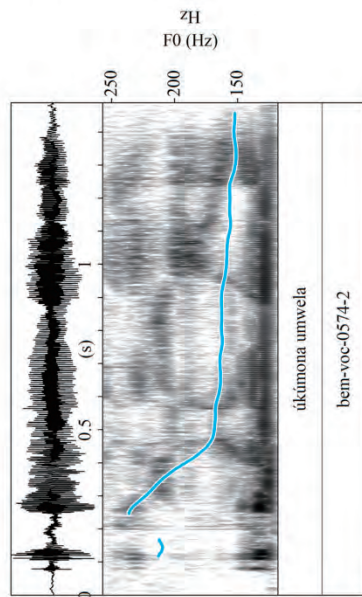
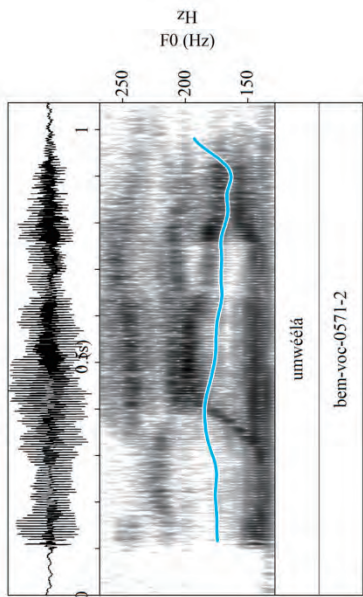
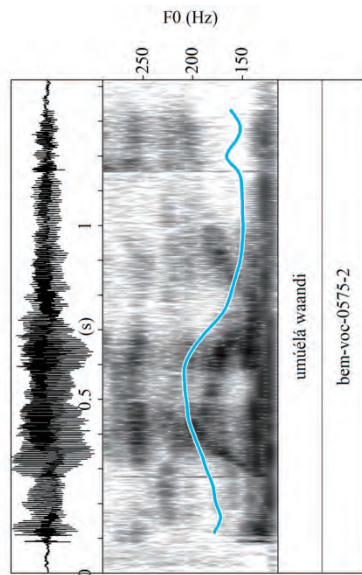
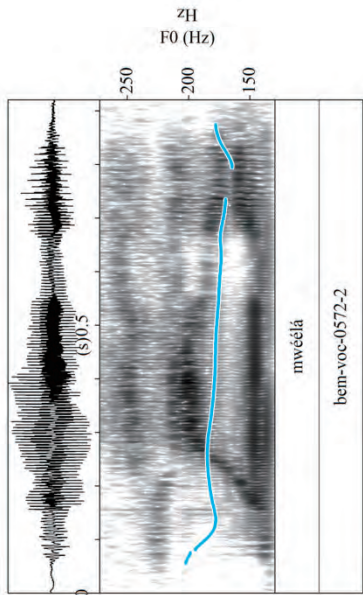
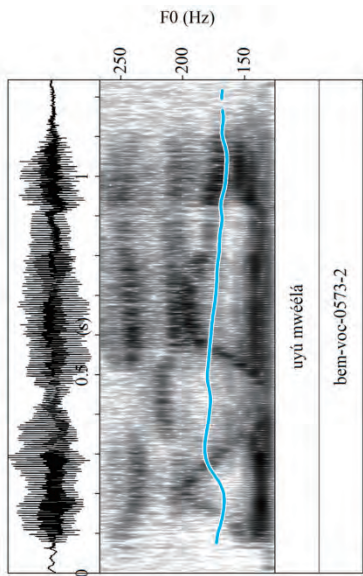
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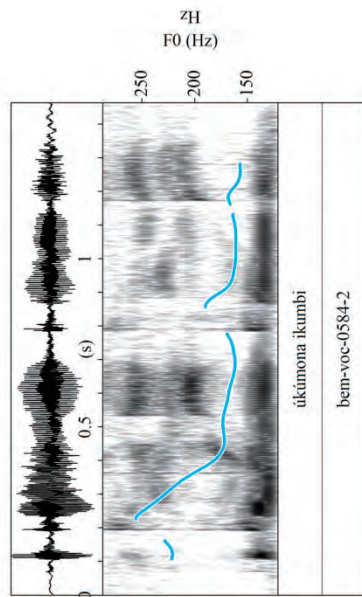
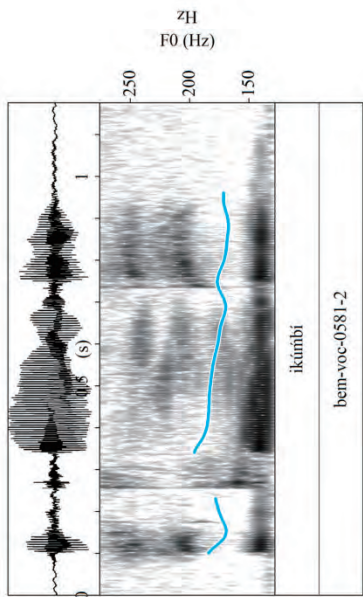
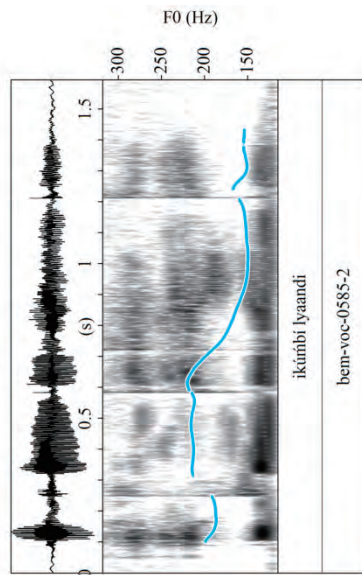
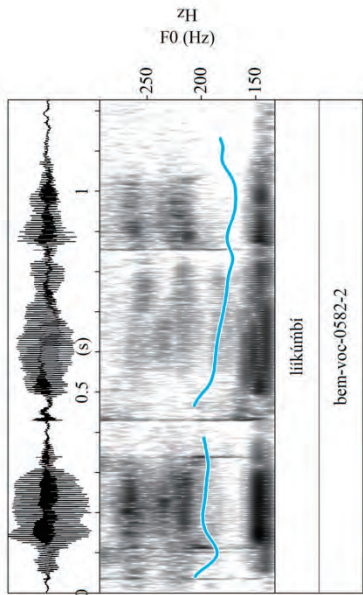
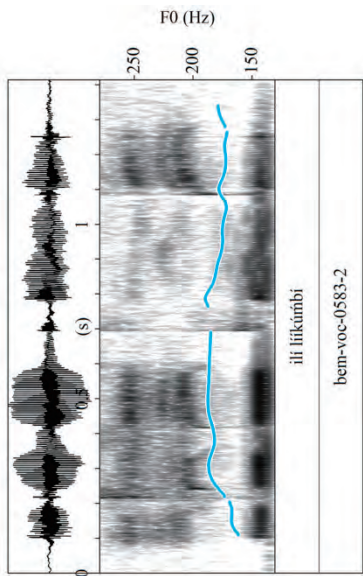
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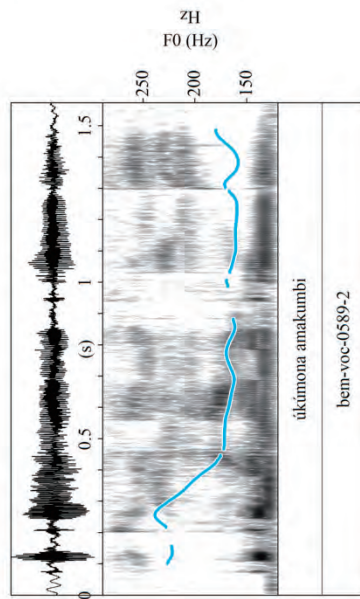
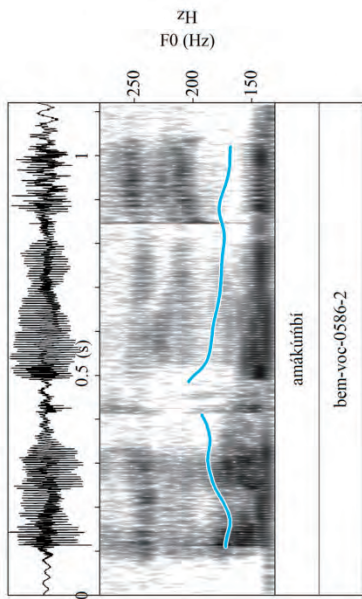
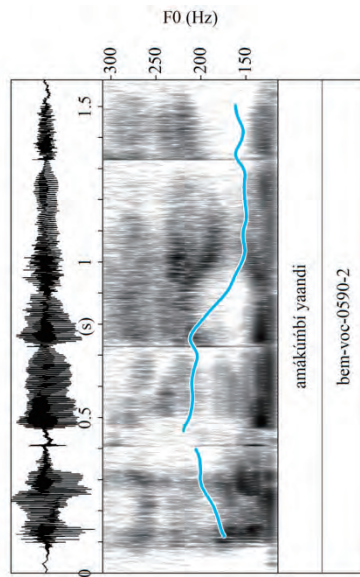
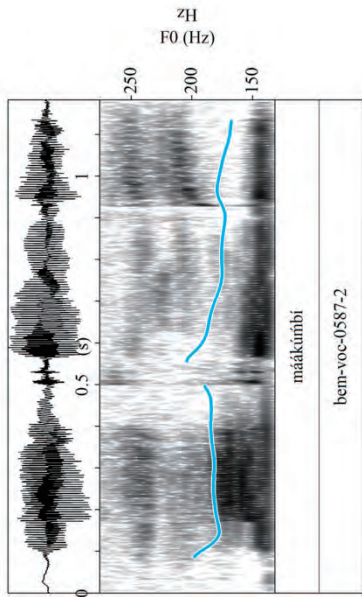
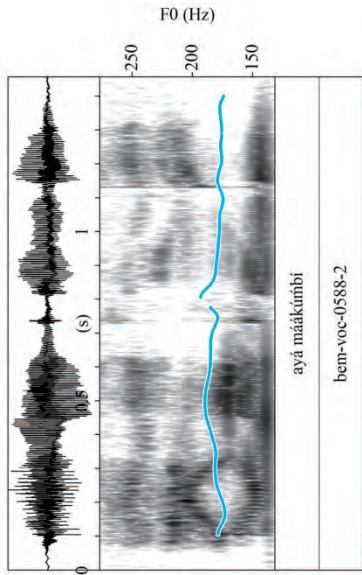
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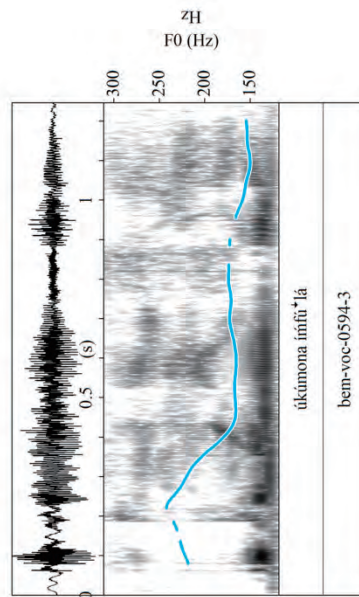
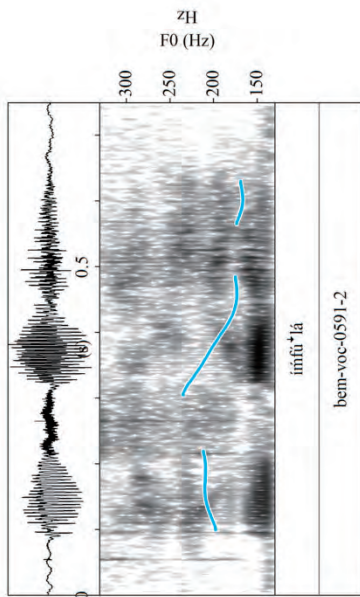
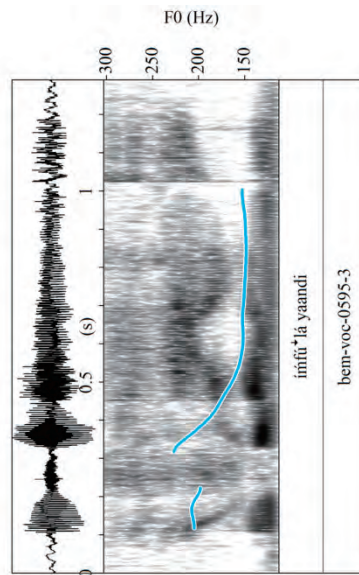
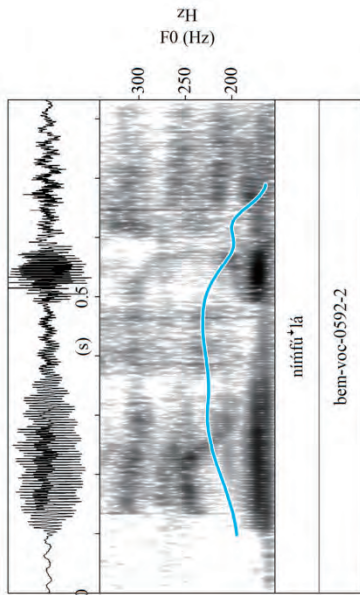
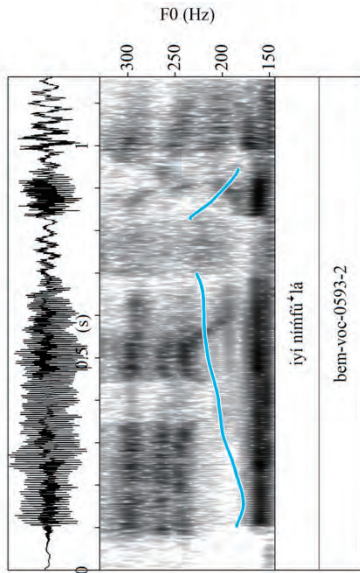
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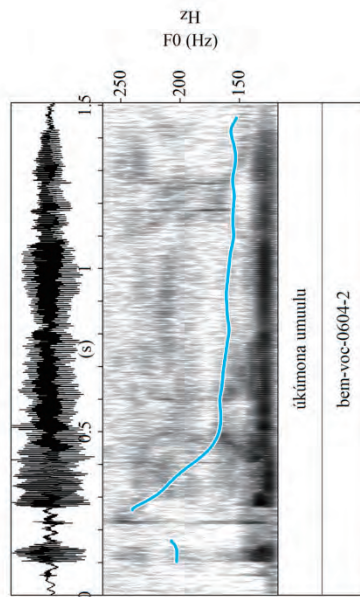
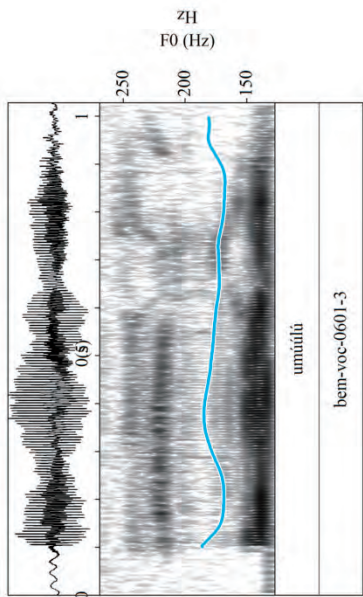
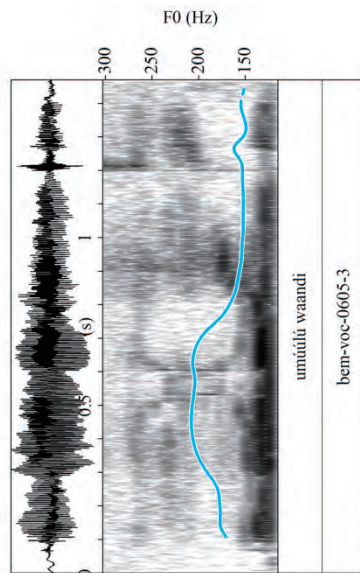
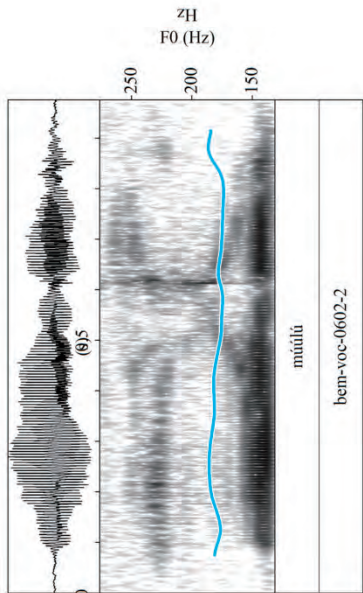
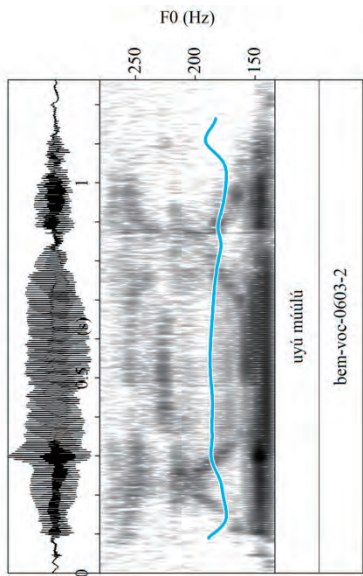
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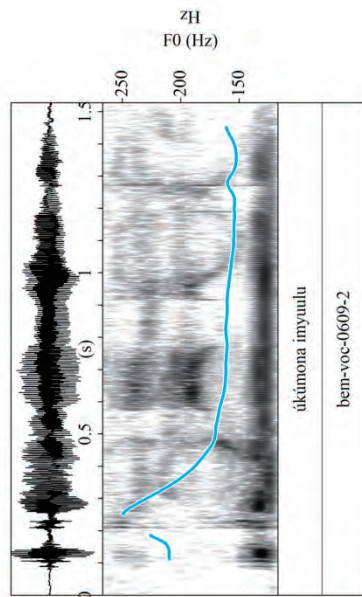
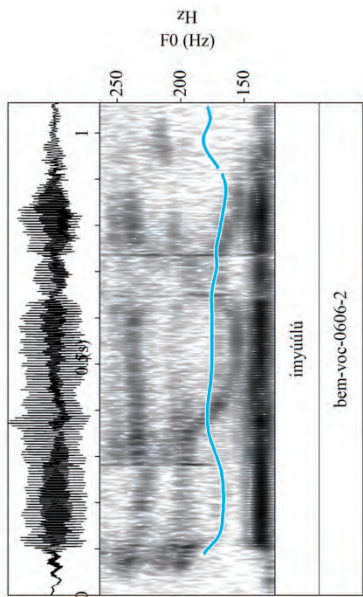
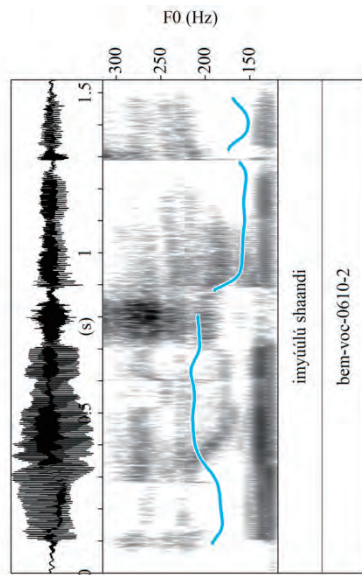
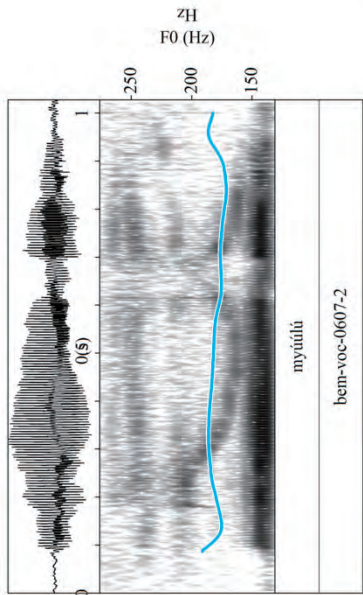
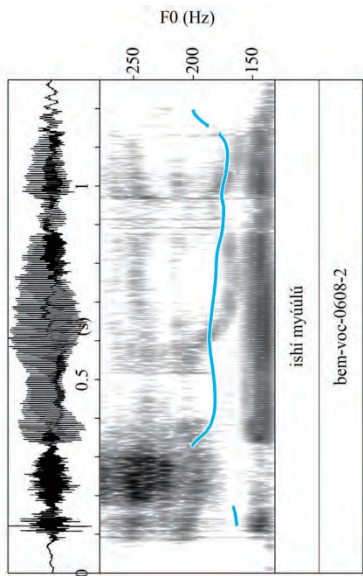
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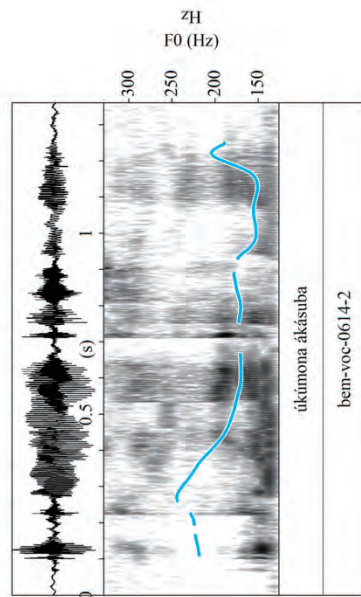
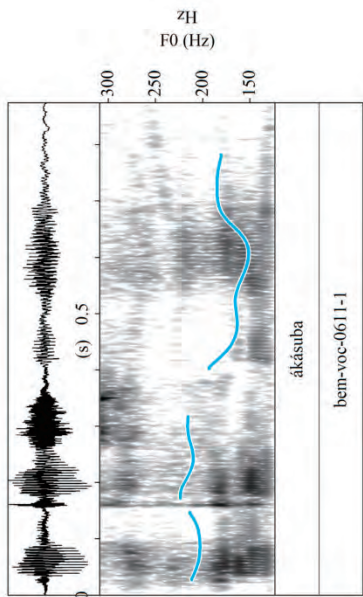
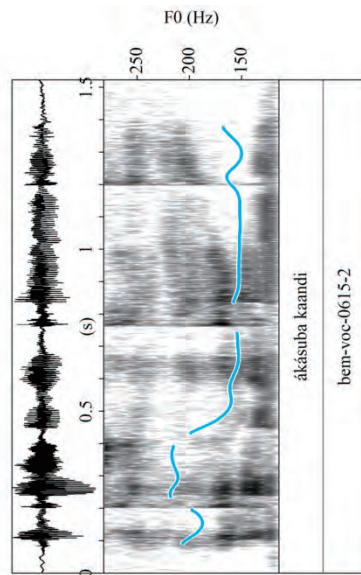
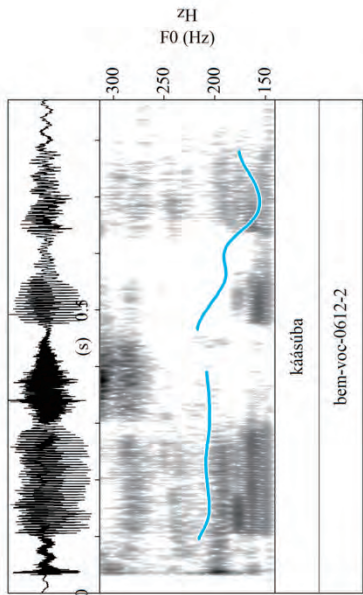
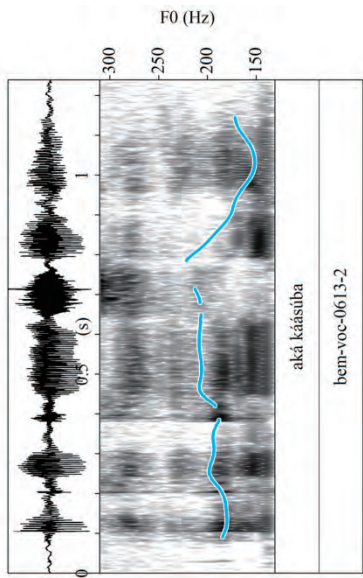
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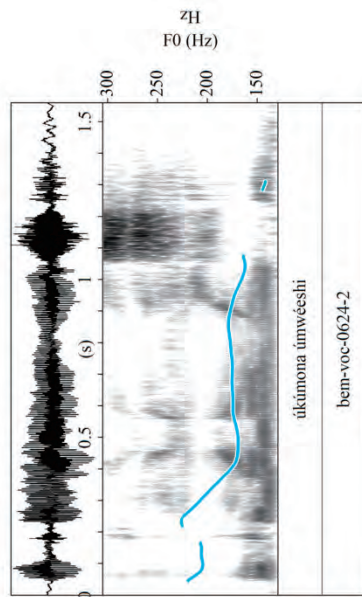
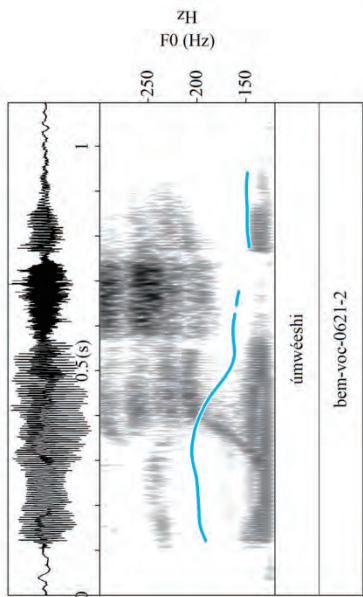
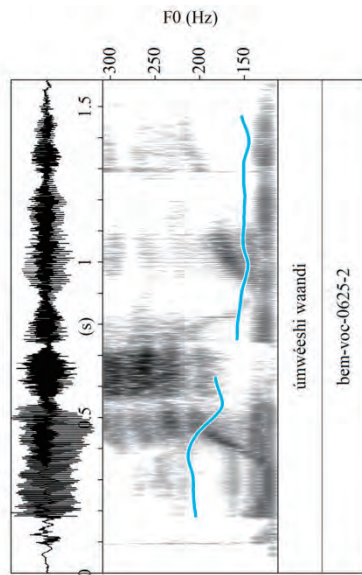
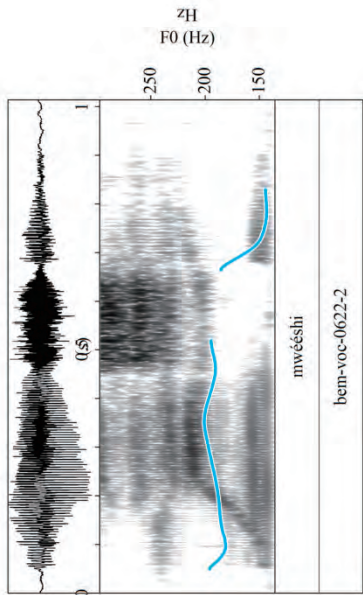
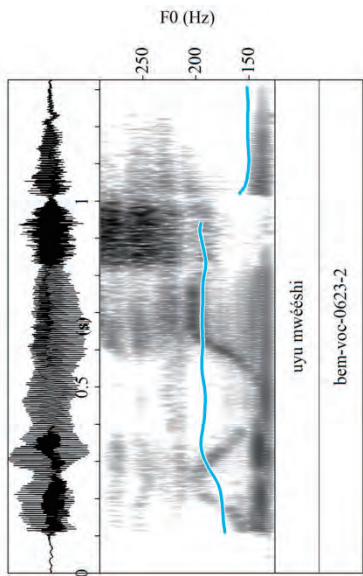
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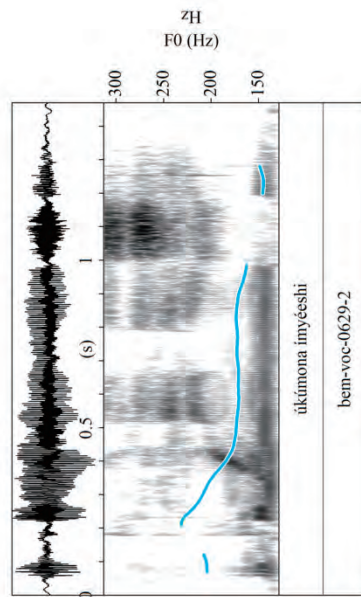
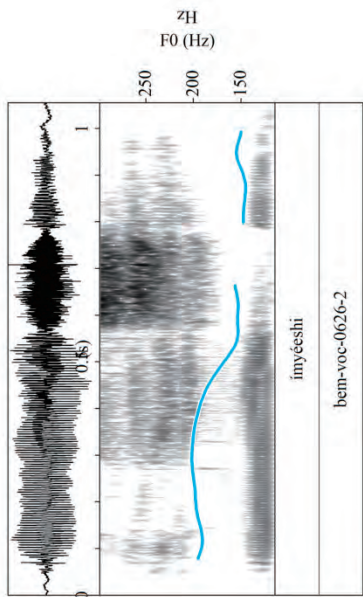
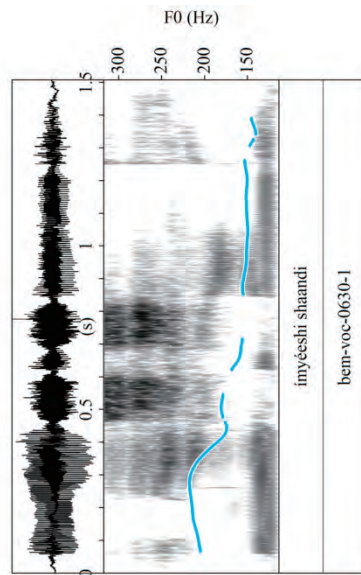
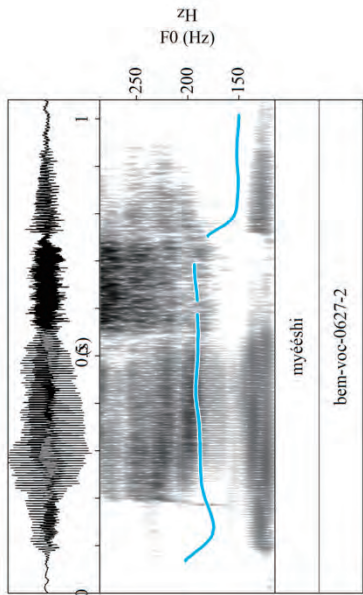
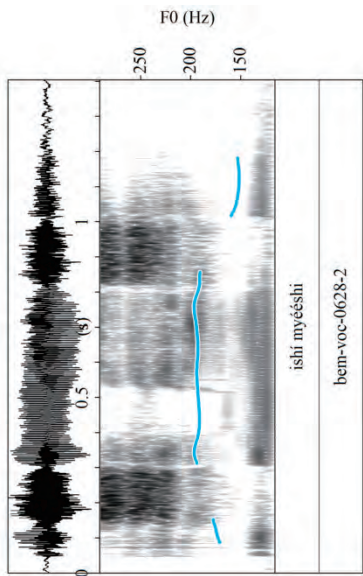
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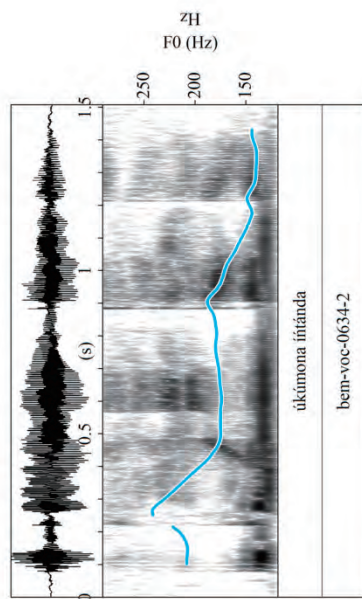
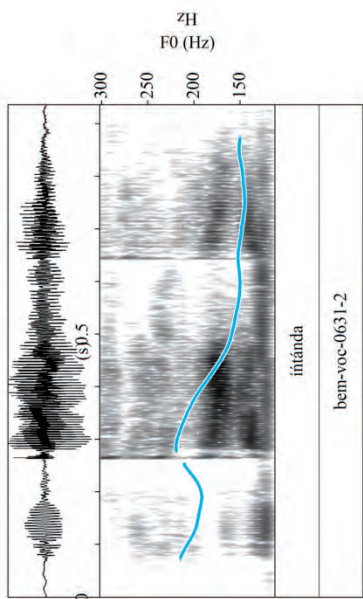
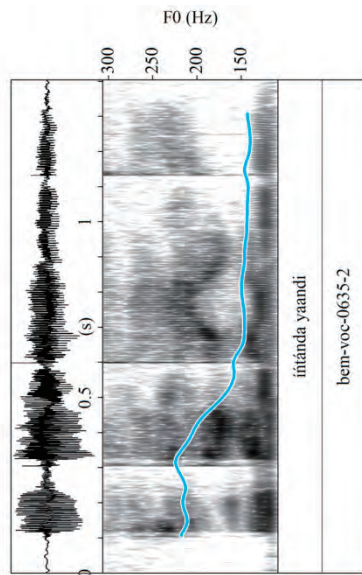
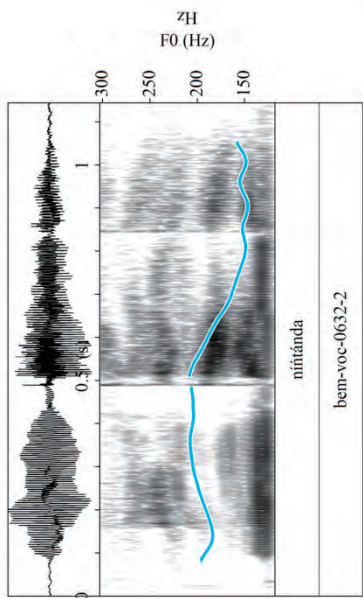
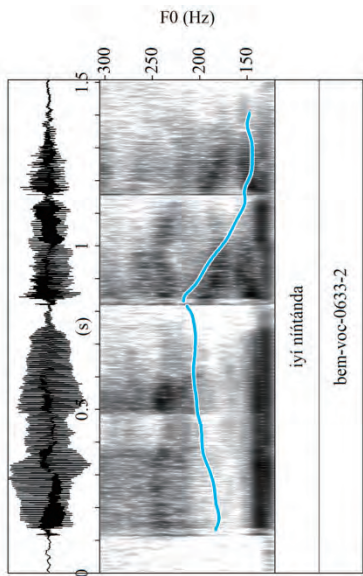
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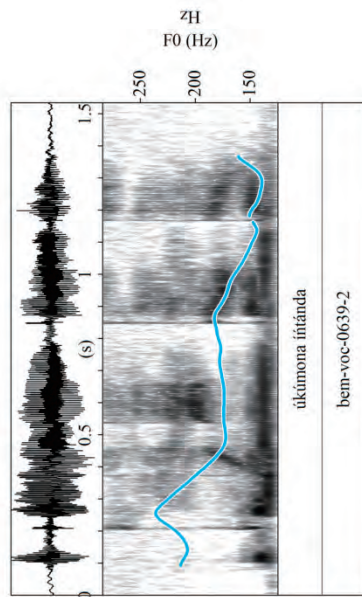
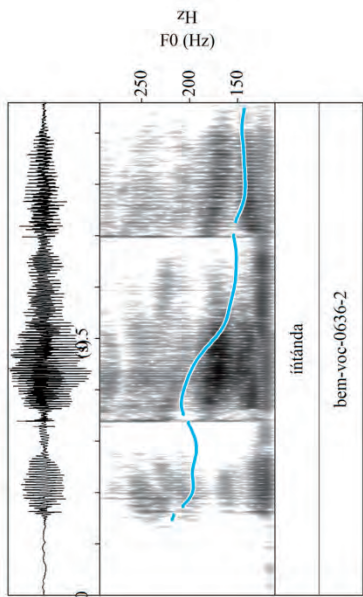
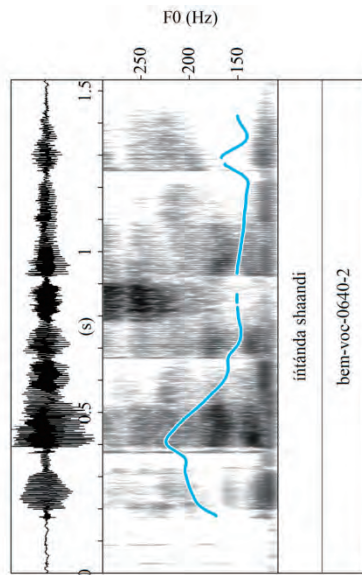
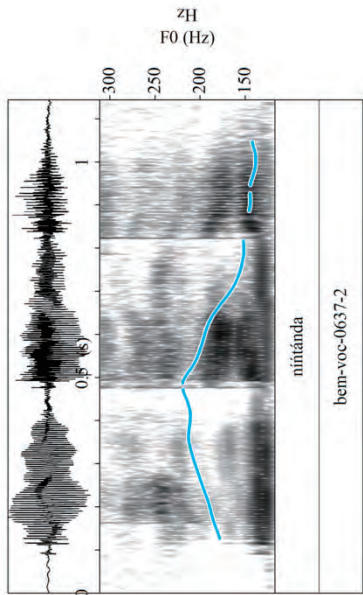
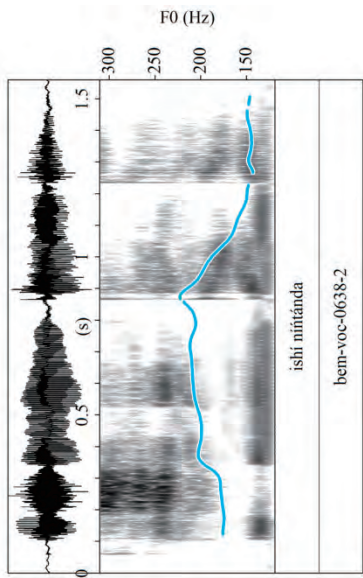
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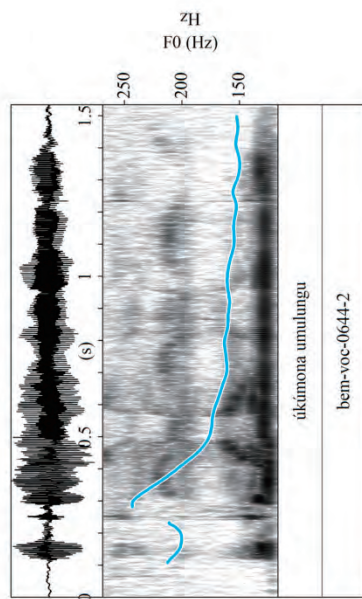
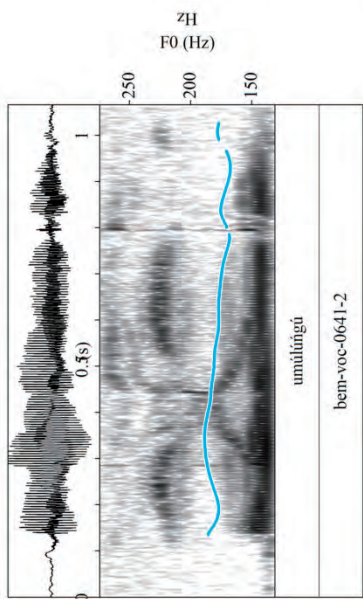
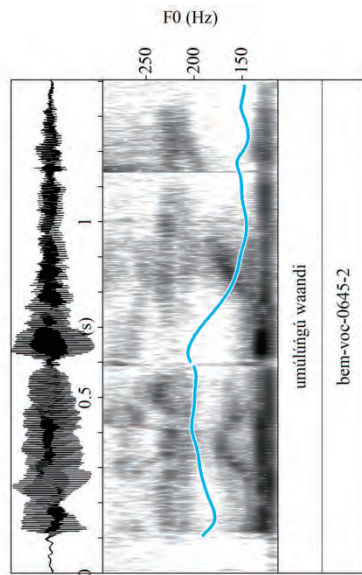
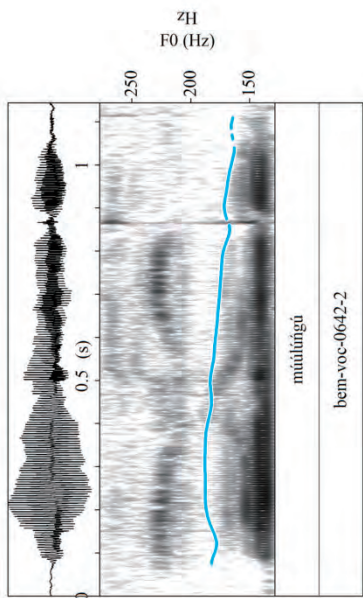
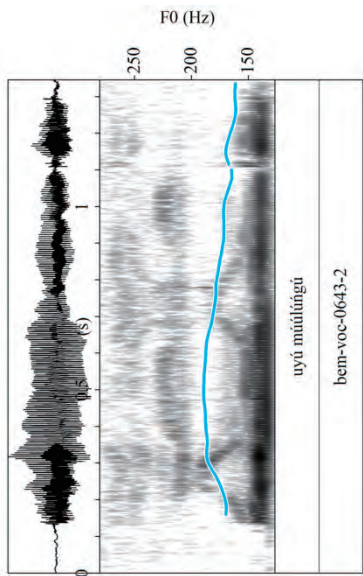
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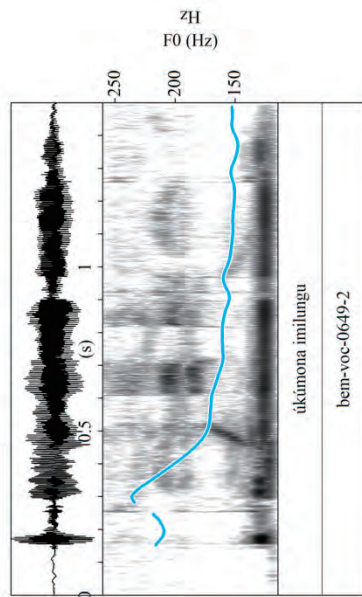
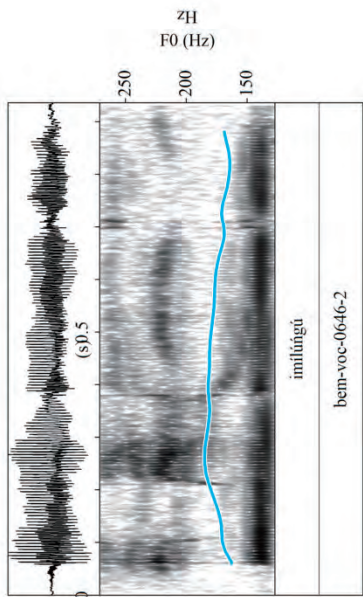
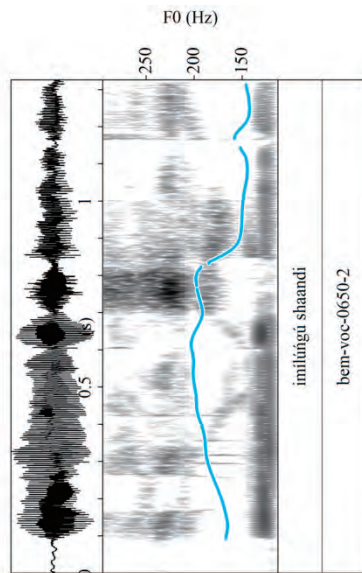
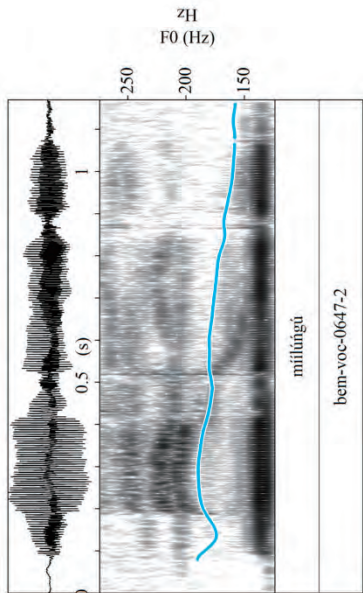
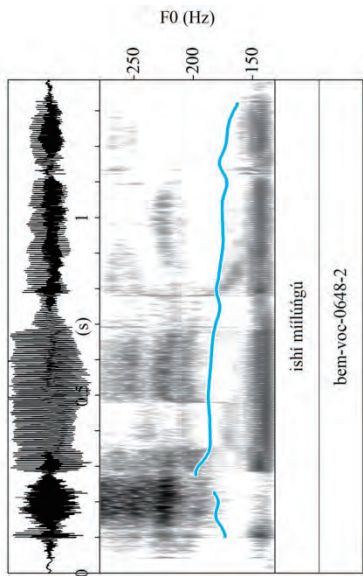
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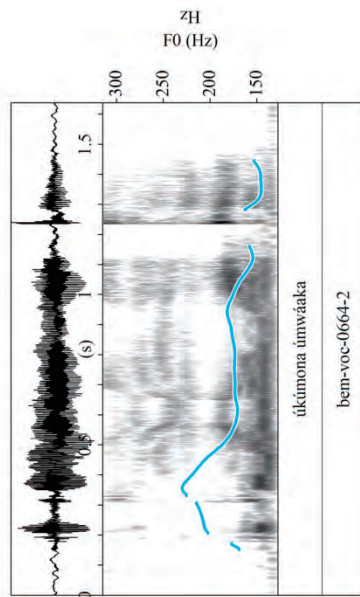
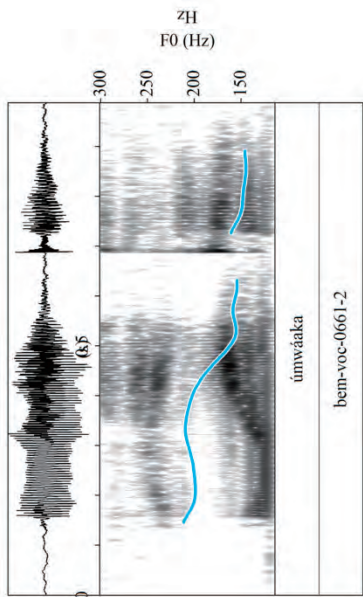
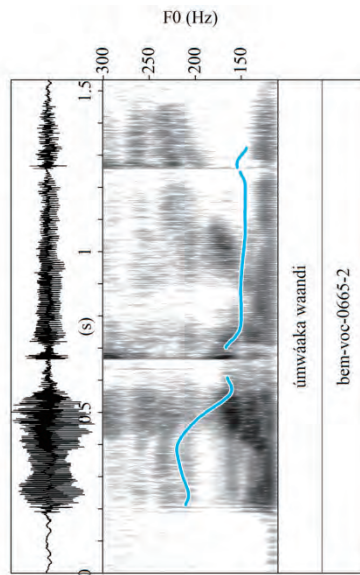
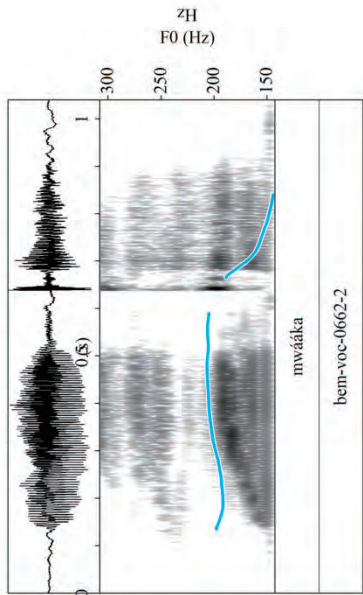
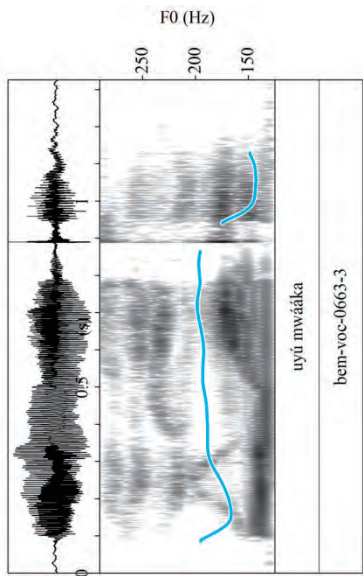
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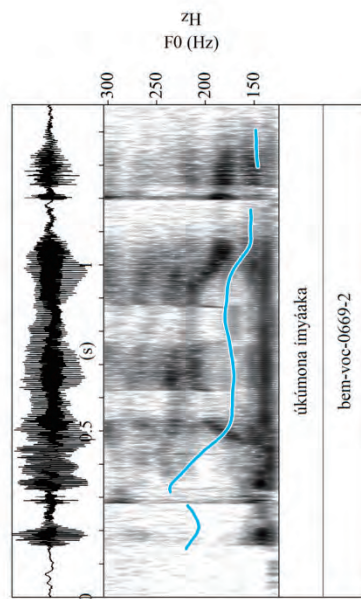
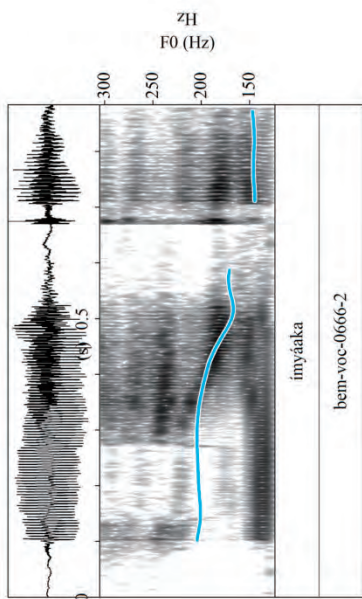
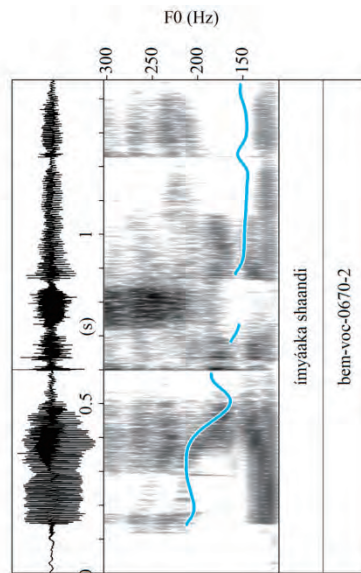
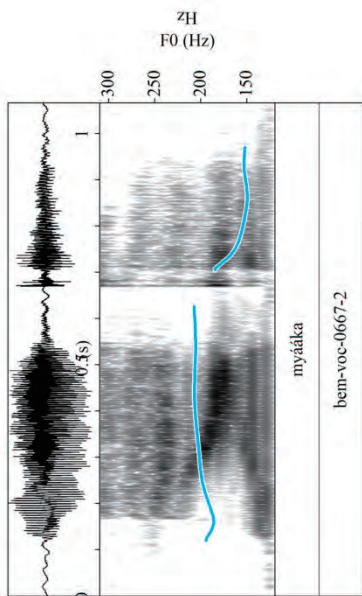
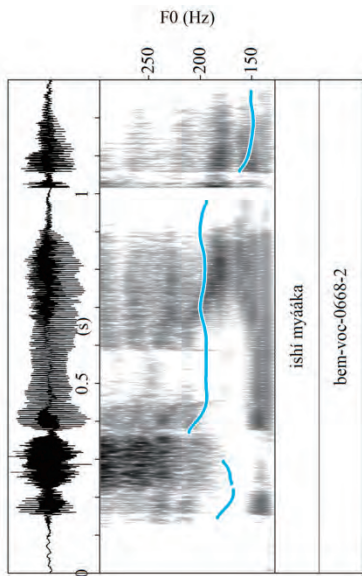
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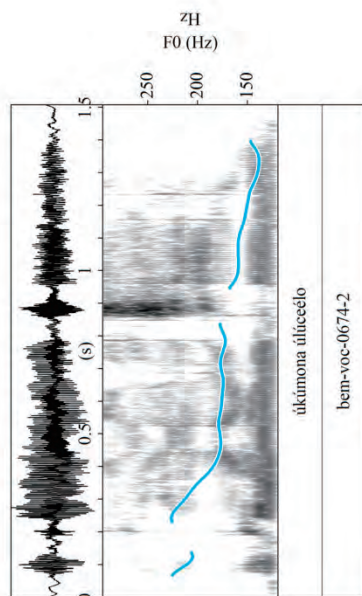
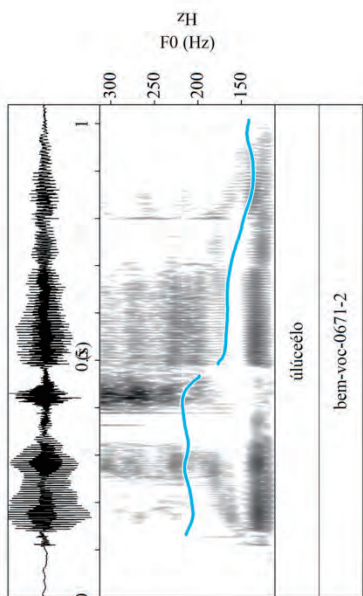
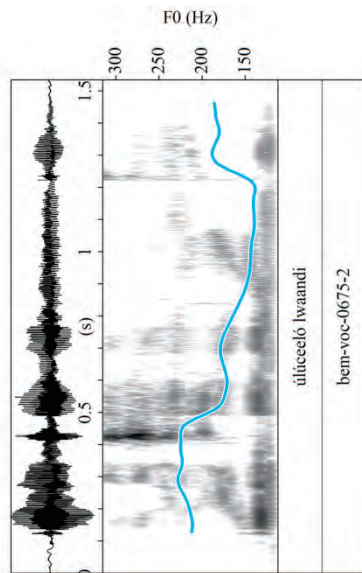
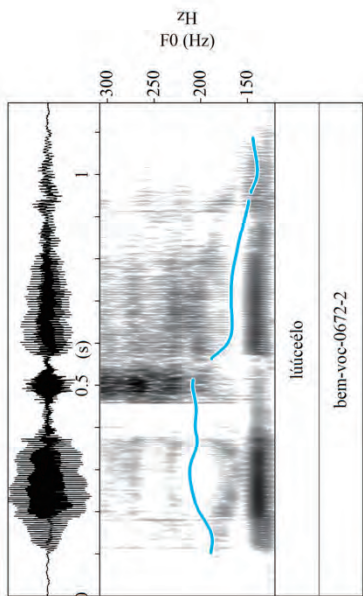
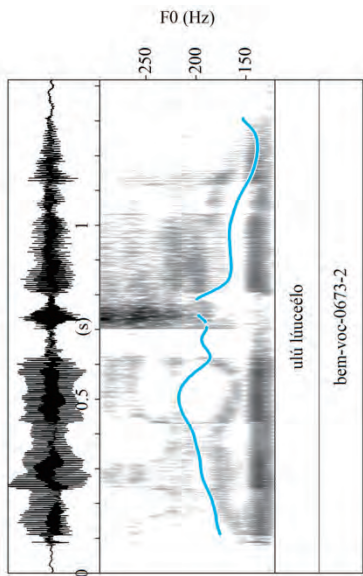
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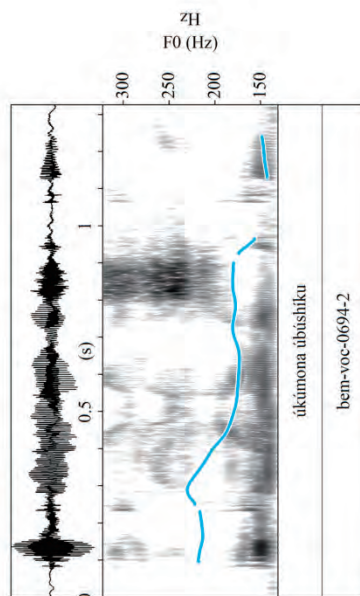
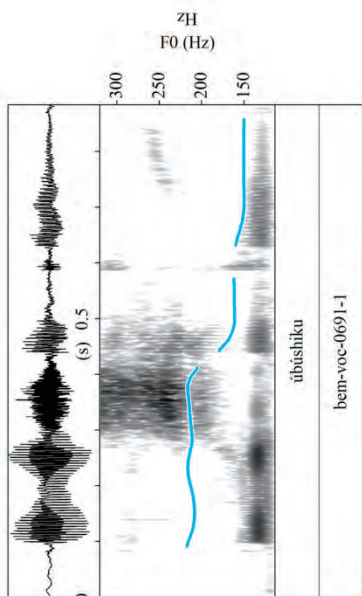
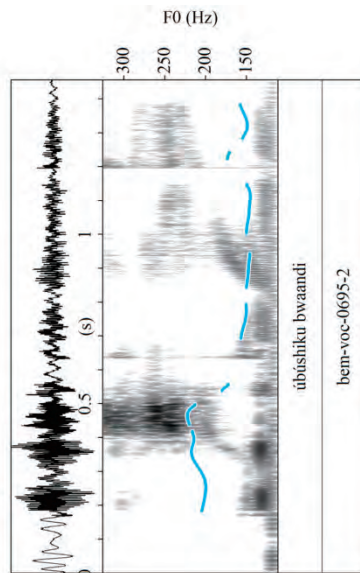
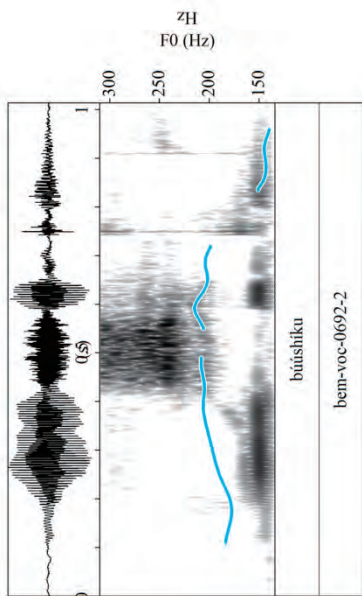
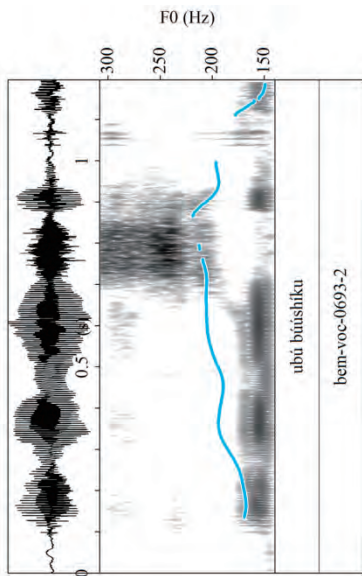


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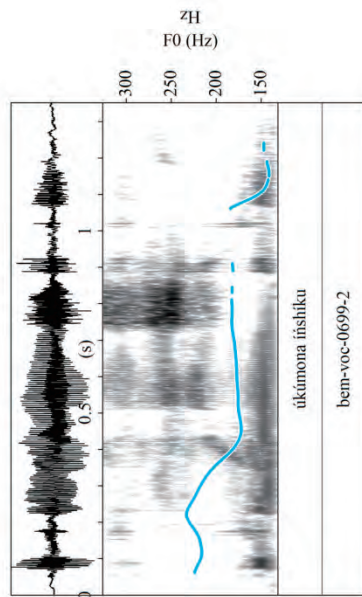
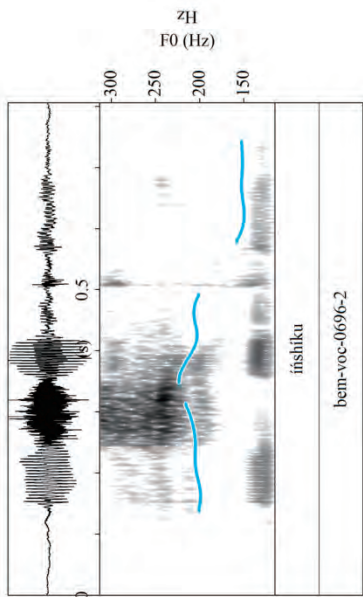
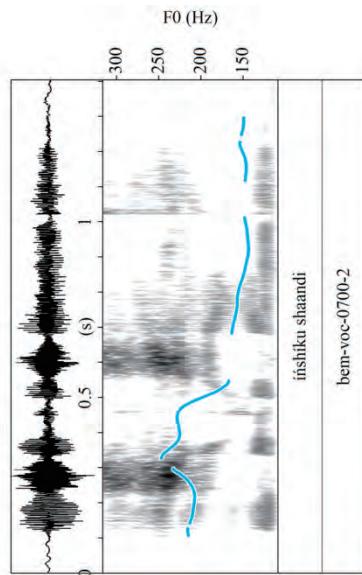
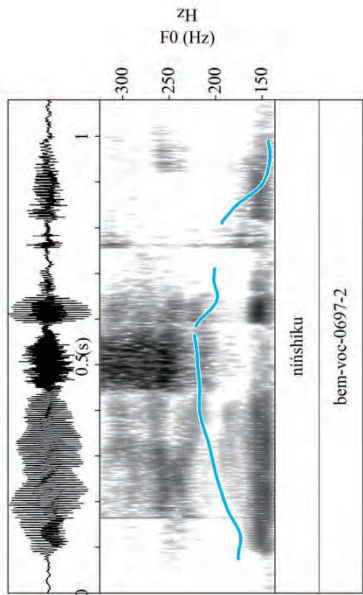
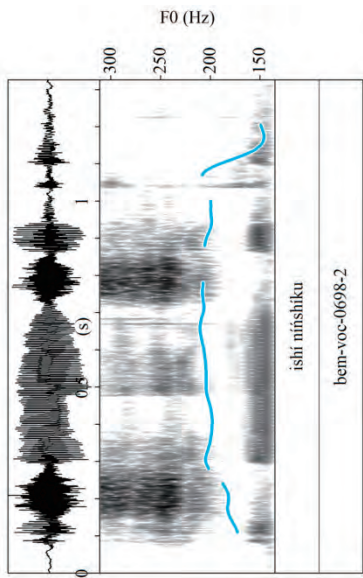






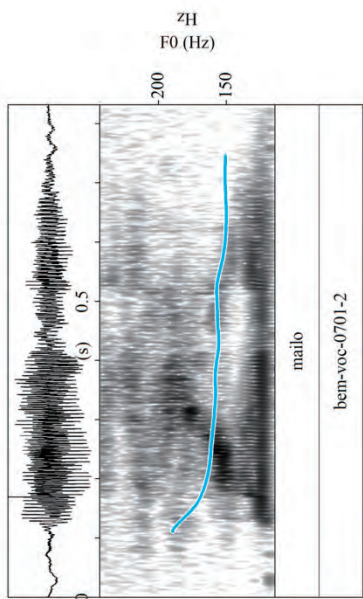
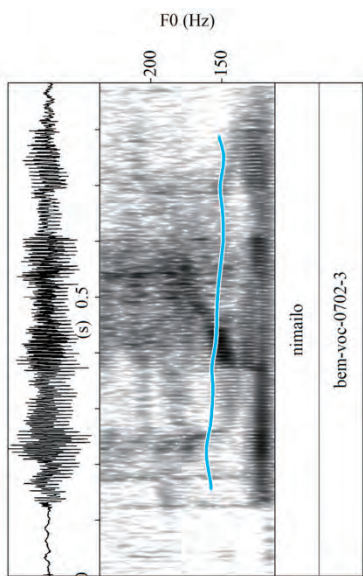
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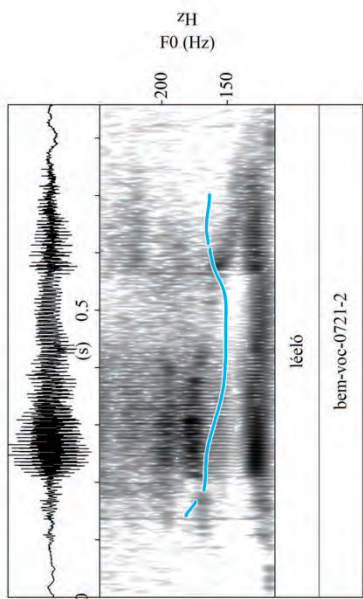
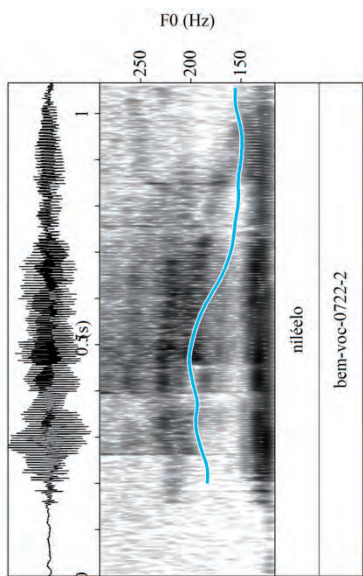


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