

# Diapix Documentation and Phonetic Information

Supplementary information to  
PDF and Photoshop files of DiapixGEtv picture materials  
– German version adapted to elicit tense vowels

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The Diapix task is an interactive and cooperative spot-the-differences task where two participants each have one version of a picture with 12 differences between the picture versions (Van Engen et al., 2010; Baker and Hazan, 2011). The goal is to identify as many differences as possible in a given time only by talking (and not showing the picture to the interlocutor). This task offers balanced speaker roles as well as a wide variety of utterance types (e.g. declaratives, questions, exclamations).

The following DiapixGerman picture sets are based on the DiapixUK by Baker and Hazan (2011)<sup>1</sup>.

For our purpose we only modified the written information when making adjustments to the original DiapixUK versions of the files. Our aim was to include as many tense vowels [i:, e:, a:, o:, u:] (according to German standard pronunciation, cf. Mangold and Dudenredaktion (Bibliographisches Institut), 2005) as possible while remaining subtle enough so as not to alert the participants to our research focus.

Table 1 gives an overview over the adapted text parts containing target vowels in stressed syllables including the target word with its target vowel and pronunciation as well as its meaning in English. Note that only those words containing target vowels are listed in table 1.

For our research purposes, modifying the text was the best means to ensure reliable production of target vowels as opposed to creating differences in other aspects of the pictures.

We kept the number of 12 differences per picture pair as well as their even distribution between the picture versions and the picture sections (3 differences per quadrant, cf. Baker and Hazan, 2011). We adapted the texts on signs, window displays, place

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<sup>1</sup><https://zenodo.org/record/3739053#.X9Ct7LMxkaE>

names, and speech bubbles. However, we did not make any changes to the size, colour, position, or number of other figures in the scenes. The German Diapix retained all original differences that were present in aspects other than the text.

Table 2 shows the number of target vowels per picture and pair as occurring in the textual parts of the pictures. It is important to note that these words contain target vowels when produced in the German standard variety. Note that words occurring in both versions of a picture pair and that are not linked to a difference are recorded in the nodiffAB section and are not counted again for the single versions A or B.

In order to facilitate further adaptation/modification each item in the PSD (Photoshop Document) files is in a separate layer .

Table 1: Text samples from the Diapix indicating each target word, target corner vowel, pronunciation, and the target word’s meaning in English.

	Target word	Target vowel	Pronunciation <sup>2</sup>	Meaning
Beach1_A	Café	[e:]	[ka.'fe:]	café
	Coco	[o:]	['ko:.ko:]	proper name
	Bude	[u:]	['bu:.də]	shack
	zu	[u:]	['tsu:]	to
	vermieten	[i:]	[fɛ.'mi:.tən]	rent
	hier	[i:]	['hi:rɐ]	here
	Federball	[e:]	['fɛ:.dɛ.bal]	badminton
	Tunier	[i:]	[tu.'ni:rɐ]	tournament
Badestrand	[a:]	['ba:.dɛ.'ʃtʁant]	bathing beach	
Beach1_B	Sarahs	[a:]	['za:ʁas]	proper name
	Café	[e:]	[ka.'fe:]	café
	Smoothies	[u:]	['smu:.ðis]	smoothies
	oben	[o:]	['ʔo:.bən]	above
	ziehen	[i:]	['tʃi:.ən]	pull
	Flut	[u:]	[flut]	flood
	Uhr	[u:]	['ʔurɐ]	o'clock
Beach2_A	Segelclub	[e:]	['zɛ:.gəl.klʊp]	sailing club
	Bar	[a:]	[ba:rɐ]	bar
	Rotwein	[o:]	['ʁo:t.vɛɪn]	red wine
	Merlot	[o:]	[mɛʁ.'lo:]	Merlot
	Syrah	[a:]	[zy.'ʁa:]	Syrah
	ziehen	[i]	['tʃi:.ən]	pull
	Susis	[u:]	['zu:.zis]	proper name
	Lokal	[a:]	[lo.'ka:l]	pub

<sup>2</sup>The pronunciation generally follows Mangold and Dudenredaktion (Bibliographisches Institut) (2005). However, where possible we favor vocalized realisations of /r/ leading to longer vowels preceding /r/.

	Thunfisch	[u:]	['tu:n.fiʃ]	tuna
	Aal	[a:]	['ʔa:l]	eel
	Seehecht	[e:]	['ze:.hɛçt]	hake
Beach2_B	Segelschule	[e:]	['ze:.gəl.ʃu:.lə]	sailing school
	Ruder	[u:]	['ʁu:.dɐ]	rowing
	Bar	[a:]	[bɑ:ɐ]	bar
	Riesling	[i:]	['ʁi:s.lɪŋ]	Riesling
	Merlot	[o:]	[mɛʁ.'lo:]	Merlot
	Silvaner	[a:]	[zɪl.'va:.nɐ]	Silvaner
	Hochwasser	[o:]	['ho:x.vasɐ]	high tide
	10	[e:]	[tʂɛ:n]	ten
	Uhr	[u:]	['ʔu:rɐ]	o'clock
	Lokal	[a:]	[lo.ka:l]	pub
	Hier	[i:]	[hi:rɐ]	here
	Seefisch	[e:]	['ze:.fiʃ]	sea fish
Beach3_A	Smoothies	[u:]	['smu:.ðis]	smoothies
	Nur	[u:]	[nʉ:ɐ]	only
	Abend	[a:]	['ʔa:.bɛnt]	evening
	Meer	[e:]	[mɛ:rɐ]	sea
	Musik	[i:]	[mu:.'zi:k]	music
	Los!	[o:]	[lo:s]	go!
	Hier	[i:]	[hi:rɐ]	here
	Badestrand	[a:]	['ba:.dɛ.'ftʁant]	bathing beach
Beach3_B	Smoothies	[u:]	['smu:.ðis]	smoothies
	Jeden	[e:]	['je:.dɛn]	every
	Abend	[a:]	['ʔa:.bɛnt]	evening
	Fliegen	[i:]	['fliɛ:.gɛn]	fly
	Kurtaxi	[u:]	['ku:rɛ.taksi]	tourist taxi
	Los!	[o:]	[lo:s]	go!
	Alex	[a:]	['ʔa:.lɛks]	proper name
	Schieb!	[i:]	[ʃi:p]	push!
	Boote	[o:]	['bo:.tɔ]	boats
	mieten	[i:]	['mi:.tɛn]	rent
Beach4_A	nur	[u:]	[nʉ:ɐ]	only
	Genehmigung	[e:]	[gɛ.'ne:.mi.gʊŋ]	authorisation
	Meerblick	[e:]	['mɛ:rɛ.blɪk]	sea view
	Bikini	[i:]	[bi.'ki:.ni]	bikini
	Obst	[o:]	['ʔo:pst]	fruit
	Oper	[o:]	['ʔo:.pɐ]	opera
	Traviata	[a:]	[tʁa.vi.'a:.ta]	proper name
	nur	[u:]	[nʉ:ɐ]	only
Beach4_B	Obst	[o:]	['ʔo:pst]	fruit
	Oper	[o:]	['ʔo:.pɐ]	opera
	reduziert	[i:]	[ʁɛ.du.'tʂi:rɛt]	reduced

	Musik	[i:]	[mu.'zi:k]	music
	Oper	[o:]	['ʔo:.pə]	opera
	Biomüll	[i:]	['bi:ɔ.mʏl]	organic waste
Farm1_A	Laden	[a:]	['la:.dən]	shop
	Blumen	[u:]	['blu:.mən]	flower
	Bienen	[i:]	['bi:.nən]	bees
	Großes	[o:]	['gʁo:.səs]	great
	Hoffest	[o:]	['ho:.fɛst]	farm party
	Dienstag	[i:]	['di:ns.tak]	Tuesday
	Spaßtag	[a:]	['ʃpa:s.tak]	fun day
	Los!	[o:]	[lo:s]	go!
	sehe	[e:]	['ze:.ə]	see
	Lena	[e:]	['le:.na]	proper name
	Fine	[i:]	['fi:.nə]	proper name
	Wo	[o:]	[vo:]	where
	Natur	[u:]	[na.'tu:rə]	nature
	Lehr	[e:]	[le:rə]	teaching
	Pfad	[a:]	[pfa:t]	trail
Farm1_B	Laden	[a:]	['la:.dən]	shop
	Hier	[i:]	[hi:rə]	here
	Blumen	[u:]	['blu:.mən]	flower
	Petunien	[u:]	[pə.'tu:.niən]	petunias
	Geranien	[a:]	[gə.'ʁa:.niən]	geraniums
	Spaßtag	[a:]	['ʃpa:s.tak]	fun day
	Los!	[o:]	[lo:s]	go!
	Lena	[e:]	['le:.na]	proper name
	Fine	[i:]	['fi:.nə]	proper name
	Wo	[o:]	[vo:]	where
	Natur	[u:]	[na.'tu:rə]	nature
	Lehr	[e:]	[le:rə]	teaching
	Pfad	[a:]	[pfa:t]	trail
Farm2_A	Los!	[o:]	[lo:s]	go!
	Hofladen	[o:]	['ho:f.la:.dən]	farm shop
	Schaf	[a:]	[ʃa:f]	sheep
	modisch	[o:]	['mo:.dɪʃ]	fashionable
	Farben	[a:]	['fa:.bən] <sup>3</sup>	colours
	Obst	[o:]	['ʔo:pst]	fruit
	zu	[u:]	[tsu:]	for
	Zwiebeln	[i:]	['tsvi:.bəl̩n]	onions
Farm2_B	Hofladen	[o:]	['ho:f.la:dən]	farm shop
	Obst	[o:]	['ʔo:pst]	fruit
	Ziegen	[i:]	['tsi:.gən]	goats

<sup>3</sup>While Mangold and Dudenredaktion (Bibliographisches Institut) (2005) suggests /fa:.bən/, /r/ tends to be vocalised – resulting in a long /a:/.

	Schaf	[a:]	[ʃa:f]	sheep
	Lulu	[u:]	[ˈlu:lu] or [lu.ˈlu:]	proper name
	Obst	[o:]	[ˈʔo:pst]	fruit
	zu	[u:]	[tsu:]	for
	Zwiebeln	[i:]	[ˈtsvi:.bəl̩n]	onions
	Kohl	[o:]	[ko:l]	cabbage
Farm3_A	Adam	[a:]	[ˈʔa:.dam]	proper name
	Susi	[u:]	[ˈzu:zi]	proper name
	Laden	[a:]	[ˈla:.dən]	shop
	Honig	[o:]	[ˈho:.nɪç]	honey
	Mode	[o:]	[ˈmo:.də]	fashion
	Mehr	[e:]	[me:rə]	more
	Dienstag	[i:]	[ˈdi:ns.tak]	Tuesday
	10	[e:]	[tse:n]	10
	Uhr	[u:]	[ˈʔu:rə]	o'clock
	Montag	[o:]	[ˈmo:n.tak]	Monday
	Ruhetag	[u:]	[ˈʁu:.ə.tak]	day off
	schieße	[i:]	[ˈʃi:.sə]	shoot
Farm3_B	Adam	[a:]	[ˈʔa:.dam]	proper name
	Luca	[u:]	[ˈlu:.ka]	proper name
	Laden	[a:]	[ˈla:.dən]	shop
	Honig	[o:]	[ˈho:.nɪç]	honey
	Lisas	[i:]	[ˈli:.zas]	proper name
	Mode	[o:]	[ˈmo:.də]	fashion
	Paradies	[i:]	[pa.ʁa.ˈdi:s]	paradise
	Modisch	[o:]	[ˈmo:.dɪʃ]	fashionable
	Schuhe	[u:]	[ˈʃu:.ə]	shoes
	nur	[u:]	[nu:rə]	only
	diese	[i:]	[ˈdi:.zə]	this
	Stehen	[e:]	[ˈʃte:.ən]	stand still!
	schieße	[i:]	[ˈʃi:.sə]	shoot
Farm4_A	Obstwiese	[o:]	[ˈʔo:pst]	fruit
	Zwiebeln	[i:]	[ˈtsvi:.bəl̩n]	onions
	Kohl	[o:]	[ko:l]	cabbage
	Schieß	[i:]	[ʃi:s]	shoot!
	Spielstand	[i:]	[ˈʃpi:l.ftant]	score
	Luca	[u:]	[ˈlu:.ka]	proper name
	Resi	[e:]	[ˈʁe:.si]	proper name
Farm4_B	Obstwiese	[o:]	[ˈʔo:pst]	fruit
	Zwiebeln	[i:]	[ˈtsvi:.bəl̩n]	onions
	Kohl	[o:]	[ko:l]	cabbage
	Spielstand	[i:]	[ˈʃpi:l.ftant]	score
	Suis	[u:]	[ˈzu:zi]	proper name
	Alex	[a:]	[ˈʔa:.lɛks]	proper name

	10	[e:]	[tsem]	10
	Spiele	[i:]	[ˈʃpi:lə]	games
Street1_A	Spielzeug	[i:]	[ˈʃpi:l.tsoɪk]	toys
	Apotheke	[e:]	[ʔa.po.ˈte:kə]	pharmacy
	Nur	[u:]	[nʊɐ]	only
	hier	[i:]	[hiɐ]	here
	Rosenöl	[o:]	[ˈʁo:.zən.ø]	rose oil
	Aloe	[o:]	[ˈʔa.lo:.e]	aloe
	vera	[e:]	[ˈve:.ɐa]	vera
	Gel	[e:]	[ge:l]	gel
	gute	[u:]	[ˈgu:.tə]	good
	Karten	[a:]	[ˈka:.tən]	cards
	spielen	[i:]	[ˈʃpi:lən]	play
	Poker	[o:]	[ˈpo:.kə]	poker
	Pharo	[a:]	[ˈfa:.ʁo]	pharo
	Flohmarkt	[o:]	[ˈflo:.ma:kt]	flea market
	Jeden	[e:]	[ˈje:.dən]	every
	10	[e:]	[tsem]	10
	Uhr	[u:]	[ʔʊɐ]	o'clock
	Kuchen	[u:]	[ˈku:.çən]	cake
	Peter	[e:]	[ˈpe:.tə]	proper name
	Tier	[i:]	[tiɐ]	animal
	Zahnarzt	[a:]	[ˈtsa:n.atst]	dentist
Street1_B	Spielzeug	[i:]	[ˈʃpi:l.tsoɪk]	toys
	Apotheke	[e:]	[ʔa.po.ˈte:kə]	pharmacy
	Aloe	[a:]	[ˈʔa.lo:.e]	aloe
	vera	[e:]	[ˈve:.ɐa]	vera
	Zahncreme	[a:]	[ˈtsa:n.kʁe:m]	tooth paste
	Casino	[i:]	[ka.ˈzi:.no]	casino
	Hier	[i:]	[hiɐ]	here
	spielen	[i:]	[ˈʃpi:lən]	play
	Boule	[u:]	[bu:l]	boules
	Poker	[o:]	[ˈpo:.kə]	poker
	Flohmarkt	[o:]	[ˈflo:.ma:kt]	flea market
	Jeden	[e:]	[ˈje:.dən]	every
	10	[e:]	[tsem]	10
	Uhr	[u:]	[ʔʊɐ]	o'clock
	Themen	[e:]	[ˈte:.mən]	topic
	Casino	[i:]	[ka.ˈzi:.no]	casino
	Kuba	[u:]	[ˈku:.ba]	Cuba
	Kuchen	[u:]	[ˈku:.çən]	cake
	Tiere	[i:]	[ˈti:.ɐə]	animals
	Art	[a:]	[ʔart]	kind
Stree2_A	Hier	[i:]	[hiɐ]	here

	Fuß	[u:]	[fu:s]	foot
	Apotheke	[e:]	[ʔa.po.'te:.kə]	pharmacy
	Nasen	[a:]	[na:.zən]	nose
	Rezeptur	[u:]	[ʁə.tʃɛp.'tʉrə]	recipe
	Linas	[i:]	[li:.nas]	proper name
	Sparen	[a:]	[ʃpa:.ʁən]	saving
	lohnt	[o:]	[lo:nt]	being worthwhile
	Sprachschule	[a:]	[ʃpʁa:x.ʃu:.lə]	language school
	Schwedisch	[e:]	[ʃve:.dɪʃ]	Swedish
	Griechisch	[i:]	[gʁi:.çɪʃ]	Greek
	Lulu	[u:]	[lu:.lu:] or [lu:.lu:]	proper name
Street2_B	Fuß	[u:]	[fu:s]	foot
	Apotheke	[e:]	[ʔa.po.'te:.kə]	pharmacy
	Gute	[u:]	[gu:.tə]	good
	Vitamin	[i:]	[vi.ta.'mi:n]	vitamin
	C	[e:]	[tʃe:]	C
	Sparbuch	[a:]	[ʃpa:.bu:x]	bankbook
	4	[i:]	[fi:rə]	4
	Nur	[u:]	[nu:rə]	only
	wir	[i:]	[vi:rə]	we
	beraten	[a:]	[bə.'ʁa:.tən]	advise
	Sie	[i:]	[zi:]	you
	gut	[u:]	[gʉt]	well
	Sprachschule	[a:]	[ʃpʁa:x.ʃu:.lə]	language school
	Japanisch	[a:]	[ja.'pa:.nɪʃ]	Japanese
	Griechisch	[i:]	[gʁi:.çɪʃ]	Greek
Street3_A	Apotheke	[e:]	[ʔa.po.'te:.kə]	pharmacy
	Vitamin	[i:]	[vi.ta.'mi:n]	vitamin
	A	[a:]	[ʔa:]	A
	Zahncreme	[a:]	[tʃa:n.kʁe:m]	tooth paste
	Pasteten	[e:]	[pas.'te:.tən]	pies
	Maras	[a:]	[ma:.ʁas]	proper name
	Spielwaren	[i:]	[ʃpi:l.va:.ʁən]	toys
	Musiknoten	[i:]	[mu.'zi:k.no:.tən]	music notes
	Klavier	[i:]	[kla.'vi:rə]	piano
	Ukulele	[e:]	[ʔu.ku.'le:lə]	ukulele
	mehr	[e:]	[me:rə]	more
	Große	[o:]	[gʁo:.se]	great
	Oper	[o:]	[ʔo:.pɛ]	opera
	Wagner	[a:]	[va:g.nɛ]	proper name
	nachher	[a:]	[na:x.he:rə]	later
	Lina	[i:]	[li:.na]	proper name
	Fotografie	[i:]	[fo.to.gʁa.'fi:]	photography
	Museum	[e:]	[mu.'ze:.ʉm]	museum

	Schule	[u:]	['ʃu:lə]	school
Street3_B	Apotheke	[e:]	['ʔa.po.'te:kə]	pharmacy
	Haar	[a:]	[ha:rə]	hair
	Cremes	[e:]	['kʁe:ms]	creams
	super	[u:]	['zu:pə]	super
	Volumen	[u:]	[vo.'lu:mən]	volume
	Pasteten	[e:]	[pas.'te:tən]	pies
	Spielwaren	[i:]	['ʃpi:l.va:r.ʁən]	toys
	Musiknoten	[i:]	[mu.'zi:k.no:tən]	music notes
	Oper	[o:]	['ʔo:pə]	opera
	Beethoven	[e:]	['be:t.ho.fən]	proper name
	Guten	[u:]	['gu:tən]	good
	Tag	[a:]	[ta:k]	day
	Lina	[i:]	['li:nə]	proper name
	Fotografie	[i:]	[fo.to.gʁa.'fi:]	photography
	Museum	[e:]	[mu.'ze:ʊm]	museum
	Wiese	[i:]	['vi:zə]	meadow
Street4_A	Casino	[i:]	[ka.'zi:no]	casino
	Vegas	[e:]	['ve:gas]	Vegas
	Blumen	[u:]	['blu:mən]	flowers
	Rosen	[o:]	['ʁo:zən]	roses
	Lilien	[i:]	['li:liən]	lilies
	Geranien	[a:]	[gə.'ʁa:niən]	geraniums
	Mode	[o:]	['mo:də]	fashion
	Mehr	[e:]	[me:rə]	more
	Buchladen	[u:]	['bux.la:dən]	book shop
	Lesung	[e:]	['le:zʊŋ]	reading
	Briest	[i:]	[bʁi:st]	proper name
	Theodor	[e:]	['te:o.doə]	proper name
	Fontane	[a:]	[fɔn.'ta:nə]	proper name
	Tages	[a:]	['ta:gəs]	daily
	Themen	[e:]	['te:mən]	topic
	Kultur	[u:]	[kʊl.tʊrə]	culture
	Poesie	[i:]	[po.e.'zi:]	poetry
	Museum	[e:]	[mu.'ze:ʊm]	museum
	Natur	[u:]	[na.'tu:rə]	nature
	Street4_B	Casino	[i:]	[ka.'zi:no]
Karaoke		[o:]	[ka.ʁa.'o:kə]	karaoke
Blumen		[u:]	['blu:mən]	flowers
Primeln		[i:]	['pʁi:məlŋ]	primroses
Edelweiß		[e:]	['ʔe:dəl.vajs]	Edelweiss
Petunien		[u:]	[pə.'tu:niən]	petunias
Mode		[o:]	['mo:də]	fashion
Mehr		[e:]	[me:rə]	more



Buchladen	[u:]	['bu:x.la:dən]	book shop
Vortrag	[o:]	['fo:r̥.tʁa:k]	lecture
Kabale	[a:]	[ka.'bɑ:lə]	Conspiracy
Liebe	[i:]	['li:bə]	love
Wiener	[i:]	['vi:n̩]	Viennese
Tunier	[i:]	[tʊ̯.'ni:ʁ]	tournament
Tages	[a:]	['ta:gəs]	daily
Brief	[i:]	[br̩i:f]	stamps
Historisches	[o:]	[hɪs.'to:ɪf.əs]	historical
Museum	[e:]	[mu.'ze:ʊm]	museum

Table 2: Number of corner vowels per picture and pair for the adapted text parts: `_nodiffAB` lists the number of corner vowel occurring in both versions of a picture pair, `_A` and `_B` list the number of corner vowel occurring in only one version respectively. The sum of all corner vowels are noted in 'Total'.

	[i:]	[e:]	[a:]	[o:]	[u:]
Beach1_nodiffAB	0	0	0	0	0
Beach1_A	2	2	1	1	1
Beach1_B	1	1	1	1	3
Total in Beach1	3	3	2	2	4
Beach2_nodiffAB	0	0	2	0	0
Beach2_A	1	2	2	2	2
Beach2_B	2	3	1	2	2
Total in Beach2	3	5	5	4	4
Beach3_nodiffAB	0	0	0	0	0
Beach3_A	1	1	2	2	2
Beach3_B	3	1	2	2	1
Total in Beach3	4	2	4	4	3
Beach4_nodiffAB	0	0	0	2	0
Beach4_A	1	2	1	0	1
Beach4_B	3	0	0	1	0
Total in Beach4	4	2	1	3	1
Farm1_nodiffAB	1	0	2	3	2
Farm1_A	2	2	0	2	0
Farm1_B	1	1	1	0	1
Total in Farm1	4	3	3	5	3
Farm2_nodiffAB	1	0	1	2	0
Farm2_A	0	0	0	1	1
Farm2_B	1	0	0	1	1
Total in Farm2	2	0	1	4	2
Farm3_nodiffAB	1	0	2	2	0
Farm3_A	2	2	0	1	3
Farm3_B	3	1	0	1	3

Total in Farm3	6	3	2	4	6
Farm4_nodiffAB	2	0	0	2	0
Farm4_A	1	1	0	0	1
Farm4_B	1	1	1	0	1
Total in Farm4	4	2	1	2	2
Street1_nodiffAB	1	1	1	1	3
Street1_A	1	2	1	0	0
Street1_B	2	2	1	0	2
Total in Street1	4	5	3	1	5
Street2_nodiffAB	1	1	1	0	0
Street2_A	2	1	2	1	3
Street2_B	2	1	3	0	4
Total in Street2	5	3	6	1	7
Street3_nodiffAB	3	2	0	2	0
Street3_A	2	2	4	1	1
Street3_B	1	2	2	0	3
Total in Street3	6	6	6	3	4
Street4_nodiffAB	1	2	1	1	2
Street4_A	4	4	2	1	2
Street4_B	5	1	1	3	1
Total in Street4	10	7	4	5	5

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