

ILLUSTRATIONS OF THE IPA

Ukrainian

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About 35 million people around the world speak Ukrainian (Lewis, Simons & Fenning 2016). The largest populations of Ukrainian speakers outside Ukraine (more than 32 million speakers) are in Russia (*c.* 4.5 million), followed by Moldova (*c.* 0.6 million), Canada (*c.* 0.5 million) and the USA (*c.* 0.5 million). Smaller Ukrainian communities have also settled in some other countries including Kazakhstan, Belarus, Poland, Romania, Argentina, Brazil and Slovakia (Mokienko 2002). Ukrainian, alongside Russian and Belarusian, belongs to the East Slavonic languages within the Indo-European language family.

Modern Ukraine developed from five states of the Kievan Rus. The earliest writings from this area go back to the Christianization of the capital city Kyjiv in 988. Old East Slavic, common to the Eastern Slavonic region, evolved up until the 14th century through the incorporation of regionalisms at different linguistic levels (phonology, morphology, lexis). Further linguistic distinctions in the regions of Belarus and Ukraine triggered further developments in the common Ruthenian language from the 15th to the 18th century. Only in the 18th century did a specifically Ukrainian literary language emerge, independent of Old Church Slavonic documents, together with Ukrainian vernacular literature. In the 19th century, the written language flourished in science especially. However, Tsar Alexander II banned its official use (in scientific publications, readings, exhibitions, etc.) by decree in the Ems Ukaz issued in 1876 (Rudnyčkyj 1992). This decree was in force until 1906. Finally, in 1918, Ukrainian became the official language of the newly founded Ukrainian People's Republic. Alongside Russian, it remained the official language during the Soviet Union. Since 1989 Ukrainian is the only official language of the state (Pompino-Marschall & Steriopolo 2011).

The present-day Ukrainian language is a highly developed literary language – the orthoepy of its spoken form in science, education, the media and everyday life is based on the Kyjiv dialect, regardless of large dialectal differences (Zilyns'kyj 1979, Žovtoibrjux, Rusanivs'kyj & Skljarenko 1979). There are three main dialect groups corresponding to the territories where they are spoken, namely, South-Eastern, South-Western and Northern (Danylenko & Vakulenko 1995).

A phonetic description of Ukrainian in terms of IPA is a challenging task mainly due to lack of homogeneity of transcription systems available in the literature. The influence of the Cyrillic writing system, which evolved on a language-specific basis (see the end of the Illustration for the Ukrainian alphabet transliteration), does not make this task easier. In addition, there is little experimental phonetic research on Ukrainian (especially regarding articulation) and of the research already available, there are many contradictory results. The main problems include the status of so-called half-palatalized consonants (and their context), the exact places of articulation of consonants, the quality of the vowel <и> (<i>) and the status of geminates (see Rusanivs'kyj, Taranenko & Zjabljuk 2004, Pompino-Marschall & Steriopo 2011).

The present IPA Illustration of Ukrainian is based on recordings of a 38-year-old speaker born in the Bukovina area (at the south western border to Rumania), who received his academic education in Kyjiv.

Consonants

		Bilabial	Labio-dental	Dental/-Alveolar	Alveolo-palatal/Post-alveolar	Palatal	Velar	Glottal
Plosive	Plain	p b		t d			k g	
	Palatalized	(p ^j) (b ^j)		t ^j d ^j			(k ^j) (g ^j)	
Nasal	Plain	m		n				
	Palatalized	(m ^j)		n ^j				
Fricative	Plain		f	s z	ʃ ʒ		x	ɦ
	Palatalized		(f ^j)	s ^j z ^j	(ʃ ^j) (ʒ ^j)		(x ^j)	(ɦ ^j)
Affricate	Plain			ts dz	tʃ dʒ			
	Palatalized			(tʃ ^j) (dʒ ^j)	(tʃ ^j) (dʒ ^j)			
Trill	Plain			r				
	Palatalized			r ^j				
Approximant	Plain		v					
	Palatalized		(v ^j)			j		
Lateral Approximant	Plain			l				
	Palatalized			l ^j				

Note: Palatalized sounds in brackets are the context-dependent allophones of the non-palatalized phonemes (i.e. the so called 'half-palatalized' sounds).

In the following list of examples, the half-palatalized allophones are given in brackets.

	BROAD PHONETIC TRANSCRIPTION	ORTHOGRAPHIC FORM	TRANSLITERATION	GLOSS	
	p	paz	паз	paz	'joint'
	(p ^j)	p ^j iʊ	пів	piv	'half'
	b	baz	баз	baz	'base (GEN.PL)'
	(b ^j)	'b ^j iʈi	білий	bilyj	'white (MASC)'
	t	tam	там	tam	'there'
	t ^j	t ^j am	тям	tjam	'keep (IMP)'
	d	ład	лад	lad	'harmony'
	d ^j	ład ^j	ладь	lad'	'manage (IMP)'
	k	kɔł	кол	kol	'stake'
	(k ^j)	k ^j in ^j	кінь	kin'	'horse'
	g	gɛdʒ ^j	гедзь	gedz'	'horsefly'
	(g ^j)	g ^j i'l ^o 'tina	гільотина	gil'otyna	'guillotine'
	m	maʊ	мав	mav	'had'
	(m ^j)	m ^j aʊ	мяу	mjau	'miaow'
	n	stan	стан	stan	'state'
	n ^j	stan ^j	стань	stan'	'become (IMP)'
	f	'faza	фаза	faza	'phase'
	(f ^j)	'fikus	фікус	fikus	'figus' (tree)
	s	ris	рис	rys	'rice'
	s ^j	ris ^j	рись	rys'	'lynx'
	z	perɛ'łaz	перелаз	perelaz	'stile'
	z ^j	perɛ'łaz ^j	перелазь	perelaz'	'climb over (IMP)'
	ʃ	ʃar	шар	šar	'globe'
	(ʃ ^j)	p ^j i'd:aʃ ^j :a	піддашся	piddaššja	'bulkhead'
	ʒ	ʒar	жар	žar	'glow (N)'
	(ʒ ^j)	'pɔdɔrɔʒ ^j i	подорожі	podoroži	'journeys'
	x	xaj	хай	xaj	'let (OPTATIVE PARTICLE)'
	(x ^j)	x ^j id	хід	xid	'pace'
	h	haj	гай	haj	'bosk'
	(h ^j)	h ^j i's ^j t ^j	гість	hist'	'guest'
	ʦ	ʦɛp	цеп	cep	'chain'
	ʦ ^j	ʦ ^j ɔm	цьом	c'om	'kiss'
	ɖ	'dʒvɔni	дзвони	dzvony	'bells'
	ɖ ^j	ɖ ^j ur'ʧʌti	дзюрчати	dzjurčaty	'to drizzle'
	ʧ	ʧɔm	чом	čom	'why'
	(ʧ ^j)	'n ^j iʧ ^j :u	нічю	ničju	'nightly'
	ɖʒ	su'dʒu	суджу	sudžu	'judge (1SG)'
	(ɖʒ ^j)	'bɖʒ ^j iʈka	бджілка	bdžilka	'little bee'
	r	rad	рад	rad	'councillor (GEN.PL)'
	r ^j	r ^j ad	ряд	rjad	'row'
	v	svat	сват	svat	'marriage broker'
	(v ^j)	s ^j v ^j at	свят	svjat	'holiday (GEN.PL)'
	j	'jiʒa	їжа	jiža	'food'
	l	łuk	лук	luk	'bow'
	l ^j	l ^j uk	люк	ljuk	'hatch'

Usually, in Slavic literature the phonological contrast between palatalized and non-palatalized phonemes is commonly known as the opposition between soft and hard segments (see de Bray 1951). Ukrainian is specific in so far as it has a third category, namely ‘half-palatalized’ sounds also called ‘semi-soft’ consonants, which are ALLOPHONIC variants of non-palatalized consonants in the context of following /i/ and /j/ (see Toc’ka 1981).

The phonological opposition between non-palatalized (plain) and palatalized consonants is restricted to the anterior coronals (i.e. the denti-alveolars), /t tʲ d dʲ n nʲ s sʲ z zʲ t͡s t͡sʲ d͡z d͡zʲ r rʲ l lʲ/ (Shevelov 1979, Danylenko & Vakulenko 1995, Buk, Mačutek & Rovenchak 2008). In addition, as mentioned above, there are so-called ‘semi-soft’ or half-palatalized consonants such as [pʲ bʲ mʲ fʲ vʲ ʃʲ zʲ t͡ʃʲ d͡ʒʲ kʲ gʲ xʲ hʲ], which are allophonic variants of the corresponding non-palatalized labial, palato-alveolar, velar and glottal consonants [p b m f v ʃ z t͡ʃ d͡ʒ k g x h]. There is, however, no separate symbol for the transcription of semi-palatalization. Adhering to the IPA conventions, here the superscript [ʲ] is used for both palatalized and semi-palatalized consonants.

Note that palatalization of the preceding consonants is indicated by the letters <і я ю є> (<ji ja ju je>). In syllable-final position and preceding <o>, palatalization is marked by the letter <ь>. The phoneme /j/ corresponds to <й> only in syllable-final position or before <o> (Shevelov 2002: 952).

The distinction between soft, semi-soft and hard, which is usually found in Ukrainian literature, reflects the degree of palatalization in perceptual terms: non-palatalized sounds are perceived as hard, palatalized sounds are perceived as soft and sounds whose percept lies between palatalized and non-palatalized, presumably slightly palatalized, are interpreted as semi-soft sounds (see also Żygis, Pape & Jesus 2012: 304f.).

From the articulatory point of view, the area of contact between the raised fronted tongue and the palate is larger in palatalized sounds in comparison to half-palatalized sounds (Danylenko & Vakulenko 1995: 7). Non-palatalized sounds are velarized, i.e. produced with a raised dorsum. This has a strong acoustic effect so that, for instance, the realization of /l/ is usually [ɫ]. Furthermore, the palatalized counterpart of the trill [r] is frequently realized as [rʲ], which is most probably due to the fact that trilling and palatalization are far more complex and effortful than the production of a palatalized flap (see Żygis 2005).

Ukrainian also shows palatalizations which are morphologically conditioned, where an underlying stop changes to an affricate, e.g. /t/ changes to [t͡ʃ], e.g. *molo*’/t/ty’ ‘to grind’ vs. *mo*’lo[ʲ]enyj ‘ground’ (past participle) (Shevelov 2002: 954).

It is also worth emphasizing that Ukrainian sibilants represent one of the most complex systems in the world’s languages. Apart from a two-way phonemic distinction in the place of articulation as well as palatalization, it also includes a voiced–voiceless opposition /s z sʲ zʲ ʃ z͡ʃ t͡s d͡z t͡sʲ d͡zʲ/. Interestingly, instead of /ʃ z͡ʃ t͡ʃ d͡ʒ/, some Western Ukrainian dialects have retroflex sibilants /ʂ z͡ʂ d͡ʒ/ in which the tongue dorsum is flat and ‘the constriction is formed by the raised tip of the tongue’ (Zilyns’kyj 1979: 107) and alveolo-palatals /ç z͡ç d͡ʒ/ instead of /sʲ zʲ t͡sʲ d͡zʲ/ which can be alternatively produced as strongly palatalized dentals (Żygis 2006). The presence of retroflexes and alveolo-palatals is most probably due to the influence of Polish dialects.

The plosives /b d g/ are fully voiced in all positions and /p t k/ are voiceless unaspirated throughout. The approximant /v/ is realized in different ways due to co-articulatory effects: it surfaces as labiodental [vʲ] when preceding the front vowels [i i] or labiovelar [w] when preceding the rounded back vowels [u ɔ]. In the syllable-final position this approximant is realized as [ʋ]. Buk et al. (2008) also note that /v/ can be realized as a devoiced labio-velar approximant [ʋ̥] before voiceless consonants (but not after a vowel), e.g. *vperše* [ʋpɛrʃɛ] ‘for the first time’.

The voiced glottal fricative /ɦ/ is also quite variable depending on context. For instance, it turns into [x] before /k/: *lehkyj* [lʲɛxkɪj] ‘easy’ (see also the Optimality Theory-based analysis of /ɦ/ proposed by Czaplicki 2006). The glide /j/ surfaces as [j̥] in syllable-final position.

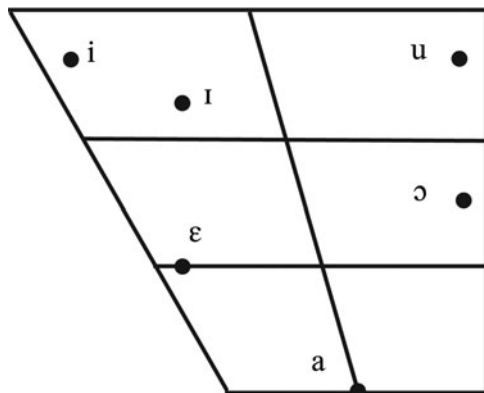
In Ukrainian there are also consonantal geminates, but their phonemic status is highly disputable, see Sawicka (1997) for a discussion. Most phonological descriptions treat the long consonants as two-phoneme sequences (see Buk et al. 2008). The geminates in Ukrainian are often remnants of the historical deletion of the reduced vowel *ь (the so-called jer) in the suffix <*ьj> (Bethin 2002). The long consonants are also found at various morphological junctures such as, e.g. prefix–stem boundary: *bez+zvučno* [ˈbɛzːvutʃnɔ] ‘soundless’ (Buk et al. 2008). On the other hand, it should be noted that examples of contrastive long and short consonants can also be found, e.g. *na suddi* [nasuˈdʲiː] ‘on the judge’ vs. *na sudi* [nasuˈdʲi] ‘on trial’ (Danylenko & Vakulenko 1995: 12). This latter example shows that a definitive rejection of the phonemic status of geminates in Ukrainian is at least problematic.

Finally, regarding the letter–sound correspondence, it is worth mentioning that the letter <ш> corresponds to [ʃʲ], which is articulated as a combination of a fricative [ʃ] and an affricate [tʃ]. This sound can undergo a reduction to [tʃ] or even [ʃ] as our transcription of the recorded passage shows.

Devoicing and voicing assimilations

Unlike Russian and most other modern Slavic languages, Ukrainian does not have final devoicing, compare *vas* [vas] ‘you’ and *vaz* [vaz] ‘vase’ (GEN.PL) (Bethin 1987: 185). However, as pointed out by de Bray (1951: 76), final voiced obstruents may become partly devoiced along with an increased speech rate. Furthermore, Ukrainian obstruents undergo a regressive voicing assimilation rule, both word-internally and across words. But this rule applies only to sequences of obstruents in which the second segment is voiced and thus changes the voiceless status of the preceding segment to a voiced one, e.g. *ot že* [ˈɔd ʒɛ] ‘therefore’ (see Bethin 1987: 185; see also Wetzels & Mascaró 2001, Czaplicki 2009).

Vowels



i	dʲim	дім	<i>dim</i>	‘house’
ɪ	dɪm	дим	<i>dym</i>	‘smoke’
ε	sɛm	сем	<i>sem</i>	‘seed (GEN.PL)’
a	sam	сам	<i>sam</i>	‘self’
ɔ	sɔm	сом	<i>som</i>	‘catfish’
u	sum	сум	<i>sum</i>	‘melancholy (GEN.PL)’

The Ukrainian vowel system comprises the six phonemes /i ɪ ε a ɔ u/ (corresponding to <i ɪ e a o y> in Ukrainian writing). Vowel length is not contrastive. The vowel <и> (as phonetically different from Russian [ɨ], see e.g. Shevelov 2002: 949; Carlton 1991: 280) would be more correctly transcribed as [ɪ], since in contrast to [i] the tongue is quite retracted and lowered in the production of this vowel. (In the acoustical vowel space it may seem shifted to [ɪ] due

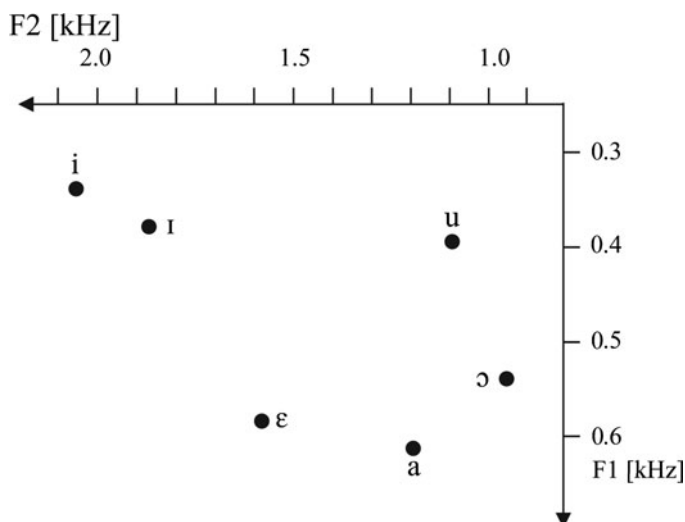


Figure 1 F1/F2 plot of the vowel realizations in the example words for Ukrainian vowels.

to its articulation with strongly spread lips, see the F1/F2 plot of the vowel realizations of our informant in Figure 1.) Zilyns'kyj (1979: 45) points to a great variation in the realization of this vowel in Western dialects.

The unstressed non-low vowels /i ɛ/ exhibit a harmonizing tendency: unstressed /ɛ/ preceding stressed /i/ shifts to [e] and unstressed /i/ preceding stressed /ɛ/ also shifts to [e]. In parallel, unstressed /ɔ/ preceding stressed /u/, shifts to [o] (Danylenko & Vakulenko 1995: 5).

In fluent speech unstressed vowels exhibit a tendency to reduce to less peripheral articulations. These reduced vowel articulations are furthermore prone to anticipatory as well as preservative coarticulatory effects of the neighbouring stressed vowels. This can be seen in comparing our narrow and broad transcriptions of the recorded passage below.

Syllable structure and word stress

A strictly vocalic nucleus is the only obligatory segment of the Ukrainian syllable. The syllable onset as well as the syllable coda may comprise up to four consonants, although, parallel to other Slavic languages, Ukrainian favours open syllables.

Word stress is free in Ukrainian (Brovčenko 1969). It can be contrastive: *'kury* ['kurɪ] 'chicken' (PL) vs. *ku'ry* [ku'ri] 'to smoke' or *do'roha* [dɔ'rɔɦa] 'road' vs. *doro'ha* [dɔ'rɔɦa] 'dear'. The main stress can appear on any syllable in a given word, e.g. *'vy-ra-xu-va-nyj* [vɪrɔxuvɔnɪj] 'calculated', *za-'lja-ku-va-ty* [zɔ'lʲɔkuvɔtɪ] 'to intimidate', *po-vi-'do-my-ty* [pɔvɪ'dɔmɪtɪ] 'to inform', *pry-sto-su-'va-nec* [prɪstɔsuvɔnɛtsʲ] 'conformist', *pe-re-po-vi-'sty* [pɛrɛpɔvɪ'stɪ] 'to relate' (Danylenko & Vakulenko 1995: 13). The stress can also move within a paradigm: *ro-'by-ty* [rɔ'bɪtɪ] 'to do', *ro-'blju* [rɔ'bɪʲu] 'I do', *'ro-byš* [rɔbɪʃ] 'you do' (de Bray 1951: 74). It is sensitive to morphology and its shifting nature reinforces the distinctive function of morphological constituents; for a historical background of the 'morphologization' of stress see Shevelov (1979: 120–126).

Besides the primary stress, words consisting of at least four syllables can be pronounced with a secondary stress. However, apart from the universal rule that the secondary stress should not be adjacent to the primary stress, there is no consensus in the literature that the secondary stress assignment follows any pattern (see Zilyns'kyj 1979: 187–190).

Intonation

Ukrainian is a language with free word order where the realization of pitch accents associated with prominent syllables depends on their position in a sentence as well as the information structure they convey. Words are parsed into phrases or the so-called accent units in which the last word is usually accented. A rising-falling or falling intonation is characteristic of the main stressed syllable. The stressed syllable is also longer than non-stressed ones, whereby unstressed syllables can also be longer when appearing in sentence-final position (Brovčenko 1969).

Declarative sentences, *wh*-questions, forms of addressing people, exclamations as well as listings are characterised by a falling intonation. By contrast, polar questions, i.e. yes/no questions, echo questions, as well as continuation forms are produced with rising intonation (Bagmut, Borysjuk & Olijnyk 1985).

Ukrainian intonation has been analysed in terms of the intonational realization of broad versus narrow focus in the framework of Autosegmental-Metrical Theory (Pierrehumbert 1980, Beckman & Pierrehumbert 1986). It was shown that pitch accents which signal narrow focus are realized differently from pitch accents signalling a broad focus (Féry, Paslawska & Fanselow 1997). In particular, pitch accents on narrow foci show an H*L contour whereas pitch accents on broad foci are realized with a prenuclear LH* accent followed by a nuclear HL* accent. (L stands for a low tone and H for a high tone, see e.g. Pierrehumbert 1980, Gussenhoven 2004.) Such accentuation was also found in a declarative sentence with a canonical SVO order. However, it should be emphasized that the results were inferred from an investigation based on only one speaker from Kyjiv.

Transcription of recorded passage

Narrow transcription

od'nóhó 'razu | pɔspere'ʃaʎıs'ja 'sɔntse i p'iu'n'itʃniŋ 'v'iter 's_priwɔdu 'tɔhó | 'xtɔ z nıy 'dvɔx sıl'n'ıʃnı̃ || aʒ 'raptɔm wɔ'nı | pɔ'mıtıtı mandr'ivnı'ka | jɛ'kiŋ 'same prɔ'xɔdıu pɔuz nıx | 'kutajuʃıs' u pal'tɔ || ɔ'bıdva d'ii'ʃnı 'sp'ıl'nɔʒi 'dumkı | ʃɔ 'tɔŋ 'bude 'vıznaniŋ sıl'n'ıʃım | 'xtɔ 'vımusıt' mandr'ivnı'ka 'zn'atı swɔ'je pal'tɔ || p'iv'n'itʃniŋ 'v'iter duu z us'ıjeʒi 'sıı | a'ʎe ʃım 'duʒtʃe v'ın duu | tım ʃıl'n'ıʃe 'kutaʎs'ja mandr'iv'nik u swɔ'je pal'tɔ || ʉ'reʃt'ı 'reʃt p'iv'n'itʃniŋ 'v'iter pere'stav bɔ'rɔtı's'ja || i 'tut 'sɔntse z'ıy'r'ıtɔ pɔ'v'ıtr'ja swɔ'jımı prı'v'ıtınmı 'prɔmen'ámı | i_ʉ'ʒe ʃıerez 'dek'ıl'ka xıv'ıtın | mandr'iv'nıg zn'au swɔ'je pal'tɔ || ɔ'tɔʒ | p'iu'n'itʃniŋ 'v'iter 'vımuʃenıŋ 'buu 'vıznatı | ʃɔ 'sɔntse 's_pɔm'ıʒ nıy 'dvɔx | bu'tɔ sıl'n'ıʃım

Broad phonemic transcription

od'nóhó 'razu | pɔspere'ʃaʎıs'ja 'sɔntse i pıv'n'itʃniŋ 'vıter 's_priwɔdu 'tɔhó | 'xtɔ z nıx 'dvɔx sıl'n'ıʃnı̃ || aʒ 'raptɔm vɔ'nı | pɔ'mıtıtı mandr'ivnı'ka | ja'kiŋ 'same prɔ'xɔdıu pɔuz nıx | 'kutajuʃıs' u pal'tɔ || ɔ'bıdva d'ii'ʃnı 'spıl'nɔʒi 'dumkı | ʃʃɔ 'tɔŋ 'bude 'vıznaniŋ sıl'n'ıʃım | 'xtɔ 'vımusıt' mandr'ivnı'ka 'zn'atı swɔ'je pal'tɔ || pıv'n'itʃniŋ 'vıter duv z usı'jeʒi 'sıı | a'ʎe ʃım 'duʒtʃe vın duv | tım ʃıl'n'ıʃe 'kutaʎs'ja mandr'iv'nik u swɔ'je pal'tɔ || v'reʃt'ı 'reʃt pıv'n'itʃniŋ 'vıter pere'stav bɔ'rɔtı's'ja || i 'tut 'sɔntse z'ıf'r'ıtɔ pɔ'v'ıtr'ja swɔ'jımı prı'v'ıtınmı 'prɔmen'ámı | i vʒe ʃıerez 'dekıl'ka xıv'ılın | mandr'iv'nik zn'au swɔ'je pal'tɔ

|| ɔ'tɔz | piu'n'iʃn̩i 'viter 'vɪmuʃeni 'buu 'vɪznati | ʃtʃɔ 'sɔntse s 'pɔmiz nɪx
'duɔx | bu'lo sɪl'n'iʃɪm

Orthographic version

Одного разу посперечалися Сонце і Північний вітер з приводу того, хто з них двох сильніший. Аж раптом вони помітили мандрівника, який саме проходив повз них, кутаючись у пальто. Обидва дійшли спільної думки, що той буде визнаний сильнішим, хто вимусить мандрівника зняти своє пальто. Північний вітер дув з усієї сили, але чим дужче він дув, тим щільніше кутався мандрівник у своє пальто. Врешті-решт Північний вітер перестав боротися. І тут Сонце зігріло повітря своїми привітними променями. І вже через декілька хвилин мандрівник зняв своє пальто. Отож Північний вітер вимушений був визнати, що Сонце з-поміж них двох було сильнішим.

Orthographic version transliterated

Odnoho razu posperečalysja Sonce i Pivničnyj viter z pryvodu toho, xto z nyx dvox syl'nišyj. Až raptom vony pomityly mandrivnyka, jakyj same proxodyv povz nyx, kutajučys' u pal'to. Obydva dijšly spil'noji dumky, ščo toj bude vyznanyj syl'nišym, xto vumusyť mandrivnyka znjaty svoje pal'to. Pivničnyj viter duv z usijeji syly, ale čym dužče vin duv, tym ščyl'niše kutavsja mandrivnyk u svoje pal'to. Vrešti-rešt Pivničnyj viter perestav borotysja. I tut Sonce zihriło povitřja svojimy pryvitnymy promenjamy. I vže čerez dekil'ka xvylyn mandrivnyk znjav svoje pal'to. Otož Pivničnyj viter vumušenyj buv vyznaty, ščo Sonce z-pomiž nyx dvox bulo syl'nišym.

TRANSLITERATION

А а	а	Б б	б	В в	в
Г г	h	Ґ ґ	g	Д д	d
Е е	e	Є є	je	Ж ж	ž
З з	z	И и	y	І і	i
Ї ї	ji	Й й	j	К к	k
Л л	l	М м	m	Н н	n
О о	o	П п	p	Р р	r
С с	s	Т т	t	У у	u
Ф ф	f	Х х	x	Ц ц	c
Ч ч	č	Ш ш	š	Щ щ	šč
Ь ь	'	Ю ю	ju	Я я	ja

Acknowledgements

We want to express our gratitude to Oxana Bas-Kononenko, Zoja Dudnyk and two anonymous reviewers for their useful comments on an earlier version of this paper. Parts of this research have been supported by Bundesministerium für Bildung und Forschung (BMBF, Germany) Grant No. 01UG1411 to Marzena Żygis.

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