
Japanese Language and Culture¹

An Introduction to Katakana

11 January 2016

日本語: Katakana (カタカナ)

- There are also several ways to describe *katakana*, the less-frequently-used kana script:
 - Using rōmaji
 - Using the IPA system to describe sounds
 - Using katakana itself (metaphysical)
 - Using kanji

Rōmaji katakana	IPA [katakana]	Katakana カタカナ	Kanji 片仮名
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Table 1: Writing the word *katakana* in various scripts.

- Katakana utilizes the **same** sound system that hiragana uses
 - Same rules as before, same morae (monographs, digraphs, diacritics, etc.), same **deprecated kana**
 - Interesting: another name for gojūon is *seion*, another name for dakuten is *dakuon*
 - In addition: katakana also has a table of extra sounds for foreign words with no Japanese origin
 - Need additional sounds to represent these “foreign” words
 - Will require some tricks, but mostly straightforward combinations (more later)
 - Usage: katakana is NOT used for the same words that hiragana is used for (**mistake** to substitute one for other)
- Katakana is **structurally** similar to hiragana, so we will learn it through comparison and understand the differences
- Katakana characteristics:
 - Boxy, straight (similar to print/sans-serif in English)
 - Like writing with Latin characters: not very fluid, but speed comes with practice
- Same syllabary sound system rules apply from hiragana
 - Why: Some of these sounds exist in foreign words too, but we want to use an entirely different script to represent
 - Allows for no ambiguity as to whether a word is originally Japanese (exception: “reborrowed” words)
- All vowels are **short** unless marked otherwise, long vowels are marked differently than in hiragana
 - We will learn marks for long vowels later on
 - *Interlingual differences*: Some “foreign” words may sound different in Japanese
 - *Intralingual differences*: May need to “invent” characters/sounds to fit word profile... or make appropriate substitutions
 - Again, stresses the importance of IPA system
- Approach to learning/practicing katakana should be identical to that of hiragana (similar table/structure, etc.)
- So without further ado, let’s introduce all the characters! A lot of sets of 5 kana will have exceptions in the ‘i’ and ‘u’ columns (using stronger sounds instead of the expected weaker sounds), like in hiragana.

¹Designed and structured by Chirag Bharadwaj, Cornell University, B.Sc. Computer Science, 2017.

Monographs (こじゅうおん)

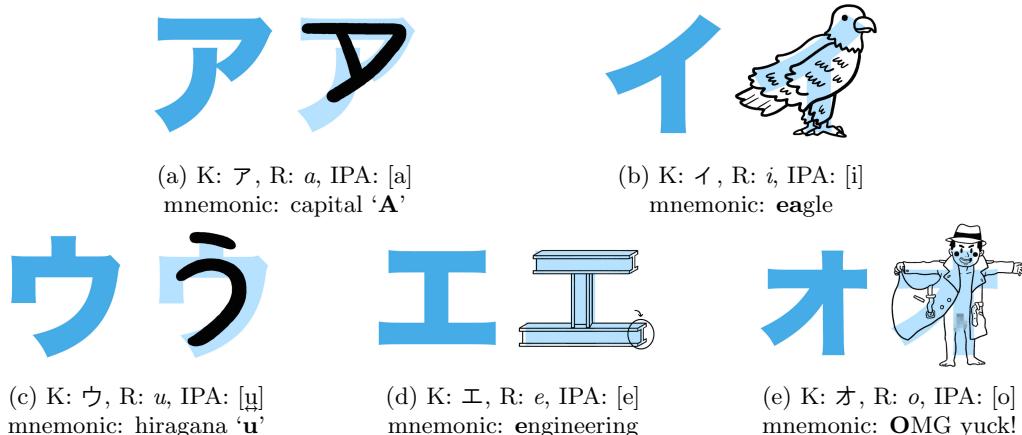


Figure 1: The five vowels in katakana. The same rules as those from hiragana apply to these.

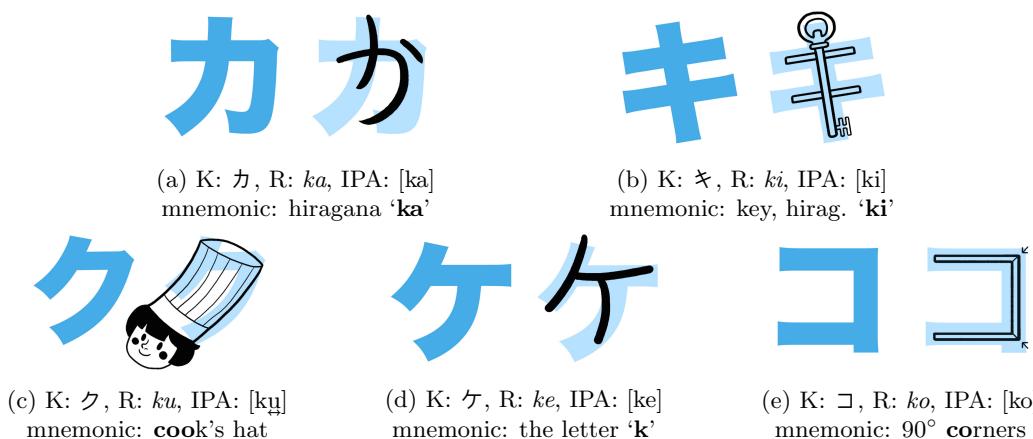


Figure 2: The five *k*-* katakana syllabograms. The same rules as those from hiragana apply to these.

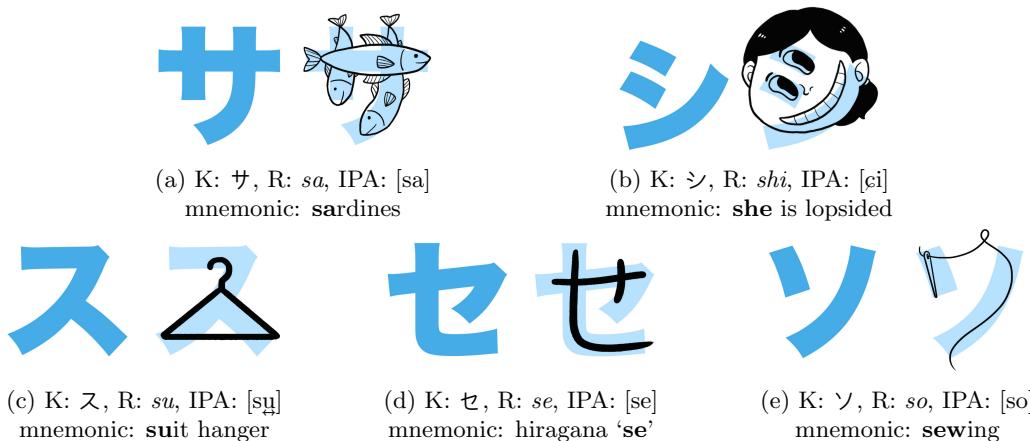


Figure 3: The five *s*-* katakana syllabograms. The same rules as those from hiragana apply to these.

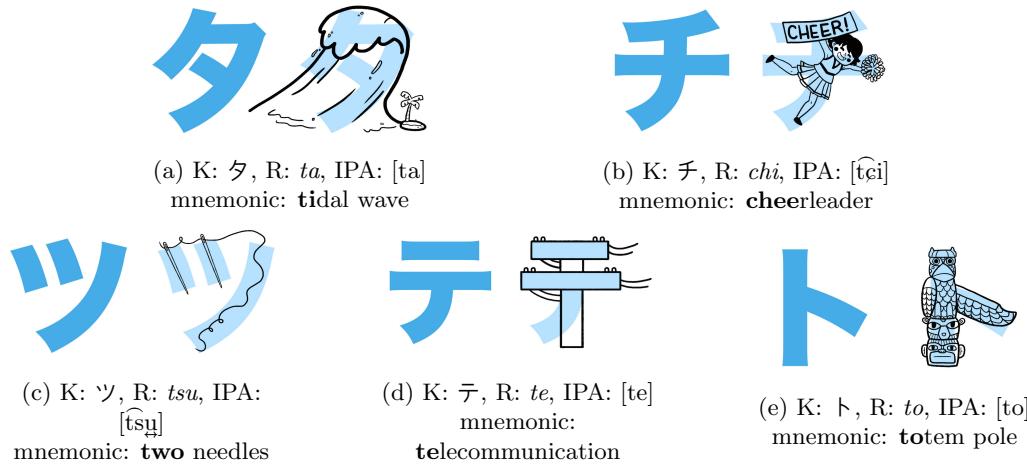


Figure 4: The five *t*-* katakana syllabograms. The same rules as those from hiragana apply to these.

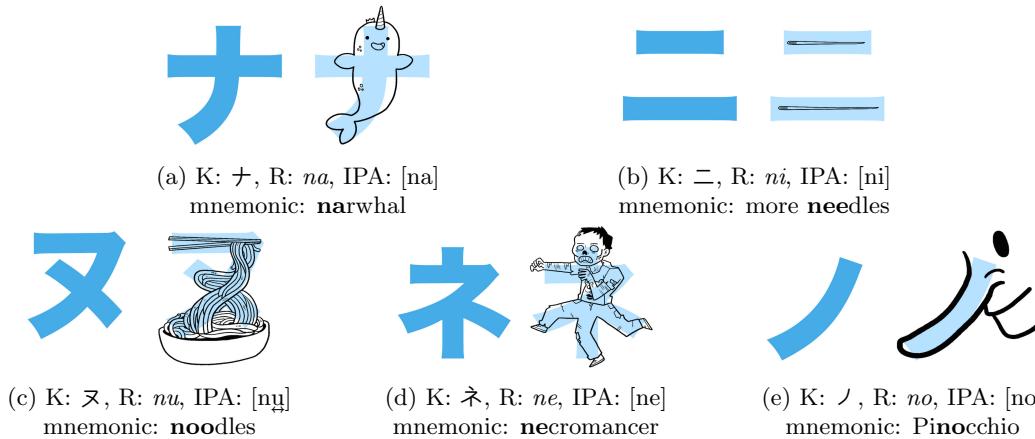


Figure 5: The five *n*-* katakana syllabograms. The same rules as those from hiragana apply to these.

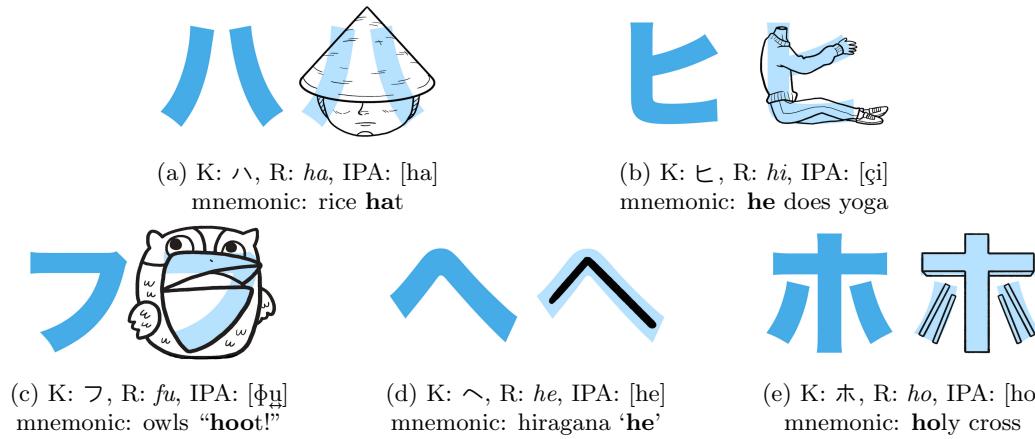


Figure 6: The five *h*-* katakana syllabograms. The same rules as those from hiragana apply to these.

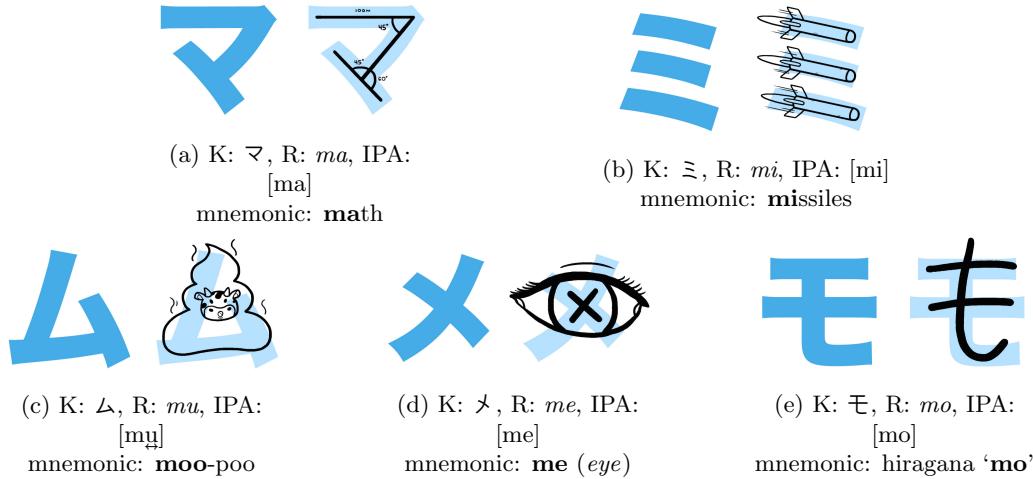


Figure 7: The five *m*-* katakana syllabograms. The same rules as those from hiragana apply to these.

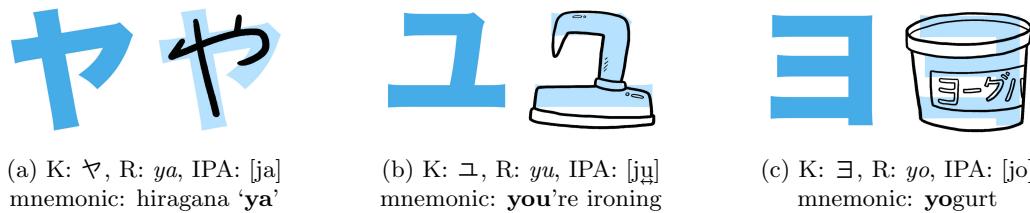


Figure 8: The three *y*-* katakana syllabograms. The same rules as those from hiragana apply to these.

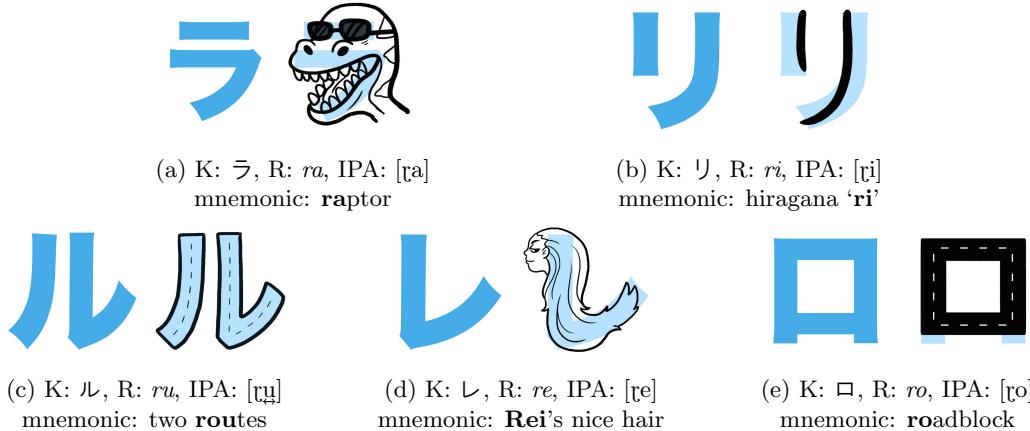


Figure 9: The five *r*-* katakana syllabograms. The same rules as those from hiragana apply to these.

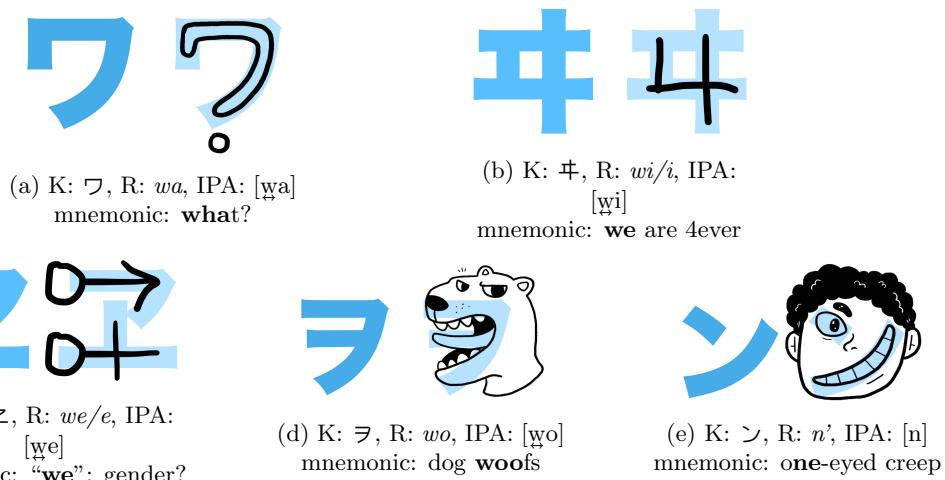


Figure 10: The four *w*-* and the *n'* katakana syllabograms. The same rules as those from hiragana apply to these.

	-a	-i	-u	-e	-o
ϕ	ア	イ	ウ	エ	オ
$k-$	カ	キ	ク	ケ	コ
$s-$	サ	シ	ス	セ	ソ
$t-$	タ	チ	ツ	テ	ト
$n-$	ナ	ニ	ヌ	ネ	ノ
$h-$	ハ	ヒ	フ	ヘ	ホ
$m-$	マ	ミ	ム	メ	モ
$y-$	ヤ		ユ		ヨ
$r-$	ラ	リ	ル	レ	ロ
$w-$	ワ	ヰ		ヱ	ヲ

Table 2: Table of monographs (ごじゅうおん—notice, this is still written in hiragana) in katakana. This is a summary.

- Recall: in hiragana, *ki*, *sa*, and *chi* look similar... in katakana, *shi*, *so*, *tsu*, *no*, and *n* all look similar
- Only way to distinguish between them: lots of *recongition* practice and *reproducibility* exercises
- Lots of letters in katakana resemble their hiragana counterparts... why?
 - Recall that both have a common origin: kanji (hentaigana, etc., etc.)
 - Indeed, “katakana” means “fragmented kana” for that very reason—characters are parts of/whole old kanji

ア	阿	イ	伊	ウ	宇	エ	江	オ	於
カ	加	キ	機	ク	久	ケ	介	コ	己
サ	散	シ	之	ス	須	セ	世	ソ	曾
タ	夕	チ	千	ツ	川	テ	天	ト	止
ナ	奈	ニ	仁	ヌ	奴	ネ	祢	ノ	乃
ハ	八	ヒ	比	フ	不	ヘ	部	ホ	保
マ	末	ミ	三	ム	牟	メ	女	モ	毛
ヤ	也			ユ	由			ヨ	與
ラ	良	リ	利	ル	流	レ	礼	ロ	呂
ワ	和	ヰ	ヰ			ヱ	恵	ヲ	乎
ン	尔								

Figure 11: A table depicting how katakana characters are derived from the original kanji.

- But katakana will not have the extra ornaments (called *hane*) that are in hiragana... not cursive, after all!
- Extra vocabulary: Each row of kana is called 行 (for both hiragana and katakana)
 - 行 is an elementary kanji character, and is pronounced ぎょう, or *gyō*
 - That is, for example, instead of saying “the *r*-* kana”, we should say “ラ行” to be precise

Diacritics (ごじゅうおんはんだくてん)

- Diacritics serve the exact same purpose in katakana as they do in hiragana
- In fact, they are demarcated in the same way, as well... they even carry the exact same sounds! Lessens the workload by a factor of 2 for us in terms of learning
- As a result, we can construct a table for the diacritics based on the monographs very easily

- The complete table of (han)dakuten for the gojūon is shown below with the corresponding rōmaji/IPA:

	<i>-a</i>	<i>-i</i>	<i>-u</i>	<i>-e</i>	<i>-o</i>
<i>g-</i>	ガ	ギ	グ	ゲ	ゴ
	ga	gi	gu	ge	go
<i>z-</i>	ザ	ジ	ズ	ゼ	ゾ
	za	ji	zu	ze	zo
<i>d-</i>	ダ	ヂ	ヅ	デ	ド
	da	dzi	dzu	de	do
<i>b-</i>	バ	ビ	ブ	ベ	ボ
	ba	bi	bu	be	bo
<i>p-</i>	パ	ピ	ブ	ペ	ボ
	pa	pi	pu	pe	po

(a) The official table of dakuten and handakuten,
using rōmaji to characterize each sound.

	<i>-a</i>	<i>-i</i>	<i>-u</i>	<i>-e</i>	<i>-o</i>
<i>g-</i>	ガ	ギ	グ	ゲ	ゴ
	[ga]	[gi]	[gu]	[ge]	[go]
<i>z-</i>	ザ	ジ	ズ	ゼ	ゾ
	[za]	[dzi]	[zu]	[ze]	[zo]
<i>d-</i>	ダ	ヂ	ヅ	デ	ド
	[da]	[dзи]	[du]	[de]	[do]
<i>b-</i>	バ	ビ	ブ	ベ	ボ
	[ba]	[bi]	[bu]	[be]	[bo]
<i>p-</i>	パ	ピ	ブ	ペ	ボ
	[pa]	[pi]	[pu]	[pe]	[po]

(b) The official table of dakuten and handakuten,
using IPA to characterize each sound.

Table 3: The table of dakuten/handakuten for gojūon in katakana. Pronunciations are identical to those in hiragana.

- The voicing of **u** to **vu** with the dakuten diacritical mark **is** used in katakana: ウ vs. ヴ

Digraphs (ようおん)

- The setup of digraphs in katakana are also identical to those of hiragana, and function/sound in the exact same way
- Convenient and logical setup on how to learn the rest of the syllabary given the 46² basic characters
- We can construct a table for the digraphs based on the monographs just like we did for hiragana
- The complete table of yōon is shown below with the corresponding rōmaji/IPA:

	<i>-ya</i>	<i>-yu</i>	<i>-yo</i>
<i>k-</i>	キヤ	キユ	キヨ
	kyā	kyū	kyō
<i>s-</i>	シヤ	シユ	シヨ
	shā	shū	shō
<i>t-</i>	チヤ	チユ	チヨ
	chā	chu	cho
<i>n-</i>	ニヤ	ニユ	ニヨ
	nyā	nyū	nyō
<i>h-</i>	ヒヤ	ヒユ	ヒヨ
	hyā	hyū	hyō
<i>m-</i>	ミヤ	ミユ	ミヨ
	myā	myū	myō
<i>r-</i>	リヤ	リユ	リヨ
	ryā	ryo	ryō

(a) The official table of yōon, using
rōmaji to characterize each sound.

	<i>-ya</i>	<i>-yu</i>	<i>-yo</i>
<i>k-</i>	キヤ	キユ	キヨ
	[k ^j a]	[k ^j u]	[k ^j o]
<i>s-</i>	シヤ	シユ	シヨ
	[s ^j a]	[s ^j u]	[s ^j o]
<i>t-</i>	チヤ	チユ	チヨ
	[t ^j a]	[t ^j u]	[t ^j o]
<i>n-</i>	ニヤ	ニユ	ニヨ
	[n ^j a]	[n ^j u]	[n ^j o]
<i>h-</i>	ヒヤ	ヒユ	ヒヨ
	[h ^j a]	[h ^j u]	[h ^j o]
<i>m-</i>	ミヤ	ミユ	ミヨ
	[m ^j a]	[m ^j u]	[m ^j o]
<i>r-</i>	リヤ	リユ	リヨ
	[r ^j a]	[r ^j u]	[r ^j o]

(b) The official table of yōon, using
IPA to characterize each sound.

Table 4: The table of yōon in katakana.

Digraphs with Diacritics (ようおんはんだくてん)

- As expected, the digraphs with diacritics in katakana are **also** structured identically to the ones from hiragana
- As a result, making a table of the digraphs with diacritics in katakana is straightforward
- The complete table of (han)dakuten for the yōon is shown below with the corresponding rōmaji/IPA:

²But really, it **is** 48. Let us not forget.

	<i>-ya</i>	<i>-yu</i>	<i>-yo</i>
<i>g-</i>	ギヤ	ギュ	ギヨ
	gya	gyu	gyo
<i>z-</i>	ジヤ	ジュ	ジヨ
	ja	ju	jo
<i>d-</i>	ヂヤ	ヂュ	ヂヨ
	dzya	dzyu	dzyo
<i>b-</i>	ビヤ	ビュ	ビヨ
	bya	byu	byo
<i>p-</i>	ピヤ	ピュ	ピヨ
	pya	pyu	pyo

	<i>-ya</i>	<i>-yu</i>	<i>-yo</i>
<i>g-</i>	ギヤ	ギュ	ギヨ
	[g̥ja]	[g̥ju]	[g̥yo]
<i>z-</i>	ジヤ	ジュ	ジヨ
	[d̥za]	[d̥zu]	[d̥zo]
<i>d-</i>	ヂヤ	ヂュ	ヂヨ
	[d̥za]	[d̥zu]	[d̥zo]
<i>b-</i>	ビヤ	ビュ	ビヨ
	[b̥ja]	[b̥ju]	[b̥yo]
<i>p-</i>	ピヤ	ピュ	ピヨ
	[p̥ja]	[p̥ju]	[p̥yo]

(a) The official table of dakuten and handakuten, using rōmaji to characterize each sound.

(b) The official table of dakuten and handakuten, using IPA to characterize each sound.

Table 5: The table of dakuten/handakuten for yōon in katakana. Pronunciations are identical to the hiragana counterparts.

- Note that unlike in hiragana, a lot of these sounds actually **are** used quite often (e.g. ミュージック for “music”)
 - But what is that horizontal line (ー)?
 - Serves as the indication of a long vowel in katakana... more on this later
- That’s all, more or less! Good job! Or, in Japanese, よくできました (*yoku dekimashita*)
- Of course, that’s not the whole story... (see below!)

The Extended Katakana

- Katakana is unique in that it has some sounds/characters that are NOT present in hiragana
- These characters are called *diphthongs* in linguistics, and form “contractions” in sounds within the phoneme inventory
- i.e. these are **borrowed** foreign sounds with **no** native equivalents in hiragana
- The official name for these characters is 特殊音 (*tokushuon*)... more on the small characters on top of the kanji later
- The tokushuon utilize the small characters like *ya*, *yu*, *yo*, but also small variants on the vowels (*a*, *i*, *u*, *e*, *o*) to produce these so-called “contracted” sounds
- Mostly predictable structure, and not too hard to remember (logical, not very complicated)
- There are several sounds that are available from this “extended katakana” character set:
 - The *y*-* kana and *w*-* kana variants
 - The *v*-* kana and *vw*-*/*vy*-* variants
 - The *kw*-* kana and *ky*-* kana variants
 - The *gw*-* kana and *gy*-* kana variants
 - etc. etc. etc. (too many to list here)
- We will cover the 184³ tokushuon in the form of a table, found on the succeeding page
 - No need to memorize any of them: Each of them can be constructed if the 107⁴ basic katakana are known
- However, we will not discuss the IPA, since it can be mostly inferred (*kwa* = [kʷa], etc.)
- So without further ado, let us introduce all of the characters in the tokushuon subset of katakana
 - Note that the table seems “incomplete”, but in fact the “missing” sounds have been covered elsewhere in katakana

³If we only count the non-bolded ones, there are 143 basic tokushuon to know. The others are quite rare. In fact many of the “non-rare” ones are uncommon, as well.

⁴In reality, we don’t even need to know **that** many! Just the basic 46 gojūon are needed.

GROUP		-a	-i	-u	-e	-o	-ya	-yi	-yu	-ye	-yo
SOFT-GROUP	φ						イイ yi		イエ ye		
	wh-	ワア wha	ワイ whi	ウウ whu	ウエ whe	ウオ who	ワヤ whya	ウユ whyu	ヴィエ whye	ウヨ whyo	
	v-	ワ' va	ヰ' vi	ヴ vu	ヱ ve	ヲ' vo	ヴヤ vyā	ヴュ vyu	ヴィエ vye	ヴヨ vyo	
	vh-	ヴァ vha	ヴィ vhi	ヴウ vhu	ヴエ vhe	ヴオ vho					
	vw-	ヴウア vwa	ヴワイ vwi		ヴウエ vwe	ヴウオ vwo					
K-GROUP	ng-	ガ° nga	キ° ngi	グ° ngu	ゲ° nge	ゴ° ngo	ギヤ ngya	ギュ ngyu	ギイエ ngye	ギヨ ngyo	
	k-						キイ kyi		キエ kye		
	g-						ギイ gyi		ギエ gye		
	kw-	クア kwa	クイ kwi	クウ kwu	クエ kwe	クオ kwo					
	gw-	グア gwa	グイ gwi	グウ gwu	グエ gwe	グオ gwo					
S-GROUP	s-						スヤ sya	スユ syu	スイエ sye	スヨ syo	
	z-						ズヤ zya	ズユ zyu	ズイエ zye	ズヨ zyo	
	sh-			シエ she							
	j-			ジエ je							
	sw-	スア swa	スイ swi	スウ swu	スエ swe	スオ swo					
	zw-	ズア zwa	ズイ zwi	ズウ zwu	ズエ zwe	ズオ zwo					
	su-	スウア sua	スワイ sui		スウエ sue	スウオ suo					
	zu-	ズウア zua	ズワイ zui		ズウエ zue	ズウオ zuo					
T-GROUP	dz-	ヅア dza	ヅイ dzi		ヅエ dze	ヅオ dzu	ヂイ dzyi		ヂエ dzye		
	ts-	ツア tsa	ツイ tsi		ツエ tse	ツオ tso	ツヤ tsya	ツユ tsyu	ツイエ tsye	ツヨ tsyo	
	jh-						ヅヤ jhyā	ヅユ jhyu	ヅイエ jhye	ヅヨ jhyo	
	t-						ヂヤ tya	ヂユ tyu	ヂイエ tye	ヂヨ tyo	
	d-						デヤ dyā	デユ dyu	デイエ dye	デヨ dyo	
	th-	テア tha	ティ thi	テウ thu	テエ the	テオ tho					
	dh-	デア dha	ディ dhi	デウ duh	デエ dhe	デオ dho					
	tw-	トア twa	トイ twi	トウ twu	トエ twe	トオ two					
	dw-	ドア dwa	トイ dwi	ドウ dwu	ドエ dwe	ドオ dwo					
	tu-	トウア tua	トイ tui		トウエ tue	トウオ tuo					
	du-	ドウア dua	トイ dui		ドウエ due	ドウオ duo					

N-GROUP	<i>n-</i>	ヌア nwa	ヌイ nwi	ヌウ nwu	ヌエ nwe	ヌオ nwo	ニイ nyi	ニエ nye
H-GROUP	<i>h-</i>						ヒイ hyi	ヒエ hye
	<i>b-</i>						ビイ byi	ビエ bye
	<i>p-</i>						ピイ pyi	ピエ pye
	<i>f-</i>	ファ fa	フィ fi		フエ fe	フオ fo	フヤ fyā	フュ fyū
	<i>hw-</i>	ホア hwa	ホイ hwi	ホウ hu	ホエ hwe	ホオ hwo		フイエ fye
	<i>bw-</i>	ブア bwa	ブイ bwi	ブウ bwu	ブエ bwe	ブオ bwo		
	<i>pw-</i>	ブア pwa	ブイ pwi	ブウ pwu	ブエ pwe	ブオ pwo		
M-GROUP	<i>m-</i>						ミイ myi	ミエ mye
	<i>mw-</i>	ムア mwa	ムイ mwi	ムウ mwu	ムエ mwe	ムオ mwo		
R-GROUP	<i>r-</i>						リイ ryi	リエ rye
	<i>rw-</i>	ルア rwa	ルイ rwi	ルウ rwu	ルエ rwe	ルオ rwo		

Table 6: Table of diphthongs (とくしゅおん—notice, this is still written in hiragana) in katakana. Diphthongs marked in bold are very rare in modern Japanese, used only in exceptional circumstances (perhaps less than twenty existing words). Many of these combinations are purely hypothetical, and do not occur very often either. There are some other combinations, too.

Functional Marks and Other Aspects of Katakana

- Pre-modern Japanese *l** kana: ヲ (la), リ (li), ル (lu), ヲ (le), ロ (lo), リョ (lya), リョ (lyu), リイエ (lye), リヨ (lyo)
 - ...or rather, these were proposed during the Meiji era (pre-modern Japanese) and were never used
- Also interesting: Japanese has no **phonemic** exceptions, but kana pronunciation is due to **phonological** exceptions
 - For example, ツ (or ツ) is *tsu* phonologically-speaking, but *tu* phonemically-speaking
 - That is, we could use the *modified* Hepburn romanization and romanize it to *tu* (but still pronounce it *tsu*)
- There is a sokuon in katakana as well (it follows the same rules): ツ
- The sokuon serves the same purpose as it does in hiragana for twinning/geminating the consonants (including ナ行)
 - For example, we have the English word “bed”, written in katakana: ベツド (*beddo*)
- In katakana, the sokuon can also appear at the end of words, then treated like a *glottal stop* in linguistics
 - Romanization rules for katakana are mostly identical to hiragana, except in this situation
 - The sentence-ending sokuon has **no** standard romanization
 - Possibilities: marking with an apostrophe, using an em-dash (—), using the wave-dash (~), etc.
- Interestingly, the sokuon in katakana is also used to approximate non-native sounds in some writings (e.g. バツハ for *Bach*, as opposed to バツク or something similar, which isn’t as **true to the original** German)
- Katakana is also different than hiragana in its approach to how long vowels are handled
 - Native words that are written in katakana will use the vowel rules similar to hiragana (see below for usage)
 - Foreign loanwords are **never** written with extra vowels, but instead use a special symbol, called *chōonpu*: —

- For example: メール (*mēru*, or mail)
- Words that use the chōonpu are romanized with a macron rather than with the vowels (see above as an example)
- The traditional Hepburn romanization still holds here, and will still work (even for long vowels—distinction in context)
- The odoriji for katakana are different in appearance, but serve the same function as in hiragana:
 - 丶 (unvoiced iteration mark) vs. 丶 (voiced iteration mark)
 - Notice the lack of hane on the katakana odoriji in comparison with the hiragana odoriji
- Note that particles are written in **hiragana**, so the sounds in katakana typically take their true pronunciations (*wo*)
- Usage of katakana in modern Japanese context:
 - The main/primary usage of katakana in Japanese is for *gairaigo*
 - *Gairaigo*: transcription of words from foreign languages (other than historical words from Chinese)
 - For example, one would write the word television in katakana: テレビ (*terebi*)
 - As a result, country names, foreign places, and foreign personal names are all written in katakana, e.g. アメリカ to represent the United States (*Amerika*)
 - Secondary usage: Onomatopoeia in Japanese (called *giōgo* and *gitaigo*, more on this **much** later)
 - That is, katakana is used for Japanese *sound symbolism* (for both animate/inanimate objects)
 - For example, ピンポン (*pin-pon*) represents the sound of a doorbell ringing
 - Other uses of katakana include technical/scientific names such as animal/plant species, minerals, etc., and even some company names (but not all... e.g. Suzuki = スズキ)
 - One last usage of katakana is for emphasis in Japanese... i.e. it is used as “italics” (usually on ads/billboards)
 - For example, ココ (*koko*, or here), ゴミ (*gomi*, or trash), and メガネ (*megane*, or glasses)
 - **Without** emphasis, these are written in hiragana: ここ, ごみ, and めがね
- Vertical script vs. horizontal script in Japanese:
 - Sometimes, vertical script is used in Japanese (e.g. comics, old posters, postcards, etc.)
 - Everything looks the same, except the chōonpu is written vertically instead: |
 - The traditional horizontal script is known as *yokogaki* (横書き), the vertical script is known as *tategaki* (縦書き)
 - Don’t worry about how to write those kanji with the correct stroke order just yet
 - The small-text above the kanji shown above are the furigana we discussed earlier
 - Furigana can go above or below the text in yokogaki, but is **always** to the right in tategaki
 - The 2136 kanji characters that are part of the standard education are “simple enough” and will thus almost **never** have furigana next to them, except in young children’s books
 - Kanji is difficult because the derivation from ancient Chinese means that most kanji have **two** readings for the **same characters**: the Japanese way of reading it (*kun’yomi* reading) and the Chinese way of reading it (*on’yomi* reading)... i.e. the *native* reading and the *Sino-Japanese* reading, respectively
 - Furigana for *kun’yomi* readings are written in hiragana, furigana for *on’yomi* readings are written in katakana
 - For example, consider the following loanwords from more-modern Chinese, which have *on’yomi* kanji readings:
 - Japanese: マージャン (*mājan*), ウーロン茶 (*ūroncha*), チヤーハン (*chāhan*), チヤーシュー (*chāshū*), and シューマイ (*shūmai*)
 - Chinese: 麻将 (*májiàng*), 烏龍茶 (*wūlóngchá*), 炒飯 (*chǎofàn*), 叉燒 (*cha siu*), and 燒賣 (*siu maai*)
 - Meanings: mahjong, Oolong tea, fried rice, barbecued pork, dumplings (variation on *dim sum*)
 - We will mostly use the yokogaki style of writing, and use furigana to supplement any newly-introduced kanji
- Lastly, some interesting history about katakana’s origins and usage in the modern context:
 - Unlike hiragana, katakana was a very direct and early simplification of kanji characters (direct derivations)
 - Men used katakana for official text as well as for translating older Chinese texts (*on’yomi*) as early as 800 CE
 - In the pre-modern Japanese era, katakana and kanji were often mixed in official documents, like how hiragana and kanji are mixed now (this changed once hentaigana was deprecated and the modern system was adopted)

- Katakana was also used in naming women in the pre-modern era, as poor/illiterate parents would not pay scholars to write their daughter's names in kanji (sexist society)
 - o As a result, many older women in modern Japan have names written in Katakana (e.g. サヤコ for Sayako)
- *Half-width kana*: Katakana was used in the early days of the computer (1980s) in Japan, but there was not enough space to render all full katakana characters on many stock exchange windows, so a 1:2 aspect ratio was used instead of a 1:1 square aspect ratio
- Result of half-width kana is the existence of lots of online katakana that look “squished”, e.g. 力 vs. †
- (Han)dakuten would have to be a separate character as a result
- Both types of katakana have names: *zenkaku* (full-width) and *hankaku* (half-width)
- These computer-byte limitations are no longer a real problem, so full-width katakana are easily rendered today, and hankaku is mostly obsolete
- There are no half-width hiragana or kanji characters, of course

a	ア	フ	ア
i	イ	フ	イ
u	ウ	フ	ウ
e	エ	フ	エ
o	オ	フ	オ
ka	カ	ノ	カ
ki	キ	一	キ
ku	ク	ノ	ク
ke	ケ	ノ	ケ
ko	コ	フ	コ
sa	サ	一	サ
shi	シ	ニ	シ
su	ス	フ	ス
se	セ	フ	セ
so	ソ	フ	ソ
ta	タ	フ	タ

chi	チ	フ	ニ	チ
tsu	ツ	フ	フ	ツ
te	テ	フ	ニ	テ
to	ト	フ	ト	ト
na	ナ	フ	ナ	ナ
ni	ニ	フ	ニ	ニ
nu	ヌ	フ	ヌ	ヌ
ne	ネ	フ	ヌ	ヌ
no	ノ	ノ	ノ	ノ
ha	ハ	ノ	ハ	ハ
hi	ヒ	シ	ヒ	ヒ
fu	フ	フ		
he	ヘ	ヘ		
ho	ホ	一	ナ	オ
ma	マ	フ	マ	マ
mi	ミ	フ	ミ	ミ

mu	ム	ル	ム		
me	メ	ネ	メ		
mo	モ	-	ニ	モ	
ya	ヤ	ハ	ヤ		
yu	ユ	フ	ユ		
yo	ヨ	フ	コ	ヨ	
ra	ラ	-	ラ		
ri	リ	イ	リ		
ru	ル	ノ	ル		
re	レ	レ			
ro	ロ	イ	ロ	ロ	
wa	ワ	イ	ワ		
wi	ヰ	-	ヰ	ヰ	ヰ
we	ヱ	ヲ	ヱ	ヱ	ヱ
wo	ヲ	-	=	ヲ	
n'	ン	-	ン		