

L^AT_EX Phonetics & Phonology

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1 Introduction

This handout is a compilation of several others that already exist in the internet. The purpose is to provide a centralized document that contains all the code needed to get you started with L^AT_EX typesetting. Please feel free to reach out if you have any questions when typesetting your document at laviles@utexas.edu This document is intended for people that work in the areas of Phonetics and Phonology.

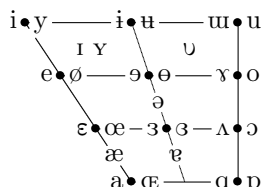
2 IPA Vowel and Consonant Charts

In order to typeset IPA symbols in LaTeX you will need the following package in the preamble section:

```
\usepackage{tipa}
\let\ipa\textipa
\usepackage{vowel}
\newcommand{\BlankCell}{{}}
```

The following table illustrates the IPA symbols. the code can be found in the GitHub folder. The vowel chart is borrowed from vowel.tex in the TIPA examples.

	Bilabial	Lab. dent.	Dental	Alveolar	P-alveo.	Retroflex	Palatal	Velar	Uvular	Pharyng.	Glottal
Plosive	p b			t d		ʈ ɖ	c ɟ	k g	q ɢ		ʔ
Nasal	m	ɱ		n		ɳ	ɲ	ŋ	ɴ		
Trill	ʙ			r					ʀ		
Tap/Flap				ɾ		ɽ					
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	h ɦ
Lat. Fric.				ɬ ɮ							
Approx		ʋ		ɹ		ɻ	j	ɰ			
Lat. appr.				l		ɭ	ʎ	ʟ			



When typing symbols in the prose you can retrieve the symbol by using the `\textipa{}` command. For instance to type **ŋ** you use `\textipa{N}`. The listing of each IPA symbol can be found in the source code in the GitHub Folder.

However, not all symbols follow the `\textipa` command. The following table contains other commands that

may be useful for linguists:

source code	symbol	description
<code>\textipa{C}</code>	ç	Alveo palatal fricativa sorda
<code>\textctz</code>	z	Alveo palatal fricativa sonora
<code>\texththeng</code>	ŋ	velar/uvular sound
<code>\textdyoghlig</code>	ɖ	voiced postalveolar fricative
<code>\texttleshlig</code>	ɸ	Voiceless postalveolar fricative
<code>\textrhookschwa</code>	ə̤	Rhotacized schwa
<code>\textipa{""}CV</code>	'CV	Primary stress
<code>\textipa{""}CV.\textipa{""}V</code>	,CV.'V	Secondary stress
<code>\t{cc}</code>	ċ	Tiebar
<code>p\sup{h}</code>	p ^h	Aspirated
<code>\textsubbridge t</code>	t̪	dental diacritic
<code>\textinsubbridge d</code>	d̪	apical diacritic
<code>\textsubumlaut{a}</code>	ä	breathy voice
<code>\textsubtilde{e}</code>	ẽ	creaky voice
<code>\textsubring{v}</code>	ṽ	voiceless

For additional symbols you may visit [here](#) for a detailed description of other IPA symbols.

3 Phonology

3.1 formulating rules

In order to be able to do typeset phonological rules in LaTeX you will need the following package in the Preamble section:

```
\usepackage{phonrule}
```

In order to typeset phonological rules, you use the command `\phon`. The command has two segments: the first one is the input of the rule and the second is its output.

$$\text{\phon{n}}\{\text{\textipa{N}}\}$$

$$n \rightarrow \eta$$

The command `\phonc` adds a third argument for context:

$$\text{\phonc{a}{o}{[+back]}}$$

$$a \rightarrow o / [+back]$$

The commands `\phonl`, `\phonr` and `\phonb` add a place holder line and puts the context, respectively, on the left (l), on the right (r) and on both sides (b).

1. `\phonl{k}{t}{i}`
2. $k \rightarrow t / i_$
3. `\phonr{t}{ts}{u}`
4. $t \rightarrow ts / _u$
5. `\phonb{s}{z}{v}{v}`
6. $s \rightarrow z / v_v$

The `\oneof` command provides the possibility to compile several contexts, one per line, embraced by a left curly bracket.

$$\backslash\mathrm{phonc}\{t\}\{ts\}\{\backslash\mathrm{oneof}\{\backslash\mathrm{phold}\ i\backslash\backslash \backslash\mathrm{phold}\ u\}\}$$

$$t \rightarrow ts / \left\{ \begin{array}{l} \text{--}i \\ \text{--}u \end{array} \right.$$

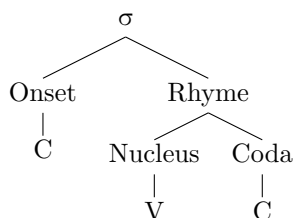
The `\phonfeat` commands allows you to inset feature specifications. The possible values are ‘c’ for center (default, ‘l’ for left aligned, and ‘r’ for right aligned.

$$\backslash\mathrm{phonc}\{t\}\{ts\}\{\backslash\mathrm{phold}\ \backslash\mathrm{phonfeat}[l]\{ \mathrm{consonantal}\backslash\backslash \ +\mathrm{high}\backslash\backslash \ +\mathrm{front}\}\}$$

$$t \rightarrow ts / \text{--} \left[\begin{array}{l} \mathrm{consonantal} \\ +\mathrm{high} \\ +\mathrm{front} \end{array} \right]$$

For additional information on the `phonrule` package visit [here](#).

In case you wish to list a syllable tree: you can do that as using the `\usepackage{qtree}`:




`\qtreecentertrue \Tree [.\textgreek{\textsigma} [.\text{Onset} C] [.\text{Rhyme} [.\text{Nucleus} V] [.\text{Coda} C]]]`

3.2 Optimality Theory (OT) Tableaux

3.2.1 general notes

In order to typeset for OT you will use the `ot-tableau` package. This package provides a manageable way to create OT tableaux. the $\mathrm{L}^{\mathrm{A}}\mathrm{T}_{\mathrm{E}}\mathrm{X}$ source is very similar to that of a tableau. The style can be varied to suit one’s personal taste.

/stap/	*COMPLEX	ANCHOR-IO	CONTIGUITY-IO
a. stap	*!		
 b. sap			*
c. tap		*!	

Things to keep in mind:

- The package introduces the `tableau` environment.
- Indicate solid or dashed lines between constraints with `\begin{tableau}{c:cc}`. A solid line is indicated by a pipe, a dashed line with a colon.
- The input is specified with the command `\inp`. (Here the `\ips` macro is being used to render the text using TIPA and put it within slashes.)
- Indicate the constraint with the `\const` command.
- Add a candidate with the `\cand` command. You can also annotate the candidate using `\cand[HandLeft]`.

- Violations are indicated with the `\vio` macro. You need to include these commands even when there are no violations.
- Keeping the columns aligned in the source code makes the tableau much easier to edit.
- The commands `\cand*` and `\const*` apply no formatting in the tableau.

3.2.2 Shading and other logistical items

There are two shading systems used for OT tableaux. The first one will shade the cells in a row after the crucial violation (!). The second consists on shading the entire column, if the associated constraint does not generate crucial variations. The following tableau:

/ba/	*VCD OBS	IDENT-IO-[nas]
a. ba	*!	
☞ b. pa		*

The following table shows the shading for the entire column by using ‘s’ instead of ‘c’ in the argument to the `\tableau`.

/ba/	*VCD OBS	IDENT-IO-[nas]
a. ba	*!	
☞ b. pa		*

☞ More specifically, `ot-tableau` will look for the exclamation point to program the shading. You have to provide the exclamation point.

☞ At the moment shading is not working. However, according to the online forum, this issue is being addressed.

4 References

Arnold, D. (2010) LaTeX for Linguists

Baker, Adam (2017) The `ot-tableau` package

IPA L^AT_EX codes with `textipa`

Fukui, R. (1996) TIPA: a System for Processing Phonetic Symbols in L^AT_EX

Coretta, S. (2017) The `phonrule` package (v1.3.2)