



Language Manual

Spanish

Javier and Maria

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Spanish
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1 General

This document discusses certain aspects of text-to-speech processing for the text-to-speech system, in particular the different types of input characters and text that are allowed.

This version of the document corresponds to the High Quality voice Maria and the High Density voice Javier.

2 Letters in orthographic text

Characters from **A-Z** and **a-z** as well as “ñ, Ñ, á, é, í, ó, ú” may constitute a word. Certain other characters are also considered as letters, notably those used as letters in other European languages, i.e. “ü, è, ò, â”. These letters are not pronounced as in their native languages though, they are pronounced as regular “u, e, o, a” etc.

Characters outside of these ranges, i.e. numbers, punctuation characters and other non-alphanumeric characters, are not considered as letters.

3 Punctuation characters

Punctuation marks appearing in a text affect both rhythm and intonation of a sentence. The following punctuation characters are permitted in the normal input text string:

, : ; “ ” . ? ! () { } [] '

3.1 Comma, colon and semicolon

Comma < , >, colon < : > and semicolon < ; > cause a brief pause to occur in a sentence, accompanied by a small rising intonation pattern just prior to the character.

3.2 Quotation marks

Quotes < “ ” > appearing around a single word or a group of words cause a brief pause before and after the quoted text.

3.3 Full stop

A full stop < . > is a sentence terminal punctuation mark which causes a falling end-of-sentence intonation pattern and is accompanied by a somewhat longer pause. A full stop may also be used as a decimal marker in a number (see chapter 5) and in abbreviations (see chapter 8).

3.4 Question mark

A question mark < ? > ends a sentence and causes question-intonation, first rising and then falling.

3.5 Exclamation mark

The exclamation mark < ! > behaves in a similar manner to the full stop, causing a falling intonation pattern followed by a pause.

3.6 Parentheses, brackets and braces

Parenthesis < () >, brackets < [] > and braces < { } > appearing around a single word or a group of words cause a brief pause before and after the bracketed text.

4 Other non-alphanumeric characters

4.1 Non-punctuation characters

The characters listed below are processed as non-letter, non-punctuation characters. Some are pronounced at all times and others are only pronounced in certain contexts, which are described in the following sections of this chapter.

Symbol	Reading
/	barra
+	más
\$	dólar
£	libra
€	euro
¥	yen
<	menos grande que
>	más grande que
%	por ciento
^	acento circunflejo
	barra vertical
~	tilde
@	arroba
=	igual
²	See below
³	See below
-	See below
*	See below

Table 1 Non-punctuation characters

4.2 The ² and ³ signs

The reading of expressions with ² and ³ is:

Expression	Reading
mm ²	milímetros cuadrados
cm ²	centímetros cuadrados
m ²	metros cuadrados
km ²	kilómetros cuadrados
mm ³	milímetros cúbicos
cm ³	centímetros cúbicos
m ³	metros cúbicos
km ³	kilómetros cúbicos

4.3 Symbols whose pronunciation varies depending on the context

4.3.1 Hyphen

A hyphen < - > is pronounced “menos” if followed by a digit. In certain date formats, in between days or years, the hyphen is pronounced “a”. In other cases the hyphen is never pronounced.

Expression	Reading
44-3	44 menos 3
Enero 12-14	enero 12 a 14
Feb 6-10	febrero 6 a 10
1998-2004	mil novecientos noventa y ocho a dos mil cuatro
02-02-2002	dos de febrero de dos mil dos
ex-ministro	ex ministro

4.3.2 Asterisk

Asterisk < * > is pronounced “multiplicado por” if enclosed by digits. In other cases it is pronounced “asterisco”.

Expression	Reading
2*3	dos multiplicado por tres
*bc	asterisco b c

5 Number processing

Strings of digits that are sent to the text-to-speech converter are processed in several different ways, depending on the format of the string of digits and the immediately surrounding punctuation or non-numeric characters. To familiarise the user with the various types of formatted and non-formatted strings of digits that are recognised by the system, we provide below a brief description of the basic number processing along with examples. Number processing is subdivided into the following categories:

Full number pronunciation

Leading zero

Decimal numbers

Currency amounts

Ordinal numbers

Arithmetic operators

Mixed digits and letters

Time of day

Dates

Phone numbers

5.1 Full number pronunciation

Full number pronunciation is given for the whole number part of the digit string.

Example

2425	full number
2.425	full number
24,25	24 is a full number, 25 is the decimal part

Numbers denoting thousands, millions and billions (numbers larger than 999) may be grouped using space or full stop (not comma). In order to achieve the right pronunciation the grouping must be done correctly.

The rules for grouping of numbers are the following:

- Numbers are grouped in groups of three starting at the end.
- The first group in a number may consist of one, two, or three digits.
- If a group, other than the first, does not contain exactly three digits, the sequence of digits is not interpreted as a full number.
- The highest number read is 9999999999 (eleven digits). Numbers higher than this are read as separate digits.

Number	Reading
2580	dos mil quinientos ochenta
2 580	“
2.580	“
25800	veinticinco mil ochocientos
25 800	“
25.800	“
2580350	dos millones quinientos ochenta mil trescientos cincuenta
2 580 350	“
2.580.350	“
1000000000	mil millones
123456789012	uno dos tres cuatro cinco seis siete ocho nueve cero uno dos
23 456 789 012	veintitrés mil millones cuatrocientos cincuenta y seis millones setecientos ochenta y nueve mil doce

5.2 Leading zero

Numbers that begin with 0 (zero) are read as a zero followed by the number read as a whole.

Number	Reading
09253	cero nueve mil doscientos cincuenta y tres
020	cero veinte

5.3 Decimal numbers

Comma or full stop may be used when writing decimal numbers.

The full number part of the decimal number (the part before comma or full stop) is read according to the rules in 5.1. If the decimals (the part after comma or full stop) are more than three, the decimal part is read as separate digits. Note: A number containing full stop followed by exactly three digits is not read as a decimal number but as a full number, following the rules in 5.1.

Number	Reading
16,234	dieciséis coma doscientos treinta y cuatro
3,1415	tres coma uno cuatro uno cinco
1251,04	mil doscientos cincuenta y uno coma cero cuatro
1.251,04	mil doscientos cincuenta y uno coma cero cuatro
2,50	dos coma cincuenta
2.50	dos punto cincuenta
3.141	tres mil ciento cuarenta y uno

5.4 Currency amounts

The following principles are followed for currency amounts:

- Numbers with zero or two decimals preceded or followed by the currency markers £, \$, ¥ or € are read as monetary amounts.
- Numbers with zero or two decimals followed by the words “peseta”, “pta”, “libra”, “dólar”, “yen” or “euro” (singular or plural) are read as monetary amounts.
- Accepted decimal markers are comma and full stop.
- No spaces are allowed in the number.
- The decimal part (consisting of two digits) in monetary amounts is read as “y nn peniques” and “y nn céntimos”.
- If the decimal part is “00” it will not be read.

Example	Reading
\$15.00.	quince dólares
15.00£.	quince libras
15.00 euros.	quince euros
€ 200.50	doscientos euros y cincuenta céntimos
1.000.000 ¥	un millón de yenes

There is also the possibility of writing large amounts as follows:

\$ 1 millón	un millón de dólares
-------------	----------------------

5.5 Ordinal numbers

Numbers are read as ordinals in the following cases:

- The number “1” is followed by a month name or one of the month name abbreviations. (The particle “de” can be included between the number and the month name or abbreviation.)The number may be preceded by a day. Examples: 1 enero, 1 de enero, jueves 1 feb., jueves 1 de feb.
- The number is “1er, 3er”.
- The number is followed by “o, a, °, ª”. Examples: 2o, 3a, 4ª, 5°. (Note that numbers above 10 are not read as ordinals but as cardinals, following the Spanish usage.)

Valid abbreviations for months: feb, abr, jun, jul, set, sept, oct, nov and dic.

5.6 Arithmetic operators

Numbers together with arithmetical operators are read according to the examples below.

Expression	Reading
-12	menos doce
+24	más veinticuatro
2*3	dos multiplicado por tres
2/3	dos dividido por tres
25%	veinticinco por ciento
3,4%	tres coma cuatro por ciento

5.7 Mixed digits and letters

If a letter appears within a sequence of digits, the groups of digits will be read as numbers according to the rules above. The letter marks the boundary between the numbers. The letter will also be read. Examples:

Expression	Reading
77B84Z3	setenta y siete B ochenta y cuatro Z tres
0092B87-B	cero cero noventa y dos B ochenta y siete B

5.8 Time of day

The colon is used to separate hours, minutes and seconds.

Possible patterns are:

- a) hh:mm (or h:mm)
- b) hh:mm:ss (or h:mm:ss)
- c) hh (or hh-hh)

h = hour, m = minute, s = second.

In pattern a): If the “mm”-part is equal to “00”, this part will not be read. This pattern can be preceded or followed by time indications such as “A.M., AM, P.M., PM, h, or h.”.

In pattern b): A “y” will be inserted before the “ss”-part, and “segundas” will be added after it. If the “ss”-part is equal to “00”, this part will not be read. This pattern can be preceded or followed by time indications such as “A.M., AM, P.M., or PM”.

In pattern (c) the hours can appear alone but must be preceded or followed by time indications such as “A.M., AM, P.M., or PM”. They can also appear in a time range and must then be followed by a time indication. Example: 10-11 AM.

5.9 Dates

The valid formats for dates are:

1.dd-mm-yyyy, dd.mm.yyyy, and dd/mm/yyyy

2.dd-mm-yy, dd.mm.yy, and dd/mm/yy

“yyyy” is a four-digit number, “yy” is a two-digit number, “mm” is a month number between 1 and 12 and “dd” a day number between 1 and 31.

Hyphen, full stop, and slash may be used as delimiters.

In all formats, one or two digits may be used in the “mm” and “dd” part. Zeros may be used in front of numbers below 10.

Examples of valid formats and their readings:

Type 1: dd-mm-yyyy, dd.mm.yyyy, and dd/mm/yyyy

10-02-2003 or 10-2-2003 diez de febrero de dos mil tres

10.02.2003 or 10.2.2003 “

10/02/2003 or 10/2/2003 “

Type 2: dd-mm-yy, dd.mm.yy, and dd/mm/yy

10-02-03 or 10-2-03 diez de febrero de dos mil tres

10.02.03 or 10.2.03 “

10/02/03 or 10/2/03 “

Ranges of days and years are also supported.

Examples:

1998-1999 mil novecientos noventa y ocho a mil novecientos noventa y nueve

1939-45 mil novecientos treinta y nueve a cuarenta y cinco

2002/3 dos mil dos a tres

14-15 enero catorce a quince de enero

abril 2-3 abril dos a tres

Other possible formats include :

- Lunes, 15 de enero
- Jueves, 30 de abril de 1999
- 3 de mayo de 1953

5.10 Phone numbers

In this section the patterns of digits that are recognised as phone numbers are described. In the pronunciation of phone numbers each group of digits is read as a full number (see also Leading zero section 5.2) with pauses between groups of numbers. Groups that contain more than three digits are read out digit by digit.

5.10.1 Ordinary phone numbers

Sequences of digits in the following formats are treated as phone numbers.

The following sequences of digits can be separated by a space or a hyphen:

- xxx xxxxxx
- xxx xxxxx
- xxx xxx xxxx
- xxx xxx xxx
- xxx xxx xx xx
- xxx xxx xx
- xx xxx xxxx
- xx xxx xxx
- xx xxx xx xx

The following sequences can only appear in these formats:

- (xxx) xxx-xxxx
- xx- xxx xxx
- xx- xxx-xxx
- xx- xxx-xx-xx
- xx- xxx xx xx

5.10.2 International phone numbers

International phone numbers follow the pattern below:

International Prefix + Country code + space or hyphen + Local number

International prefix: "00" or "+"

Country code: 1-3 digits

Local number: 8-10 digits

Examples:

0034 (971) 123-4567

0034 971 123456

001 21- 123-45-56

6 How to change pronunciation errors

Words that are not pronounced correctly by the text-to-speech converter can be entered in the user lexicon (see User's guide). In this lexicon, the user enters a phonetic transcription of the word (see chapter 7). Phonetic translations can also be entered directly in the text, using a PRN-tag (see User's guide).

7 Spanish Phonetic Text

The Spanish text-to-speech system uses the Spanish subset of the SAMPA phonetic alphabet (Speech Assessment Methods Phonetic Alphabet). Note that Javier cannot pronounce the “j, B, D, G” symbols, only Maria. The symbols are written with a space between each phoneme.

Only SAMPA may be used in phonetic transcriptions. Symbols not listed here are not valid in phonetic transcriptions and will be ignored if included in the user lexicon or in a PRN tag.

7.1 Consonants

7.1.1 Symbols for the Spanish consonants

Symbol	Word	Phonetic text	Comments
jj	Yen	jj e1 n	glide
w	cUatro	k w a1 t r o	glide
p	Perro	p e1 r r o	
t	Tanto	t a1 n t o	
k	cinCo	T i1 n k o	
b	Barra	b a1 r r a	
d	De	d e1	
g	Gato	g a1 t o	
f	Falso	f a1 l s o	
tS	CHica	tS i1 k a	
T	Cero	T e1 r o	
s	Seguro	s e1 g u r o	
x	Juego	x w e1 g o	
l	Lado	l a1 d o	
r	Rincón	r i1 n k o n	
rr	peRRo	p e1 r r o	
L	LLegar	L e1 g a r	
m	Madre	m a1 d r e	
n	No	n o1	
J	maÑana	m a J a1 n a	
B	uVa	u1 B a	(Maria only)
D	haDa	a1 D a	(Maria only)
G	hiGo	i1 G o	(Maria only)

Table 2 Spanish consonants

7.2 Vowels

7.2.1 Symbols for the Spanish vowels

Symbol	Word	Phonetic text	Comment
i	tlpo	t i1 p o	
e	cEro	T e1 r o	
a	gAto	g a1 t o	
o	perrO	p e1 r r o	
u	Uno	u1 n o	
j	slempre	s j e1 m p r e	(Maria only)

Table 3 Spanish vowels

7.3 Lexical stress

In words with more than one syllable, one (and normally only one) of the syllables is more prominent than the others. This is referred to as word stress, or lexical stress. Words of one syllable also have word stress when spoken in isolation, although many may lose the stress in certain contexts. For the correct pronunciation of a word, it is important to include the symbol marking the word stress.

In the phonetic transcriptions the word stress is indicated by the symbol "1" placed directly after the stressed vowel (with no space between the vowel symbol and the stress symbol).

7.4 Pause

An underscore < _ > in a phonetic transcription generates a small pause.

8 Abbreviations

In the current version of the Spanish text-to-speech system, the abbreviations in table 4 below are recognised in all contexts. These abbreviations are mostly case-insensitive (except for those indicated below by “*”) and require no full stop in order to be recognised as an abbreviation.

As previously mentioned, there are also abbreviations for the month names.

Abbreviation	Reading
cía (or cia)	compañía
Exc	excelencia
RENFE*	Red Nacional de los Ferrocarriles Españoles
SA*	Sociedad Anónima
sr	señor
srs	señores
sres	señores
sra	señora
sрта	señorita
TVE*	Televisión Española
ud (or vd)	usted
uds (or vds)	ustedes
cl	centilitros
cm	centímetros
cts	céntimos
dcha	derecha
dl	decilitros
dm	decímetros
dupdo	duplicado
etc	etcetera
izda	izquierda
kg	kilogramos
km	kilómetros
lic	licenciado
mg	miligramos
ml	mililitros
mn	minutas
mm	milímetros
n°	número
orig	origina
pral	principal
prov	provincia
tel	teléfono
°C *	celsius
°K *	grado kelvin
°F *	fahrenheit
apdo	apartado postal
av (or avda)	avenida
dr	doctor
dra	doctora
esq	esquina
gob	gobierno
gral	general
ing	ingeniero
núm	número
pág	página
prof	profesor
profa	profesora
vol	volumen
NIF*	Número de Identificación Fiscal
am (or a.m.)	de la mañana
pm (or p.m.)	de la tarde

Table 4 Abbreviations

9 Web-addresses and email

Web-addresses and email-addresses are read as follows:

- “www” is read as three w’s spelled letter by letter.
- Full stops are read as “punto”, hyphens as “guión”, underscore (“_”) as “guión bajo”, slash (“/”) as “barra”.
- “es, uk, fr” and all the other abbreviations for countries are spelled out letter by letter.
- The “@” is read “arroba” .
- Words/strings (including “org”, “com” and “edu”) are pronounced according to the normal rules of pronunciation in the system and in accordance with the lexicon.

String

www.babeltech.com

<http://www.babeltech.com>

garcia@yahoo.es

ana_garcia@yahoo.es

Reading

w w w punto babeltech punto com

h t t p dos puntos barra barra w w w punto babeltech punto com

garcia arroba yahoo punto e s

ana guión bajo garcia arroba yahoo punto e s