E The ASCII character set

The American Standard Code for Information Interchange (ASCII) was invented in 1963, and after some development settled down in 1984 as standard X3.4 of American National Standards Institute (ANSI). It represents the 95 codes for the printable characters (A-Z, a-z, 0-9, and punctuation) of the unaccented Latin alphabet, plus 33 internal 'control characters' originally intended for the control of computers, programs, and external devices like printers, screens, disks, modems, etc.

Many other character sets (strictly speaking, 'character repertoires') have been used for accented Latin characters and for other (non-Latin) writing systems, for representing the symbols people use when writing text on computers, but the current standard is ISO 10646 (Unicode), which covers pretty much all the marks the human race makes when communication, and I strongly recommend you use only Unicode UTF-8 when writing for LaTeX.

However, most programs and computers use ASCII internally for all their coding, the exceptions being XML-based languages like XSLT, which default to UTF-8, but are inherently designed to be usable with any writing system; and a few specialist systems like APL.

Although the TeX and LaTeX file formats can easily be used with many other encoding systems (see the discussion of the inputenc package in section 1.8 on page 19), their markup is based on ASCII. It is therefore important that you know where to find *all* 95 of the printable characters, as some of them are not often used in other text-formatting systems.

The following table shows all 128 characters, with their decimal, octal (base-8), and hexadecimal (base-16) code numbers.

Decimal number values are under or beside each character. The index numbers in the first and last columns are for finding the octal (base-8) and hexadecimal (base-16) values respectively. Replace the arrow with the number or letter from the top row label of the column (if the arrow points up) or from the bottom row label of the column(if the arrow points down).

Example: The Escape character (ESC) is decimal 27; octal '033 (03 for the row, 3 for the number at the top of the column because the arrow points up), and hexadecimal "1B (1 for the row, B for the letter at the bottom of the column because the arrow points down).

Table E.1: The ASCII characters

Oct	0	1	2	3	4	5	6	7	Hex
$'00\uparrow$	NUL 0	SOH 1	STX 2	ETX 3	EOT 4	ENQ 5	ACK 6	BEL 7	$''0\uparrow$
$'01\uparrow$	BS 8	HT 9	LF 10	VT 11	FF 12	CR 13	SO 14	SI 15	$''0\downarrow$
$'02\uparrow$	DLE 16	DC1 17	DC2 18	DC3 19	DC4 20	NAK 21	SYN 22	ETB 23	$''1\uparrow$
$'03\uparrow$	CAN 24	EM 25	SUB 26	ESC 27	FS 28	GS 29	RS 30	US 31	$''1\downarrow$
$'04\uparrow$	␣ 32	! 33	" 34	# 35	$ 36	% 37	& 38	' 39	$''2\uparrow$
$'05\uparrow$	(40	) 41	* 42	+ 43	, 44	− 45	. 46	/ 47	$''2\downarrow$
$'06\uparrow$	0 48	1 49	2 50	3 51	4 52	5 53	6 54	7 55	$''3\uparrow$
$'07\uparrow$	8 56	9 57	: 58	; 59	< 60	= 61	> 62	? 63	$''3\downarrow$
$'10\uparrow$	@ 64	A 65	B 66	C 67	D 68	E 69	F 70	G 71	$''4\uparrow$
$'11\uparrow$	H 72	I 73	J 74	K 75	L 76	M 77	N 78	O 79	$''4\downarrow$
$'12\uparrow$	P 80	Q 81	R 82	S 83	T 84	U 85	V 86	W 87	$''5\uparrow$
$'13\uparrow$	X 88	Y 89	Z 90	[91	\ 92	] 93	^ 94	_ 95	$''5\downarrow$
$'14\uparrow$	` 96	a 97	b 98	c 99	d 100	e 101	f 102	g 103	$''6\uparrow$
$'15\uparrow$	h 104	i 105	j 106	k 107	l 108	m 109	n 110	o 111	$''6\downarrow$
$'16\uparrow$	p 112	q 113	r 114	s 115	t 116	u 117	v 118	w 119	$''7\uparrow$
$'17\uparrow$	x 120	y 121	z 122	{ 123	| 124	} 125	~ 126	DEL 127	$''7\downarrow$
	8	9	A	B	C	D	E	F	