**ustrupper() — Convert Unicode string to uppercase, lowercase, or titlecase**

### Description

`ustrupper(s [, loc])` converts the characters in Unicode string `s` to uppercase under the given locale `loc`. If `loc` is not specified, the `locale_functions` setting is used. The result can be longer or shorter than the input string; for example, the uppercase form of the German letter ß (code point ß) is two capital letters “SS”. The same `s` but different `loc` can produce different results; for example, the uppercase letter “i” is “I” in English, but it is “İ” with a dot in Turkish.

`ustrlower(s [, loc])` converts the characters in Unicode string `s` to lowercase under the given locale `loc`. If `loc` is not specified, the `locale_functions` setting is used. The result can be longer or shorter than the input Unicode string in bytes. The same `s` but different `loc` can produce different results; for example, the lowercase letter of “I” is “i” in English, but it is “i” without a dot in Turkish. The same Unicode character can be mapped to different Unicode characters based on its surrounding characters; for example, Greek capital letter sigma, Σ, has two lowercase alternatives: σ or, if it is the final character of a word, ς.

`ustrtitle(s [, loc])` converts the Unicode words in string `s` to titlecase. Note that a Unicode word is different from the space-delimited words produced by function `word()`. A Unicode word is a language unit based on either a set of word-boundary rules or dictionaries for some languages (Chinese, Japanese, and Thai). The titlecase is also locale dependent and context sensitive; for example, lowercase “ij” in titlecase form is “IJ” in Dutch, but it is “Ij” in English. If `loc` is not specified, the `locale_functions` setting is used.

When `s` is not a scalar, these functions return element-by-element results.

### Syntax

```plaintext
string matrix  ustrupper(string matrix s [, string scalar loc])

string matrix  ustrlower(string matrix s [, string scalar loc])

string matrix  ustrtitle(string matrix s [, string scalar loc])
```

### Remarks and examples

Use functions `strupper()` and `strlower()` to convert only ASCII letters to uppercase and lowercase.

### Conformability

`ustrupper(s[, loc]), ustrlower(s[, loc]), ustrtitle(s[, loc]):`
ustrupper( ) — Convert Unicode string to uppercase, lowercase, or titlecase

\[
\begin{align*}
  s & : r \times c \\
  \text{result} & : r \times c
\end{align*}
\]

Diagnostics

ustrupper(\(s[, \text{loc}]\)), ustrlower(\(s[, \text{loc}]\)), and ustrtitle(\(s[, \text{loc}]\)) return an empty string if an error occurs.

Also see

[M-5] \(\texttt{strupper()}\) — Convert ASCII letter to uppercase (lowercase)

[M-4] \(\texttt{String}\) — String manipulation functions

[U] 12.4.2.2 Displaying Unicode characters