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Modul:Unicode data/aliases

Contains data used by [Module:Unicode data](#) to determine formal name aliases for a Unicode character. Generated from [NameAliases.txt](#) in the Unicode Character Database using a script at [wikt:User:Kephir/Unicode](#).

```
local correction, control, alternate, figment, abbreviation =
    "correction", "control", "alternate", "figment", "abbreviation"

return {
    [0x000000] = {
        { control, "NULL" };
        { abbreviation, "NUL" };
    };
    [0x000001] = {
        { control, "START OF HEADING" };
        { abbreviation, "SOH" };
    };
    [0x000002] = {
        { control, "START OF TEXT" };
        { abbreviation, "STX" };
    };
    [0x000003] = {
        { control, "END OF TEXT" };
        { abbreviation, "ETX" };
    };
    [0x000004] = {
        { control, "END OF TRANSMISSION" };
        { abbreviation, "EOT" };
    };
    [0x000005] = {
        { control, "ENQUIRY" };
        { abbreviation, "ENQ" };
    };
    [0x000006] = {
        { control, "ACKNOWLEDGE" };
        { abbreviation, "ACK" };
    };
    [0x000007] = {
        { control, "ALERT" };
        { abbreviation, "BEL" };
    };
    [0x000008] = {
        { control, "BACKSPACE" };
        { abbreviation, "BS" };
    };
    [0x000009] = {
        { control, "CHARACTER TABULATION" };
        { control, "HORIZONTAL TABULATION" };
        { abbreviation, "HT" };
        { abbreviation, "TAB" };
    };
    [0x00000a] = {
        { control, "LINE FEED" };
        { control, "NEW LINE" };
        { control, "END OF LINE" };
        { abbreviation, "LF" };
        { abbreviation, "NL" };
        { abbreviation, "EOL" };
    };
}
```



```
};
[0x00000b] = {
    { control, "LINE TABULATION" };
    { control, "VERTICAL TABULATION" };
    { abbreviation, "VT" };
};
[0x00000c] = {
    { control, "FORM FEED" };
    { abbreviation, "FF" };
};
[0x00000d] = {
    { control, "CARRIAGE RETURN" };
    { abbreviation, "CR" };
};
[0x00000e] = {
    { control, "SHIFT OUT" };
    { control, "LOCKING-SHIFT ONE" };
    { abbreviation, "SO" };
};
[0x00000f] = {
    { control, "SHIFT IN" };
    { control, "LOCKING-SHIFT ZERO" };
    { abbreviation, "SI" };
};
[0x000010] = {
    { control, "DATA LINK ESCAPE" };
    { abbreviation, "DLE" };
};
[0x000011] = {
    { control, "DEVICE CONTROL ONE" };
    { abbreviation, "DC1" };
};
[0x000012] = {
    { control, "DEVICE CONTROL TWO" };
    { abbreviation, "DC2" };
};
[0x000013] = {
    { control, "DEVICE CONTROL THREE" };
    { abbreviation, "DC3" };
};
[0x000014] = {
    { control, "DEVICE CONTROL FOUR" };
    { abbreviation, "DC4" };
};
[0x000015] = {
    { control, "NEGATIVE ACKNOWLEDGE" };
    { abbreviation, "NAK" };
};
[0x000016] = {
    { control, "SYNCHRONOUS IDLE" };
    { abbreviation, "SYN" };
};
[0x000017] = {
    { control, "END OF TRANSMISSION BLOCK" };
    { abbreviation, "ETB" };
};
[0x000018] = {
    { control, "CANCEL" };
    { abbreviation, "CAN" };
};
[0x000019] = {
    { control, "END OF MEDIUM" };
    { abbreviation, "EOM" };
};
};
```

```
[0x00001a] = {
    { control, "SUBSTITUTE" };
    { abbreviation, "SUB" };
};
[0x00001b] = {
    { control, "ESCAPE" };
    { abbreviation, "ESC" };
};
[0x00001c] = {
    { control, "INFORMATION SEPARATOR FOUR" };
    { control, "FILE SEPARATOR" };
    { abbreviation, "FS" };
};
[0x00001d] = {
    { control, "INFORMATION SEPARATOR THREE" };
    { control, "GROUP SEPARATOR" };
    { abbreviation, "GS" };
};
[0x00001e] = {
    { control, "INFORMATION SEPARATOR TWO" };
    { control, "RECORD SEPARATOR" };
    { abbreviation, "RS" };
};
[0x00001f] = {
    { control, "INFORMATION SEPARATOR ONE" };
    { control, "UNIT SEPARATOR" };
    { abbreviation, "US" };
};
[0x000020] = {
    { abbreviation, "SP" };
};
[0x00007f] = {
    { control, "DELETE" };
    { abbreviation, "DEL" };
};
[0x000080] = {
    { figment, "PADDING CHARACTER" };
    { abbreviation, "PAD" };
};
[0x000081] = {
    { figment, "HIGH OCTET PRESET" };
    { abbreviation, "HOP" };
};
[0x000082] = {
    { control, "BREAK PERMITTED HERE" };
    { abbreviation, "BPH" };
};
[0x000083] = {
    { control, "NO BREAK HERE" };
    { abbreviation, "NBH" };
};
[0x000084] = {
    { control, "INDEX" };
    { abbreviation, "IND" };
};
[0x000085] = {
    { control, "NEXT LINE" };
    { abbreviation, "NEL" };
};
[0x000086] = {
    { control, "START OF SELECTED AREA" };
    { abbreviation, "SSA" };
};
[0x000087] = {
```



```
        { control, "END OF SELECTED AREA" };
        { abbreviation, "ESA" };
};
[0x000088] = {
    { control, "CHARACTER TABULATION SET" };
    { control, "HORIZONTAL TABULATION SET" };
    { abbreviation, "HTS" };
};
[0x000089] = {
    { control, "CHARACTER TABULATION WITH JUSTIFICATION" };
    { control, "HORIZONTAL TABULATION WITH JUSTIFICATION" };
    { abbreviation, "HTJ" };
};
[0x00008a] = {
    { control, "LINE TABULATION SET" };
    { control, "VERTICAL TABULATION SET" };
    { abbreviation, "VTS" };
};
[0x00008b] = {
    { control, "PARTIAL LINE FORWARD" };
    { control, "PARTIAL LINE DOWN" };
    { abbreviation, "PLD" };
};
[0x00008c] = {
    { control, "PARTIAL LINE BACKWARD" };
    { control, "PARTIAL LINE UP" };
    { abbreviation, "PLU" };
};
[0x00008d] = {
    { control, "REVERSE LINE FEED" };
    { control, "REVERSE INDEX" };
    { abbreviation, "RI" };
};
[0x00008e] = {
    { control, "SINGLE SHIFT TWO" };
    { control, "SINGLE-SHIFT-2" };
    { abbreviation, "SS2" };
};
[0x00008f] = {
    { control, "SINGLE SHIFT THREE" };
    { control, "SINGLE-SHIFT-3" };
    { abbreviation, "SS3" };
};
[0x000090] = {
    { control, "DEVICE CONTROL STRING" };
    { abbreviation, "DCS" };
};
[0x000091] = {
    { control, "PRIVATE USE ONE" };
    { control, "PRIVATE USE-1" };
    { abbreviation, "PU1" };
};
[0x000092] = {
    { control, "PRIVATE USE TWO" };
    { control, "PRIVATE USE-2" };
    { abbreviation, "PU2" };
};
[0x000093] = {
    { control, "SET TRANSMIT STATE" };
    { abbreviation, "STS" };
};
[0x000094] = {
    { control, "CANCEL CHARACTER" };
    { abbreviation, "CCH" };
};
```

```
};
[0x000095] = {
    { control, "MESSAGE WAITING" };
    { abbreviation, "MW" };
};
[0x000096] = {
    { control, "START OF GUARDED AREA" };
    { control, "START OF PROTECTED AREA" };
    { abbreviation, "SPA" };
};
[0x000097] = {
    { control, "END OF GUARDED AREA" };
    { control, "END OF PROTECTED AREA" };
    { abbreviation, "EPA" };
};
[0x000098] = {
    { control, "START OF STRING" };
    { abbreviation, "SOS" };
};
[0x000099] = {
    { figment, "SINGLE GRAPHIC CHARACTER INTRODUCER" };
    { abbreviation, "SGC" };
};
[0x00009a] = {
    { control, "SINGLE CHARACTER INTRODUCER" };
    { abbreviation, "SCI" };
};
[0x00009b] = {
    { control, "CONTROL SEQUENCE INTRODUCER" };
    { abbreviation, "CSI" };
};
[0x00009c] = {
    { control, "STRING TERMINATOR" };
    { abbreviation, "ST" };
};
[0x00009d] = {
    { control, "OPERATING SYSTEM COMMAND" };
    { abbreviation, "OSC" };
};
[0x00009e] = {
    { control, "PRIVACY MESSAGE" };
    { abbreviation, "PM" };
};
[0x00009f] = {
    { control, "APPLICATION PROGRAM COMMAND" };
    { abbreviation, "APC" };
};
[0x0000a0] = {
    { abbreviation, "NBSP" };
};
[0x0000ad] = {
    { abbreviation, "SHY" };
};
[0x0001a2] = {
    { correction, "LATIN CAPITAL LETTER GHA" };
};
[0x0001a3] = {
    { correction, "LATIN SMALL LETTER GHA" };
};
[0x00034f] = {
    { abbreviation, "CGJ" };
};
[0x00061c] = {
    { abbreviation, "ALM" };
};
```

```
};
[0x000709] = {
    { correction, "SYRIAC SUBLINEAR COLON SKEWED LEFT" };
};
[0x000cde] = {
    { correction, "KANNADA LETTER LLLA" };
};
[0x000e9d] = {
    { correction, "LAO LETTER FO FON" };
};
[0x000e9f] = {
    { correction, "LAO LETTER FO FAY" };
};
[0x000ea3] = {
    { correction, "LAO LETTER R0" };
};
[0x000ea5] = {
    { correction, "LAO LETTER L0" };
};
[0x000fd0] = {
    { correction, "TIBETAN MARK BKA- SHOG GI MGO RGYAN" };
};
[0x0011ec] = {
    { correction, "HANGUL JONGSEONG YESIEUNG-KIYEOK" };
};
[0x0011ed] = {
    { correction, "HANGUL JONGSEONG YESIEUNG-SSANGKIYEOK" };
};
[0x0011ee] = {
    { correction, "HANGUL JONGSEONG SSANGYESIEUNG" };
};
[0x0011ef] = {
    { correction, "HANGUL JONGSEONG YESIEUNG-KHIEUKH" };
};
[0x00180b] = {
    { abbreviation, "FVS1" };
};
[0x00180c] = {
    { abbreviation, "FVS2" };
};
[0x00180d] = {
    { abbreviation, "FVS3" };
};
[0x00180e] = {
    { abbreviation, "MVS" };
};
[0x00180f] = {
    { abbreviation, "FVS4" };
};
[0x00200b] = {
    { abbreviation, "ZWSP" };
};
[0x00200c] = {
    { abbreviation, "ZWNJ" };
};
[0x00200d] = {
    { abbreviation, "ZWJ" };
};
[0x00200e] = {
    { abbreviation, "LRM" };
};
[0x00200f] = {
    { abbreviation, "RLM" };
};
};
```



```
[0x00202a] = {
    { abbreviation, "LRE" };
};
[0x00202b] = {
    { abbreviation, "RLE" };
};
[0x00202c] = {
    { abbreviation, "PDF" };
};
[0x00202d] = {
    { abbreviation, "LR0" };
};
[0x00202e] = {
    { abbreviation, "RL0" };
};
[0x00202f] = {
    { abbreviation, "NNBSP" };
};
[0x00205f] = {
    { abbreviation, "MMSP" };
};
[0x002060] = {
    { abbreviation, "WJ" };
};
[0x002066] = {
    { abbreviation, "LRI" };
};
[0x002067] = {
    { abbreviation, "RLI" };
};
[0x002068] = {
    { abbreviation, "FSI" };
};
[0x002069] = {
    { abbreviation, "PDI" };
};
[0x002118] = {
    { correction, "WEIERSTRASS ELLIPTIC FUNCTION" };
};
[0x002448] = {
    { correction, "MICR ON US SYMBOL" };
};
[0x002449] = {
    { correction, "MICR DASH SYMBOL" };
};
[0x002b7a] = {
    { correction, "LEFTWARDS TRIANGLE-HEADED ARROW WITH DOUBLE VER" };
};
[0x002b7c] = {
    { correction, "RIGHTWARDS TRIANGLE-HEADED ARROW WITH DOUBLE VER" };
};
[0x00a015] = {
    { correction, "YI SYLLABLE ITERATION MARK" };
};
[0x00aa6e] = {
    { correction, "MYANMAR LETTER KHAMTI LLA" };
};
[0x00fe00] = {
    { abbreviation, "VS1" };
};
[0x00fe01] = {
    { abbreviation, "VS2" };
};
[0x00fe02] = {
```

```
        { abbreviation, "VS3" };
};
[0x00fe03] = {
    { abbreviation, "VS4" };
};
[0x00fe04] = {
    { abbreviation, "VS5" };
};
[0x00fe05] = {
    { abbreviation, "VS6" };
};
[0x00fe06] = {
    { abbreviation, "VS7" };
};
[0x00fe07] = {
    { abbreviation, "VS8" };
};
[0x00fe08] = {
    { abbreviation, "VS9" };
};
[0x00fe09] = {
    { abbreviation, "VS10" };
};
[0x00fe0a] = {
    { abbreviation, "VS11" };
};
[0x00fe0b] = {
    { abbreviation, "VS12" };
};
[0x00fe0c] = {
    { abbreviation, "VS13" };
};
[0x00fe0d] = {
    { abbreviation, "VS14" };
};
[0x00fe0e] = {
    { abbreviation, "VS15" };
};
[0x00fe0f] = {
    { abbreviation, "VS16" };
};
[0x00fe18] = {
    { correction, "PRESENTATION FORM FOR VERTICAL RIGHT WHITE LENT"
};
[0x00feff] = {
    { alternate, "BYTE ORDER MARK" };
    { abbreviation, "BOM" };
    { abbreviation, "ZWNBSP" };
};
[0x0122d4] = {
    { correction, "CUNEIFORM SIGN NU11 TENU" };
};
[0x0122d5] = {
    { correction, "CUNEIFORM SIGN NU11 OVER NU11 BUR OVER BUR" };
};
[0x016e56] = {
    { correction, "MEDEFAIDRIN CAPITAL LETTER H" };
};
[0x016e57] = {
    { correction, "MEDEFAIDRIN CAPITAL LETTER NG" };
};
[0x016e76] = {
    { correction, "MEDEFAIDRIN SMALL LETTER H" };
};
```



```
[0x016e77] = {
    { correction, "MEDEFAIDRIN SMALL LETTER NG" };
};
[0x01b001] = {
    { correction, "HENTAIGANA LETTER E-1" };
};
[0x01d0c5] = {
    { correction, "BYZANTINE MUSICAL SYMBOL FTHORA SKLIRON CHROMA" };
};
[0x0e0100] = {
    { abbreviation, "VS17" };
};
[0x0e0101] = {
    { abbreviation, "VS18" };
};
[0x0e0102] = {
    { abbreviation, "VS19" };
};
[0x0e0103] = {
    { abbreviation, "VS20" };
};
[0x0e0104] = {
    { abbreviation, "VS21" };
};
[0x0e0105] = {
    { abbreviation, "VS22" };
};
[0x0e0106] = {
    { abbreviation, "VS23" };
};
[0x0e0107] = {
    { abbreviation, "VS24" };
};
[0x0e0108] = {
    { abbreviation, "VS25" };
};
[0x0e0109] = {
    { abbreviation, "VS26" };
};
[0x0e010a] = {
    { abbreviation, "VS27" };
};
[0x0e010b] = {
    { abbreviation, "VS28" };
};
[0x0e010c] = {
    { abbreviation, "VS29" };
};
[0x0e010d] = {
    { abbreviation, "VS30" };
};
[0x0e010e] = {
    { abbreviation, "VS31" };
};
[0x0e010f] = {
    { abbreviation, "VS32" };
};
[0x0e0110] = {
    { abbreviation, "VS33" };
};
[0x0e0111] = {
    { abbreviation, "VS34" };
};
[0x0e0112] = {
```

```
        { abbreviation, "VS35" };
};
[0x0e0113] = {
        { abbreviation, "VS36" };
};
[0x0e0114] = {
        { abbreviation, "VS37" };
};
[0x0e0115] = {
        { abbreviation, "VS38" };
};
[0x0e0116] = {
        { abbreviation, "VS39" };
};
[0x0e0117] = {
        { abbreviation, "VS40" };
};
[0x0e0118] = {
        { abbreviation, "VS41" };
};
[0x0e0119] = {
        { abbreviation, "VS42" };
};
[0x0e011a] = {
        { abbreviation, "VS43" };
};
[0x0e011b] = {
        { abbreviation, "VS44" };
};
[0x0e011c] = {
        { abbreviation, "VS45" };
};
[0x0e011d] = {
        { abbreviation, "VS46" };
};
[0x0e011e] = {
        { abbreviation, "VS47" };
};
[0x0e011f] = {
        { abbreviation, "VS48" };
};
[0x0e0120] = {
        { abbreviation, "VS49" };
};
[0x0e0121] = {
        { abbreviation, "VS50" };
};
[0x0e0122] = {
        { abbreviation, "VS51" };
};
[0x0e0123] = {
        { abbreviation, "VS52" };
};
[0x0e0124] = {
        { abbreviation, "VS53" };
};
[0x0e0125] = {
        { abbreviation, "VS54" };
};
[0x0e0126] = {
        { abbreviation, "VS55" };
};
[0x0e0127] = {
        { abbreviation, "VS56" };
```

```
};
[0x0e0128] = {
    { abbreviation, "VS57" };
};
[0x0e0129] = {
    { abbreviation, "VS58" };
};
[0x0e012a] = {
    { abbreviation, "VS59" };
};
[0x0e012b] = {
    { abbreviation, "VS60" };
};
[0x0e012c] = {
    { abbreviation, "VS61" };
};
[0x0e012d] = {
    { abbreviation, "VS62" };
};
[0x0e012e] = {
    { abbreviation, "VS63" };
};
[0x0e012f] = {
    { abbreviation, "VS64" };
};
[0x0e0130] = {
    { abbreviation, "VS65" };
};
[0x0e0131] = {
    { abbreviation, "VS66" };
};
[0x0e0132] = {
    { abbreviation, "VS67" };
};
[0x0e0133] = {
    { abbreviation, "VS68" };
};
[0x0e0134] = {
    { abbreviation, "VS69" };
};
[0x0e0135] = {
    { abbreviation, "VS70" };
};
[0x0e0136] = {
    { abbreviation, "VS71" };
};
[0x0e0137] = {
    { abbreviation, "VS72" };
};
[0x0e0138] = {
    { abbreviation, "VS73" };
};
[0x0e0139] = {
    { abbreviation, "VS74" };
};
[0x0e013a] = {
    { abbreviation, "VS75" };
};
[0x0e013b] = {
    { abbreviation, "VS76" };
};
[0x0e013c] = {
    { abbreviation, "VS77" };
};
};
```



```
[0x0e013d] = {
    { abbreviation, "VS78" };
};
[0x0e013e] = {
    { abbreviation, "VS79" };
};
[0x0e013f] = {
    { abbreviation, "VS80" };
};
[0x0e0140] = {
    { abbreviation, "VS81" };
};
[0x0e0141] = {
    { abbreviation, "VS82" };
};
[0x0e0142] = {
    { abbreviation, "VS83" };
};
[0x0e0143] = {
    { abbreviation, "VS84" };
};
[0x0e0144] = {
    { abbreviation, "VS85" };
};
[0x0e0145] = {
    { abbreviation, "VS86" };
};
[0x0e0146] = {
    { abbreviation, "VS87" };
};
[0x0e0147] = {
    { abbreviation, "VS88" };
};
[0x0e0148] = {
    { abbreviation, "VS89" };
};
[0x0e0149] = {
    { abbreviation, "VS90" };
};
[0x0e014a] = {
    { abbreviation, "VS91" };
};
[0x0e014b] = {
    { abbreviation, "VS92" };
};
[0x0e014c] = {
    { abbreviation, "VS93" };
};
[0x0e014d] = {
    { abbreviation, "VS94" };
};
[0x0e014e] = {
    { abbreviation, "VS95" };
};
[0x0e014f] = {
    { abbreviation, "VS96" };
};
[0x0e0150] = {
    { abbreviation, "VS97" };
};
[0x0e0151] = {
    { abbreviation, "VS98" };
};
[0x0e0152] = {
```

```
        { abbreviation, "VS99" };
};
[0x0e0153] = {
    { abbreviation, "VS100" };
};
[0x0e0154] = {
    { abbreviation, "VS101" };
};
[0x0e0155] = {
    { abbreviation, "VS102" };
};
[0x0e0156] = {
    { abbreviation, "VS103" };
};
[0x0e0157] = {
    { abbreviation, "VS104" };
};
[0x0e0158] = {
    { abbreviation, "VS105" };
};
[0x0e0159] = {
    { abbreviation, "VS106" };
};
[0x0e015a] = {
    { abbreviation, "VS107" };
};
[0x0e015b] = {
    { abbreviation, "VS108" };
};
[0x0e015c] = {
    { abbreviation, "VS109" };
};
[0x0e015d] = {
    { abbreviation, "VS110" };
};
[0x0e015e] = {
    { abbreviation, "VS111" };
};
[0x0e015f] = {
    { abbreviation, "VS112" };
};
[0x0e0160] = {
    { abbreviation, "VS113" };
};
[0x0e0161] = {
    { abbreviation, "VS114" };
};
[0x0e0162] = {
    { abbreviation, "VS115" };
};
[0x0e0163] = {
    { abbreviation, "VS116" };
};
[0x0e0164] = {
    { abbreviation, "VS117" };
};
[0x0e0165] = {
    { abbreviation, "VS118" };
};
[0x0e0166] = {
    { abbreviation, "VS119" };
};
[0x0e0167] = {
    { abbreviation, "VS120" };
};
```

```
};
[0x0e0168] = {
    { abbreviation, "VS121" };
};
[0x0e0169] = {
    { abbreviation, "VS122" };
};
[0x0e016a] = {
    { abbreviation, "VS123" };
};
[0x0e016b] = {
    { abbreviation, "VS124" };
};
[0x0e016c] = {
    { abbreviation, "VS125" };
};
[0x0e016d] = {
    { abbreviation, "VS126" };
};
[0x0e016e] = {
    { abbreviation, "VS127" };
};
[0x0e016f] = {
    { abbreviation, "VS128" };
};
[0x0e0170] = {
    { abbreviation, "VS129" };
};
[0x0e0171] = {
    { abbreviation, "VS130" };
};
[0x0e0172] = {
    { abbreviation, "VS131" };
};
[0x0e0173] = {
    { abbreviation, "VS132" };
};
[0x0e0174] = {
    { abbreviation, "VS133" };
};
[0x0e0175] = {
    { abbreviation, "VS134" };
};
[0x0e0176] = {
    { abbreviation, "VS135" };
};
[0x0e0177] = {
    { abbreviation, "VS136" };
};
[0x0e0178] = {
    { abbreviation, "VS137" };
};
[0x0e0179] = {
    { abbreviation, "VS138" };
};
[0x0e017a] = {
    { abbreviation, "VS139" };
};
[0x0e017b] = {
    { abbreviation, "VS140" };
};
[0x0e017c] = {
    { abbreviation, "VS141" };
};
};
```



```
[0x0e017d] = {
    { abbreviation, "VS142" };
};
[0x0e017e] = {
    { abbreviation, "VS143" };
};
[0x0e017f] = {
    { abbreviation, "VS144" };
};
[0x0e0180] = {
    { abbreviation, "VS145" };
};
[0x0e0181] = {
    { abbreviation, "VS146" };
};
[0x0e0182] = {
    { abbreviation, "VS147" };
};
[0x0e0183] = {
    { abbreviation, "VS148" };
};
[0x0e0184] = {
    { abbreviation, "VS149" };
};
[0x0e0185] = {
    { abbreviation, "VS150" };
};
[0x0e0186] = {
    { abbreviation, "VS151" };
};
[0x0e0187] = {
    { abbreviation, "VS152" };
};
[0x0e0188] = {
    { abbreviation, "VS153" };
};
[0x0e0189] = {
    { abbreviation, "VS154" };
};
[0x0e018a] = {
    { abbreviation, "VS155" };
};
[0x0e018b] = {
    { abbreviation, "VS156" };
};
[0x0e018c] = {
    { abbreviation, "VS157" };
};
[0x0e018d] = {
    { abbreviation, "VS158" };
};
[0x0e018e] = {
    { abbreviation, "VS159" };
};
[0x0e018f] = {
    { abbreviation, "VS160" };
};
[0x0e0190] = {
    { abbreviation, "VS161" };
};
[0x0e0191] = {
    { abbreviation, "VS162" };
};
[0x0e0192] = {
```

```
        { abbreviation, "VS163" };
};
[0x0e0193] = {
    { abbreviation, "VS164" };
};
[0x0e0194] = {
    { abbreviation, "VS165" };
};
[0x0e0195] = {
    { abbreviation, "VS166" };
};
[0x0e0196] = {
    { abbreviation, "VS167" };
};
[0x0e0197] = {
    { abbreviation, "VS168" };
};
[0x0e0198] = {
    { abbreviation, "VS169" };
};
[0x0e0199] = {
    { abbreviation, "VS170" };
};
[0x0e019a] = {
    { abbreviation, "VS171" };
};
[0x0e019b] = {
    { abbreviation, "VS172" };
};
[0x0e019c] = {
    { abbreviation, "VS173" };
};
[0x0e019d] = {
    { abbreviation, "VS174" };
};
[0x0e019e] = {
    { abbreviation, "VS175" };
};
[0x0e019f] = {
    { abbreviation, "VS176" };
};
[0x0e01a0] = {
    { abbreviation, "VS177" };
};
[0x0e01a1] = {
    { abbreviation, "VS178" };
};
[0x0e01a2] = {
    { abbreviation, "VS179" };
};
[0x0e01a3] = {
    { abbreviation, "VS180" };
};
[0x0e01a4] = {
    { abbreviation, "VS181" };
};
[0x0e01a5] = {
    { abbreviation, "VS182" };
};
[0x0e01a6] = {
    { abbreviation, "VS183" };
};
[0x0e01a7] = {
    { abbreviation, "VS184" };
};
```

```
};
[0x0e01a8] = {
    { abbreviation, "VS185" };
};
[0x0e01a9] = {
    { abbreviation, "VS186" };
};
[0x0e01aa] = {
    { abbreviation, "VS187" };
};
[0x0e01ab] = {
    { abbreviation, "VS188" };
};
[0x0e01ac] = {
    { abbreviation, "VS189" };
};
[0x0e01ad] = {
    { abbreviation, "VS190" };
};
[0x0e01ae] = {
    { abbreviation, "VS191" };
};
[0x0e01af] = {
    { abbreviation, "VS192" };
};
[0x0e01b0] = {
    { abbreviation, "VS193" };
};
[0x0e01b1] = {
    { abbreviation, "VS194" };
};
[0x0e01b2] = {
    { abbreviation, "VS195" };
};
[0x0e01b3] = {
    { abbreviation, "VS196" };
};
[0x0e01b4] = {
    { abbreviation, "VS197" };
};
[0x0e01b5] = {
    { abbreviation, "VS198" };
};
[0x0e01b6] = {
    { abbreviation, "VS199" };
};
[0x0e01b7] = {
    { abbreviation, "VS200" };
};
[0x0e01b8] = {
    { abbreviation, "VS201" };
};
[0x0e01b9] = {
    { abbreviation, "VS202" };
};
[0x0e01ba] = {
    { abbreviation, "VS203" };
};
[0x0e01bb] = {
    { abbreviation, "VS204" };
};
[0x0e01bc] = {
    { abbreviation, "VS205" };
};
```

```
[0x0e01bd] = {
    { abbreviation, "VS206" };
};
[0x0e01be] = {
    { abbreviation, "VS207" };
};
[0x0e01bf] = {
    { abbreviation, "VS208" };
};
[0x0e01c0] = {
    { abbreviation, "VS209" };
};
[0x0e01c1] = {
    { abbreviation, "VS210" };
};
[0x0e01c2] = {
    { abbreviation, "VS211" };
};
[0x0e01c3] = {
    { abbreviation, "VS212" };
};
[0x0e01c4] = {
    { abbreviation, "VS213" };
};
[0x0e01c5] = {
    { abbreviation, "VS214" };
};
[0x0e01c6] = {
    { abbreviation, "VS215" };
};
[0x0e01c7] = {
    { abbreviation, "VS216" };
};
[0x0e01c8] = {
    { abbreviation, "VS217" };
};
[0x0e01c9] = {
    { abbreviation, "VS218" };
};
[0x0e01ca] = {
    { abbreviation, "VS219" };
};
[0x0e01cb] = {
    { abbreviation, "VS220" };
};
[0x0e01cc] = {
    { abbreviation, "VS221" };
};
[0x0e01cd] = {
    { abbreviation, "VS222" };
};
[0x0e01ce] = {
    { abbreviation, "VS223" };
};
[0x0e01cf] = {
    { abbreviation, "VS224" };
};
[0x0e01d0] = {
    { abbreviation, "VS225" };
};
[0x0e01d1] = {
    { abbreviation, "VS226" };
};
[0x0e01d2] = {
```

```
        { abbreviation, "VS227" };
};
[0x0e01d3] = {
        { abbreviation, "VS228" };
};
[0x0e01d4] = {
        { abbreviation, "VS229" };
};
[0x0e01d5] = {
        { abbreviation, "VS230" };
};
[0x0e01d6] = {
        { abbreviation, "VS231" };
};
[0x0e01d7] = {
        { abbreviation, "VS232" };
};
[0x0e01d8] = {
        { abbreviation, "VS233" };
};
[0x0e01d9] = {
        { abbreviation, "VS234" };
};
[0x0e01da] = {
        { abbreviation, "VS235" };
};
[0x0e01db] = {
        { abbreviation, "VS236" };
};
[0x0e01dc] = {
        { abbreviation, "VS237" };
};
[0x0e01dd] = {
        { abbreviation, "VS238" };
};
[0x0e01de] = {
        { abbreviation, "VS239" };
};
[0x0e01df] = {
        { abbreviation, "VS240" };
};
[0x0e01e0] = {
        { abbreviation, "VS241" };
};
[0x0e01e1] = {
        { abbreviation, "VS242" };
};
[0x0e01e2] = {
        { abbreviation, "VS243" };
};
[0x0e01e3] = {
        { abbreviation, "VS244" };
};
[0x0e01e4] = {
        { abbreviation, "VS245" };
};
[0x0e01e5] = {
        { abbreviation, "VS246" };
};
[0x0e01e6] = {
        { abbreviation, "VS247" };
};
[0x0e01e7] = {
        { abbreviation, "VS248" };
};
```

```
};  
[0x0e01e8] = {  
    { abbreviation, "VS249" };  
};  
[0x0e01e9] = {  
    { abbreviation, "VS250" };  
};  
[0x0e01ea] = {  
    { abbreviation, "VS251" };  
};  
[0x0e01eb] = {  
    { abbreviation, "VS252" };  
};  
[0x0e01ec] = {  
    { abbreviation, "VS253" };  
};  
[0x0e01ed] = {  
    { abbreviation, "VS254" };  
};  
[0x0e01ee] = {  
    { abbreviation, "VS255" };  
};  
[0x0e01ef] = {  
    { abbreviation, "VS256" };  
};  
}
```

Modul:Unicode data

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Usage

This module provides functions that access information on Unicode code points. The information is retrieved from data modules generated from the [Unicode Character Database](#), or derived by rules given in the [Unicode Specification](#). It and its submodules were copied from English Wiktionary and then modified; see [there](#) for more information.

Functions

Vorlage:Code

Receives a code point (number) and returns its name or label; for example, [Vorlage:Code](#) returns [Vorlage:Code](#).

For example, [Vorlage:Tnull](#) → `<reserved-0061>`

Vorlage:Code

Template-invokable functions that allow access to the functions starting with `lookup` and `is`. Replace the first underscore in the function name with a pipe. For most of the functions, add the code point in hexadecimal base as the next parameter, but for `is_Latin`, `is_rtl`, and `is_valid_pagename`, add text. [HTML character references](#) in the text are decoded by the module into code points.

For example, [Vorlage:Tnull](#) → **Lua-Fehler in Zeile 293: attempt to index local 'data_module' (a boolean value).**

Data modules

The data used by functions in this module is found in [submodules](#). Some are generated by [AWK](#) scripts shown at [User:Kephir/Unicode](#) on English Wiktionary, others by Lua scripts on the `/make` subpages of the submodules.

- [Module:Unicode data/aliases](#): the formal name aliases for characters (from [NameAliases.txt](#))
- [Module:Unicode data/blocks](#): the list of Unicode blocks (from [Blocks.txt](#))
- [Module:Unicode data/category](#): data mapping characters to their General Category (from [DerivedGeneralCategory.txt](#))
- [Module:Unicode data/control](#): data for identifying characters that belong to the General Categories of Separator and Other (from [DerivedGeneralCategory.txt](#))



- [Module:Unicode data/combining](#): data mapping characters to their Combining Classes (from [DerivedCombiningClass.txt](#))
- [Module:Unicode data/Hangul](#): data used to generate the names of [Hangul](#) syllables (from [Jamo.txt](#))
- [Module:Unicode data/scripts](#): data mapping characters to their Unicode script properties (from [Scripts.txt](#)).

The name data modules ([Module:Unicode data/names/xxx](#)) were compiled from [UnicodeData.txt](#). Each one contains, at maximum, code points U+xxx000 to U+xxxFFF. **Lua-Fehler in mw.title.lua, Zeile 206: too many expensive function calls**

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```
local p = {}  
  
local floor = math.floor  
  
local function errorf(level, ...)  
    if type(level) == "number" then  
        return error(string.format(...), level + 1)
```



```
        else -- level is actually the format string.
            return error(string.format(level, ...), 2)
        end
    end
end

local function binary_range_search(codepoint, ranges)
    local low, mid, high
    low, high = 1, ranges.length or require "Module:TableTools".length(ranges)
    while low <= high do
        mid = floor((low + high) / 2)
        local range = ranges[mid]
        if codepoint < range[1] then
            high = mid - 1
        elseif codepoint <= range[2] then
            return range, mid
        else
            low = mid + 1
        end
    end
    return nil, mid
end
p.binary_range_search = binary_range_search

--[[
local function linear_range_search(codepoint, ranges)
    for i, range in ipairs(ranges) do
        if range[1] <= codepoint and codepoint <= range[2] then
            return range
        end
    end
end
end
--]]

-- Load a module by indexing "loader" with the name of the module minus the
-- "Module:Unicode data/" part. For instance, loader.blocks returns
-- [[Module:Unicode data/blocks]]. If a module cannot be loaded, false will be
-- returned.
local loader = setmetatable({}, {
    __index = function (self, key)
        local success, data = pcall(mw.loadData, "Module:Unicode data/" .. key)
        if not success then
            data = false
        end
        self[key] = data
        return data
    end
})

-- For the algorithm used to generate Hangul Syllable names,
-- see "Hangul Syllable Name Generation" in section 3.12 of the
-- Unicode Specification:
-- https://www.unicode.org/versions/Unicode11.0.0/ch03.pdf
local name_hooks = {
    { 0x00, 0x1F, "<control-%04X>" }, -- C0 control characters
    { 0x7F, 0x9F, "<control-%04X>" }, -- DEL and C1 control characters
    { 0x3400, 0x4DBF, "CJK UNIFIED IDEOGRAPH-%04X" }, -- CJK Ideograph Extension A
    { 0x4E00, 0x9FFF, "CJK UNIFIED IDEOGRAPH-%04X" }, -- CJK Ideograph Extension B
    { 0xAC00, 0xD7A3, function (codepoint) -- Hangul Syllables
        local Hangul_data = loader.Hangul
        local syllable_index = codepoint - 0xAC00

        return ("HANGUL SYLLABLE %s%s%s"):format(
            Hangul_data.leads[floor(syllable_index / Hangul_data.final_syllable_count)],
            Hangul_data.vowels[floor((syllable_index % Hangul_data.final_syllable_count) / Hangul_data.vowel_count)],
            Hangul_data.consonants[floor(syllable_index % Hangul_data.vowel_count)]
        )
    end
}
end
```

```
        / Hangul_data.trail_count)],
        Hangul_data.trails[syllable_index % Hangul_data.trail_co
    end },
    -- High Surrogates, High Private Use Surrogates, Low Surrogates
    { 0xD800, 0xDFFF, "<surrogate-%04X>" },
    { 0xE000, 0xF8FF, "<private-use-%04X>" }, -- Private Use
    -- CJK Compatibility Ideographs
    { 0xF900, 0xFA6D, "CJK COMPATIBILITY IDEOGRAPH-%04X" },
    { 0xFA70, 0xFAD9, "CJK COMPATIBILITY IDEOGRAPH-%04X" },
    { 0x17000, 0x187F7, "TANGUT IDEOGRAPH-%04X" }, -- Tangut Ideograph
    { 0x18800, 0x18AFF, function (codepoint)
        return ("TANGUT COMPONENT-%03d"):format(codepoint - 0x187FF)
    end },
    { 0x18D00, 0x18D08, "TANGUT IDEOGRAPH-%04X" }, -- Tangut Ideograph Supp
    { 0x1B170, 0x1B2FB, "NUSHU CHARACTER-%04X" }, -- Nushu
    { 0x20000, 0x2A6DF, "CJK UNIFIED IDEOGRAPH-%04X" }, -- CJK Ideograph Ex
    { 0x2A700, 0x2B738, "CJK UNIFIED IDEOGRAPH-%04X" }, -- CJK Ideograph Ex
    { 0x2B740, 0x2B81D, "CJK UNIFIED IDEOGRAPH-%04X" }, -- CJK Ideograph Ex
    { 0x2B820, 0x2CEA1, "CJK UNIFIED IDEOGRAPH-%04X" }, -- CJK Ideograph Ex
    { 0x2CEB0, 0x2EBE0, "CJK UNIFIED IDEOGRAPH-%04X" }, -- CJK Ideograph Ex
    -- CJK Compatibility Ideographs Supplement (Supplementary Ideographic Pla
    { 0x2F800, 0x2FA1D, "CJK COMPATIBILITY IDEOGRAPH-%04X" },
    { 0xE0100, 0xE01EF, function (codepoint) -- Variation Selectors Supplem
        return ("VARIATION SELECTOR-%d"):format(codepoint - 0xE0100 + 17)
    end},
    { 0x30000, 0x3134A, "CJK UNIFIED IDEOGRAPH-%04X" }, -- CJK Ideograph Ex
    { 0xF0000, 0xFFFFD, "<private-use-%04X>" }, -- Plane 15 Private Use
    { 0x100000, 0x10FFFFD, "<private-use-%04X>" } -- Plane 16 Private Use
}
name_hooks.length = #name_hooks

local name_range_cache

local function generate_name(data, codepoint)
    if type(data) == "string" then
        return data:format(codepoint)
    else
        return data(codepoint)
    end
end

end

--[
-- Checks that the code point is a number and in range.
-- Does not check whether code point is an integer.
-- Not used
local function check_codepoint(funcName, argIdx, val)
    require 'libraryUtil'.checkType(funcName, argIdx, val, 'number')
    if codepoint < 0 or 0x10FFFF < codepoint then
        errorf("Codepoint %04X out of range", codepoint)
    end
end

end
--]]

-- https://www.unicode.org/versions/Unicode11.0.0/ch04.pdf, section 4.8
function p.lookup_name(codepoint)
    -- U+FDD0-U+FDEF and all code points ending in FFFE or FFFF are Unassigne
    -- (Cn) and specifically noncharacters:
    -- https://www.unicode.org/faq/private_use.html#nonchar4
    if 0xFDD0 <= codepoint and (codepoint <= 0xFDEF
        or floor(codepoint % 0x10000) >= 0xFFFFE) then
        return ("<noncharacter-%04X>"):format(codepoint)
    end
end
```

```
    if name_range_cache -- Check if previously used "name hook" applies to the
        and codepoint >= name_range_cache[1]
        and codepoint <= name_range_cache[2] then
            return generate_name(name_range_cache[3], codepoint)
        end

    local range = binary_range_search(codepoint, name_hooks)
    if range then
        name_range_cache = range
        return generate_name(range[3], codepoint)
    end

    local data = loader[('names/%03X'):format(codepoint / 0x1000)]

    if data and data[codepoint] then
        return data[codepoint]

        -- Unassigned (Cn) consists of noncharacters and reserved characters.
        -- The character has been established not to be a noncharacter,
        -- and if it were assigned, its name would already have been retrieved,
        -- so it must be reserved.
    else
        return ("<reserved-%04X>"):format(codepoint)
    end
end

--[[
-- No image data modules on Wikipedia yet.
function p.lookup_image(codepoint)
    local data = loader[('images/%03X'):format(codepoint / 0x1000)]

    if data then
        return data[codepoint]
    end
end
--]]

local planes = {
    [ 0] = "Basic Multilingual Plane";
    [ 1] = "Supplementary Multilingual Plane";
    [ 2] = "Supplementary Ideographic Plane";
    [ 3] = "Tertiary Ideographic Plane";
    [14] = "Supplementary Special-purpose Plane";
    [15] = "Supplementary Private Use Area-A";
    [16] = "Supplementary Private Use Area-B";
}

-- Load [[Module:Unicode data/blocks]] if needed and assign it to this variable.
local blocks

local function block_iter(blocks, i)
    i = i + 1
    local data = blocks[i]
    if data then
        -- Unpack doesn't work on tables loaded with mw.loadData.
        return i, data[1], data[2], data[3]
    end
end

-- An ipairs-type iterator generator for the list of blocks.
function p.enum_blocks()
    local blocks = loader.blocks
    return block_iter, blocks, 0
end
```

```
function p.lookup_plane(codepoint)
    local i = floor(codepoint / 0x10000)
    return planes[i] or ("Plane %u"):format(i)
end

function p.lookup_block(codepoint)
    local blocks = loader.blocks
    local range = binary_range_search(codepoint, blocks)
    if range then
        return range[3]
    else
        return "No Block"
    end
end

function p.get_block_info(name)
    for i, block in ipairs(loader.blocks) do
        if block[3] == name then
            return block
        end
    end
end

function p.is_valid_pagename(pagename)
    local has_nonws = false

    for cp in mw.ustring.gcodepoint(pagename) do
        if (cp == 0x0023) -- #
        or (cp == 0x005B) -- [
        or (cp == 0x005D) -- ]
        or (cp == 0x007B) -- {
        or (cp == 0x007C) -- |
        or (cp == 0x007D) -- }
        or (cp == 0x180E) -- MONGOLIAN VOWEL SEPARATOR
        or ((cp >= 0x2000) and (cp <= 0x200A)) -- spaces in General Punct
        or (cp == 0xFFFFD) -- REPLACEMENT CHARACTER
        then
            return false
        end

        local printable, result = p.is_printable(cp)
        if not printable then
            return false
        end

        if result ~= "space-separator" then
            has_nonws = true
        end
    end

    return has_nonws
end

local function manual_unpack(what, from)
    if what[from + 1] == nil then
        return what[from]
    end

    local result = {}
    from = from or 1
    for i, item in ipairs(what) do
        if i >= from then
            table.insert(result, item)
        end
    end
end
```

```
        end
    end
    return unpack(result)
end

local function compare_ranges(range1, range2)
    return range1[1] < range2[1]
end

-- Creates a function to look up data in a module that contains "singles" (a
-- code point-to-data map) and "ranges" (an array containing arrays that contain
-- the low and high code points of a range and the data associated with that
-- range).
-- "loader" loads and returns the "singles" and "ranges" tables.
-- "match_func" is passed the code point and either the data or the "dots", and
-- generates the final result of the function.
-- The varargs ("dots") describes the default data to be returned if there wasn't
-- a match.
-- In case the function is used more than once, "cache" saves ranges that have
-- already been found to match, or a range whose data is the default if there
-- was no match.
local function memo_lookup(data_module_subpage, match_func, ...)
    local dots = { ... }
    local cache = {}
    local singles, ranges

    return function (codepoint)
        if not singles then
            local data_module = loader[data_module_subpage]
            singles, ranges = data_module.singles, data_module.ranges
        end

        if singles[codepoint] then
            return match_func(codepoint, singles[codepoint])
        end

        local range = binary_range_search(codepoint, cache)
        if range then
            return match_func(codepoint, manual_unpack(range, 3))
        end

        local range, index = binary_range_search(codepoint, ranges)
        if range then
            table.insert(cache, range)
            table.sort(cache, compare_ranges)
            return match_func(codepoint, manual_unpack(range, 3))
        end

        if ranges[index] then
            local dots_range
            if codepoint > ranges[index][2] then
                dots_range = {
                    ranges[index][2] + 1,
                    ranges[index + 1] and ranges[index + 1][1]
                }
            else -- codepoint < range[index][1]
                dots_range = {
                    ranges[index - 1] and ranges[index - 1][2],
                    ranges[index][1] - 1,
                    unpack(dots)
                }
            end
            end
            table.sort(cache, compare_ranges)
        end
    end
end
```

```
        end
        return match_func(codepoint)
    end
end

-- Get a code point's combining class value in [[Module:Unicode data/combining]]
-- and return whether this value is not zero. Zero is assigned as the default
-- if the combining class value is not found in this data module.
-- That is, return true if character is combining, or false if it is not.
-- See https://www.unicode.org/reports/tr44/#Canonical\_Combining\_Class\_Values for
-- more information.
p.is_combining = memo_lookup(
    "combining",
    function (codepoint, combining_class)
        return combining_class and combining_class ~= 0 or false
    end,
    0)

function p.add_dotted_circle(str)
    return (mw.usttring.gsub(str, ".",
        function(char)
            if p.is_combining(mw.usttring.codepoint(char)) then
                return '◌' .. char
            end
        end))
end

end

local lookup_control = memo_lookup(
    "control",
    function (codepoint, ccc)
        return ccc or "assigned"
    end,
    "assigned")
p.lookup_control = lookup_control

function p.is_assigned(codepoint)
    return lookup_control(codepoint) ~= "unassigned"
end

function p.is_printable(codepoint)
    local result = lookup_control(codepoint)
    return (result == "assigned") or (result == "space-separator"), result
end

function p.is_whitespace(codepoint)
    local result = lookup_control(codepoint)
    return (result == "space-separator"), result
end

p.lookup_category = memo_lookup(
    "category",
    function (codepoint, category)
        return category
    end,
    "Cn")

local lookup_script = memo_lookup(
    "scripts",
    function (codepoint, script_code)
        return script_code or 'Zzzz'
    end,
    "Zzzz")
p.lookup_script = lookup_script
```

```
function p.get_best_script(str)
  -- Check type of argument, because mw.text.decode coerces numbers to strings
  require "libraryUtil".checkType("get_best_script", 1, str, "string")

  -- Convert HTML character references (including named character references
  -- or character entities) to characters.
  str = mw.text.decode(str, true)

  local scripts = {}
  for codepoint in mw.ustr.gcodepoint(str) do
    local script = lookup_script(codepoint)

    -- Ignore "Inherited", "Undetermined", or "Uncoded" scripts.
    if not (script == "Zyyy" or script == "Zinh" or script == "Zzzz")
      scripts[script] = true
    end
  end

  -- If scripts does not contain two or more keys,
  -- return first and only key (script code) in table.
  if not next(scripts, next(scripts)) then
    return next(scripts)
  end -- else return majority script, or else "Zzzz"?
end

function p.is_Latin(str)
  require "libraryUtil".checkType("get_best_script", 1, str, "string")
  str = mw.text.decode(str, true)

  -- Search for the leading bytes that introduce the UTF-8 encoding of the
  -- code points U+0340-U+10FFFF. If they are not found and there is at least
  -- one Latin-script character, the string counts as Latin, because the rest
  -- of the characters can only be Zyyy, Zinh, and Zzzz.
  -- The only scripts found below U+0370 (the first code point of the Greek
  -- and Coptic block) are Latn, Zyyy, Zinh, and Zzzz.
  -- See the codepage in the [[UTF-8]] article.
  if not str:find "[\205-\244]" then
    for codepoint in mw.ustr.gcodepoint(str) do
      if lookup_script(codepoint) == "Latn" then
        return true
      end
    end
  end

  local Latn = false

  for codepoint in mw.ustr.gcodepoint(str) do
    local script = lookup_script(codepoint)

    if script == "Latn" then
      Latn = true
    elseif not (script == "Zyyy" or script == "Zinh"
      or script == "Zzzz") then
      return false
    end
  end

  return Latn
end

-- Checks that a string contains only characters belonging to right-to-left
-- scripts, or characters of ignorable scripts.
function p.is_rtl(str)
```

```
require "libraryUtil".checkType("get_best_script", 1, str, "string")
str = mw.text.decode(str, true)

-- Search for the leading bytes that introduce the UTF-8 encoding of the
-- code points U+0580-U+10FFFF. If they are not found, the string can only
-- have characters from a left-to-right script, because the first code point
-- in a right-to-left script is U+0591, in the Hebrew block.
if not str:find "[\\214-\\244]" then
    return false
end

local result = false
local rtl = loader.scripts.rtl
for codepoint in mw.ustr.gcodepoint(str) do
    local script = lookup_script(codepoint)

    if rtl[script] then
        result = true
    elseif not (script == "Zyyy" or script == "Zinh"
                or script == "Zzzz") then
        return false
    end
end

return result
end

local function get_codepoint(args, arg)
    local codepoint_string = args[arg]
        or errorf(2, "Parameter %s is required", tostring(arg))
    local codepoint = tonumber(codepoint_string, 16)
        or errorf(2, "Parameter %s is not a code point in hexadecimal base",
        tostring(arg))
    if not (0 <= codepoint and codepoint <= 0x10FFFF) then
        errorf(2, "code point in parameter %s out of range", tostring(arg))
    end
    return codepoint
end

local function get_func(args, arg, prefix)
    local suffix = args[arg]
        or errorf(2, "Parameter %s is required", tostring(arg))
    suffix = mw.text.trim(suffix)
    local func_name = prefix .. suffix
    local func = p[func_name]
        or errorf(2, "There is no function '%s'", func_name)
    return func
end

-- This function allows any of the "lookup" functions to be invoked. The first
-- parameter is the word after "lookup_"; the second parameter is the code point
-- in hexadecimal base.
function p.lookup(frame)
    local func = get_func(frame.args, 1, "lookup_")
    local codepoint = get_codepoint(frame.args, 2)
    local result = func(codepoint)
    if func == p.lookup_name then
        -- Prevent code point labels such as <control-0000> from being
        -- interpreted as HTML tags.
        result = result:gsub("<", "&lt;")
    end
    return result
end
```



```
function p.is(frame)
  local func = get_func(frame.args, 1, "is_")

  -- is_Latin and is_valid_pagename take strings.
  if func == p.is_Latin or func == p.is_valid_pagename or func == p.is_rtl
    return (func(frame.args[2]))
  else -- The rest take code points.
    local codepoint = get_codepoint(frame.args, 2)
    return (func(codepoint)) -- Adjust to one result.
  end
end

end

return p
```