

Request to encode South Indian CANDRABINDU-S

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2010-Oct-11

This is a request to encode chandrabindu characters in the Telugu, Kannada and Malayalam blocks. These are currently (as of Unicode 6.0) not present in those blocks whereas North Indian scripts all have their own chandrabindu-s. While the Telugu block has the character 0C01 TELUGU SIGN CANDRABINDU, it will be shown that this character is actually unique to Telugu and is *not* the cognate of the chandrabindu of the other Indic scripts (like the so-called TAMIL SIGN VISARGA properly called āytam is unique to Tamil and is not the cognate of the visarga of the other Indic scripts). Thus the regular chandrabindu as has been encoded for North Indian scripts must also be encoded for these South Indian scripts.

§1. Background

The Indic chandrabindu is used to denote nasality, mostly of a vowel, but sometimes of semi-vowels as well, as seen in the following samples from pp 132-133 of ref 1, which is a comprehensive Sanskrit grammar written about 300 years back:

त्वं करोषि । सय्यन्ता, संयन्ता । सव्वत्सरः, संवत्सरः । यल्लोकम्, यं लोकम्
अत्रानुस्वारस्य पक्षेऽनुनासिका यवलाः । १२६ मो राजि समः कौ । (द-

संख्यं स्यात् । कियँ ह्यः, किं ह्यः । किवँ ह्लयति, किं ह्लयति । किल्लँ ह्लादयति, किं
ह्लादयति । १२६ नपरे नः । (द-३-२७) नपरे हकारे परे मस्य नः स्याद्वा । किन्

There are also some rare forms of writing Vedic Sanskrit in which the chandrabindu is placed on non-nasal class consonants to denote a nasal release, so:

वृक्कँगात्, चरक्कँतुः, अगँने, धँजन्ति
याच्चँभा, जँभानम्
आट्टँणारः
पत्तँली, ग्रथँजाति, ओद्दँमन्, पराधँमाताः
आपँजोति, गृभँगाति

The above examples are all of Sanskrit shown in the Devanagari script. Devanagari and other North Indian scripts also use the chandrabindu in the writing of the North Indian languages like Hindi. They already have individual chandrabindu characters encoded in Unicode. The South Indian scripts – Tamil, Telugu, Kannada and Malayalam – however do not use the chandrabindu for the writing of the respective South Indian languages since such nasality as shown above is not part of the linguistic content of these languages. This is why chandrabindu characters have not been encoded for these scripts in Unicode.

However it should be remembered that apart from the Tamil script, all the other major South Indian scripts – Telugu, Kannada and Malayalam – are fully capable of and in fact have been heavily used in representing Sanskrit in the respective regions. In the Tamil region the Grantha script has been used for Sanskrit. Thus all these four scripts – Telugu, Kannada, Malayalam and Grantha – will need the chandrabindu in the representation of Sanskrit for texts such as the Devanagari text shown above.

While the Grantha script is getting its own chandrabindu character encoded at 11301 (vide L2/09-372, L2/10-265R etc), the other three scripts do not yet have chandrabindu characters in Unicode. Usage of the chandrabindu in these scripts has however been attested. This proposal hence requests the encoding of these characters for the writing of Sanskrit/Vedic in these scripts.

§2. 0C01 TELUGU SIGN CANDRABINDU is not really a chandrabindu

An important matter to be noted here is that the character 0C01 TELUGU SIGN CANDRABINDU currently present in the Telugu block is not really a chandrabindu corresponding to that of other Indic scripts. It is an ‘arasunna’ or half-circle, and has been so annotated in the Telugu code chart. The semantics of this arasunna are quite different from those of the chandrabindu as described above.

While the pan-Indic chandrabindu is used as a modifier of vowel/consonant characters to indicate nasality, the Telugu arasunna or ‘half-anusvara’ is a variant of the sunna or ‘full anusvara’, and is used to indicate a historically elided anusvara. I provide references from Telugu linguistic texts (refs 2 and 3) regarding this on the next page. While one source (ref 4) I was able to access states that the arasunna is “used for Sanskrit words” it did not provide any explanations, examples or evidence for this. The chandrabindu is consistently different from this arasunna anyhow, both glyphically and in the GC (Mn as against Mc). Thus the arasunna is not a chandrabindu.

to serve as a cover symbol for all of them. Since [○] occurs only before stops and affricates, its phonemic status is automatically determined, i.e., /m/ before labial stops, /n/ before dental stops and affricates, /ɳ/ before retroflex stops, and /ŋ/ before velar stops. But historically, these pre-consonantal nasals were all lost regularly after long vowels, but optionally after short vowels. So, a form like /ēṅgu/ of inscriptional Te. or even Pre-Te. is always /ēgu/ in literary Te.; but an older form /kalaṅgu/ to be disturbed, is either /kalagu/ or /kalaṅgu/. Old Telugu grammarians devised a name for this alternating value of [○] (Romanization ṁ) and called it ardhānusvāra or **arasunna** (literally, half-nasal or half-circle).⁸ In all the environments of homorganic nasals they wrote the symbol of pūrṇānusvāra or full circle [◌], since its phonetic value (i.e., presence or absence of articulation) is determined by the length of the preceding vowel; therefore forms written [ēṁgu] and [kalaṁgu] were phonetically and phonemically ēgu, kalagu/kalaṅgu, respectively. It was only from prosody that one could know whether [○] was meant to be articulated as a full nasal or not in a given stanza after short vowels. In conformity with the meaning of **arasunna** (half-circle) the Te. printing system of classical texts introduced [◌] as opposed to [○]. [◌] means that it is a free alternant of a full nasal after short vowels and has a zero alternant after long vowels. Throughout this work I have

Ref 3 p 3 (from main text and footnote)

Telugu verbal bases can be brought under two structural patterns: (a) Those consisting of three short syllables, e.g. *palralcu* 'to spread', *malralu* 'to return'; this class also includes forms in which the middle syllable had originally a nasal (homorganic with the following suffix-consonant) as part of it, but which was lost from popular use in the pre-classical period;⁸ (b) Those with two syllables, of which the first is

⁸ This is called in Telugu grammars *ardhānusvāramu* or *ara-sunna* (i.e. half-nasal), which is only a historical remnant of a lost nasal orthographically preserved. This preservation has helped the poets to revive its phonetic value when they need it for metrical exigencies and ignore it when not: even in the 9th and 10th century inscriptions written in poetry, we have the complete nasals being written without their phonetic value; if they were to be read as nasals, the metre would be disturbed (see *Epigraphia Indica* XV: 150). G. J. Somayaji (1947) has presented some useful historical data on this problem in the chapter *ardhānusvaratattvam*.

§3. Attestation for the chandrabindu

In contrast with the above usage of the arasunna, which was accidentally labeled the Telugu chandrabindu for Unicode, the *real* chandrabindu of Telugu is to be found in Sanskrit/Vedic texts as seen below:

Ref 5 p 96

𑀓𑀭𑀯𑀭𑀮𑀲𑀳𑀴𑀵𑀶𑀷𑀸𑀹𑀺𑀻𑀼𑀽𑀾𑀿𑁀𑁁𑁂𑁃𑁄𑁅𑁆𑁇𑁈𑁉𑁊𑁋𑁌𑁍𑁎𑁏𑁐𑁑𑁒𑁓𑁔𑁕𑁖𑁗𑁘𑁙𑁚𑁛𑁜𑁝𑁞𑁟𑁠𑁡𑁢𑁣𑁤𑁥𑁦𑁧𑁨𑁩𑁪𑁫𑁬𑁭𑁮𑁯𑁰𑁱𑁲𑁳𑁴𑁵𑁶𑁷𑁸𑁹𑁺𑁻𑁼𑁽𑁾𑁿𑂀𑂁𑂂𑂃𑂄𑂅𑂆𑂇𑂈𑂉𑂊𑂋𑂌𑂍𑂎𑂏𑂐𑂑𑂒𑂓𑂔𑂕𑂖𑂗𑂘𑂙𑂚𑂛𑂜𑂝𑂞𑂟𑂠𑂡𑂢𑂣𑂤𑂥𑂦𑂧𑂨𑂩𑂪𑂫𑂬𑂭𑂮𑂯𑂰𑂱𑂲𑂳𑂴𑂵𑂶𑂷𑂸𑂺𑂹𑂻𑂼𑂽𑂾𑂿𑃀𑃁𑃂𑃃𑃄𑃅𑃆𑃇𑃈𑃉𑃊𑃋𑃌𑃍𑃎𑃏𑃐𑃑𑃒𑃓𑃔𑃕𑃖𑃗𑃘𑃙𑃚𑃛𑃜𑃝𑃞𑃟𑃠𑃡𑃢𑃣𑃤𑃥𑃦𑃧𑃨𑃩𑃪𑃫𑃬𑃭𑃮𑃯𑃰𑃱𑃲𑃳𑃴𑃵𑃶𑃷𑃸𑃹𑃺𑃻𑃼𑃽𑃾𑃿𑄀𑄁𑄂𑄃𑄄𑄅𑄆𑄇𑄈𑄉𑄊𑄋𑄌𑄍𑄎𑄏𑄐𑄑𑄒𑄓𑄔𑄕𑄖𑄗𑄘𑄙𑄚𑄛𑄜𑄝𑄞𑄟𑄠𑄡𑄢𑄣𑄤𑄥𑄦𑄧𑄨𑄩𑄪𑄫𑄬𑄭𑄮𑄯𑄰𑄱𑄲𑄳𑄴𑄵𑄶𑄷𑄸𑄹𑄺𑄻𑄼𑄽𑄾𑄿𑅀𑅁𑅂𑅃𑅄𑅅𑅆𑅇𑅈𑅉𑅊𑅋𑅌𑅍𑅎𑅏𑅐𑅑𑅒𑅓𑅔𑅕𑅖𑅗𑅘𑅙𑅚𑅛𑅜𑅝𑅞𑅟𑅠𑅡𑅢𑅣𑅤𑅥𑅦𑅧𑅨𑅩𑅪𑅫𑅬𑅭𑅮𑅯𑅰𑅱𑅲𑅳𑅴𑅵𑅶𑅷𑅸𑅹𑅺𑅻𑅼𑅽𑅾𑅿𑆀𑆁𑆂𑆃𑆄𑆅𑆆𑆇𑆈𑆉𑆊𑆋𑆌𑆍𑆎𑆏𑆐𑆑𑆒𑆓𑆔𑆕𑆖𑆗𑆘𑆙𑆚𑆛𑆜𑆝𑆞𑆟𑆠𑆡𑆢𑆣𑆤𑆥𑆦𑆧𑆨𑆩𑆪𑆫𑆬𑆭𑆮𑆯𑆰𑆱𑆲𑆳𑆴𑆵𑆶𑆷𑆸𑆹𑆺𑆻𑆼𑆽𑆾𑆿𑇀𑇁𑇂𑇃𑇄𑇅𑇆𑇇𑇈𑇉𑇊𑇋𑇌𑇍𑇎𑇏𑇐𑇑𑇒𑇓𑇔𑇕𑇖𑇗𑇘𑇙𑇚𑇛𑇜𑇝𑇞𑇟𑇠𑇡𑇢𑇣𑇤𑇥𑇦𑇧𑇨𑇩𑇪𑇫𑇬𑇭𑇮𑇯𑇰𑇱𑇲𑇳𑇴𑇵𑇶𑇷𑇸𑇹𑇺𑇻𑇼𑇽𑇾𑇿𑈀𑈁𑈂𑈃𑈄𑈅𑈆𑈇𑈈𑈉𑈊𑈋𑈌𑈍𑈎𑈏𑈐𑈑𑈒𑈓𑈔𑈕𑈖𑈗𑈘𑈙𑈚𑈛𑈜𑈝𑈞𑈟𑈠𑈡𑈢𑈣𑈤𑈥𑈦𑈧𑈨𑈩𑈪𑈫𑈬𑈭𑈮𑈯𑈰𑈱𑈲𑈳𑈴𑈶𑈵𑈷𑈸𑈹𑈺𑈻𑈼𑈽𑈾𑈿𑉀𑉁𑉂𑉃𑉄𑉅𑉆𑉇𑉈𑉉𑉊𑉋𑉌𑉍𑉎𑉏𑉐𑉑𑉒𑉓𑉔𑉕𑉖𑉗𑉘𑉙𑉚𑉛𑉜𑉝𑉞𑉟𑉠𑉡𑉢𑉣𑉤𑉥𑉦𑉧𑉨𑉩𑉪𑉫𑉬𑉭𑉮𑉯𑉰𑉱𑉲𑉳𑉴𑉵𑉶𑉷𑉸𑉹𑉺𑉻𑉼𑉽𑉾𑉿𑊀𑊁𑊂𑊃𑊄𑊅𑊆𑊇𑊈𑊉𑊊𑊋𑊌𑊍𑊎𑊏𑊐𑊑𑊒𑊓𑊔𑊕𑊖𑊗𑊘𑊙𑊚𑊛𑊜𑊝𑊞𑊟𑊠𑊡𑊢𑊣𑊤𑊥𑊦𑊧𑊨𑊩𑊪𑊫𑊬𑊭𑊮𑊯𑊰𑊱𑊲𑊳𑊴𑊵𑊶𑊷𑊸𑊹𑊺𑊻𑊼𑊽𑊾𑊿𑋀𑋁𑋂𑋃𑋄𑋅𑋆𑋇𑋈𑋉𑋊𑋋𑋌𑋍𑋎𑋏𑋐𑋑𑋒𑋓𑋔𑋕𑋖𑋗𑋘𑋙𑋚𑋛𑋜𑋝𑋞𑋟𑋠𑋡𑋢𑋣𑋤𑋥𑋦𑋧𑋨𑋩𑋪𑋫𑋬𑋭𑋮𑋯𑋰𑋱𑋲𑋳𑋴𑋵𑋶𑋷𑋸𑋹𑋺𑋻𑋼𑋽𑋾𑋿𑌀𑌁𑌂𑌃𑌄𑌅𑌆𑌇𑌈𑌉𑌊𑌋𑌌𑌍𑌎𑌏𑌐𑌑𑌒𑌓𑌔𑌕𑌖𑌗𑌘𑌙𑌚𑌛𑌜𑌝𑌞𑌟𑌠𑌡𑌢𑌣𑌤𑌥𑌦𑌧𑌨𑌩𑌪𑌫𑌬𑌭𑌮𑌯𑌰𑌱𑌲𑌳𑌴𑌵𑌶𑌷𑌸𑌹𑌺𑌻𑌼𑌽𑌾𑌿𑍀𑍁𑍂𑍃𑍄𑍅𑍆𑍇𑍈𑍉𑍊𑍋𑍌𑍍𑍎𑍏𑍐𑍑𑍒𑍓𑍔𑍕𑍖𑍗𑍘𑍙𑍚𑍛𑍜𑍝𑍞𑍟𑍠𑍡𑍢𑍣𑍤𑍥𑍦𑍧𑍨𑍩𑍪𑍫𑍬𑍭𑍮𑍯𑍰𑍱𑍲𑍳𑍴𑍵𑍶𑍷𑍸𑍹𑍺𑍻𑍼𑍽𑍾𑍿𑎀𑎁𑎂𑎃𑎄𑎅𑎆𑎇𑎈𑎉𑎊𑎋𑎌𑎍𑎎𑎏𑎐𑎑𑎒𑎓𑎔𑎕𑎖𑎗𑎘𑎙𑎚𑎛𑎜𑎝𑎞𑎟𑎠𑎡𑎢𑎣𑎤𑎥𑎦𑎧𑎨𑎩𑎪𑎫𑎬𑎭𑎮𑎯𑎰𑎱𑎲𑎳𑎴𑎵𑎶𑎷𑎸𑎹𑎺𑎻𑎼𑎽𑎾𑎿𑏀𑏁𑏂𑏃𑏄𑏅𑏆𑏇𑏈𑏉𑏊𑏋𑏌𑏍𑏎𑏏𑏐𑏑𑏒𑏓𑏔𑏕𑏖𑏗𑏘𑏙𑏚𑏛𑏜𑏝𑏞𑏟𑏠𑏡𑏢𑏣𑏤𑏥𑏦𑏧𑏨𑏩𑏪𑏫𑏬𑏭𑏮𑏯𑏰𑏱𑏲𑏳𑏴𑏵𑏶𑏷𑏸𑏹𑏺𑏻𑏼𑏽𑏾𑏿𑐀𑐁𑐂𑐃𑐄𑐅𑐆𑐇𑐈𑐉𑐊𑐋𑐌𑐍𑐎𑐏𑐐𑐑𑐒𑐓𑐔𑐕𑐖𑐗𑐘𑐙𑐚𑐛𑐜𑐝𑐞𑐟𑐠𑐡𑐢𑐣𑐤𑐥𑐦𑐧𑐨𑐩𑐪𑐫𑐬𑐭𑐮𑐯𑐰𑐱𑐲𑐳𑐴𑐵𑐶𑐷𑐸𑐹𑐺𑐻𑐼𑐽𑐾𑐿𑑀𑑁𑑂𑑃𑑄𑑅𑑆𑑇𑑈𑑉𑑊𑑋𑑌𑑍𑑎𑑏𑑐𑑑𑑒𑑓𑑔𑑕𑑖𑑗𑑘𑑙𑑚𑑛𑑜𑑝𑑞𑑟𑑠𑑡𑑢𑑣𑑤𑑥𑑦𑑧𑑨𑑩𑑪𑑫𑑬𑑭𑑮𑑯𑑰𑑱𑑲𑑳𑑴𑑵𑑶𑑷𑑸𑑹𑑺𑑻𑑼𑑽𑑾𑑿𑒀𑒁𑒂𑒃𑒄𑒅𑒆𑒇𑒈𑒉𑒊𑒋𑒌𑒍𑒎𑒏𑒐𑒑𑒒𑒓𑒔𑒕𑒖𑒗𑒘𑒙𑒚𑒛𑒜𑒝𑒞𑒟𑒠𑒡𑒢𑒣𑒤𑒥𑒦𑒧𑒨𑒩𑒪𑒫𑒬𑒭𑒮𑒯𑒰𑒱𑒲𑒳𑒴𑒵𑒶𑒷𑒸𑒻𑒻𑒼𑒽𑒾𑒿𑓀𑓁𑓃𑓂𑓄𑓅𑓆𑓇𑓈𑓉𑓊𑓋𑓌𑓍𑓎𑓏𑓐𑓑𑓒𑓓𑓔𑓕𑓖𑓗𑓘𑓙𑓚𑓛𑓜𑓝𑓞𑓟𑓠𑓡𑓢𑓣𑓤𑓥𑓦𑓧𑓨𑓩𑓪𑓫𑓬𑓭𑓮𑓯𑓰𑓱𑓲𑓳𑓴𑓵𑓶𑓷𑓸𑓹𑓺𑓻𑓼𑓽𑓾𑓿𑔀𑔁𑔂𑔃𑔄𑔅𑔆𑔇𑔈𑔉𑔊𑔋𑔌𑔍𑔎𑔏𑔐𑔑𑔒𑔓𑔔𑔕𑔖𑔗𑔘𑔙𑔚𑔛𑔜𑔝𑔞𑔟𑔠𑔡𑔢𑔣𑔤𑔥𑔦𑔧𑔨𑔩𑔪𑔫𑔬𑔭𑔮𑔯𑔰𑔱𑔲𑔳𑔴𑔵𑔶𑔷𑔸𑔹𑔺𑔻𑔼𑔽𑔾𑔿𑕀𑕁𑕂𑕃𑕄𑕅𑕆𑕇𑕈𑕉𑕊𑕋𑕌𑕍𑕎𑕏𑕐𑕑𑕒𑕓𑕔𑕕𑕖𑕗𑕘𑕙𑕚𑕛𑕜𑕝𑕞𑕟𑕠𑕡𑕢𑕣𑕤𑕥𑕦𑕧𑕨𑕩𑕪𑕫𑕬𑕭𑕮𑕯𑕰𑕱𑕲𑕳𑕴𑕵𑕶𑕷𑕸𑕹𑕺𑕻𑕼𑕽𑕾𑕿𑖀𑖁𑖂𑖃𑖄𑖅𑖆𑖇𑖈𑖉𑖊𑖋𑖌𑖍𑖎𑖏𑖐𑖑𑖒𑖓𑖔𑖕𑖖𑖗𑖘𑖙𑖚𑖛𑖜𑖝𑖞𑖟𑖠𑖡𑖢𑖣𑖤𑖥𑖦𑖧𑖨𑖩𑖪𑖫𑖬𑖭𑖮𑖯𑖰𑖱𑖲𑖳𑖴𑖵𑖶𑖷𑖸𑖹𑖺𑖻𑖼𑖽𑖾𑗀𑖿𑗁𑗂𑗃𑗄𑗅𑗆𑗇𑗈𑗉𑗊𑗋𑗌𑗍𑗎𑗏𑗐𑗑𑗒𑗓𑗔𑗕𑗖𑗗𑗘𑗙𑗚𑗛𑗜𑗝𑗞𑗟𑗠𑗡𑗢𑗣𑗤𑗥𑗦𑗧𑗨𑗩𑗪𑗫𑗬𑗭𑗮𑗯𑗰𑗱𑗲𑗳𑗴𑗵𑗶𑗷𑗸𑗹𑗺𑗻𑗼𑗽𑗾𑗿𑘀𑘁𑘂𑘃𑘄𑘅𑘆𑘇𑘈𑘉𑘊𑘋𑘌𑘍𑘎𑘏𑘐𑘑𑘒𑘓𑘔𑘕𑘖𑘗𑘘𑘙𑘚𑘛𑘜𑘝𑘞𑘟𑘠𑘡𑘢𑘣𑘤𑘥𑘦𑘧𑘨𑘩𑘪𑘫𑘬𑘭𑘮𑘯𑘰𑘱𑘲𑘳𑘴𑘵𑘶𑘷𑘸𑘹𑘺𑘻𑘼𑘽𑘾𑘿𑙀𑙁𑙂𑙃𑙄𑙅𑙆𑙇𑙈𑙉𑙊𑙋𑙌𑙍𑙎𑙏𑙐𑙑𑙒𑙓𑙔𑙕𑙖𑙗𑙘𑙙𑙚𑙛𑙜𑙝𑙞𑙟𑙠𑙡𑙢𑙣𑙤𑙥𑙦𑙧𑙨𑙩𑙪𑙫𑙬𑙭𑙮𑙯𑙰𑙱𑙲𑙳𑙴𑙵𑙶𑙷𑙸𑙹𑙺𑙻𑙼𑙽𑙾𑙿𑚀𑚁𑚂𑚃𑚄𑚅𑚆𑚇𑚈𑚉𑚊𑚋𑚌𑚍𑚎𑚏𑚐𑚑𑚒𑚓𑚔𑚕𑚖𑚗𑚘𑚙𑚚𑚛𑚜𑚝𑚞𑚟𑚠𑚡𑚢𑚣𑚤𑚥𑚦𑚧𑚨𑚩𑚪𑚫𑚬𑚭𑚮𑚯𑚰𑚱𑚲𑚳𑚴𑚵𑚷𑚶𑚸𑚹𑚺𑚻𑚼𑚽𑚾𑚿𑛀𑛁𑛂𑛃𑛄𑛅𑛆𑛇𑛈𑛉𑛊𑛋𑛌𑛍𑛎𑛏𑛐𑛑𑛒𑛓𑛔𑛕𑛖𑛗𑛘𑛙𑛚𑛛𑛜𑛝𑛞𑛟𑛠𑛡𑛢𑛣𑛤𑛥𑛦𑛧𑛨𑛩𑛪𑛫𑛬𑛭𑛮𑛯𑛰𑛱𑛲𑛳𑛴𑛵𑛶𑛷𑛸𑛹𑛺𑛻𑛼𑛽𑛾𑛿𑜀𑜁𑜂𑜃𑜄𑜅𑜆𑜇𑜈𑜉𑜊𑜋𑜌𑜍𑜎𑜏𑜐𑜑𑜒𑜓𑜔𑜕𑜖𑜗𑜘𑜙𑜚𑜛𑜜𑜝𑜞𑜟𑜠𑜡𑜢𑜣𑜤𑜥𑜦𑜧𑜨𑜩𑜪𑜫𑜬𑜭𑜮𑜯𑜰𑜱𑜲𑜳𑜴𑜵𑜶𑜷𑜸𑜹𑜺𑜻𑜼𑜽𑜾𑜿𑝀𑝁𑝂𑝃𑝄𑝅𑝆𑝇𑝈𑝉𑝊𑝋𑝌𑝍𑝎𑝏𑝐𑝑𑝒𑝓𑝔𑝕𑝖𑝗𑝘𑝙𑝚𑝛𑝜𑝝𑝞𑝟𑝠𑝡𑝢𑝣𑝤𑝥𑝦𑝧𑝨𑝩𑝪𑝫𑝬𑝭𑝮𑝯𑝰𑝱𑝲𑝳𑝴𑝵𑝶𑝷𑝸𑝹𑝺𑝻𑝼𑝽𑝾𑝿𑞀𑞁𑞂𑞃𑞄𑞅𑞆𑞇𑞈𑞉𑞊𑞋𑞌𑞍𑞎𑞏𑞐𑞑𑞒𑞓𑞔𑞕𑞖𑞗𑞘𑞙𑞚𑞛𑞜𑞝𑞞𑞟𑞠𑞡𑞢𑞣𑞤𑞥𑞦𑞧𑞨𑞩𑞪𑞫𑞬𑞭𑞮𑞯𑞰𑞱𑞲𑞳𑞴𑞵𑞶𑞷𑞸𑞹𑞺𑞻𑞼𑞽𑞾𑞿𑟀𑟁𑟂𑟃𑟄𑟅𑟆𑟇𑟈𑟉𑟊𑟋𑟌𑟍𑟎𑟏𑟐𑟑𑟒𑟓𑟔𑟕𑟖𑟗𑟘𑟙𑟚𑟛𑟜𑟝𑟞𑟟𑟠𑟡𑟢𑟣𑟤𑟥𑟦𑟧𑟨𑟩𑟪𑟫𑟬𑟭𑟮𑟯𑟰𑟱𑟲𑟳𑟴𑟵𑟶𑟷𑟸𑟹𑟺𑟻𑟼𑟽𑟾𑟿𑠀𑠁𑠂𑠃𑠄𑠅𑠆𑠇𑠈𑠉𑠊𑠋𑠌𑠍𑠎𑠏𑠐𑠑𑠒𑠓𑠔𑠕𑠖𑠗𑠘𑠙𑠚𑠛𑠜𑠝𑠞𑠟𑠠𑠡𑠢𑠣𑠤𑠥𑠦𑠧𑠨𑠩𑠪𑠫𑠬𑠭𑠮𑠯𑠰𑠱𑠲𑠳𑠴𑠵𑠶𑠷𑠸𑠺𑠹𑠻𑠼𑠽𑠾𑠿𑡀𑡁𑡂𑡃𑡄𑡅𑡆𑡇𑡈𑡉𑡊𑡋𑡌𑡍𑡎𑡏𑡐𑡑𑡒𑡓𑡔𑡕𑡖𑡗𑡘𑡙𑡚𑡛𑡜𑡝𑡞𑡟𑡠𑡡𑡢𑡣𑡤𑡥𑡦𑡧𑡨𑡩𑡪𑡫𑡬𑡭𑡮𑡯𑡰𑡱𑡲𑡳𑡴𑡵𑡶𑡷𑡸𑡹𑡺𑡻𑡼𑡽𑡾𑡿𑢀𑢁𑢂𑢃𑢄𑢅𑢆𑢇𑢈𑢉𑢊𑢋𑢌𑢍𑢎𑢏𑢐𑢑𑢒𑢓𑢔𑢕𑢖𑢗𑢘𑢙𑢚𑢛𑢜𑢝𑢞𑢟𑢠𑢡𑢢𑢣𑢤𑢥𑢦𑢧𑢨𑢩𑢪𑢫𑢬𑢭𑢮𑢯𑢰𑢱𑢲𑢳𑢴𑢵𑢶𑢷𑢸𑢹𑢺𑢻𑢼𑢽𑢾𑢿𑣀𑣁𑣂𑣃𑣄𑣅𑣆𑣇𑣈𑣉𑣊𑣋𑣌𑣍𑣎𑣏𑣐𑣑𑣒𑣓𑣔𑣕𑣖𑣗𑣘𑣙𑣚𑣛𑣜𑣝𑣞𑣟𑣠𑣡𑣢𑣣𑣤𑣥𑣦𑣧𑣨𑣩𑣪𑣫𑣬𑣭𑣮𑣯𑣰𑣱𑣲𑣳𑣴𑣵𑣶𑣷𑣸𑣹𑣺𑣻𑣼𑣽𑣾𑣿𑤀𑤁𑤂𑤃𑤄𑤅𑤆𑤇𑤈𑤉𑤊𑤋𑤌𑤍𑤎𑤏𑤐𑤑𑤒𑤓𑤔𑤕𑤖𑤗𑤘𑤙𑤚𑤛𑤜𑤝𑤞𑤟𑤠𑤡𑤢𑤣𑤤𑤥𑤦𑤧𑤨𑤩𑤪𑤫𑤬𑤭𑤮𑤯𑤰𑤱𑤲𑤳𑤴𑤵𑤶𑤷𑤸𑤹𑤺𑤻𑤼𑤽𑤾𑤿𑥀𑥁𑥂𑥃𑥄𑥅𑥆𑥇𑥈𑥉𑥊𑥋𑥌𑥍𑥎𑥏𑥐𑥑𑥒𑥓𑥔𑥕𑥖𑥗𑥘𑥙𑥚𑥛𑥜𑥝𑥞𑥟𑥠𑥡𑥢𑥣𑥤𑥥𑥦𑥧𑥨𑥩𑥪𑥫𑥬𑥭𑥮𑥯𑥰𑥱𑥲𑥳𑥴𑥵𑥶𑥷𑥸𑥹𑥺𑥻𑥼𑥽𑥾𑥿𑦀𑦁𑦂𑦃𑦄𑦅𑦆𑦇𑦈𑦉𑦊𑦋𑦌𑦍𑦎𑦏𑦐𑦑𑦒𑦓𑦔𑦕𑦖𑦗𑦘𑦙𑦚𑦛𑦜𑦝𑦞𑦟𑦠𑦡𑦢𑦣𑦤𑦥𑦦𑦧𑦨𑦩𑦪𑦫𑦬𑦭𑦮𑦯𑦰𑦱𑦲𑦳𑦴𑦵𑦶𑦷𑦸𑦹𑦺𑦻𑦼𑦽𑦾𑦿𑧀𑧁𑧂𑧃𑧄𑧅𑧆𑧇𑧈𑧉𑧊𑧋𑧌𑧍𑧎𑧏𑧐𑧑𑧒𑧓𑧔𑧕𑧖𑧗𑧘𑧙𑧚𑧛𑧜𑧝𑧞𑧟𑧠𑧡𑧢𑧣𑧤𑧥𑧦𑧧𑧨𑧩𑧪𑧫𑧬𑧭𑧮𑧯𑧰𑧱𑧲𑧳𑧴𑧵𑧶𑧷𑧸𑧹𑧺𑧻𑧼𑧽𑧾𑧿𑨀𑨁𑨂𑨃𑨄𑨅𑨆𑨇𑨈𑨉𑨊𑨋𑨌𑨍𑨎𑨏𑨐𑨑𑨒𑨓𑨔𑨕𑨖𑨗𑨘𑨙𑨚𑨛𑨜𑨝𑨞𑨟𑨠𑨡𑨢𑨣𑨤𑨥𑨦𑨧𑨨𑨩𑨪𑨫𑨬𑨭𑨮𑨯𑨰𑨱𑨲𑨳𑨴𑨵𑨶𑨷𑨸𑨹𑨺𑨻𑨼𑨽𑨾𑨿𑩀𑩁𑩂𑩃𑩄𑩅𑩆𑩇𑩈𑩉𑩊𑩋𑩌𑩍𑩎𑩏𑩐𑩑𑩒𑩓𑩔𑩕𑩖𑩗𑩘𑩙𑩚𑩛𑩜𑩝𑩞𑩟𑩠𑩡𑩢𑩣𑩤𑩥𑩦𑩧𑩨𑩩𑩪𑩫𑩬𑩭𑩮𑩯𑩰𑩱𑩲𑩳𑩴𑩵𑩶𑩷𑩸𑩹𑩺𑩻𑩼𑩽𑩾𑩿𑪀𑪁𑪂𑪃𑪄𑪅𑪆𑪇𑪈𑪉𑪊𑪋𑪌𑪍𑪎𑪏𑪐𑪑𑪒𑪓𑪔𑪕𑪖𑪗𑪘𑪙𑪚𑪛𑪜𑪝𑪞𑪟𑪠𑪡𑪢𑪣𑪤𑪥𑪦𑪧𑪨𑪩𑪪𑪫𑪬𑪭𑪮𑪯𑪰𑪱𑪲𑪳𑪴𑪵𑪶𑪷𑪸𑪹𑪺𑪻𑪼𑪽𑪾𑪿𑫀𑫁𑫂𑫃𑫄𑫅𑫆𑫇𑫈𑫉𑫊𑫋𑫌𑫍𑫎𑫏𑫐𑫑𑫒𑫓𑫔𑫕𑫖𑫗𑫘𑫙𑫚𑫛𑫜𑫝𑫞𑫟𑫠𑫡𑫢𑫣𑫤𑫥𑫦𑫧𑫨𑫩𑫪𑫫𑫬𑫭𑫮𑫯𑫰𑫱𑫲𑫳𑫴𑫵𑫶𑫷𑫸𑫹𑫺𑫻𑫼𑫽𑫾𑫿𑬀𑬁𑬂𑬃𑬄𑬅𑬆𑬇𑬈𑬉𑬊𑬋𑬌𑬍𑬎𑬏𑬐𑬑𑬒𑬓𑬔𑬕𑬖𑬗𑬘𑬙𑬚𑬛𑬜𑬝𑬞𑬟𑬠𑬡𑬢𑬣𑬤𑬥𑬦𑬧𑬨𑬩𑬪𑬫𑬬𑬭𑬮𑬯𑬰𑬱𑬲𑬳𑬴𑬵𑬶𑬷𑬸𑬹𑬺𑬻𑬼𑬽𑬾𑬿𑭀𑭁𑭂𑭃𑭄𑭅𑭆𑭇𑭈𑭉𑭊𑭋𑭌𑭍𑭎𑭏𑭐𑭑𑭒𑭓𑭔𑭕𑭖𑭗𑭘𑭙𑭚𑭛𑭜𑭝𑭞𑭟𑭠𑭡𑭢𑭣𑭤𑭥𑭦𑭧𑭨𑭩𑭪𑭫𑭬𑭭𑭮𑭯𑭰𑭱𑭲𑭳𑭴𑭵𑭶𑭷𑭸𑭹𑭺𑭻𑭼𑭽𑭾𑭿𑮀𑮁𑮂𑮃𑮄𑮅𑮆𑮇𑮈𑮉𑮊𑮋𑮌𑮍𑮎𑮏𑮐𑮑𑮒𑮓𑮔𑮕𑮖𑮗𑮘𑮙𑮚𑮛𑮜𑮝𑮞𑮟𑮠𑮡𑮢𑮣𑮤𑮥𑮦𑮧𑮨𑮩𑮪𑮫𑮬𑮭𑮮𑮯𑮰𑮱𑮲𑮳𑮴𑮵𑮶𑮷𑮸𑮹𑮺𑮻𑮼𑮽𑮾𑮿𑯀𑯁𑯂𑯃𑯄𑯅𑯆𑯇𑯈𑯉𑯊𑯋𑯌𑯍𑯎𑯏𑯐𑯑𑯒𑯓𑯔𑯕𑯖𑯗𑯘𑯙𑯚𑯛𑯜𑯝𑯞𑯟𑯠𑯡𑯢𑯣𑯤𑯥𑯦𑯧𑯨𑯩𑯪𑯫𑯬𑯭𑯮𑯯𑯰𑯱𑯲𑯳𑯴𑯵𑯶𑯷𑯸𑯹𑯺𑯻𑯼𑯽𑯾𑯿𑰀𑰁

It is evident that the Telugu chandrabinu used for Sanskrit/Vedic is certainly not the arasunna and that it is instead the same kind of chandrabinu as seen in other Indic scripts. Thus a separate 'real' chandrabinu character should be encoded for Telugu.

Likewise for Kannada one has:

Ref 6 Vol 1 p 622 – Maṇḍala 1 / Sūkta 1 / Mantra 2

ಅಗ್ನಿಃ ಪೂರ್ವೇಭಿರರ್ಷಿಭಿರೀಡ್ಯೋ ನೂತನೈರುತ |
ಸ ಧೀವಾ ಏಹ ವಕ್ಷತಿ || ೨ ||

Ref 6 Vol 2 p 111 – 1/4/6

ಉತ ನಃ ಸುಭಗಾ ಅರಿವೋಚೇಯುರ್ದಸ್ಮ ಕೃಷ್ಣಯಃ |
ಸ್ಯಾಮೇದಿಂದ್ರಸ್ಯ ಶರ್ಮಣಿ || ೬ ||

Ref 6 Vol 2 p 319 – 1/8/5

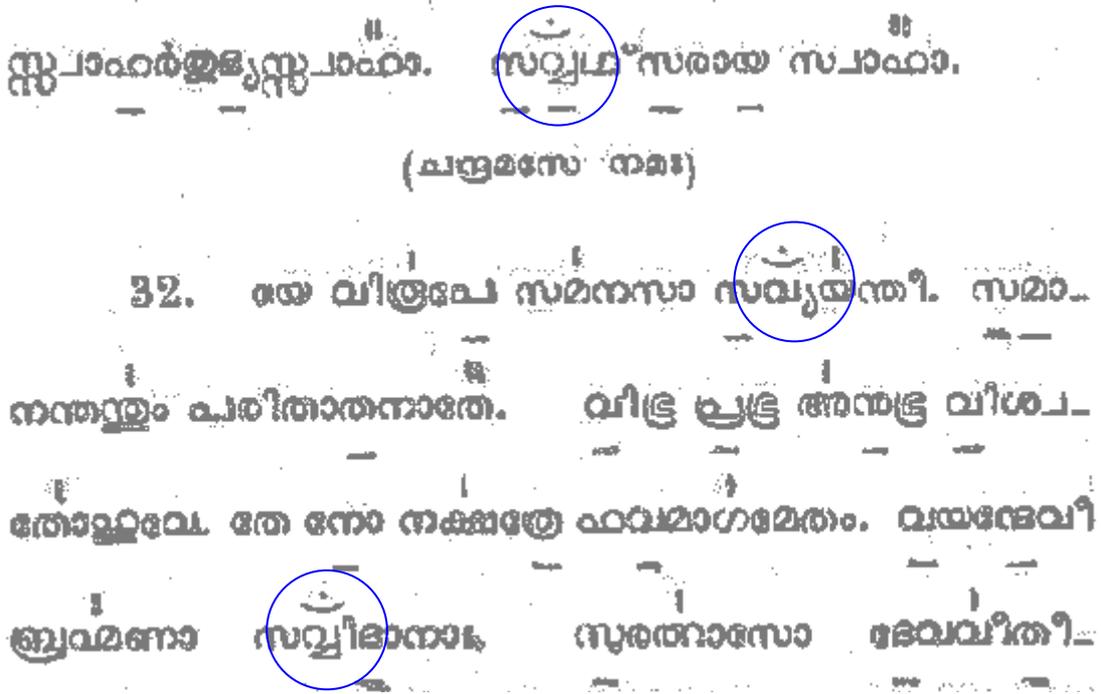
ಮಹಾ ಇಂದ್ರಃ ಪರಶ್ಚ ನು ಮಹಿತ್ವಮಸ್ತು ವಜ್ರಣೇ |
ದ್ಯೌರ್ನ ಪೃಥಿನಾ ಶವಃ || ೫ ||

Ref 6 Vol 2 p 495 – 1/12/4

ತಾ ಉಶತೋ ವಿ ಬೋಧಯ ಯದಗ್ನೇ ಯಾಸಿ ದ್ರುತ್ಯಂ |
ದೇವೈರಾ ಸತ್ಸಿ ಬರ್ಹಿಷಿ || ೪ ||

Similarly for Malayalam one has:

Ref 7 p 66



§4. Unicode Character Properties

As there is already a character 0C01 TELUGU SIGN CANDRABINDU it is suggested that the character proposed here should be placed at 0C00 which is empty. The suggested name is ‘COMBINING CANDRABINDU ABOVE’ to distinguish it from the existing character. We note in passing that even in Devanagari there is an ‘INVERTED CANDRABINDU’ at 0900.

```

0C00;TELUGU SIGN COMBINING CANDRABINDU ABOVE;Mn;0;NSM;;;;N;;;;
0C81;KANNADA SIGN CANDRABINDU;Mn;0;NSM;;;;N;;;;
0D01;MALAYALAM SIGN CANDRABINDU;Mn;0;NSM;;;;N;;;;

```

An annotation should be added to 0C00 explaining that this is the ‘real’ chandrabinu equivalent to that of other Indic scripts. An annotation should also be added to the arasunna to the effect: “indicates a contextually elided nasal”.

§5. References

1. Siddhānta Kaumudī part 1, reprinted 1998 by Motilal Banarsidass Publishers, New Delhi
2. Telugu Verbal Bases: A Comparative and Descriptive Study, 1972, Bhadriraju Krishnamurti, <http://books.google.co.in/books?id=56PXtopfoscC&lpg=PA3&ots=0ZtKk3ydHf&dq=arasunna&pg=PA3>; this was apparently originally printed in 1961 in the University of California Publications in Linguistics, Volume 24, http://books.google.co.in/books?id=5glZAAAAMAAI&q=arasunna&dq=arasunna&hl=en&ei=-deVTIzAOYTKceCfGKQF&sa=X&oi=book_result&ct=result&resnum=4&ved=0CDcQ6AEwAw
3. Comparative Dravidian linguistics: Current perspectives, 2001, Bhadriraju Krishnamurti, <http://books.google.co.in/books?id=n9cnc0aUf-UC&lpg=PA27&dq=arasunna&pg=PA27>
4. Learn Telugu in 30 days through English, 2008, Krishna Gopal Vikal, <http://books.google.co.in/books?id=iPQw8lPjiREC&lpg=PA3&dq=arasunna&pg=PA3>
5. Taittirīya Brāhmaṇam, 1947, Ed: Brahmaśrī Naṭeśa Ghanapāṭhī, Pub: Gomaṭham Rāmānuja Jyautiṣika of the Mysore Maharaja Palace, Mysore.
6. Ṛg Veda Saṃhitā with Sāyaṇa Bhāṣya and Kannaḍa translation, Vols 1-32, 1947, Jayachamarajendra Veda Ratna Mala, Mysore.
7. Taittirīyopaniṣat, 2007 (4th edition), Ed: Paṇḍita Śrī La Anantarāmaśāstrī, Pub: R S Vadhyar and Sons, Kalpathi, Palghat.

§6. Proposed characters

0C00 ◌̣ TELUGU SIGN COMBINING CANDRABINDU ABOVE

0C81 ◌̣ KANNADA SIGN CANDRABINDU

0D01 ◌̣ MALAYALAM SIGN CANDRABINDU

§7. Official Proposal Summary Form

A. Administrative

1. Title

Request to encode South Indian CANDRABINDU-s

2. Requester's name

Shriramana Sharma

3. Requester type (Member body/Liaison/Individual contribution)

Individual contribution

4. Submission date

2010-Oct-11

5. Requester's reference (if applicable)

6. Choose one of the following: This is a complete proposal (or) More information will be provided later

This is a complete proposal.

B. Technical – General

1. Choose one of the following:

1a. This proposal is for a new script (set of characters), Proposed name of script

No.

1b. The proposal is for addition of character(s) to an existing block, Name of the existing block

Telugu, Kannada and Malayalam.

2. Number of characters in proposal

3 (three)

3. Proposed category

Category B1 specialized.

4. Is a repertoire including character names provided?

Yes.

4a. If YES, are the names in accordance with the “character naming guidelines” in Annex L of P&P document?

Yes.

4b. Are the character shapes attached in a legible form suitable for review?

Yes.

5. Fonts related:

a. Who will provide the appropriate computerized font to the Project Editor of 10646 for publishing the standard?

Not necessary. The required glyph may be copied from any other Indic block.

b. Identify the party granting a license for use of the font by the editors (include address, e-mail etc.)

Not necessary.

6a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided?

No.

6b. Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached?

Yes.

7. Does the proposal address other aspects of character data processing (if applicable) such as input, presentation, sorting, searching, indexing, transliteration etc. (if yes please enclose information)?

Yes.

8. Submitters are invited to provide any additional information about Properties of the proposed Character(s) or Script that will assist in correct understanding of and correct linguistic processing of the proposed character(s) or script.

See detailed proposal.

C. Technical – Justification

1. Has this proposal for addition of character(s) been submitted before? If YES, explain.

No.

2a. Has contact been made to members of the user community (for example: National Body, user groups of the script or characters, other experts, etc.)?

Yes.

2b. If YES, with whom?

Ministry of IT, Govt of India. Vedic scholars of Andhra Pradesh, Kerala and Karnataka: Shri Dendukuri Narayana Haviryaji and Shri Dendukuri Shrirama Haviryaji of Tirupati for Telugu. Shri Hittilahalli Mahabaleshvara Bhat and Shri Amai Anantakrishna Ghanapathi of Bangalore for Kannada. Shri Ramesh Dravid of Palakkad, Kerala and Dr Sunandan Nambudiri of Chennai for Malayalam. Also Vinodh Rajan, a native speaker of Telugu with much experience in Indic transliteration.

2c. If YES, available relevant documents

None specifically. The matter was discussed in person or via telephone.

3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included?

These characters are used in the Telugu, Kannada and Malayalam scripts for the writing of Sanskrit/Vedic. Thus the user community comprises the Sanskrit/Vedic scholars of Andhra Pradesh, Karnataka and Kerala.

4a. The context of use for the proposed characters (type of use; common or rare)

Common in Vedic texts in Malayalam script. Somewhat rare in Vedic texts in Telugu/Kannada scripts.

4b. Reference

See proposal.

5a. Are the proposed characters in current use by the user community?

Yes.

5b. If YES, where?

The Indian states of Andhra Pradesh, Karnataka and Kerala.

6a. After giving due considerations to the principles in the P&P document must the proposed characters be entirely in the BMP?

Yes.

6b. If YES, is a rationale provided?

6c. If YES, reference

They are analogous to chandrabindu characters of the other major Indic scripts in the BMP.

7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?

No. Each character should be placed in the appropriate block of its script.

8a. Can any of the proposed characters be considered a presentation form of an existing character or character sequence?

No.

8b. If YES, is a rationale for its inclusion provided?

8c. If YES, reference

9a. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters?

No.

9b. If YES, is a rationale for its inclusion provided?

9c. If YES, reference

10a. Can any of the proposed character(s) be considered to be similar (in appearance or function) to an existing character?

Yes, they are glyphically identical to the chandrabindu characters of other Indic scripts.

10b. If YES, is a rationale for its inclusion provided?

10c. If YES, reference

Their script property would differ. Indic scripts have their own chandrabindu characters.

11a. Does the proposal include use of combining characters and/or use of composite sequences?

Yes.

11b. If YES, is a rationale for such use provided?

11c. If YES, reference

The chandrabindu is by nature a non-spacing combining mark.

11d. Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?

No.

12a. Does the proposal contain characters with any special properties such as control function or similar semantics?

No.

12b. If YES, describe in detail (include attachment if necessary)

13a. Does the proposal contain any Ideographic compatibility character(s)?

If YES, is the equivalent corresponding unified ideographic character(s) identified?

If YES, reference:

No.

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