# ISO/IEC JTC1/SC2/WG2 N4783R2

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Universal Multiple-Octet Coded Character Set International Organization for Standardization Organisation internationale de normalisation Международная организация по стандартизации

**Doc Type: Working Group Document** 

Title: Proposal to encode symbols for chess notation

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In the multilingual *Enciklopedija šahovskih završnica* (1993), a table of widely-used chess notation symbols is given. These form a system of symbols used by the Serbian chess magazine *Informator* (officially *Chess Informant in English*, though many people just refer to it by its Serbian name). Informator also publish the *Encyclopedia of Chess Openings*, the *Encyclopedia of Chess Endings*, the *Encyclopedia of Chess Problems*, and other references. These symbols enable the publishing of expert annotation of high level games in a language-independent way. *Informator* has been an important publication since the 1960s—historically, it was a major means for the dissemination of chess expertise across the Iron Curtain. Most of the characters it uses are encoded in the UCS. This document offers mappings for the existing characters and proposes the addition of nine missing characters.

# Symbols used in chess notation

Thibois used in chess notation			
2BBA	INTERLOCKED WHITE SQUARES		
	= pair of bishops		
	→ 29C9  two joined squares		
2BBB	INTERLOCKED WHITE AND BLACK SQUARES		
	= bishops of opposite colour		
2BBC	INTERLOCKED BLACK SQUARES		
	= bishops of the same colour		
2BF9	EQUALS SIGN WITH INFINITY BELOW		
	= with compensation for the material		
2BFA	UNION SYMBOL		
	= united pawns		
	→ 26AE ∞ divorce symbol		
2BFB	SEPARATION SYMBOL		
	= separated pawns		
	→ 26AF ∞ unmarried partnership symbol		
2BFC	DOUBLE MEDIUM SMALL WHITE CIRCLE		
	= double pawns		
	2BBA 2BBB 2BBC 2BF9 2BFA 2BFB		

$\stackrel{lack}{\bigcirc}$	2BFD	MEDIUM SMALL WHITE CIRCLE WITH UP ARROW
		= passed pawn
	2BFE	REVERSED RIGHT ANGLE
		= without (with is $221F \perp \text{right angle}$ )

# 2. Existing characters

2. Existing	characters	•	
Code	Glyph	Chess usage	
2A72	≐	white stands slightly better	
2A71	± <b>∓</b>	black stands slightly better	
00B1	<u>±</u>	white has the upper hand	
2213	<b></b>	black has the upper hand	
002B 2212	+-	white has a decisive advantage	
2212 002B	-+	black has a decisive advantage	
003D	=	even	
221E	$\infty$	unclear	
	$\overline{\mathbb{B}}$	with compensation for the material	MISSING
27F3	G	development advantage	
25CB	0	greater board room	
2192	$\rightarrow$	with attack	
2191	1	with initiative	
21C6	≒	with counter-play	
2A00	$\odot$	zugzwang	size? 2299? ⊙ ;cf 25CB
0023	# (#)	mate	
0021	!	a very good move	
203C	!!	an excellent move	
003F	?	a mistake	
2047	??	a blunder	
2049	!?	a move deserving attention	not in STIX font?
2048	?!	a dubious move	not in STIX font?
25B3	$\triangle$	with the idea	
25A1		only move	
2313	Δ	better is	
21D4	$\Leftrightarrow$	file	
21D7	1	diagonal	
229E	$\blacksquare$	centre	
27EB	<b>&gt;&gt;</b>	king's side	
27EA	<i>(</i> (	queen's side	
00D7	×	weak point	
22A5	$\perp$	ending	
	田	pair of bishops	MISSING
	<b>_</b>	bishops of opposite colour	MISSING
		bishops of the same colour	MISSING
	00	united pawns	MISSING
	0.0	separated pawns	MISSING
	8	double pawns	MISSING
	<b>.</b>	passed pawn	MISSING

003E	>	advantage in number of pawns	
2295	$\oplus$	time	
221F	L	with	
		without	MISSING
2016		etc	
2212	_	see	

### 3. Unicode Character Properties.

```
2BF3; EQUALS SIGN WITH INFINITY BELOW; So; 0; ON;;;;; N;;;;
2BF4; INTERLOCKED WHITE SQUARES; So; 0; ON;;;;; N;;;;
2BF5; INTERLOCKED WHITE AND BLACK SQUARES; So; 0; ON;;;; N;;;;
2BF6; INTERLOCKED BLACK SQUARES; So; 0; ON;;;; N;;;;
2BF7; UNION SYMBOL; So; 0; ON;;;; N;;;;
2BF8; SEPARATION SYMBOL; So; 0; ON;;;; N;;;;
2BF9; DOUBLE MEDIUM SMALL WHITE CIRCLE; So; 0; ON;;;; N;;;;
2BFA; MEDIUM SMALL WHITE CIRCLE WITH UP ARROW; So; 0; ON;;;; N;;;;
2BFB; REVERSED RIGHT ANGLE; So; 0; ON;;;; N;;;;
```

## 4. Bibliography.

Matanović, Aleksandar (ed.). 1993. Enciklopedija šahovskih završnica = Энциклопедия шахматных окончаний = Encyclopaedia of Chess Endings = Enzyklopädie der Schachendspeile = Encylopédie des finales d'echecs = Enciclopedia de Finales de Ajedrez = Enciclopedia dei Finali negli Scacchi = Encyklopedi över Slutspel i Schack = 以局大成. Nicosia: S. I. Chess Informant Ltd.

## **Figures**

1. ②c5 含c6 2. d7! 皇d7 3. ③d3 皇g5 [3... 皇e3 4. ②c5 含d6 5. ③c4+-; 3... 皇h6 4. ②e5 含d6 5. ②f7+-] 4. ②c5 含d6 5. ③f7 含e6 6. ②g5 含f6 7. ②h7! 含g6 8. ②f8 含f5 9. ②d7+--

1994. **½**b5−+] **½**c6 **3. ≜**d1 a4! [3... **★**g4? 4. a4! \$\ddots e3 5. h5! \$\ddots h5 (5... \$\ddots g5 6. \$\ddots f2=) 6. \( \pmg 3 \) \( \pmd d5 \) 7. \( \pmd c2 = \] 4. \( \text{h5} \) [4. \( \pm c2 \) a3  $\triangle$  &d5-+1 a3 **5.** g6 hg6 [5... h6?? 6. g7 \( \partial d5 \) 7. \( \partial b3+- \right] 6. \( \text{hg6} \) \( \partial d5! \) [6... ②d4 7. ☆f1! 急f3 8. 急f3 ☆f3 9. ☆c1=1 7. af1 [7. g7 奠a2 8. 包e1 溴d5! 9. 夏f3 逸g8 10. ②d3 알e3-+; 7. 알h3 夏a2 △ **≜**e6--+; △ 7. **含**h2 **≜**a2 8. **②**d2 (△ **\$**b3) **\$**g8! 9. **\$**b3 a2 10. **\$**a2 10. Øc2 &b3 11. Øa1 &d5 12. &d1 . 🚊 d4 13. 🙎 b3 🙎 b3 14. ② b3 [최호 **5/a**] 當e4 **15.** 當e2 當d5 **16.** 當d3 **1**g7 17. 含c2 含c4 [18. 到a5 含b4 19. 到b3 0:1[Halifman] �a3⊙]

今c4 (6... এc4 7. এc4! 白e4 8. 含c6 h4! 9. b6 h3 10. <u>\$g</u>1 @d6 11. b7! @b7 12. 會b7 會f5 13. 含c6 含e4 14. f5! 含f3 15. f6 曾g2 16. f7 曾g1 17. f8曾 h2 18. 曾c5 曾g2 19. 響c2 宮g1 20. 響d1! 曾g2 21. **幽g4 h1幽 22. 圖e4+−) 7. 魚e4 魚e4 8.** b6 \$b7 9. \$d4 \$e4 10. \$e5 \$b7 11. ₫c7 ₫e4 (11... h4 12. gh4 ⇔f5 13. h5! g3 14. \(\pm\$e5 g2 15. \(\pm\$d4+-\) 12. \(\pm\$d8 奧b7 13. 臭h4 臭e4 14. f5! 含f5 15. \$\d6+-\] 5. gf4 \$\overline{\Omega}g7 \[5...\] h4 6. \$\overline{\Omega}g4\] 當f6 7. 當c5 臭g2 8. b6 到g3 9. <u>\$e1!+−</u>**J** 6. **\$**c5 **\$**g2 **7. \$**d4 **h**4 **8.** 臭g7 h3 9. 臭g4 �e7 10. 臭h3 臭h3 11. 會b6 [11... 意f1 12. 含c6 含d8 13. b6 ②g2 14. ②d6+−**1 1:0** [Kasparov]

1. f5 全8 2. 雪f3 皇b5 3. ②g3 雪f7 [3... cb3 4. 皇b3 皇c4 5. 皇c4 dc4 6. ②e4+-] 4. f6 皇d7 5. bc4 dc4 6. d5 b3 7. c6 皇e6 8. dc6 字e6 [②皇 8/g] 9. 皇d1! 皇c3 10. f7! 皇b4 [10... 雪f7 11. 皇c2] 11. ②e4 宝d5 12. ②g5 [12. 字e3+-] 雲d4 13. ②c4 尝d3 14. 皇e2 尝d4 15. ②d2 b2 16. 皇c4 皇d2

**Figure 1.** A typical page from the *Enciklopedija Šahovskih Završnica*, 1993. This is certainly plain text.

SISTEM ZNAKOVA • CUCTEMA 3HAKOB • CODE SYSTEM • ZEICHEN-ERKLÄ-RONG • SYSTEME DE SIGNES • SISTEMA DE SIGNOS • SPIEGAZIONE DEI SIGNI • TECKENFÖRKLARING • 解説記号 • نظام الرموز

```
beli stoji nešto bolje • у белых несколько лучше • white stands slightly better • Weiss steht
                  etwas besser • les blancs sont un peu mieux • el blanco está algo mejor • il bianco sta un
                  po' meglio • vit står något bättre • 白や、優勢 • ومع الابينين اقتل توعا ما
 干
            crni stoji nešto bolje • у черных несколько лучше • black stands slightly better • Schwarz steht
                  etwas besser • les noirs sont un peu mieux • el negro está algo mejor • il nero sta un po'
                  meglio • svart står något bättre • 黒や、優勢 • ومع الأسود أنصل توعا ما
 \pm
            beli stoji bolje • у белых лучше • white has the upper hand • Weiss steht besser • les blanes
                  sont mieux • el blanco está mejor • il bianco sta meglio • vit står bättre • fi
                  الابيضافي وضع مسيطر
           crni stoji bolje • у черных лучше • black has the upper hand • Schwarz steht besser • les noirs
 \mp
                 sont mieux • el negro está mejor • il nero sta meglio • svart står bättre • 黒
           beli ima odlučujuću prednost • у белых решающее преимущество • white has a decisive advan-
                 tage • Weiss hat entscheidenden Vorteil • les blancs ont un avantage décisif • el blanco tiene
                 una ventaja decisiva • il bianco é in vantaggio decisivo • vit har avgörande fördel •
                         الابيص بتمتع بافضلية حاسمة ● 勝勢
           crni ima odlučujuću prednost • у черных решающее преимущество • black has a decisive advan-
                 tage • Schwarz hat entscheidenden Vorteil • les noirs ont un avantage décisif • el negro tiene
                 una ventaja decisiva • il nero é in vantaggio decisivo • svart har avgörande fördel •
                 للاسود ينمتع بافصلية حاسمة ● 勝勢
           jednako • равно • even • ausgeglichen • égalité • igual • equivalente • lika • 形勢互角 • كانو؛
           neizvesno • неизвестно • unclear • unklar • incertain • incierto • incerto • oklar • 形勢不明 •
\infty
\overline{\infty}
           kompenzacija za materijal • компенсация за материал • with compensation for the material •
                mit Kompensation für den materiellen Nachteil • avec compensation pour le matériel • con
                compensación por el material • con compenso per il vantaggio materiale avversario • med
                 kompensation för materialet • 駒損不利なし • と
                                                                                                 ساء تعلوسهن خسسارة الك
C
           razvojna prednost • прсимущество в развитии • development advantage • Entwicklungsvorsprung
                • avantage de développement • ventaja de desarrollo • vantaggio di sviluppo • utveckling-
                sförsprång • 展開よじ・ فصلية للنظور
           prostorna prednost • преимущество в пространстве • greater board room • beherrscht mehr
0
                Raum • avantage d'espace • ventaja de espacio • maggior vantaggio spaziale • terrängfördel •
                 اقصلت مكانية على الرفعة • 模 様 大
          sa параdom • c атакой • with attack • mit Angriff • avec attaque • con ataque • con attacco •
                med angrepp • 攻 势 • سعالهمسوم
          sa inicijativom • с инициативой • with initiative • mit Initiative • avec initiative • con iniciative
                • con iniziativa • med initiativ • 主導権あり • ع السادرة
          sa protivigrom • с контригрой • with counter-play • mit Gegenspiel • avec contre-jeu • con contrajuego • con controgioco • med motspel • 及 繋 • честина соптения • с
\leftrightarrows
\odot
          iznudica • цугцванг • zugzwang • Zugzwang • zugzwang • zugzwang • dragtvång •
                روعروالع • ٧٣٧٧ بوعروالع
#
          mat • mate • matt • mat • mate • matto • matt • メ イ ト • أماله "ساله "ساله "
```

Figure 2a. From Enciklopedija Šahovskih Završnica, 1993.

```
!
       vrlo dobar potez • очень хороший ход • a very good move • cin sehr guter Zug • très bon
          coup • muy buena jugada • buona mossa • ett bra drag • 好
                                                                          نقلة حيدة حدا ● 手
!!
       odličan potez • отличный ход • an excellent move • cin ausgezeichneter Zug • excellent coup •
          excelente jugada • mossa ottima • ett utmärkt drag • 妙
       slab potez • слабый ход • a mistake • cin schwacher Zug • coup faible • mala jugada • mossa
          debole • ett dåligt drag • 疑 問 手 • نقله حطا
??
       gruba greška • грубая ошибка • a blunder • ein grober Fehler • erreur grave • grave error •
          grave errore • ett grovt fel • 悪
                                             نعلية سينية حيدا • 手
12
       potez zaslužuje pažnju • ход заслуживающий внимания • a move deserving attention • ein
          beachtenswerter Zug • coup qui mérite l'attention • jugada que merece atención • mossa degna
          di considerazione • ett drag som förtjänar uppmärksamhet • 注 目 手 • علم تستحوالانتياء
21
       sumnjiv potez • сомнительный ход • a dubious move • ein Zug von zweifelhaftem Wert • coup
          de valeur douteuse • jugada de dudoso valor • mossa dubbia • ett tvivelaktigt drag •
                 نقلة مشكوك في لليحتها • 爭
       sa idejom • с идеей • with the idea • mit der Idee • avec l'idée • con idea • con l'idea • med idén •
Δ
          بِنَصُور • 班السلامة
jedini potez • единственный ход • only move • der einzig spielbare Zug • le seul coup • unica
          jugada • unica mossa • enda draget • 絶 対 手 • النعلة الوحده
       bolje je • лучше • better is • besser ist • meilleur est • es mejor • è meglio • bättre är •
          正着は・ الافصل هو
                                      雪 草 草 勾
\Leftrightarrow
      linija • линия • file • Linie • colonne • linea • linea • linje • 横 列 • الربال
      dijagonala • диагональ • diagonal • Diagonale • diagonal • diagonal • diagonal • diagonal •
              القطر ● ۾ُھ
+
      centar • центр • centre • Zentrum • centre • centro • centro • centrum • ф
>>
      kraljevo krilo • королевский фланг • king's side • Königsflügel • aile-roi • flanco de rey • lato
          di R • kungsflygeln • キング側 • المليك
      damino krilo • ферзевый фланг • queen's side • Damenflügel • aile-dame • flanco de dama •
          lato di D • damflygeln • クイン側 • حتاح الملكة
      slaba tačka • слабый пункт • weak point • schwacher Punkt • point faible • punto débil • punto
X
          debole • svaghet • 弱 点 • نتطة ضعب
\perp
      završnica • эндшпиль • ending • Endspiel • finale • finale • slutspel • 4½ 1½ •
          المرحلة التسائية
ц
      lovački par • два слона • pair of bishops • Läuferpaar • paire de fous • pareja de alfiles • la
         coppia degli alfieri • löparpar • 双ビショップ • ルエル
      raznobojni lovci • разноцветные слоны • bishops of opposite color • ungleichfarbige Läufer •
          fous de couleurs opposées • alfiles de distinto color • alfieri di colore diverso • löpare med
          olika färg • 異色ビショップ • فيلان من لونين محتلفين
      istobojni lovci • одноцветные слоны • bishops of the same color • gleichfarbige Läufer • fous
          de même couleur • alfiles del mismo color • alfieri di colore uguale • löpare med samma färg •
          「同色ビショップ ● فيلان من نعس اللون
      vezani pešaci • связанные пешки • united pawns • verbundene Bauern • pions liés • peones
00
         unidos • pedoni uniti • garderade bönder • 連ポーン • عبادق مرتبطة
      razdvojeni pešaci • изолированные нешки • separated pawns • isolierte Bauern • pions isolés •
          peones aislados • pedoni isolati • isolerade bönder • 離ポーン • جادق منعطة
8
      udvojeni pešaci • сдвоснные пешки • double pawns • Doppelbauern • pions doublés • peones
         dobles • pedoni doppi • dubbel bönder • 重ポーン • ہادق مردوجة
```

**Figure 2b.** From *Enciklopedija Šahovskih Završnica*, 1993.

```
slobodan pešak • проходная пешка • passed pawn • Freibauer • pion passé • peón pasado • pedone libero • fribonde • 朱元宋 جو مر ه بالمان مر بالمان مر ه بالمان مر ه بالمان مر بال
```

- vreme врсмя time Zeit temps tiempo tempo tid 時間切迹 பெழ்

### 雪 豐 直 鱼 勾

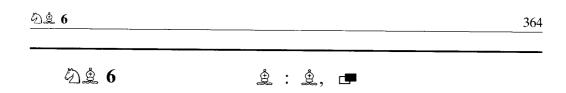
- 7/113, 48/241... Šahovski informator Шахматный информатор Chess Informant Schach-informator Informateur d'échecs Informador ajedrecistico Informatore scacchistico Schack-informator チェス新報巻/局 としましましま
- A 30, В 17, С 92... Enciklopedija šahovskih otvaranja Энциклопедия шахматных дебютов Encyclopadia of Chess Openings Enzyklopädie der Schacheröffnungen Encyclopédie des ouvertures d'échecs Enciclopedia de aperturas de ajedrez Enciclopedia delle aperture negli scacchi Encyklopedi över spelöppningar i schack 布局大成 •
- А 3/c3, З 3/d... Enciklopedija šahovskih završnica Энциклопедия шахматных окончаний Encyclopaedia of Chess Endings Enzyklopädie der Schachendspiele Encyclopédie des finales d'échecs Enciclopedia de finales de ajedrez Enciclopedia dei finali negli scacchi Encyklopedi över slutspel i schack 収局大成 収局大成 収局大成
- N поvost новинка a novelty eine Neuerung nouveauté novedad un'innovazione nyhet هديد مسكر #

### 

- (ch) šampionat чемпионат championship Meisterschaft championnat campeonato campionato mästerskap 世界チャンピオン戦 மடிしょ
- (izt) međuzonski turnir межзональный турнир interzonal tournament Interzonenturnier tournoi interzonal torneo interzonal torneo interzonal interzonturnering インター・ゾーン •
- (ct) turnir kandidata турнир претендентов candidates' tournament Kandidatenturnier tournoi des candidats torneo de candidatos torneo dei candidati kandidatturnering 批戦者決定戦 خورة بساراسات للسرنجسيي

- COTT. dopisna partija партия по переписке correspondence game Fernpartie partie par correspondance partida por correspondencia partita per corrispondenza korrespondensparti 通信戦 •
- RR primedba redakcije примечание редакции editorial comment Anmerkung der Redaktion remarque de la rédaction nota de la redacción nota redazionale redaktionens anmärkning 編集部評 التحرير
- R razni potezi разные ходы various moves verschiedene Züge différents coups diferentes movidas mosse varie olika drag 変 化 手 منوع منوعة
- L sa c with mit avec con con med 以下の手順となるもの と
- 」 bez без without ohne sans sin senza utan 以下の手順とならないもの ユー
- itd. и.т.д. etc usw. etc. etc ecc o.s.v. 🦖 శ ट्र<sup>்)</sup>
- vidi смотри see siehe voir ved vedi se 🐉 👭 الطر

**Figure 2c.** From *Enciklopedija Šahovskih Završnica*, 1993.



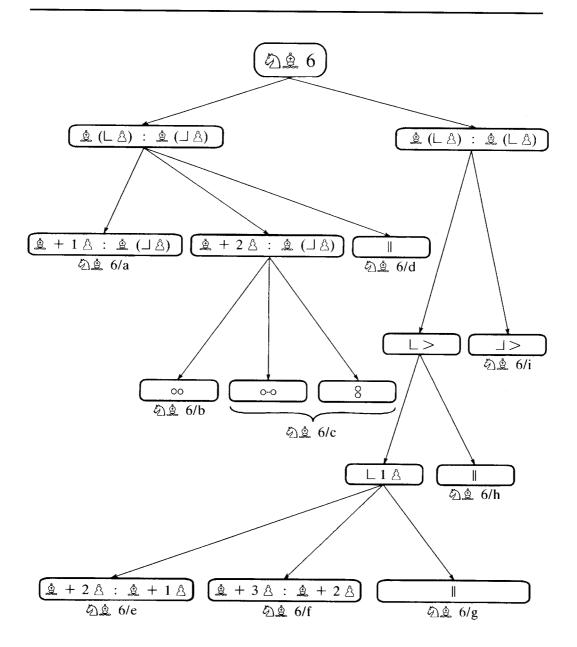


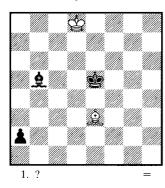
Figure 3. From Enciklopedija Šahovskih Završnica, 1993.

365 ②鱼 **6/a** 

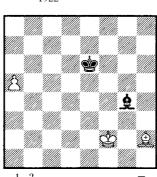
15 A 610	å I 1 Å . å ( I Å)	1227 1220	265
②臭 6/a	½ + 1 Å : ½ (⅃ Å), ┏	1327 - 1328	365
②臭 6/b	호 + 2 oo Å : 호 (ᅬ Å), ┏	1329 - 1337	366
②臭 6/c	½ + 2 ∞ o Å : ½ (J Å), <b>≠</b>	1338-1361	368
	<b>≜</b> + 2 8 Å : <b>≜</b> (⅃ Å), ┏		
②臭 6/d	<b>≜</b> + 3, 4, 5    Å : <b>≜</b> ( │ Å), <b>□</b>	1362 - 1367	373
②臭 6/e	೨ + 2 Å : ೨ + 1 Å, ┏	1368 - 1376	374
∅ <u>\$</u> 6/f	<b>≜</b> + 3 Å : <b>≜</b> + 2Å, <b>☞</b>	1377-1388	376
②鱼 6/g	∥ ዿ (L Å) : ዿ (L Å), ச, L > 1 Å	1389-1442	379
②≗ 6/h	♠ (L Å) : ♠ (L Å), ➡, L > 2, 3, 4    Å	1443-1481	393
②臭 6/i	ů (L Å) : Å (L Å), ┏, 」>	1482 - 1499	403

# ② 👲 6/a

**1327.** GRAAFLAND\* *Tidskrift* 1916



**1328.** BERGER 1922



1327. 1. ≜h6 含h6 2. ≜d2 a1 ∰ 3. ≜c3=

1. a6 单f5 2. 曾f3 [2. 曾e3 单h3 3. 曾f3 单f1 4. a7 单c4 △ 单d5=] 单d3! [2... 曾d5? 3. a7 单e4 4. 曾e3+-]
3. a7 单c4 4. a8豐 单d5=

Figure 4. From Enciklopedija Šahovskih Završnica, 1993.

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<b>公皇 2</b>	<b>9</b> : <b>9</b>	76
②鱼 3	호 (L Å) : 친 (니 Å) 호 (니 Å) : 친 (L Å)	182
②鱼 4	ĝ (Lå) : ∅ (Lå), L>	220
②鱼 5	ĝ (Lå) : ∅ (Lå), J>	306
②鱼 6	₾ : ₾, ┏	364
②鱼 7	ĝ : ĝ, <b>≠</b>	408
②호 8	지원/외월/일월 : 함 지원/외월/일월 : 원 외원/외월/일월 : 원/일	470
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Figure 5. From Enciklopedija Šahovskih Završnica, 1993.



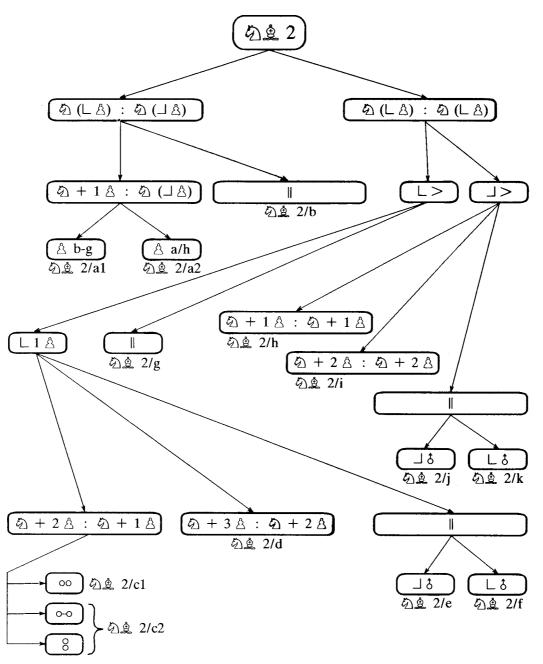


Figure 6. From Enciklopedija Šahovskih Završnica, 1993.

### A. Administrative

1. Title

### Proposal to encode symbols for chess notation

2. Requester's name

#### **Michael Everson**

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

### Individual contribution.

4. Submission date

### 2017-01-26

- 5. Requester's reference (if applicable)
- 6. Choose one of the following:

6a. This is a complete proposal

Yes.

6b. More information will be provided later

No.

### B. Technical -- General

1. Choose one of the following:

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

No.

Proposed name of script

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

Yes.

1b. Name of the existing block

### Miscellaneous Symbols and Arrows.

2. Number of characters in proposal

9.

3. Proposed category (see section II, Character Categories)

### Category A.

4a. Is a repertoire including character names provided?

Yes.

4b. If YES, are the names in accordance with the character naming guidelines in Annex L of ISO/IEC 10646-1: 2000?

Yes.

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

Yes.

5a. Who will provide the appropriate computerized font (ordered preference: True Type, or PostScript format) for publishing the standard? **Michael Everson.** 

5b. If available now, identify source(s) for the font (include address, e-mail, ftp-site, etc.) and indicate the tools used:

## Michael Everson, Fontographer.

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)?

110.

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. Examples of such properties are: Casing information, Numeric information, Currency information, Display behaviour information such as line breaks, widths etc., Combining behaviour, Spacing behaviour, Directional behaviour, Default Collation behaviour, relevance in Mark Up contexts, Compatibility equivalence and other Unicode normalization related information. See the Unicode standard at http://www.unicode.org for such information on other scripts. Also see Unicode Character Database http://www.unicode.org/Public/UNIDATA/ UnicodeCharacterDatabase.html and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

The characters should have the same properties as other symbols.

### C. Technical -- Justification

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

Nο.

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?

### **Garth Wallace**

2c. If YES, available relevant documents

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

### Everyone.

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

#### Common.

4b. Reference

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

#### No.

5b. If YES, where?

6a. After giving due considerations to the principles in Principles and Procedures document (a WG 2 standing document) must the proposed characters be entirely in the BMP?

#### Nο

6b. If YES, is a rationale provided?

6c. If YES, reference

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

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?

#### No.

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

10c. If YES, reference

11a. Does the proposal include use of combining characters and/or use of composite sequences (see clauses 4.12 and 4.14 in ISO/IEC 10646-1: 2000)?

#### No.

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

11c. If YES, reference

12a. Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?

### No.

12b. If YES, reference

13a. Does the proposal contain characters with any special properties such as control function or similar semantics?

### No.

13b. If YES, describe in detail (include attachment if necessary)

14a. Does the proposal contain any Ideographic compatibility character(s)?

### No.

14b. If YES, is the equivalent corresponding unified ideographic character(s) identified?