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Testing hypotheses of language replacement in the Caucasus: evidence from the Y-chromosome

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Abstract A_xr us nyss fmtD A rtnnt Cussfunt tIn Erns, ng Armnns n ur -s, ng Azr jn ns vrmr sy r t g nt y t t r Cu s s u t ns (w s, Cu s n ng g s) t nt t r In - Er n r ur gru s, r s, t y. Arm n n n Azr jn-nt r fr r, r s nt ng g r, m nts, ss y t m n n n srm r y m grnts, n t mnn n ng rmry m mgrnts, n y syntrtns sfArmnnsnAzr-jnnssntY-rmsmsumr sy rfttrnsstrtnss.Wtrfrn-yz 11 - Y-rmsmmrrsn389ms frm sat u tns, r, rsntns, mjrns, st saru, snt Cu s. As wtt mtD Asty, s nt 🗽 rmsm Armnnsn Azr jnnsr m r syi-rty, ttry, yr ng, rsnt Cutstnttrng, stng, rs sw r.Hw r,w r st mtD Arustss w ttCusngrusrmrsyrtginty tEr, ntnt rEstrngrus, y ntrstt ¼-rmsmsws sryantrtns yt rEstt nyt Er., t

Introduction

'Cuss, trantwintCs, nnB Ss,srtrzy tr m y 🤉 ng st r-

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s wnt tArmn ns n Azr jn ns rmr S 🖌 r tontyttronor, non rsnt Cunsnntttronstron, rssyr. s mnstrt t t Cu s n In tn, tsut utnsrant untrm t twn Ernn rEstra y tns, utt tt y rmr syart t Eiry nt nt r Estrn, y t ns.

1 9, ntruststusus 99, sttttt Arm nnn Azr jnn ng gsr rsnt ng gsrmntsnt Cuus. / rynsft Armnn 'ng g r sur, utt Azrjnn ng g y s r yantru nt 11^t ntryAD yantr Ås nnm s (Jnsn 1998). Ammnm n sm f ng g r, mnts t mnn (nfrw 1991), w ryt ng g f sm n ng gru s "tyt ng rrs ntytn, trust tyt marrs ntytn,trus sm.syfr rustsnsrs Y sr ts, t ng g ft n rs. Ift n-ng gru s rm rym, t n n mg t t tt rns f V-rm sm r t n t r t n sm tr 🐴 t ft n rs. / tstts y, tss f ng, g, rmnt t mnn, wr, rtrnnyss fY-rmsm - mrrsntsmstf Cusn, utns, rusynyz frmtDA HV1 sqn rtn(szn Stnny, 2001).

Materials and methods

Si j ts

A tt f 389 sm, s (289 w n 100 sw s) frmunr t m n u swr t nt f wns stut t nus u t ns (Fo 1): G m ns (Sut Cu s ns, rs), Arm n ns (In -E r, ns, rs), Az rjn ns (Ur s, rs), n A zn ns, K r n ns, Ins ns, C n ns, n D m ns (rt Cu s ns, rs). D A frmt sm s nus r usuf r n ys s fmtD A HV1 sq n r t n n Au ns rt n ym r, sms (s z n Stn ng 2001; s z t . 2001); sw sfrm t n m sfrm Arm n n Az r jnwr t n r rt n r s t sm, sz fr t nr nt n rs, n D A frm sm s st s. Inf rm ns n n frm t n ut t rt ft nr n t n r's rnts n srn rrnts wr t n frm n rs. G nm D A frm sm s ws tr t yu sng n Is u D A fr m sw s ws tr t yu sng n Is u D A fr m sw s ws tr t yu sng n nt n stngut r ur (M r t .1988). u s Y - rm sm sng n t ym r, sm (4-S) t frmt Sut Cu s sw rus fr m 25 S ns (G m), 25 G m ns fr m K z e (G m), 12 L zg (Az r j n), n 17 Sut 2s t ns (W s t .2001). A t n u s t n 21 Az r j n ns n 47 Arm n ns (W s t .2001), n t ff r n m rs, t frmurs m, s (t n ts wn) n wr n t nu nt n ys st (S mn t .2000; W s t .2001) fr E r n, r E strn, n C ntr As n u t ns wr s nu Murnyss

'nS mr rs r u syr rt t ym r, nE r n t rE st (S mn t .2000) wr t, n s m, s: S4, (M130), M9, M89, M124, M45, M173, M17, M201, M170, n M172 (Un r t .2000 n rf rn st rn); t), A Au ns rt n ym r, sm (H mm r n H r 1995) ws s y. Fr S mr rs tM130 (S44,), 'qm n (A, B syst ms) ssys wr son rm rs n y r swr son yu sns rm rE rss (V rs n1 f r M nt s wr C; EB syst ms). rm r n r sq n s r y nn ' 1. t nm swr r r r s sr ru sy (M rn t .1999). M130 w sy yu sns t r u r sr s wr (K ys r t .2000), w r st y A Au ns rt n w st, s sr r u sy (H mm r n H r 1995). A sm swr t, fr mr rs; n sr n wy sfu n tw nt rr r r fm rrs sr y Un r t .(2000) n u rrs ts. ' y-S sru nm n u ru s r s r not t r ntr mm n t ns ft Y C rm sm C ns ru m (2002). ' y snt r t ns ft Y - rm sm y, s, s-

Sttst nyss

H garu, rstan F_{st} u swr u twt Arqn 2.000 (Sn rt.2000), w ws sus trutut Mnt tstsfr rr tns twn mtr s. Mitmns n s ng (MDS) nyss (Kurs 1964) ft F_{st} u sws rr utwt S'A'IS'ICA (SttSft). r garms n HaLI 3.5 (Fsnstn1993) wrus t nstart n gar-jn ng tr.0256 /w (A [st u s.

Results and discussion

Yy-S yyru,snt Cu≀ss

E n y - S gru s (F g, 1) wr fun n tCu u s (1 2, F g, 1). m st fr q nt gru s wr F*, G* $n J2^*$; t g t r t fr q ny f t s t r gru s w s 0.53 0.86 n gru s tf r t D rg n ns. 1 D rg n ns g fr q ny f gru $I^* (0.58)$, w s w r w s fun t fr q ny f 0.1 r ss. S ns wr r u sy r rt (W s t .2001) t g fr q ny (0.92) f gru $J2^* (0.72)$. t r gru s ni s ng gru $J2^* (0.72)$. t r gru s ni s ng n f t sm s m f 12 L zg, f r w t fr q ny f gru F^* , n K z g t gru r t fr q ny f gru F^* y s 0.58. 1 D rg n ns, L zg, S ns, n K z g rr s n ngy t w st gru rs t s (0.153 0.652), w r s f r t t r gru s, t gru r s t w s 0.779 0.855.

t gru rstyws 0.779 0.855. W ft tr mm n Cu us s gru s (F* n J2*) r s mm n n r E st m u t ns L n s, ur s, S r ns (S m n t .2000), n Ir nns (W s t .2001), wt rs fr q n s f 0.165 n 0.28, rs t y, ut, r s nt n w r fr q n s n E r (r s fr q n s 0.021 n 0.074, r s t y). / t r mm n Cu us s gru , G*, s r r n E r (fr q ny=0.061) n, nt r E st, s n r rt ny n t ur s n L n s gru s (S m n t .2000). H gru 1*, w s mm n n W st rn n C ntr E r , s s r n t Su t Cu us s t fr q n s s rt n0.1, w r s nt rt Cu us, t s s nt rn ry s. H gru 11*, w s s r n s fr q n s nt su t w st M t rr n n r s n, E st m E r , n C ntr As , s r s nt t w fr q ny.

gru s ur t w fr q ny. ' D ran n, S n, n K z g gru s rt u t rs m, r wt t t r Cu u s gru s ' F_{st} u w s g st tw n S ns n t r Cu u s gru s (r g F_{st} = 0.332), f w y t K z g (r g F_{st} = 0.286) n D ran ns (r g F_{st} = 0.25), w r s t r g rw s F_{st} u m ng t r m n ng Cuu s gru s w s ny 0.047. ' s g F_{st} u s, u wt t w r gru rs t n r u n m r f gru s (' 2) nt D ran ns, S ns, n K z g, r m st y t ru t f g n t r ft r t ng n sm s t u t ns. ' rr t n tw n t g gr n g n t (rw s F_{st}) st n s s r t ng, rs f Cu u s u t ns w s n t st t st y s gn f nt (M nt t st: Z = 0.113 P = 0.671) m ft u t rs (S ns K z-

' rr t n tw n t s sr n s n t (rws F_{st}) st n ss r t ns rs f Cu s s u t ns w s n t st t st y s s n f nt (M nt t st: Z =0.113, P = 0.671). m ft u t rs (S ns, K zs, n D rs n ns) r s t n rr t n t t w s s r u t st n n-s s n f nt (Z = 0.301, P = 0.134). ' t rm n w t rt Cu s s Mu nt ns n nfu - 0.797) s m st s s st t n C ntr As (r s u : rstynt Cutsts(rg,u: u : 0.824) n t r E st (r 🔉 u : 0.769) n ssanf nty a r(t-t st, P=0.024) t nt gru rstan Er (rg. u: 0.633). An IDS tnng r-jnng tr snF_{st} us MDS (F9.3A, B) s, tEr n, u t ns nt W strn n E strn gru, s, s s n s r r u sy (S m n t . 2000), wt C ntr As n, u t ns f ng n -tw n t W strn n E strn Er n gru, s. / Cussy tnsr ntrmns vt rEstrn t ns.

nfntyvr(t-tst s n rsyF_{st} u sj r y tns, P <0.001). 🍝 r y, Šut n f

Cu us, ut ns; nst, s, nt rft rt ns, n t ns, s s sur G^* fr m sr F^* (F s 2), sm s t ut ns s m st m n t t ws n t n yz (/ 2). Int n ys s, t s s, nt strut r f Cu us, ut ns. n u s wr ss f s sru, F^* , t us n u swr ssf s smunnwn r rt n u trmn w t rt s n t t strm s twn yru sF*n G*frsm yru sn£un rusts ft MDS n F_{st} nyss, y ssf t sru G*n u s s gru F*n r t t n ys s. / r s ts (n t s yn) yr ss nt y nt ; tu s, t n ty t st ng s ty n syru sF* n G* nsm syru s sntnfu n ur nus ns.

In rrt u ny ss snur nu-snsus y t sm sz ft sm sfrm sm snur nuft grus, wrt nyssftrung grus wtsm, sz sstn25 (s / 2). A nusnsrmnt sm (tnts yn).

Gntrtns two nBsqsnCusns AmmnranfCusnnBsqs, rss

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ur grus, rs, ty. 'smystrftn t ntrs ntgrus. Grrnty, trr, rmty mnn snr, srum yt rg, nIn-Ei-8m nAzrjnnsn 3.5m nArmnns, tr, n/ur mgrntgrus wr rysm n/r tstng, ttrmr r, tyfts ng, g, sfts; ntm tns y wtt rs ntgrus. In ny s ng, -s sfts wu t m, s y nt, t mgrntgrus s ng, g, ntm, tuur rtrtnmry g, mns. H w r, t y - y yru s ntr st s r y w t t