

Sensitive Dependence on Initial Conditions, Illustrated through the Interplay between Sound Change and Analogy in the Progressive-to-Imperfective Cycle in Northern, Central, and Southern Kurdish

Shuan Osman Karim

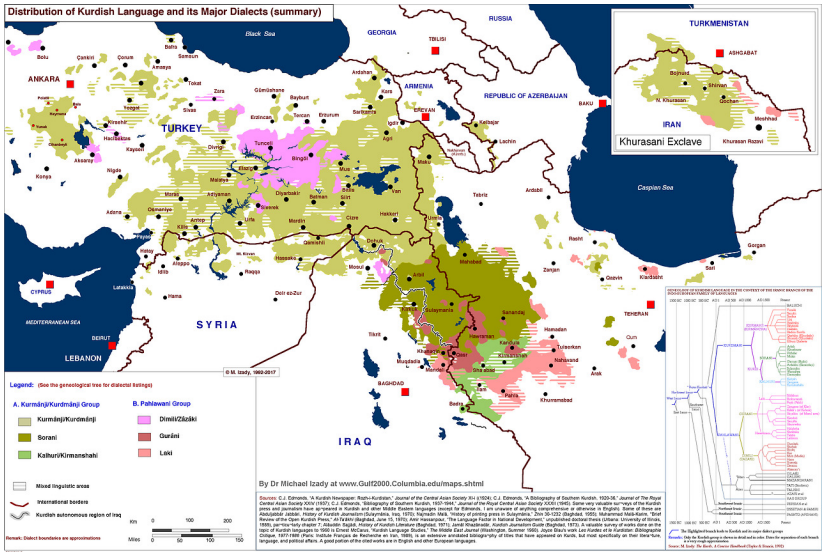
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Introduction



Sound Change and Morphological analogy

yPCqS Lq z f- q z b^ 4Cz.CC^ V~q@SP f- qzCs

Sound Change and Morphological analogy

yPCqS Lq z f- q z b^ 4Cz.CC^ V~q@SP f- qzCs

yPCYqLC^~\ 4CqbHS eCqCzSfC\ -qWqS e- qS~Yqf%oo

Sf-szq zSfC

Sound Change and Morphological analogy

yPCqC\$ LqG z f- q\$ z\$^ 4Cz.CC^ V~q@SP f- qCzCs

yPCYqLC^~\ 4CqbH\$ eCqCz\$C\ -qWq\$ S e- q\$~Yq\$%o

SY-szq z\$C

yP\$ dqCsC^z z\$^=

ReqCsC^z zPC\$^zCqY%bHsb~^@<P- ^LC- ^@- ^- YL%\$^ -

P%abzPC\$- Ybq\$C \$ C@...: %o

Sound Change and Morphological analogy

yPCqS LqG z f- q z b^ 4Cz.CC^ V~q@SP f- qzCs

yPCYqLC^~\ 4CqbHS\ eCqCzSfC\ -qWqS e- qzS~Yqf%o
Sf-szq zSfC

yPS dCqC^z z b^=

ReCqC^z zPC S^zCqY%bHsb~^@<P- ^LC- ^@- ^- YL%S^ -

P%abzPCzS- YbqS@C Y C@...: %o

ReCqebS C- <z~ Y4bqf..S^L S^zq@<S^L ePb^bYLS- Y

SqL~YqzCs

Sound Change and Morphological analogy

yPCqS LqG z f- q z b^ 4Cz.CC^ V~q@SP f- qzCs

yPCYqLC ^~\ 4CqbHS\ eCqCzSfC \ - qWqS S e- qzS~Yqf%o
Sf-szq zSfC

yPS dCqC^z z b^=

ReCqC^z zPC S^zCqY%bHsb~^@ <P- ^LC- ^@- ^- YL%S^ -

P%abzPCzS- YbqS@C Y C@...%o

ReCqebS C- <z~ Y4bqf..S^L S^zq@ <S^L ePb^bYLS- Y

SqL~YqzCs

RsPb...Pb... \ S^S\ - YePb^bYLS- Y@S Cq^ <Cs %S^@

@Se- q zC qzS~Ys

Idealized Changes

Hypothetical Changes I

ACCUSATIVE

PRS

ne-PRS

de=PCPL=da

ne=de=PCPL=da

ERGATIVE

PCPL

ne=PCPL

Aoristic drift



PRS

ne-PRS

de-PST-da

ne-de-PST-da

PST

ne-PST

Hypothetical Changes II

PRS

ne-PRS

de-PST-da

ne-de-PST-da

PST

ne-PST

Reanalysis



PRS

ne-PRS

de-IPFV.PST

ne-de-IPFV.PST

PST

ne-PST

Hypothetical Changes III

PRS

ne-PRS

de-IPFV.PST

ne-de-IPFV.PST

PST

ne-PST

extension



de-PRS

ne-de-PRS

de-IPFV.PST

ne-de-IPFV.PST

PST

ne-PST

Hypothetical Changes IV

de-PRS

ne-de-PRS

de-IPFV.PST

ne-de-IPFV.PST

PST

ne-PST

Zagros *d* ↓

de-PRS

ne-ye-PRS

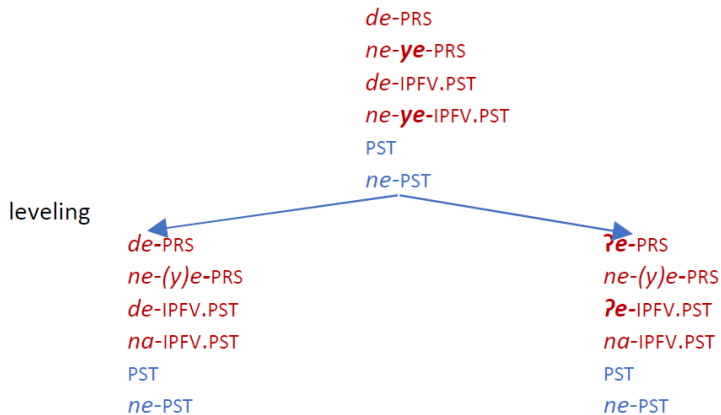
de-IPFV.PST

ne-ye-IPFV.PST

PST

ne-PST

Hypothetical Changes V



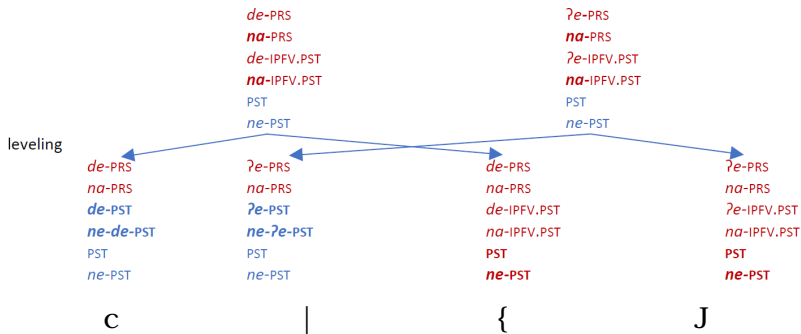
Hypothetical Changes VI

eye > a

de-PRS
ne-(*y*)*e*-PRS
de-IPFV.PST
na-IPFV.PST
PST
ne-PST
↓
de-PRS
na-PRS
de-IPFV.PST
na-IPFV.PST
PST
ne-PST

ʔe-PRS
ne-(*y*)*e*-PRS
ʔe-IPFV.PST
na-IPFV.PST
PST
ne-PST
↓
ʔe-PRS
na-PRS
ʔe-IPFV.PST
na-IPFV.PST
PST
ne-PST

Hypothetical Changes VII



Kurdish varieties (114)

The source of noise

Zagros /d/

, s- ..S@Cseq @ q(LS)^- YHG z~q>zCq C@zPC Š-Lqps @
 f,, S@HPq>ebszfb<- Y& @S sbhC^C@zb LY@CQW CQ) bq Q.Q- ^@
 <b^zq <zS ..SP - @U<C^z PSLP fb..Ck= - @Q Q - Q Q RLSfCt
 ^- @q ^- S q | - @q f\ - s i edpeCq ^- \ Cq 4 @ 4 S 4 @t †...:
 †~...: Kb@ Q 1†~@:i

f[< -q> | CEE>I_ug

@! ; q ; l y : = ; q ; l y : - =
 @SY q Z @SY @ q Y f C q
 @! @fCk.C.PCqG=
 @Cz P- ^@
 Wq @biesz

f[- <W^<S>c_vc>{g

Zagros /d/ re-imagined

1. @! %a.> =, _ fsP-q@- YV~q@SP f-qZCsg
2. @! =; 9 ; | y:_ f^bz sP- q@ 4%o YV~q@SP f-qZCsg
3. d-q @L\ YfCSL= - Yb\ bcpP%@-C zb Š- Lqps w@wb<<~qpL - s
- s ^@PSePC^b\ C^b^ - <qpss ..bq@bq\ bcpPC\ C 4b~^@ qCs S
CS S- z@ fSpL~Yq SW- Yz%aCs bH ^- YL%g

Gorani/Laki Contact I

Kbq ^S- ^@X W f- qZSs ~sCzPCS\ eCqC<ZjC\ -qWq \ fGQ
 ^bz zPCV~q@SP f@gCQ

R zPCsC f- qZSs>zPC eqsC^<CbHZPCS\ eCqC<ZjC\ -qWq
 <b^@SS^s zPC~sCbHZPC^CL- zS^ \ -qWq ^SQ^szG @bHZPC
 z%S- Y^CQ

	d- ..C%o^C	OCp ^	[~Vq
dpr	\ CWq	\ CWA	@CWA
] BKidpr	^S CWq	^S CWA	^- WA Z 1^C@CWA
RIG, idry	Wq ^	\ CWpS	fE \ g@CWp@
] BKiRIG, idry	^CWq ^	^S CWpS	fE \ g^C@CWp@

Gorani/Laki Contact II

rb\ C f- qZSS - @bezC@zPC K bq ^S\ b@CY

	d- ..C%o^C	O%abzPCS- Y	[~Vq
dpr	\ C W q	1@C W A	@C W A
] BKidpr	^S C W q	*nidekem	^- W A Z 1^S C W A
RiG, idry	W q ^	1@C W f @%o\	fE \ g @C W f @
] BKiRiG, idry	^C W q ^	1^C @C W f @ @ \	fE \ g ^C @C W f @

rb\ C f- qZSS - @bezC@zPC X W S\ b@CY

	OCp ^	O%abzPCS- Y	[~Vq
dpr	\ C W A	1@C W A	@C W A
] BKidpr	^S C W A	*nidekem	^- W A Z 1^C @C W A
RiG, idry	\ C W f S	1@C W f @ @ \	fE \ g @C W f @
] BKiRiG, idry	^S C W f S	*nidekirddam	fE \ g ^C @C W f @

Proposed Changes I

ACCUSATIVE

PRS

ne-PRS

de=PCPL=da

ne=de=PCPL=da

ERGATIVE

PCPL

ne=PCPL

Aoristic drift



PRS

ne-PRS

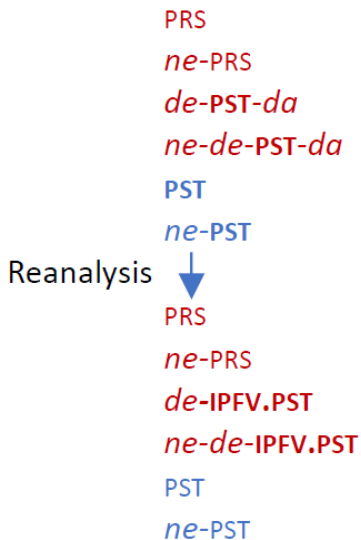
de-PST-da

ne-de-PST-da

PST

ne-PST

Proposed Changes II



Proposed Changes III

PRS

ne-PRS

de-IPFV.PST

ne-de-IPFV.PST

PST

ne-PST

extension



de-PRS

ne-de-PRS

de-IPFV.PST

ne-de-IPFV.PST

PST

ne-PST

Proposed Changes IV

borrowing:

Gorani

Laki

de-PRS

ni-de-PRS

de-IPFV.PST

ne-de-IPFV.PST

PST

ne-PST



de-PRS

nye-PRS

de-IPFV.PST

ne-ye-IPFV.PST

PST

ne-PST

de-PRS

ni-de-PRS

de-IPFV.PST

ni-de-IPFV.PST

PST

ne-PST



de-PRS

nye-PRS

de-IPFV.PST

nye-IPFV.PST

PST

ne-PST

de-PRS

ne-de-PRS

de-IPFV.PST

ni-de-IPFV.PST

PST

ne-PST



de-PRS

ne-ye-PRS

de-IPFV.PST

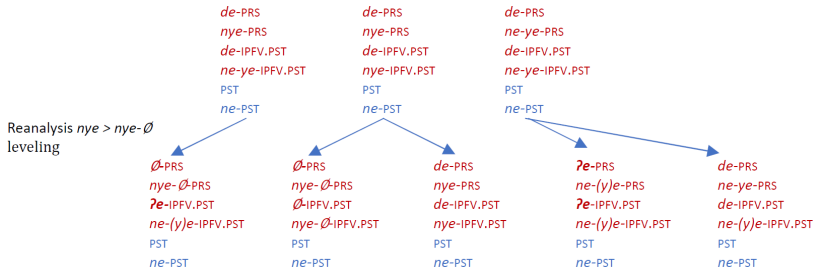
ne-ye-IPFV.PST

PST

ne-PST

Zagros d

Proposed Changes V



Proposed Changes VI

eye > a

~~Ø~~-PRS
nye-Ø-PRS
?e-IPFV.PST
ne-(y)e-IPFV.PST
PST
ne-PST

↓
Ø-PRS
nye-Ø-PRS
?e-IPFV.PST
na-IPFV.PST
PST
ne-PST

Ø-PRS
nye-Ø-PRS
Ø-IPFV.PST
nye-Ø-IPFV.PST
PST
ne-PST

↓
Ø-PRS
nye-Ø-PRS
Ø-IPFV.PST
nye-Ø-IPFV.PST
PST
ne-PST

de-PRS
nye-PRS
de-IPFV.PST
nye-IPFV.PST
PST
ne-PST

↓
de-PRS
nye-PRS
de-IPFV.PST
nye-IPFV.PST
PST
ne-PST

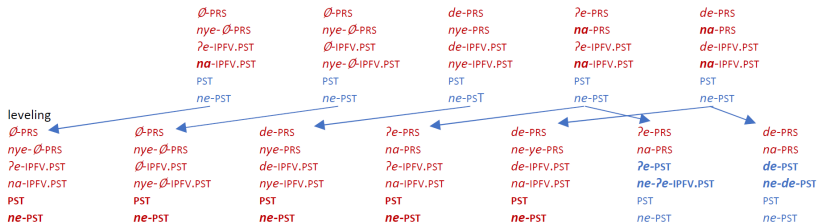
?e-PRS
ne-(y)e-PRS
?e-IPFV.PST
ne-(y)e-IPFV.PST
PST
ne-PST

↓
?e-PRS
na-PRS
?e-IPFV.PST
na-IPFV.PST
PST
ne-PST

de-PRS
ne-ye-PRS
de-IPFV.PST
ne-(y)e-IPFV.PST
PST
ne-PST

↓
de-PRS
na-PRS
de-IPFV.PST
na-IPFV.PST
PST
ne-PST

Proposed Changes VII



Kurdish varieties (114)

Additional noise

, b..CQ^-YfCq1s=é ! é.:t 4 q ! 4 q%o<Hl Wf@a !
Wf@f%g

C|zC^sS^ bHQ%e= zPqCz%eG 4 q%oWf@a 4 qWf@a
4 q%oWf@f%o

sCC<S^ bH^CL- zjC- Yb\ bcpP HbqC4~Sz e- sz ^CQfsi ^- Q

Z cNfcg dqz^S q@<S^= @CWA ! @SWA

f|g X-WWbq ^S^SQ ^C@SC\ ! ^S@SWA

f{g Š@^S@SWA ! ^WA =^C@SWA ! ^WA fZ 1^C@WA g

Z|N qzqLqssjC fbSC- ssS\ S\zS^=@! z = _; q

Z{N s^@PSC|zC^sS^= @fSQ! zfSQ

Types I

eqsiSeHf eqsiSeHfi^CL esziSeHf esziSeHfi^CL

] ; @ Gbq\ s ..SP zPC < zLbq Ybss bHZPCS eCqCzSfC sz\

[bs~Y \ q ^Y>y-zf- ^>è~Wq<->} Y@Cq>[~q @SG>dCqCWWPz >
] ~s-%4S>? bY^--%ok-\ SPY%or-4 PS%o? ~PbW Vb4 ^C> Š-Vb>
3-ssCP^{ao}%o, Wq>; PS %ob%o^>V- ^o@Cq 3S\ S>V~Y>V-qmbf->V~qQ
z-Y^> <-Ye>V- S \ - ^>Vbx YWrSfCqW? Lbq V < YCeC>BqL- ^S
? b ~4C%o z> V-q We ^>r~qé C \ @SY [~ >, -qb> Bq S< ^>
3SL Y r~^- WW %o BY Wp>? b@ >, @? -q4 s%P> p-ll->k CQ
Sf@S>† q4C; P..:=

eqsiSeHf eqsiSeHfi^CL esziSeHf esziSeHfi^CL

Types II

eqsiSeHf eqsiSeHfi^CL esziSeHf esziSeHfi^CL

@Q

^- Q

@Q

^C@Q

TS@S>p- Ub fr%S g=

@Q

^- Q

@Q

^C@Q

BYSz ^=

@Q

^- Q

@Q

^- Q

3- PécS- q %ar Cps^W

zfw@SQ

^- Q

fzS@SQ

^C@Sfw@SQ

3CpUyCeW=

zQ

^- Q

zQ

^- Q

rC..@S%e

zQ

^- Q

zQ

^C@Q

VCP =

zQ

^- Q

@Q

^CzQ

eqsiSeHf

eqsiSeHfi^CL

esziSeHf

esziSeHfi^CL

Types III

eqsiSeHf eqsiSeHfi^CL esziSeHf esziSeHfi^CL

Bq1SY [-P-4 @ } q\ S>asP^- fS@P> [-qf- ^>k bsP-<P-%o\ %o^Q
@bC4>l -Yz? S-P>VP-YW^=

@Q ^-Q @Q ^C@Q

| -l -@P=

@Q ^-Q @Q ^C@fSgQ

V- \ %oq ^=

@Q ^-Q @Q ^- @fSgQ

] ; =Gbq\ s ..SP zPC<- zLbq\$ Ybss bHzPC\$ eCqfC<zSfC sz\

r~Y%o- ^S%oP>VSjWV

QQ ^-Q QQ ^CQQ

VP- YH^>3- ^CP>; Pb\ - ^>O- Y4U>r- ^L- ..=

QQ ^-Q QQ ^- QQ

rc@= Gbq\ s ..SP ^CSPCqzPC<- zLbq\$ Ybss bHzPC\$ eCqfC<zSfC sz\
^bqzPCKbq ^S^CL- zSfC\ - qWq ^S

eqsiSeHf eqsiSeHfi^CL esziSeHf esziSeHfi^CL

Types IV

$eqsiSeHf$	$eqsiSeHfi^{\wedge}CL$	$esziSeHf$	$esziSeHfi^{\wedge}CL$
$3S^a q$			
$@Q$	$^{\wedge} Q$	$@QiQ_{\%o}$	$^{\wedge} QiQ_{\%o}$
$r c = G b \backslash s \dots SP^{\wedge} C S P C q z P C < z C L b \backslash Y b s s b H z P C S \ e C q C z S f C s z \backslash$			
$^{\wedge} b q z P C K b q^{\wedge} S^{\wedge} C L z S f C \ - q W q^{\wedge} S$			
$? S - \dots q 3 S Y \dots^a q r - P -^{\wedge} =$			
Q	$^{\wedge} Q$	$QiQ_{\%o}$	$^{\wedge} QiQ_{\%o}$
$V b Y^{\wedge} S k b q . : f ; i ? i i g > 3 - \% q \% o$			
$E \% o Q$	$^{\wedge} Q$	$E \% o QiQ_{\%o}$	$^{\wedge} QiQ_{\%o}$
$r c = G b \backslash s \dots SP z P C K b q^{\wedge} S^{\wedge} C L z S f C -^{\wedge} @ S \ e C q C z S f C \ - q W q - s -$			
$Y z C q @ C f C b e \backslash C^{\wedge} z - Y^{\wedge} L s S C z P C S P C q z C @ S \ e C q C z S f C \ - q W q E C$			
$^{\wedge} S Q @ q s z i S e H f Q$			
$eqsiSeHf$	$eqsiSeHfi^{\wedge}CL$	$esziSeHf$	$esziSeHfi^{\wedge}CL$

Types V

eqsiSeHf eqsiSeHfi^CL esziSeHf esziSeHfi^CL

3S z^->; Pq O- qS>d^a%q...: ^@=

EC \ CQ EC^S CQ EC \ CQiQ%o EC^S CQi%o

r | = Gbq\ s ..SP zPCKbq ^S^CL- zJfC \ - qWq ^SQ^Y%S zPCEqfSc^z

† a^- | S =

Q ^%CQ CQ ^CCQ

r { @ = Gbq\ s ..SP zPCKbq ^S^CL- zJfC \ - qWq ^SQ^L- q@Yss bHzC^sC

[- YW^aPS

f@G Q ^%CQ @CQ ^%CQ

r { = Gbq\ s ..SP zPCKbq ^S^CL- zJfC \ - qWq ^SQ^L- q@Yss bHzC^sC

[%†^a>R^ \ > [Pq^a>pSW fr-q'-g>r^aYP a4^a@ „ - q <%q Š~Q

4^aZ%>Vbq@ S-

Q ^%CQ @CQ ^%CQ

V-ëPbq frP- P- 4 @g>; - \ <- \ aë> O- q s \ > V q \ - ^ aP>k- sq SŠ>

r- ^U4S † aëC s =

eqsiSeHf eqsiSeHfi^CL esziSeHf esziSeHfi^CL

Types VI

$$\begin{array}{cccc}
 \text{eqsiSeHf} & \text{eqsiSeHfi}^{\wedge}\text{CL} & \text{esziSeHf} & \text{esziSeHfi}^{\wedge}\text{CL} \\
 \mathbb{Q} & \mathbb{Q} & \mathbb{Q} & \mathbb{Q} \\
 \hline
 , \text{qW}^{\wedge}\langle \mathbb{S} \rangle \sim - \% \text{R}^{\wedge} > \text{V} - \text{eq}^{\wedge} \text{z} > [- \wedge @ \mathbb{S} \text{r} - \text{q} \text{b} \mathbb{S} \text{C} \text{q}^{\wedge} = \\
 \mathbb{Q} & \mathbb{Q} & \text{E eszieHf} & \\
 \hline
 \text{eqsiSeHf} & \text{eqsiSeHfi}^{\wedge}\text{CL} & \text{esziSeHf} & \text{esziSeHfi}^{\wedge}\text{CL}
 \end{array}$$

Kurdish varieties (114)

Zor supastan ekem!

3CCYS>r-qi | CEvi , sz~@%b^ Y^L~ LC- ^@HBYWqCS zPC <S%bH
O- qS^ fVQ\ C^sPCP dcfjS^ <G,, Csz Rq ^g rWz<P Lq \ \ -q...SP
zCzS - ^@YfSb^=} ^SfCqS%bH| -eYs dP@

3%4CC>Tb- ^ X>pCfCq? dCqV^s. ,, SYB \ i d-LB<-i c__Ji yPC
CfbYzS^ bHLq \ \ -q zC^sC- seCz>- ^@\ b@ Y%S^ zPC
Y^L~ LGs bHPC..bq@ ; PS- Lb=} ^SfCqS%bH; PS- Lb dqCssi

; b^@bq f@S; Yb. , sP..SS? Chi | CEJi , seCz sPSHs S
R@bQ q%o^ - ^@zq UCz bqCs bHs\ - ^zS <P- ^LG R ; PSq
KS ^bYb>, L^Gs T^LGq. ? bqs dC^W fC@sig> X ^L~ LC<P- ^LC
- z zPCs%bz #QC\ - ^zSs S^zCqH<G<P- ei _>|vc | _ci
3CqS w| ~^SPw8bszb^= ,, - YCq? CKq-%Cq
@bSeCfI cl w_uD\ ccCEI | { CEi | vci

References II

? Cb>, sP..S\$ | CEIi yPC s\ - ^z& - ^@eq L\ - z& ~^@CpS^S'Ls bH
Lq \ \ - z&- Y- z^ e- zPs=yPC eqLqssSfC zb S eCqC-zSfC sPSi
r. d r\ - ^zss - ^@dq L\ - zss DfcJg c I | i
@bScE uvI vseiDcJi

G-zz-P>B\ - YV- \ - ^@q | CEE XG @S Y-zG Wq@G \ qz^ - ~f=
z~@C Y^L~SzS ~Cz @S Y-zbYLS ~Cfrq ^S- {ug XC-fc^=
dCCzCpsi

[-<W^<S>? - fs@] i c_vci V~q@SP @S Y-z sz~@G cQi sz~@G
cQi Xb^@b^t | C..^ bqW a fHq@ } ^SfCpS%dlqssi

[-zq s>^ - q^>Cz - Y | CEvi yPC @S Y-zs bHV~q@SPi
<http://kurdish.humanities.manchester.ac.uk/i>

[< -q-s>Bq^Gzi | CEIi V~q@SPi R KCq^bz,, S@HPqfC@g yPC
Sf ^S^ Y^L~LG>IDu v{ {i Xb^@b^ - ^@] C..^ bqW pb-zC@LG