



$(E \setminus V_{gd} \setminus U)$ $(MS \setminus fWS \setminus U)$
 $(Abb \setminus [USf[a \setminus])$ $(E \setminus ST \setminus [fk)$
 $(GW \setminus Sf[h[fk)$



“ ”

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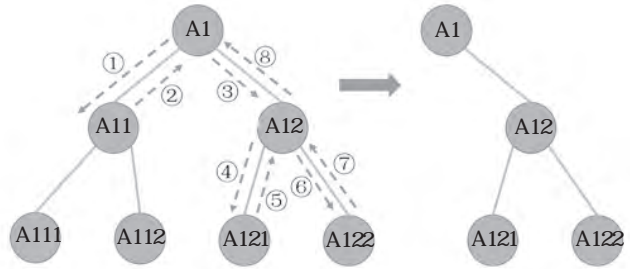
(HSgYZfa`)

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(0,10,20,30)

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ESek
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1340

1

DgS^FS^k Cag`fWli [fZ Cag`f A^Wf CHROME
MMS^HS`V FS^k Cag`fWli KELLOI HS`V FS^k
Cag`fWli[` ABE P^Sef[U¹⁶⁰ DgS^FS^k Cag`fWli
i [fZ Cag`f A^Wf

3 4

160

(“ w ”) “ v ”

(CWWf[a` L[` W

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MEO

CZSdEJ E^{MEO}

DIBELE(Dk` S_ [UI` V]USfad a
XBSe[UESdkL[fWSkE] [^e)^{MEO}

K- 6

K- 6

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M_ [aEbdag^{MEO}

I W

3- 7

A_ CZSd ECCFB)

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MEO

EPEE R EAE MAFLAB

(EVgUSf[a` S^ DSfS M[` Y, EDM)
(LWsd [` YA` S'kf[Ue, LA)^{MEO} LA EDM

(RWba` eWfa

I` fVhWf[a` Rfl)

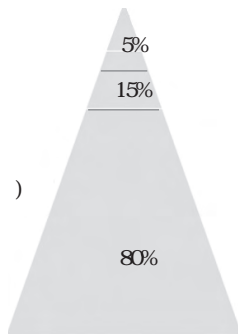
(Eh[VWUWISeW I` fVhWf[a`) “ ”

(6) ^{MEO}

(MSUZ[` VLWsd [` Y, ML)

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LVSd [ˈY, ML

MCOB [ˈWf C., W... Ugefa_ WfUS^
UWVAMCP d
MCOB [ˈWf C., W... [ˈY VVW/bSk
SUSW [U... 15
MCOG [ˈX, ... f haUSTg^Sck S^ V
dSV [Y... Y egbbad: fZWgeW
aXS Pd... S^ PekLZa^aYk [ˈ
PdSu [U... 310
MCOI7OLS... M... bSuF aXS PdM [eja`
FVSUZ [ˈWfW... k aXfb [US^k DMVab [ˈY
CZ [V... 04:364-377.
MCOHSGY... Gd... f eMCFVSUZ [ˈYEj UW [ja` S^
CZ [V... 71.3(3
MCOBO... K., E... fa [ˈfWfW [ja` S^ V bdM [eja`
fVSU... dSf [ˈ... echa_ MIONW Kad: Gg [ˈXadV
Pd...
MCOJa... K., Efd... ZWSTadSfadk fa fZWVW S^ V
TS... : Mac... VV k'e 32 kVde aX [ˈ bdah [ˈ Y
ef... SUSW... S^ UVMIOFZWBVZSh [ad A^ S^kef
F... 2,13(1):2
MCO... C., I Sf... M [eja` fVSUZ [ˈ YS^ VV [dM [ˈ efgUfa` :
M... k egbW [a` S^ fVZ a^aYk [ˈ eLZaa^eMCPWad S^ UW
Wf QgSf... 3(4):74-96
MCO... O. R., F... Wfa bdM [eja` fVSUZ [ˈ Y FZWUZ [ˈ V] ai e
B. JadS... E. RaIT [ˈ e LW e fke ea_ VZ [ˈ YVW [ˈ V aX
ZSh [ad^ b... W aXZVWJUM [ja` S^ UZ [ˈ VMOAd [ˈ Yfa` : FZW
adEj UW [ja` CZ [ˈ VdV, 1972.1-11.
M... R. P. PdM [ja` fVSUZ [ˈ Y. A^ I^ fdaVgUfa` MCFVSUZ [ˈ Y
a S^ CZ [ˈ VdV, 1990.2(3):4-9
S. R. M., K... ZU. K. K. PdM [eja` fVSUZ [ˈ Y Baa [MOLW a^ f.
AeAUZVW 2012
200340... I Z [fW/O. R. PdM [eja` fVSUZ [ˈ Y PdM [eja`
YMCEj U... S^ CZ [ˈ VdV, 1986,52(6):522-534
Wf A... W Sf [a` S^ [ˈ fVUSk efcSVk eYZf dVaY [f [a`
S_ W... W Tk fVSUZ [ˈ Y See [eS^ Fe A bdM [eja` fVSUZ [ˈ Y
SUSZM... S^ bekLZa^aYk [ˈ bduFUW 2007,23(2):129-143
X, ... dSYZ, L I^ Ua [e [ˈ Y fZWeYZf haUSTg^Sck S^ V
[ˈ Y... LZ [ˈ VdV dW [gd [ˈ Y dSV [ˈ Y egbbad: fZWgeW
Pd... Z [ˈ Y SbbkSUZMCEVgUSf [a` S^ PekLZa^aYk [ˈ
Uf... 36-209
d... MadWeW, C., FS^ YW, LFZVgeVaxbdM [eja`
U_ SfZ Xf eMCEgchbW^ Jagd S^ aXBVZSh [ad
25-240
A B, MS^ cg [e f E K, RaIT [ˈ e J K, W S^ A
f [ˈ Y PdM [eja` fVSUZ [ˈ YaXVMSZV [Sf [e S^ V S
f Ekef [ˈ S GVM [f hVC^ Secha_ MDI ZW

fZW^Vsd fa dSV, fZW^YS [ˈ fZW adV, 2015, 13(1): 21- 41.
MCOGS^SYZW E.I_ bdah [ˈ Y S_ SfZV [Sf [US^] W e [ˈ ge [ˈ Y bdM [eja`
fVSUZ [ˈ Y M [deZ EVgUSf [a` S^ EfgVW, 2006,25(3):303-319
MCOHSD [ˈ Y, N., L [TWk, K., I Z [fW/O. A^ I^ hW [YSf [a` aXPZSeW aX
LVSd [ˈ Y S^ V FSU [ˈ fSf [ˈ Y I^ efgUfa` S^ EhWfe Xad fZWEVWVWk/
PdXg^ V kHS^ V [USbbW. F [VW I^ [fSfWRVWVSLZ EfgVk F [ˈ S^ PdWf
RVad MIB/OLO Zfb: //X^ W [UW. Yah X^ YW/ED240767.bVX 2015-
12-08
MCOFZWEFS^ Vsd/ CVW [Sf [a` CZSd. FZWEFS^ Vsd/ CVW [Sf [a` CZSd
EIS^ Vsd/ CVW [Sf [a` EaU [V k MIB/OLO Zfb: //W [Sf [a` .ad/ Vsd [ˈ Y
SdS/ fZWeFS^ Vsd/ UW [Sf [a` - UZSd, 2015-12-08
MCOI Wf, R. P., HS_ Wk U, L. A. DW [Y e Xad VUWVWUW [ˈ WgUSf [a` :
FZVW [SUK aBF E] [ˈ W MOLA_ Y_ a^ fERIC, 1992
MCOB [ˈ Wf C., I Sf [ˈ e C. L. PdM [eja` fVSUZ [ˈ Y S^ VD [dM [ˈ efgUfa` :
M [egdT^k EgbW [ad I^ efgUfa` S^ FWZ: a^aYk [ˈ EUZaa^eMO
PWad S^ UW_ bdahW Wf QgSf Wk, 2013,26(2):73-115
MCO... ()MO : ,1997.
MCOHSGYZfa` , E. CA [ˈ e Gdi [ˈ Y S^ V eZSd [ˈ YMOJ. B. JadS^ , & L. E
RaIT [ˈ e LW e fke ea_ VZ [ˈ YVW [ˈ V aXZ [ˈ Y BVZSh [ad^ b [ˈ U bW
aXZVWJUM [ja` S^ UZ [ˈ VMOAd [ˈ Yfa` : FZW Cag U^ XadEj UW [ja` S^
CZ [ˈ VdV, 1972.20-39
MZO... MD ,2015,21
(1):89-96
MBO... MD
2013,(12):127-131.
MBO... MD
,2013,(3):50-53
MCO... MD
,2013,(9):24-27.
MCOCCag^ fWb_ Cag^ fWb_ : BRCo^ [ˈ W CSdME^ agYZ fa CZSd: BVZSh [ad
Cag^ feMIB/OLO Zfb: /i i i .TVZSh [ad MWSLZLa_ bs^ kUa_ [ˈ VVj.
bZb?_ S [ˈ QbSYW [ˈ VVj & UPSZ=74& dW [V=5W MIT6i MZeYlkQj 7SY
LK1, 2015-12-08
MCOESeK CZSdW & BLGE! ESeK CZSdW ECC CZSd Faa^e: BRCo^ [ˈ W
CSdME^ agYZ fa CZSd: BVZSh [ad Cag^ feMIB/OLO Zfb: /i i i .
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1& dW [V=5W MIT6i MZeYlkQj 7SYLK, 2015-12-08
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12-08
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CSdME^ agYZ fa CZSd: BVZSh [ad Cag^ feMIB/OLO Zfb: /i i i .
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Fd [ˈ fPSYW 2015-12-08
MIOEj UWAUW [Sf [a` CS^ Ug^ Sf ad ECC EglUW [e hWF [ˈ Ye UZSd.
ZsdVW [LZSd [ˈ YVW b^ SfV eMIB/OLO Zfb: //ZsdVW [LZSd [ˈ YVW b^ SfV e
bTi ad [ˈ e. Ua_ /i /bSYW16728640Fd [ˈ fPSYW 2015-12-08
MCOGdSX E, L [ˈ VeWk, O.EIS^ Vsd/ UW [Sf [a` UZSd [ˈ YMOI OH: GdX
L_ bW Wfe Pa^ S^ V, 2002
MCOHSD [ˈ Y, N. G., L [TWk, K. A., I Z [fW/O. R. Rg^ W Xad V [SIS^ TSeW
efcSVk WU [eja` e [ˈ [ˈ efgUfa` S^ bchVdS_e CgdWf dWVSLZ S^ V
[ˈ efgUfa` S^ [ˈ b [USf [a` eMOI . ES [ˈ ad B. I [ˈ Uaj , & L. Bdi .

