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Найти

**ГОСТ Р ИСО 10303­21­2002**

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[office365.astrosoft.ru](http://an.yandex.ru/count/3Q0YAKgwpwS40000ZhiMC7G5XP2u0PK2cm5kGxS2Am68li77mGE9l4El8W6OCPwpJ0m019sIn1Iw_H3LIScIGA4AfZkAj_A2HWNSiP6zWWMzj3AM1GIg0QMZEWa8tG7Ua2JqaR9MgkWBZxp8qui6dxxf9nO6amAPOaAChGiX0RQSjbQrc7n9eAz-xG6lhGiX0REGTtsqc7n9sQXl2GBQc964b9lL7wU57wYfFgBgfB00000bh2ckz-V0t8bdO782iA208qEn0RAWq002kPB45Blfqcah6tqBQy7__________m_40SLyqmBR-GHgxtL1OcG1tm9v7G00?test-tag=3384804769&amp;stat-id=1073792195) [Адрес и телефон](http://an.yandex.ru/count/3Q0YASFh3xO40000ZhiMC7G5XP2u0PK2cm5kGxS2Am68li77mGE9l4El8W6OCPwpJ0m019sIn1Iw_H3LIScIGA4AfZkAj_A2HWNSiP6zWWMzj3AM1GIg1wMZEWa8tG7Ua2JqaR9MgkWBZxp8qui6dxxf9nO6amAPOaAChGiX0RQSjbQrc7n9eAz-xG6lhGiX0REGTtsqc7n9sQXl2GBQc964b9lL7wU57wYfFgBgfB00000bh2ckz-V0t8bdO782iA208qEn0RAWq002kPB45Blfqcah6tqBQy7__________m_40SLyqmBR-GHgxtL1OcG1tm9v7G00?test-tag=3384804769&amp;stat-id=1073792195)

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*Название документа:*

**Системы автоматизации производства и их интеграция. Представление данных об изделии и обмен этими данными. Часть 21. Методы реализации. Кодирование открытым текстом структуры обмена**

*Название анг.:* Industrial automation systems and integration. Product data representation and exchange. Part 21. Implementation methods. Clear text encoding of the exchange structure

*Описание документа:* Настоящий стандарт устанавливает [формат](http://www.gosthelp.ru/text/GOST230168ESKDFormaty.html) структуры обмена, использующий кодирование открытым текстом данных об изделии, для которого концептуальная модель определена в языке EXPRESS (ГОСТ Р ИСО

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• npeo6pil30Balnle. an EXPRESS cxeMbl o l<1A3HHwA c•tma.KC- fC.

flpiUIC 'ItiHHSI

I OpHMC:f>bl UCIIOJth-JOM.IUtR EXPRESS 11 HilC1"<>Mtitt'M CTfii -!JI.aP're He c001'JitTC1'1JYIOT KaKuM-JIH6o upa•umaM

CTit.tiSI. Hanpornlk IIHOrAa S npmt t-p.".l.X ltCI10.1b:JYK1' HC-Kil:.KCI-IHhlft t'.THJib,orro6hl COXp<'IH ilTb MeCTO lt.flll CKOH llC'HTpU·

JXUW11>Cji Hit U3}f{HbtX liOOpt)CI'IX. flpllMtplo& He Cn'Utsrr llt'JlWO OTJXU'ItTb CO.IIeplKUHHC 111-UfiOp'-tllU..HOHHbfX MO,AeJieft, Oflpt-.llC:.1CHI-IblX 8 liJ))'n iX' l.tlCUIX C1ilH)I,UpTOU cepHH rocr p HCO 10303. AaHH.ble npuwepbl npc:UHIIJI-lll-.eHbl A!lll

nm:.a:.a KOHtcpcrnblx oco6e HuoeteH EXPRESS lt.'lll crpytcryphl o6Mel-ta. M.Horue- npnMepw rutHhl c a.HHOn'IU.IUH•CH, He comutyiOll.liiMUCM c c-m-rraKCH• ecKUM t npaamuum HacroMutero CTIJ.H.IIIltna.TtrKue a.HHonl.l.lllll tmeJI.t'Hbl c;mt ao.nw•tec­ KHMil CTpC'.1KilMH:IUJH ropH:K>HTUJlbHbtMH· •, IIJIH 1.CpTHKa!lbHhfMII 4'f';o. np11 COCTSIIJieHHII npUiJitJI llpd<:"Urrpa Tf:)U.. ,'a

:rrH ttHI-IOTiltUtll AOJt:lKHhl 6t.tTt. HmopupoiWHbl. J.wr»:H O 6h1Tb uae uruopupouauo mo6oe cxo)I.CTao MC)l(JJ.)' npmt e­

pa\_,.m "HOP'-tlrll' lllHbtMti MOJ,I(. 'JUIMH,onpcAe.!JeUHhl l>tll a ,llJ))'niX t.'TQH,Il,aprnx C-C:PHII rocr p HCO 10303. 8l-tllC1"()flUlC, :M

CTUK J,ap:re npHUC:Jl\_C-:Hhl HCCKOll-LKO npiU..IC:pOS 0'1'06palKCU).tfl. B HCKOTOpbtC: 11pUMCpbl .!1,11fl )'Jl)"lUC:·I-I UI'tHTllCMOCTH

IICTilatJC:Ji bl .U.Oi lOJIHHn:JIb. U&IC: llpOfit'Jlbl II HOllbtC: tl.poKII. · It npo6enbl II HOBhl ¢ ClpOKII HC: JJ.U.tl lt(Hhf J1UJII1.1flThCH ll

CTPY..O. )'pe o6MCHa.

*2* CniH}I.ap·r )IOIIOJIHCH CJtCA\_VIOUl,ll UI llptl.IIO;t.:C'HHfl'-ut:

- A- Ofi iC:hltlaK> llH,.\1 npaiUtJI O npe-.11cru11.'1C:HlUt 4)1lftll-it Ha HOCtfl'eJie )l;llHHiotX;

- B - omtchlalliOutltr.t oorJiaweHHfl uo tllHTiKl Cil'tOC-Koi1 HOT :II.l ut Bup1t;

- C- ) CTa.UlU. Uil:Ui O l.liiM H)lC:U'fJUJIKiri'Ophl I-IH< )Opil.ll,ltOHHbtX o6t.e.aon,npHCOOCHHiole HaCTOHLUtM)' CTiiH·

11.-tlllTY H omtcaHttOi1 a HC').I cxewe;

0 - Oflllt:-bUI:U' OlU,II.M OCHOSHOA •UlTitHC·KMii ll1C )Ulllrr H Ha6op IICIIOJibJycMhlX rpacn t'C:CKUX C-UMII().!J0ll;

E -onHClllniUOUllt:M <lx>P,.'Y J:uu•..:H o coor )C1'CTBHll pc:Mul. 'l l.lllt nporo.-o.,y (3CP0):

- *F-* orutcbiiIOU ItM MHO)I(ccmo EXPRESS-cxeM n CrpyKT)'pe o6MeHa;

- G - co.uep;t;.llUl.IIMIpy..:onq.u.c:mo no pacnc:•tln'Ke CTp)'K1YJlbl o6r.te:Ha;

- H - con\_c.:p tuu u. tM. npH-" C:p IIOJtHOiicrpyKT)'Pbl o6MeHa.

l B HltCl'Ofl.UCI:"-1 cTaH,Lt,UpTe 06l.e:K1'hl 11 KOHCTp)'Kt t l M3b1Ka EXPRESS n pM.IIe cJty\1aen n o&JteJte-Hbl noJJy»:.upHt.tM

utp114n'OM ( mnpmt c:p,fi \_dt•SCriptiOn).

no cpaoHeHuiO c TOCT *P* HCO 10303-21- 99 o uacronlU.Hit cran.n.apT nuece1-1b1 cneJl.)'lOutJl e n3Me

1-feHn$1:

HCKJIIOqeua cTpyocrypa SCOPE (&SCOPE/ENDSCOPE);

- R CfP)'l..'Typ)' 06,tena MO-:«eT 6b1Th ouecer-10l"l eCKGnbKO CeKtOt A (palll.e.r108) A3J-II-ILL;

• 8 3al'O..TJQOQqHOJ1 tei<Ultlt Cl'J))'l<TYJ)bl o6Mel'l3 no )'MQ..-1ll31-fltl0 MO;«eT 6LI1'b 3aJI,3H .31.11< OnltC.31ilfR

CTpOKODLIX 3T'J)116)'TOO 3t=let.tnJ1SipoR 06'LeKTOD (Cyu(HOCTefi), KOAJi poR31Ut t.lX B ceKUUI-1 )].aHHb:lX;

8 3arOJIOBO\fHOA CeKJUUt c.TPYJ<TYPLI o6Met-ta MO-:«er 6Lil'b 3a.£1,311<1 tlliX>pMamm,omtCbi DaK>UlaSI KOHT\'KCTLI KOAHpoBa l-ut$1 3KleMMSipo8 o61.eKTOO,JtC-ROJ1b3yeMlole. 0 ceKL{Itlt Jl3t t ll blX

- 311<1\.leUIUInepe'tlCl ..1eiUd1 MOl)'T KO.£UIJ)OBaTbC$1 C UC00-1100031-I Jt eM COOTBe'TC:TD)'IOUl.HX COKpallleH

1-IMX uaau.teuoom-IHA (npti11x llaJtlt'lmt).

Bee c.TpyKTyphl o6Meua, 'lat.:OAttJ>ODaum.ae cornaC-HO fOCf P 10303\*21- 99 It ue n. OMUUte. 8

crpyKTypy SCOPE, t.OO 'DeTCTDYKYr 11acroJuu.er.y CT3J-tJlaP'fY.

v

rocT P -t eo 10303-21- 2002

r O CY)I A I' C T B E HH bi H C T A H )I A I'T PO CC H HCK O H <I>E,!I E PAL( I1 11

CHCTeN:W U'J'OMa"f1131UUIH npOM!lBO)lCTU H HX MIITef p9l(H11 nPE,!ICTABJIEHM E ,!IAH.H biX 06 li3)1EJI IHII1 06MEH 9TI1Mll ,!1;\HHbiMll lf a c- T.. 21



lndustrial a u tomation S)'Stems and integrat ion. Produc-t data n:prc.scntation and exchange.

Part 21. lmpkmc:n tltiun me-thods. Clear text encoding of the exchange- struct ure



1 06naCTb npHNeHeHKR

Hacronmnn cn.t mapl' ycrauaMunaer tt>opMaT CTPYKTYPLI o6Meua. •tcnonh3 '10utlffi KO)lnpoom-tne OTKp btTLl).( TeKCTOMJIHbiX o6 ttJ.a.er.nnt, )IIUI KOTOporo KOuuernyM bll39 MOAenb onpe..a,eJtet-ta 8 113b1Ke EXPR ESS (rOcr P l1CO 10303-11).<l>op,mr o6r.tena npnro,lleullJIJJ nepe.ialutJltlHHioiX o6 u'l,!temm Mt-\*A)'

BbJ\iliC.Tllt'Te:J blfblM.It CJICTeM3Mit.

Onpe)leneHo npeo6')330oamte H«l JLfKa EXPRESS o cmrraKcuc CTt>)'KTYPLt o6Meua. B CtfiiTaKcnc

CTPYK'TYPhl o6r.teua MO:t:.eT 6LtTb npeo6pal0oana mo6 u1 EXPRESScxeMa.

2 HopMat11Bnwe ccwnKH

8 JtaCTOKUJ,eM C1'31 maprt HC.n<>.r-1b300..11JLI CC·Lir!Klt 113 C.1eJlYIOUJ.Jte CTIUIJl<lPTbJ:

rocr p HC0/M9K 8824,.1- 2001 l•bJ>Opt.HliUfOJ-tHaSJ TeXJ.JOJtonur. A6crpaKT·HaJJ cmo TilKC.JtlleC.JG<UI

1-fOTaUHSI nepc•nt O.O.lUJ (ACH.l). qaCTb I. CnewJCf:nuau.U(lJ OCJ.JOBJ.Joi1IJOTaUtu1

rOCT P HCO l030 3 1 - 99 C•tcTeMLI aBTO.\taT i:JalUm npotllOOJJ.CToa Jt t1X unrerpaunSJ.Ope)lcrao­

nemte A3J.JJUoiX o6 H3,ll.e;;nm fl o6MeH 3Tt1:Mif ,ll.3tnbl JMH. \.faCTb J. 06u.Ute npe;t.CTallJTe.JIH.$1 I OC-IIODOOOJJa•

l"iliOUlJte npttiU { tnbJ

roCT p HCO 1 0303-11- 2000 CucTeMJ.J 31lTOMa T t33LUm npmt380)),C.TB..1 If HX HUTerpau.m.l

npe.n­

crannemt e nauut.J.x o6 H3.lle..-1m-t t o6MNI 'lTttMn AaUHt.IMlt.. 4acTb LI. MeTo)[bl omtcaHUl I. CnpaoO\It-Joe

PYKOOOACTDO no 113bncy !EX PRESS

rocr p HCO IO.lOJ-41- 99 CstCTe-MLI aBTOMaTH33UIUf npolt3DO)lc:Tna n IIX IUITerpa UtJI. npe..a.cran-­

neutt en.antlblXo6 l13,lle..-1MH 11 o6MeH TiMitA3HltbTMI1.lfacTL 4 I. J..1urequtpon:untble o6o6w.euuwe pecypc.bt.

OCJ.JODLI omt cauun , OQMep:t::KJt tt.3.0.e..rudl

HCO 639-2- 98• KonLJ .n.ru• npe.ACTaMewul umt MeJfOOa J.utn Sllhncoo. lfacTb 2. Ko.11 Al pha 3

HCO 3788- 90• 06pa6orKa HJ-t$QpMau.m•. 9·.o..opo elntaJJ Mannmtall JJenTa JlJJSI o6Mel-fa uu pr.ta· UHeft lUHp)IIIOil 12,7 MM (0,5 .lUOi1M:.t) C HCOOJfb3083JuteM ( 3000ffi XO}.(II )>OD3Hlt11 fl.TIOTJIOCTWO J26 nepe.XOA3 OOTOKa H3 fo.UIJIJJftMeTp (3200 nepeXOJl,OO OOTOKa 1"13 .li.IOilM) - 63 CftMllO.r1a Ha MltJl.IIIU.h!Tp ( I 600

CS.JM00...10D Ha )(10n"M)

HCO 8601- 2000it 3neM.eJm)l.aaHut.lx If $opMan.J o6Me11a.06).«en lut¢>op.Mam«e.tt 0pe£J.ctan.1emte

.a,ar" opeMeml

HCO/M3K 88591·- 98• 06pa6oTK::t JuutK>pMaU.Jnt.8-61muoe ODJ to6a11Tuwe KO.Jl)fpooatml.le. Ha6o-­

J>bl rpacf.>wJeCKltx c•tMoo... on. aCTb I.naTI1JJCt.:nft a.1ct>a01tT fie I

HCO/M3K 8859 2- 06pa6oTKa ltu¢K:>pMaUJUt. 8·6Jmu.a:e O.li Jo6ailT1ble KO;UtponaJHtLfe. ua6o-­ PM rpa¢>w.z ecKux cnM£10.r10B.\.lacrt. 2.nanmc.Kufi ttr1<t>an11T *N?* 2

• Op1m ma..,w CTilHttilpTOa lo1CO (VICO/M3K) -no BHHHKl-1 foccTilHAa pTU Pocc111 t.



rocr r HCO 10303-21- 2002

J1C0jM3K 8859-3- 99,. 06pa60TK3 UI¢K'>pMaWm.86lffllb1e OU; i o6ai1TI-Ible KOJUtJ)OOamu.ae. li36o­

Pbl rpaC Hl.JeCKHX CHM!l0....108. aCTb 3. naTIUJCKidt a..1q)301tT N? 3

M COjM3K 8859-4- 99• 06pa6oTKa JtH<t>op:..tattiUL 8·6tmnlle ODJJo6ant we. KOJI.ltpooatu-Jt.le -ea6o­

J>bl rpacf.>wJeCKltx c•tMno.:1on.4acn.4.narliHCKntt a.1ct>amtr *1'k* 4

HCOjM3K 8859 :5- 99• 06pa6oTKaltH p,filUJnt.8..()1mu.1e O.!ll-lo6ai1nuoe KQ.!lJtpooaJuJwe Ha6o­

Pbl rpa$1ttJecKux CHMtlOJJ OD. \4acrb *5.* A.rtcf>aoMT JHlTitn:cKnfi *1* KJ-tpJtnJJJ-t ll.3

11C0jM3K 8859-6- 99'- 06pa60TK3 am¢M:>p.\ttlLUtU. 8...fitm-lt.Je O..!Ui o6a 1-11>1e KO.!Utpo03J-IIn.le. ll360·

pl.l rpa¢n1'-1ecKncttMIX).;JOB. '-lacTb 6. ATici><1D tT;mntHCKltR *I* apa6cKHR

J.<IC0jM3K 8.859-7-87• 06pa60TK3ltuc(>op:..t31Utlt. 8f.nmu.ze O,.lli-I 06aJlnlble KO.II.Hpo03HJJlole ua6o­

pb1 rpa¢,>JilJCCKlfX ctJM00-10R. "'acrL 7.A..llci)3.0J1T ,1aT tHCKul1: *I* rpelleCKJt l

H COJM:f}K 8859-S- 99• 06pa6orKa lfHcl>opMaLUut. 8..t>Jrruwe OJmo6ai1naJ.Je Ko;mpooatanLre ua6o­

l>bl rpa¢,>11 ecKux cJtMl\O..r1on. "'acTb 8. Ari<J>an1n :amurcKnn;m psn

H.C0/M3K 8859-9- 99:• 06J>a60Ttro UIpMatUnt. 8.-61rTHt.le O)Jl-Jo6aATI-I ble KOJI.JtpooatmLie J-ta6o­

J)bl rpa¢>wJeCKlL"< Ctt M00..10D. 4acrt.9.RaTJ1UCKI1fi <1..-1d>aOJtT fie 5

JitC0jM9K 10646·1- 2000• 06pa6<me a UUtK>pMau;Jm.Muoro6aitrnblil KOAttpooaJUtblil J-ta6o pC UC·

001100. 4aCTL l. Ap:<lrTeK'I)'pil H OCJ.I OUJ-JOfi MI-J Oro$13blliJJ blfi YJ>ODeH b

3 Onpe,lle.neuull

3.1 TepMHIIW,onpeae•e1111We • UCO/ M:ilK 8859-1

B nacTOU:UI,eM cra1mapre ucn<>.r-1b300..11-ILI c...1e.n;y10m.ne repM1urt.1:

6aAr;

- CHM.BO.ll;

- rpatfKtlleCIOdlC-HMBOJI.

3.2 TepMIIRW,onpeae•c11o1We • l!CO/M:ilK 146-1

8 J-laCTOU:lll.eM CTaH)lilJ-lTC UCOOJT1.30BaJ-I TeJ)MU.II OCII08110A MHOro!llWlfiUodl ypon••

3.3 TepMHHW,Ollpe)lMCIIIIble • rocr p uco 10303-1

B Jtacrou:rn.eM craHJlapre Hcn<>.r1b30Da£Jt.l c...1e)lyl0uute repMlntw:

- npNILla,Q.IIol DpoTOKOJI;

- CTpyKT)lJa o6111eua.

3.4 'Tepr.tllHW t anpoeJteJlelliiWC • rocr p HCO 10303 11

B Hacrou:ul.eJ cTaH.Aapre Jtc.no..1b30DaHLI c...1e.n;yJOLU.Jte rep,.nntw:

:)IOeMOJUip Cl'.J.OXUOro 061>CKTa;

• THO )latmwx:

o61oeacr;

- qacntoe. lllactelt Rt CJJo:..moro o61.eKTa;

- 9taeMnllJJp npoeroro ofu.eKTa;

• Jletc:Cettta.

3.5 \_npyme onpeae!leHHA

8 HaCTOSiuteM CT3JWPTe ttC00..1b30DaHbl C1etJYIOUUl C TepMitl-11>1 C COOTOeTCTBYIOUOIMit onpe.o.eneHifSIMH:

3.5.1 ocnoauoA a.n<t»uHT (basic alphabet): Ha6op c. -tMoonon tt3 MCO 88591 oT G (02/00) AO

G (07/14).

3.5.2 KOJlH, pOBatiHe. Ol'Kpt.ITLI/111 TeKCTOM (deat teXl encoding): KO!l.UJ)OWUIUe Sti-J)())M3Ulnt C HCOO..lJbw

lODaHtleM OOc..-1e)IORaTeJIL"'IOCTIKO)lOD )l.TJ$1 CJH.tnonOO Js OCI-I OBJI OM a..1c1>3011Te.

3.5.3 ynpa8.119tO[Q,aJI )Uil)CKTII83 (CO!ltrof directive): nocJTe)I.OU<lTe.RbUOCTb CHMD<>.r-108 D OCIJ OOIIOM

MCaDJiTe.

3.5.4 KlltO'Ieaoe c..oao (ke.ywo1'd): 0oo6a.SJ noc.neJJ.onaTeJTbHOCTb ClfMBOJJOO, o60Jl-talJaJOUI.3SJ o6LeKT

IIJI'll onpea.e.llemu.Jli nm o CTPYKTYpe o6Meua.

3.5.5 CCKIUU (section): Ha6op )UliiHbiiX OJlHOA If TOA :«e KaTCI"'J-lHI4 HH¢K>p ota:U)Ut.

3.5.6 OOCJ' it)lOB:aTeJl•llbdl <t»aAIJ. (seq uential file): (J)a11, KOTOpb!A MO:«eT 6b1Th ..n.OCT)'neu TOJtbKO OOC.lJeJI.ODaTeJlbHbiM COO@O>.f.

3.5.7 pa!tAMH'I'eJU.JJfKCtM (lOken Separator): noc.lJe.AOoaTeJthUOCTb U3 O)l;HOfO 11.111 HeCKOJit.KHX

8w6JtTUbiX 6al1'foB, KOTOJ)<lJI )XIlJI.C!UieT .lJJ06ble slBe .tleKCeMt.t.

• Opl-tnll-tll1hl: CTaH,.'Ulp-roa HCO (HCO/M3K) -110 DHJ.IHKH roccnut.!l(lpTtt PocC.JHl.

*2*

rOCT P HCO 10303-21- 2002

3.6 CoKpam,e••"•

B ltacronrn.eM cra1mapre ucno..-1b30Ck"lHLI c.1e,n;y10ll1l«e coKpa.weJ-JHI I:

OMY (BM.P) - ocuonuort MIIOrGSI'lbtli HbiA ypooeut. (Basic muhilingual plane);

CHB (WSN) -cmrraKC ittecK;.uc uoTauuu B1,.pra (Winh Symax Noliltion)

4 0CROBOROII&r81001He KOHnennHH H ,IIOnyO{eRHR CTJlYKT)'Jlhl 06MeHa

**4.l** BBC)l.CHHC·

)].JUITOfO 'IT<>fibl 06Jte.I'Jt1Tl.C'IUrTaKCft' eCKHti 3H3!1lf3 C OOMOUl.blO nporpaMMHbiX Cpe.r:tCTD, CTpyKTypa o6MeHa 0011Caf-13 0,.11)1001-ta'IUOA:,KOHTeKCTI'IO..CB06oAI-IOn rpa}.otant KOfi. fpaMMaTitKa Rt.rpa:.KeHa R Clflff'aK CHl.leCKOA HOTaUint 61tpTa, KOTOpaSI ORHC'aUa 0 OpllllO-:tttH IUI B. npeli,CT".lWJel-ute ,ll;lUHbiX o6 HlJl,e.ruut B crpyterype o6Mena onpe,.a\_e,1JieTCSI c ncnoJlbJODatmeM oT06pa-:tteuml M3 SIJL>Ikil EX PRESS o ClfUT'.tKCJt C crpyKTypw o6Meua.

4.2 HonUHmmwe **H** TMnorpaKHe cornawemu

Jlro6Lie *KdBti4ltKU ,* II COOJlbJ)'er.tble B UaCTOSHU,eM CTaAii 3pTe,1-ce RBJ11UOTC11 qacTt>lO TeKCTa C·TPYKTYPLI

o6MCUa,1-10 C!IY)I(3T' .aJI.$1 OT,!leJieJ-UUI)TOTO TeKCTa.:flro nOJIO:KC-lIlie Oplo.tetUIMO KO OCeM MCClTMl 8 TeKCTe,

r)le ucno.1b3YKlTC·A *KtiBqKu.*Tafumu.hl 2- 4 onpen.emnoT HCKJllOltCHH11 lt3 'JTOro npaBI-IJiil.ta.K KaK KaDt.altKI-1, ttcno.ru lyeMt.e n 'JTitX ra6mntax,cocraD.r1.$1)()1" lfacn.npamt.rl CH B.

Cr.u-maptaMJf ceps.ut HCO 8859 KX«JtOMY cu-r. nony npucnaunae.Tca o6oJmlltaJOmee tM.$1. Koraa no

ttM$1 UCOOJU.:tym 0 113CTORlU,eM CT311J3l J)'Te,,!VIJI OT-111'-IHSI OT o6bllf HOro TCKCTa,Of-10 OLl!le.1e110 K 'J)CHBOM.

TaK, *30nRmyJO (comma)* IICOOJIL3Y)t)'T' !l,.r1.$1 CCbll'JKH ua ", ..• *Jlod'll!pKutUJJIU(! (low line) -* !VIJlCCbi.I Kll Hil ''- "',

a *nJHmucuyiO 6yKay A (C4J1/l{Jffeuer A) -* JliiR CCbiJIK f ml\•.

B npm.tepax 1tacrosnuero ctal-t.D.aprn, r.o.e- TJh.'"6YIOTCR no11CIIeiiiHI, oHu ooe.neuhl nocneJtonaTeJILilOC·

TbiO .

4.3 CooTaercn ue

YcrnJIOMel-tbl ADa ypoDHSI cootnercnms.:

• CHI-tTaKCUqecKoe COOTDeTCTOie CTPY...'TYPbl o6Meua: C-Tprk'T)'l>a o6Meua COOTDeTC'T'BYe:T I-13CTOR W.eMy

cra.IIMPTY.ecn11 YAOB..1e-rnopeuLI-rpe6ooau•t.$1 noro cmJI,.!lapm;

- cxer.taTwlecKoe coonerenme etp)'krypw o6Meua: 3K3eMIUinpw, npen.craD.Ileunwe n CTpyK'l)'pe

o6Meua, COOTOCTCTDYKrr CXeP.!aM, YK33aHI-tbiM 0 33roJIOBOlCI-«O CCKUl'SH COOTDe·TCTD)'lOUJ;Cft CTPYK'JY)LI

o6Meua,eC-.r1H y.o.oo..1ernope.uh1 nee 'J'I)e6ooau -ta 11 Or'JXU t tqeuHSI .!WJtHblX cxe-M •t l'J)e6ooaJ-JH11 oro6paxe1-11 S1

Ka:KAoro 'JJOeM.nllnpa m1n rpynnLI 3K:SCMMApoo. ycraf-I ODJJean Me n per ax 9 11 1 0.

fl pIt Me' I ii H K *e-*:B l llll tJIO:.KC:Hi ut f Orl pe;l.CJICUbl MeT()JUol OUCUKII COOT9en:11UUC CXCftU>I, KOfAil CTPY'KTY!XI

o6Mt:Htt con.c:p:cnT PAA cetctmA l!)lHHbiX. CM'laHUbiX c palJIIl'iHhU.III EXPRESS-c.xeMO}U1.

Cl-tUTaKC t l eCKoe CO<rrueTCl'OHC :IIRJIJieTCR neo6XO)lt1Mbt \l yc..1. 0011eM )I.I'UICXCMaT t l eCKOI'O COOTOOTCTBi ut.

HacroRumM cra.tUtaproM ycraJaoo.IJelbl nna K.1acca ClrHraKc•tlJecKoro C001'00TCTJUt.SI n JaDitCiMi OCTn OT MC'TQJla, ULI6pam-coro ARfl KOAI-tpooam SI 3JOetnr!JIPQB CJIO:KllbiX 06t.e.\_"T06 (C:\1. 10.2.5). Pea...lH3.1.UJt.$1, RpeTCHJIYk>llUUII-HlCH I-ITaKCil'leCKoe COOTneTCTlUte H3CT011uteMy CTalllUlpT)', )lOJl l-13 liJfTaTb 11..-1-t (H) 3aOH• Chi83Tb <f>at\rtbl, KOTOpbi!C ACMOHCTpupyiOT cmrraKCII'IecKoe coorueTCTOile no KpaUuel1 Mepe 0 O)li-IOM 113

3nt X Il.Oyx K.13CCOO COOT.OeTCTOJUI.

PeaJI)t3aUJtSI, nJ)...e-l tJ1YtOlll39 ua cxeMaTw.JecKoe coorBeTCTB•te 1-tacroSJui.eMy crau.n.apTy, AOfl:t:l-t a tt mlTh nntt (U) JamtCLIR<lTb <f>aC\Jlbl , KOTOpble )leMOUCTPHP'IOT CXC}.t3T11'lrecKoe COOToeTCTBHe uapSIAY *C* CUHTa KC-ItlfOCKitM COOTBeTCTDifCM.



5.( <J>opMa.JIWlaJI 110Ta1Ut9

8 ..13CTllillUeM CTal. UJ.3pTe AIUIonpe.n.enei UICUJ-IT3.KC-I tC-3 C1p)').'1)1>bl 06Mel-lil JtCnOJih'l083Ua C.liiiTaK• Ct1'4eCKaR ..JOTa U fft BnpTa (CHB). onucaJUJaJI a npuno.:.:.emm B.

*5.2* OnpeAeJICnHe ocuoaJtoro Wl atHTa

Alf(j)3011T CTPYXT}P' bl 06Meua onpeAeJieU K3K CHMBOnbl OT 0(02/00) ;J.O 0(07/1 4) no

11C0/ M3K 8859-1. 3TOT aJI< annT Ope.llCTaOrlel-1 B crpyKType 06Meua ua6opOM 8-611THLIX 6aATOD C

.{leCHTlt'JHt.LM•t 3Uat'eiU5.SI M t OT 32 AO 126.Ta6J11Hl3 ) J[e!ISIT OCHOB110n 3JI4)301tT 1-13 nOJl.U-IO:.CeCTO.il. G(x/y) AWIReTCA f OTaiUteit )UISI c•tMOOJJa,1-13XOJlHUJ.erocA o noJmunt (16 palno x) + *y* B KO)lonoA Ta6nHe no HCO/M:i:l K 8859-1.

rocr r HCO IOJOJ-21- 2002

np"Me 'la u He - Ta6.1UU.O 0.1 .Oil pe..'l,CJI MeT COOTBeTCTUilC Me:«t ..V 8-6lrrHbiMlt 6oih'ti.)Ul ll ux rpam-.eCKUM

npCACTaarJC:lHteM ll HCO/M3K 8859-1.

T a 6.11 1t u.a 1 - Onf)6)leJJemte OO)IMJ-I O.:t::ecTn ocnout-Joro an$a1UtTa no CHB

-.-

I

I ·u"l

UI' PER ="A" "8" "C" "D'' "E" I "F" I"G"

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| SPACE  DIG IT | ·o·· | "I" | "2' | I | "3" | I "4" | I "5" | I "6 "I | I"T' |
|  | I "8" | "9" |  |  |  |  |  |  |  |
| LOWER | = ..a.. | "b" | *..c"* |  | "d " |  | •f" | "g" | "h" |
|  | "i.. | *"Y* | "k" |  | "I" | "'m" | "n" | "o" | "p" |
|  | "q" | "r'' | "'s" |  | "t" |  | "v· | "w·" | "'x" |
|  | "y"" | "z·" |  |  |  |  |  |  |  |

··H

I "f" I "J " "K" "L'' "M" "N" "0" "P"

-x·

1"0" "R"·s· "T" "U" I "V'' 1''\V"

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S PECIAL = "!" I I "S" 1 "%" I "&" I "#"

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R EVERSE\_SOLIDUS = "\" APOSTROI'H E = •·•

C HARACTEl{ =SPACE IDfGIT I LOWER IUPI'ER ISPECIAL

IR EVERSE \_SOLI'DUS IAPOSTROPH E

5.3 Crpyocrypa oo..e..a

Ctpy'Krypa o6Meuat,II,0...1)KJ-Ia 6b1TLnpe; .cranneua n BJ-t.ne nocne,aonaTeJlt.Horo $aftna c ttcno.nblODaHtieM KOAJif)ORalm11 OTKpbiTbi:M TeKC.TOM. CTp'KT)'pa o6Mella .LI.O!l::ttl-13 CO}l,ep»:aTt.. lafQ!IODOllii YIO C.eKLt iO If ceKI.ll tiO Ll,aHULIX.3afOJ1000li J-Ia9 CeKUHR npe)lCTilllJUei T AilJ I-tbt e,OTI-IOCRUOteCK ca.MOC\ ClJ>YKType. o6MeBa.

Crpy..", ')'pa 3ar<>.r10BOtnroA ceKUJlll onpe;\_e-r eua n pa3!fene. 8. CeKUJfR .a.auuwx npe;aCTaMneT .ll<1Hin,ae,

KOTOp :oe)l-o.rr:.«uu fibiTt.nepeAaubl. CTPYK1)rpa ceKUmt Jlai-Hit.IX onpe)leneua n pal){e...1e 9.CrpyK'l)'pa o6MeJ-ta

onpe,. ene...ta c noMOUJ.t.JO CHB o Ta6.r1Jtue 3.

CTPy'KTypa o6MeHa n..-J1 ieTC noroKOM S 6tnuwx 6ai1Ton. KOTOphle KOAttPYK>TCR rpaHtlfe.cKHMtt

CtiM00.13MII OC -IO UI OfO a1JCflaOI1'M. rpacJntt;teCKUe CHMOO!Ibl rpynm-tp)'tOTC$1 D p<lC003HaDae)thl e 11<>Cneli,OB3•

TeJILHOCTl1,li<Ut.IB3eMlde.1eKCeMaMtl. neKCeMLI MOryl' 6btTb 01')le.1em.;pa3,..tle111TeJI11font. CrpyKTypy 06MeH3

MO:«IIO paCCbo.l aT])IUl3Tb KaK ROClleJJ.On:aTe.:Jbi-IOCTb ;JeKCeM Ill:X pa3,.1eJUtre.rteit.

S.4 Onpe,a.eJleuNe JteKCeM

JleKceMbt , ltcno.rnt3yeMhle n CT'J))'KTyJ>e. o6MeHa, onpe.t .eneHhl Cpe,!lcrna:.wn CHB n Til6nltll.e 2.

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rOCT P HCO 10303-21- 2002

**T a6111t u.a 2 - CH B onpeae.1emd1 JJeKceM**

KEYWORD = USER\_DEFI NED\_ KEYWORD I STANDAR D\_KEYWORD. USER\_ DEFINED\_KEYWOR D ="!"U PPER l UPPER I DI GIT }.

STANDARD\_ KEYWORD =U PPER jiJI'PER I DIGIT } . SIGN = "+" I "- ".

I NTEGER = } SIGN!DIG IT l DIG IT I.

R EAL =!SIGN } DIG IT l DIGIT } "." (DIGIT I

("E"!SIGN" DIGIT l DI GIT I}. NON\_Q\_CHAR = SPECIAL I DIGIT ISPACE ILOWER I UI'PER. STRI NG = '"" l NON \_Q \_CHAR I

AI'OSTROPH E APOSTROI'HE I REVERSE\_SOLIDUS REVERSE \_SOLIDUS I CONTROL\_DI R ECrJVE I""".

ENTITY\_INSTANCE\_NAME = "#" DIG IT l DIG IT } .

ENUfEIV\TfON = "." UPPER I UPI'ER I DIG IT ) ".".

H.EX = "O" I "I " I "2"1 "3" 1 "4''1 "5" 1 "6"1 *·r* I "8"1 "9" I "A" I "B"I "C"I "D"I "E" I "F'.

BINARY = "·- ("0"1 "1"1 ·rI ")" ) l H EX I..... .

5.5 CHB crpyorrypw o6MeKa

**CmrraKCiiC CTPYKTYPLI o6Meua ycrauoMeu a Ta6mtu.e. 3. Ta6.i1Ua 3 cc.wJtaeTCJJ na JJeKceMLI, onpe aer.eUUble BTa6..-1ttU.e 2. OntoUieuHe Me)I(Jl)' C.nl-tT'clKCl!OOMliEXPRESScxeMol1 rcranon.1euo 0 pa3J1ene lO.**

**T a 6.:1 u u.a 3 - CHB C'tl'p)' KTYPM o6MeHa**

EXCHANGE\_FILE = "lS0-10303-21 ;"

H EADE R\_SECTION DATA\_SECrJON I DATA\_SECTION "END-ISO-1 0303-21 ;".

HEADER\_SECTION ="HEADER;"

H EADER\_ENTITY HEADER\_ENTlTY HEADER\_ENTITY

}HEADER\_ ENTITY\_LIST! "ENDSEC;".

HEADER\_ENTlTY\_LIST = H EADE.R \_ ENTITY I HEADER\_ENTlTY I H EADER\_ENTITY = K EYWORD "(" I PARAMETER LIST( ")" ";". PAIV\METER \_ LIST = PARAMETER l","PARAMETER I- PARAMETER = TYI'ED\_PARAMETER I

UNTYPED\_PAIV\METER I OMITTED\_ PARAMETER. TYI'ED\_ PARAMETER = KEYWORD "(" PARAMETER")".

UNTYPED\_ PARAMETER ="$"I I NTEGER I REAL I STR ING I ENTITY\_INSTANCE\_ NAME I ENUMERATION I BINARY ( LI 'T.

OM ITTED PAIV\METER = "'".

LIST - = '"('' lf'ARAMETER ("," PARAMETER I!")".

DATA\_SECI"ION ="DATA" I "(" PARAMETER \_LIST '')" } ";" ENTITY\_ I NSTANCE\_LJST "ENDSEC;".

ENTITY\_ I NSTANCE\_LIST =I ENTITY\_ INSTANCE 1-

ENTITY\_I NSTANCE = SIMPLE\_ENTITY\_ I NSTANCE I COM PLEX\_ENTITY \_ I NSTANCE SIMPLE \_ ENTITY INSTANCE = ENTITY INSTANCE \_NAME "=" SIM PLE\_R ECORD ";".

COMPLEX\_ ENTITY\_ INSTANCE = ENTITY \_I NSTANCE\_NAME "=" SUBSUI'ER\_RECORD ";

SIM PLE \_ RECORD = KEYWORD *"C* I PAJV\METER\_ LIST I ")". SUBSUPER\_ R E<..'ORD = ("SI M I'LE\_ RECORO\_ LI!>T ")".

SIM PLE\_ R ECOR D \_LIST = SIMPLE\_RECORD I SIMPLE\_ RECORD 1-

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*5.6* PaJJ:tCnttn.ru• JJeKceM

PalJJ.e.1JtTeJJh neKceMw11n.n:sJeTc11 neMeuroM,oTn.eunoUJ.HM .nne .1eKceMI.t . PalJI.e..1- memiMU SJMsttoTca

*npotie:J,* 9811t.le,llJtpe.KTttDLI ynparuteHHSI Oftt aTbK> H KO.\lMeHTapltU. Pal.llCJUf"Te..1- t:. MO:Ket' 00110UT1.CR Meit\J.l) 1

rep.\ntl-tilllbut. Mtt t t.iltt uerep>.t tutaJILt tMMtt nopo:tmemutMtt Ta6.tntll.t.t 3. BTOM Mecre,me MO:+.:er no11tUrrt.e11

OJl.ttn palJI.e.:JJITe!lb, MO:KeT no11.BttTbCJI 11106oe ttticno pa3,!1,e.111'reJJeA. Pal.ileJUrre-'lt. ue ,11,o,uerc nos.wurn.c11

uuyrpu ne..:ceM,l3 tCK.':JIOI.fet-meM roro , iTO 9Dllble AtipeKTtiDbt ynpaBJJet-t t tR nelrart.to Moryr no"BJJSJTbCR

ouyrptt lJ Jt ce..1 o D.OOHt' UOM npeaCTaBJJeHt'«t" u mwrpu ctPote.,Llttpeli:TnDJ.J ynpaUJJet-t H11 neqan.IO onpeaenenw

o pa3JleJJe II.

np"Me 'la H "e- .flpo/k MMflll.I Jte'IC' ·:If CHMOOJI npo6eml,Oni1C3HHblfi bOCHOSHOM Mtlmu111't'·IJ S.2. Ptll,AeJUrTCJIH ctpmt,·ra ue KUK *11epesod cmpmw* HJut *8036panr Kapemtw,* MOr)'T 6bl'rb ncno.1b30ll< Hb1 a c tpyKl)'pe o6MeHa n cool11CT­ crsHH C npll.r10:lKC:-Hite-M A,HO OHM He bXO)lJIT IJ OCHOliHOfi lll1$atJHT.II C0f.,3CHO 3'1lH•CY npKJI O;KCHHlO A )lO.ft:«'Uhl6b1Th

npOIIrHOpUpoll<lJi bl 11()11 06,pa6oTKe t".Tpyk'rypbl o6MCHS.nooTOMY p l!l! CJIHTel.,l CTpOK .\.t Ol)T II()UC 'TC'I'ItollilT hIC pyK­

l)'()C o6weHa, hKJIIO<tan pa3..1J.C!llnem-t neKCCM.

KOMMeHrapun .ll().,"J:i:.el-t 6bl'ft. 3aKO}UfpOOaH KaK *KOCOJI &eJmtO, 3UeJ00& KO "r",*33 KOTOpbMi Cr1e)lyeT

mo6oe "'liCJIO cu"Mno;roo.10 ocn:ormoro a..-1ct>amm, •1 3anepuran.csr *··•r.*l11o6oe noS1n.1em1e KOM61u-mu.1nt

" /" OOCJie ne.pooro ROJIMCIUUI HC IOfee-T lllil'le.JHJSI, T. e. KOMMeUTapJUI Je. MOI)'T 6hlTb OJTOXeH IJI. Bee

4

rpam\fectme C.U.U. lO.tl LI, OOSIR.r1lliOLU. tOCA DH)7p11 KOMMenrapI S. I, 1-I C HMeJOT 3Htl'lemt.Sf JlfUI CTprKTyphl

o6Mena Jt OpeAI 331U tl el-fblTO.I bKO }111$1 lO"e:IUI$1 ,1101(t.Mit.

6 JleKCeMW

B CTptKTYJ)e o6MeHa neKceMa SJ8' ,1SJeTCSJ cneuua.Rbi- Ori .1eKceMott KJIIO\.fC6brM C.1080.\.t t.IUt KO)Otpo­

oa JHeM npocroro nma ..'.laHHt..tX.

6.1 CneU,U:II.1aiiWC JteKCtMW

J.\,1.R oTKpbmUI crpyK'I)'pw o6Meua.n.OJCKua 6wn.ncnOJJb30Ilma cneLU MhHMJJeKceMa 'l·S0-1030321;",

a DJUI ::uqn,rntSJ CTPYKTYJ>bl 06Me1a -..END-IS01030321;'>.

)lJISJ TOfO "1To6bl ()"fl(pbm. UJIIt Jat-..')>bm,33£'0..1080lfiiYIO ceKUltiO CTPYKTYPLI 06Mel-J3, AM:i:l-lbl 6b1Tb

lfCOOJib:lOBai-ILI cneu.JtaJI:bll hfe. ,1eKceM LI .."H EADER" lUll! .. ENDSEC" COOTUCTCTDeHI-10.

!lftSJ TOro l.JT06bl OTICpbiTh illut 33.Kpb1Th ceKUIUO AaHifbtX CTPY'KTYJ>bl o6Meua,)l,OJJ:fc:Jibl 6b1Tb ltCOOJib\*

30DaILI c.neuJi artl.tH.ae neKc.eMw "DATA'" 11 111 '"ENDSEC'• coo rneTCrneHHO.

Cnel{Jta.1b1'1Yf0 neKceMy *3JttiK do.ttJtopa* "$" HCnOJJbl) IOT 1l.IUI npeacran..1emur oCTheKT"a,"'.t:.e Jnaqeune

1-te npe.LLcran.nel-tO o crpyt-..'TYPC o6Meua.

CJteU.Jta1LIIYIO ne-KceMy *Me'JiM'IKO* ..... UCOOJILl)'lOT AJISf npeACTaD.r1ei-IIUl npeAMeTa, Uaqe.Jme KOTG­

poro 1-1e RpeJl.CT30...1eUO 0 CTJ)yKl)'pe o6MeUa, HO MO))(CT 6hflb DloiBe.AeHO )13!i.PYntX Oe...1Jil.JIUI B COOTneTCTDit t

c npanuJJru.m, np•tooAeiiUbiMU n EXPRE..SScxeMe (C).f. 10.2.6).

Cnell.lt<L1t.l-lble neKCCMM *mfl4tKa c 301Jfmroi't* '";".*CK06Ku* "(", ..)'", *JOitJlmOfl* ..... u *KOCO/l 'tt>pma* ..,.

lfCOOJil.3)')t)T KaK 3HaKH ·nperuH!aHI-t9! 0 CTP'} KTYJ)e o6Mel-la.

6.2 K1.1meewe cJJoaa

J<...1K>liC-6blf CJI ORa AllJJSIIOTCSf nocneAOO..'lTeJibHOCT1lMU rp3(b tllecKI-IX C.JU,tnOIIOD, YJ{a3biDaJOLU. UU«

o6beKT ltJftl OOpeAeJICIIHibln "l'lfO 8 CTPYKTYJ>I! o6Meua. I<JJJO"'CUble CJIOBil AOO)f(HW COCTWITL tl*npOntiCIIbl.t*

*6yK6, l llt/Jp, noiJ11epKU60JIUil* t,DOJMO:.Kl-10,*fJOCKAUl(Omi!JtbJto.2.0 'J:IIOKO* .. !". *8ocX.1UI(tJme.ifbllbli1 3/lOK* ,!l. e11

RruiMATbC$1 He 6011ee Q.IIJI0£'0 pa3a It l'O.r1LKO t-.:aK nepObiA Cti MilO.r1 U K.1l04COOM CJI ORe.

K I JO"'enwe c.1ona Moryr 6Lm "Tat-.:onwMH,onpe.AeneuHhiMJt n cxeMe ltlllt 33A3HHWMtl nOJJ >lOn:a-re.r1eM. KlriO'IeBlole CJIOua, KOTOpble Ue 1-f 3tii!H3JOTC11 C *80CI<.!IUl(Omt>llbU()2{) 3/tOKb,* ABJlAtoTC$1 orrpe.n.eJJel-tl t.IMtl D

c.'\eMe. K.Jt'JOqenble C.tiOBa,KOTOphle IHl't l tHamcn c *80CK/Uil•ame.rwtoi?IJ :maKa,* SJ0..1.RIOTC$1 onpe)lene-1-l llbiMit

nonbJODaTeJJeM. OnpeAeJtef.JI-I Oe no..1b30BaTe.rteM K.rno...enoe c.nono SJB.1.l-leTCSJ no.et-mttt:Karopm.t ..IVIA nonMe-·

1-tooanuom Tl tna (Tuna ;.aIHt:.tX o&t.e o'.Ta l tJll« onpeae.ne.1Horo nma) n EXPRESS-cxeMe, ynpawnuom.eil

CfPYKTYPOfi o6Me1-1a. C&.tLICJI JO'IIO\.fenoro cnona, onpen.e....1euuoro no,1b300aTe.rteM, $1RJJI II?TCR npeiJ.MeTOM

cor.rraweu1< :SJ ).fe.xay nap-nrepa.MII, I«COOJILl)'lOll{ti MJI CTpyKTYPY o6Mel-ta.

6.3 Ko.l\Hpo auye. npoC:'TWX 1'MnOB JI.8KHWX

8 CTpy.\_"J)'pax 06Meua i!C00.1b3YIOT KOJI)IJ)ODalltl e wecn1 npocTbiX T 1ROB .!laUJ.IbiX: Qe.IJOe ( nteger), oelll.ecment-to (real), crpo:Ka (string), UMSJ .::tK3e).frutApa o6"Le.KTa (entiry inslanc.e name), nepe\ruc.1emt e (enumemtion) 11JlBOitliU.oe (bina1y).

6.3.1 L(enoe (hll eg er)

Ue1oe JlOJI:fCIIO 6b1Tb JaKOJllfpoDal-10 t-.:aK OOCJleAOUilTe.llbiiOCTt. Jl'3 Q,!IJ-1011 UJUt l-l eC.KO!IbKltX Wt$t>, co rrracuo -ra6Jmue 2.t-.:oropoA MO)KeT (uo ueo6$13aTeJbli-I O) npeAwecrooB:aTt. *3uaK n..tiOC* "+" Jt:n• MIW)'C

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"-".UeJJoeJJ.<>.r-1:t..1tO 6btTh RLIJ>aeuo n,o,ec.ATu·aHOM OCHonamm.Ec.rnt U.eJJoe. He uMeeTJHaKa.ero ctt ttTIUOT

nOJloarre.;Jbt-tbiM.

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00JlOli:HTC.1h H OC 12

Orp•• u.al'e.'l bHOC: 349

00JIO:KHTC-.'JhHOC 12

H ym.

Oum6Ka

Co;J.ep)Kifr *npoik,tltl*

Co;J.ep)Kifr *ltiO'iKY*

Co;J.ep)Kifr *npoik,t* MC}Kll)' *lHQKtJ.ll RlffOC* II U.II <JipllMU

6.3.2 Be ll.leCT oeu uoe ( R eal)

Be.mecn emroe ..a.o 1xHo 6 :.m. 3aKou;. pooauo, KaK yKaaa.no n -ra6ntn1,e 2. KoJl .llO.l)l l(eH cocro11:Tt:. Wl aec11TttlfHOA MaJmtcc w, 1a Kotopon (Heo6Jarent.uo) cnen;yer ).lecwmlfHbt A noKa:JaTenb creneHt t. AecA· Titlfi-13SI MilHTHCCa COCTO 1T 0 ROJ>AAKe CJle,.Q,ODa UI SI H3 T-teo6SI33Te.nbt!Oro *31tOXO IIJIH'JC* "+" lt,1H *NUJt}'C* .,\_.,,

noc.ru.JlODaTe.nbJroctit 113 OA•toif tlll t 6oJtee lllt¢lp,*mDIIIW* ••.",OOCJJe.O,OnaTe:ILI-IOCT t H.311YJIII fiJUI IIOCKOJILK•IX

wHJ>p..LleC$1T fl fHhln no.ca.3a'Te..1t. crenetm cocronT u3 *IIJKJIWCJtD ii 6yK6bl* £, Koropotl CJle;tyeT ueo6u3a

Te.JrMf l>l'll *3JIO"K MJOC* "+''" HJI'Jf *.Ulflt)'C* "-" C 0Jl,HOJ1 11.11liOCKOJILKitMJI llltcf>p;l.MH.

flpH *Me*'I a HIt e- 'B HltCTOflil,C.M CT'( HJ13p1't' He C JIItHO HHIUlKUX OOO.hiTOK llhfpa3UTb KOHU.I."Hli,IHO 1'0..HOCTH.

Kor)Ul HC06XU)l ltMO yt.:IU3Th JHS'IC:HHe TO' IHOCTI!. H OC.t.l "'l'UOIU)UI H OpiHHlI. !'UoU /1fl CTOpOH hl .llOJIXH bl A,OCTIIrHytl>

comaweHnM no .fl'<.>MY aoupocy.Tal.t, ue 1'0'UI OCTL Tpe{)yeTCR KI! K :MC:l.t c:u •·on»caHIUlTu na ..llUHH hllt o6·hC'tcra, *cc*

lna••cHue AUJ(;fi:Ho 6hi.Tb st::..1K>'tC:Ho •OII!X..IlCJt.:·H u c: -runa ..IUI HHbiX o61>tKn'l " EXPRESS·c.xcue.

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Own6Ka

8 06oJHEI'ICHHII tt()KiCJIITCJIM Cl'eliCJIII H C' J.Ol ilyciUlCTCfl

AC'C.MTHI' Hilfl 'I'OI' Kil

B o6oJHa,.c:mut MtiH'l'I ICChl 1p ofiyeTcM .a.c:cs.TH'IHUSI TO•Ikll

*JonNmaN* uc A.OnycKlleTCfl

B o6o3H ilI CHitH UOK.a31ITt'JlH CTefiC:Hit ,!10.'1;KH!l 6bl1'b XO'NI

6hl O)l)Ul U.ll<p:'

Ac:csnwu-1oH1'01' Ke nomtma npe uuc:crltOIJtl'lloXOTH 6hl OAH.!l. UH !Xl

B o6 oma,.c:mm t.t ai-I'TIICChl 1pe6 TCM .a.ecHnt'IHas. TOI' IW

6.3.3 CTp oK a (Srr·i n g)

{)rpoKa )lOJI::t::Uil 6Ln'b 3aKOAUPOD.1H3 KaK *QIIOCmpOi/J* "i", 33 KOTOpLIM CJie;JyeT Hyn b UJUt ne.CKOJlbKO

8-6•m.cblx Ganron, tt 31..Kaf. Utnart.c11 "I"·Hynena11 crpoKa (Crpoxa Hyneoon .llJ)I tHbl) n.o.TJ>KHa 6loll"b 3aKo.r:ut pOsaua nOCJTeJJ.OoaTe. t.J-I!ocn.to Hl n.n yx *aJIOCIIIiHH/J06* ..... Bnyrp1t cTpoKt1 eA•tuwut u n *anocmpo¢* ,ILOII::t::eu

*1*

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6btn. .la.KOAttponau KaK .noa nOCJJeAonaTe.n bHt.IX *anocmpot/Ja.* BHyrp•t CTPOKH e;umwntaJJ *KOCOJl o6pamu{JR lfepma* "\" !{OJI:.Kll3 6LrTL 3aKO.O.Iij)083Ua KaK llBe *KOCble o6pantltblf? OfeJ1nlbl* "\ \". 8 61t'T'l-lble 6aJiTLI, palpe· weU t-I LIC OII)'Tfm CT'J)OKII, RBJUIIOTCJI,OCK1WUit.lMtl 3KD.USasteHTl!Mif 'lHctJl OT 32 JI.O ) 26 (8KnJ04utTeJibll0) no HC0/M3K 8859 1, Koropwe onpeaeJUtiOT rpa<•tqecKHe cttMno.rrw OCHODnoro an$amtTa.

flpIt M *C*' I ll H It *e-* Tft6mtlJ)l 0.1 OH pe.'.I.CJlMCT COOlliCTCTIJUC: MC; t;Jty 8-6111"Hbl M II 6alinu.Ul l1 IIX rp:U jmotCCKitM npe.n.naa.rt eHueM no J.ICO/M3K 8859-1. *Kauw•11<11* npw nOJUlJJC:HIHI a t..'1"(>0Ke He)I.UJI:«Uhl A)il.rUipoli3TbCM. B Ta6Jume I uomt:1110t"Cfl *Moit.Hblf! t..:aH6/''IKU* rto·ror.ty,'ITO u CHB OHit Jf&UUOTCR Me'rtiCIUIDll.!tOM (eM.upnnoxeHue ll).

Llono.nt-nneJJJ.Hble cttMOOJJ.LI A<>.r-1->tmLI 6b1Tb lmconttpon:anw c ucno..-1t.Jooa.Ht er- wecTHaJl,uarepat'lllbiX LUHl>P (CM. HEX n Ta6Ji atu.e 2),KaK onpeJJ;e.neuo n 6.3.3.1 If 6.3.3.2. CH B ynpan.runoUJ.HX AHpeKnm )lilA

3<lKOA tpoDaHHbiX CTpoK npJtOe)leHa B Ta6JntQe 4.

T a6 Jr l t Qa 4 - Ynpawuuotutt e JtnpeKT1tnLf MR crpoK

CONTROL\_DI R ECTIVB= IA' GE IALPHABET IEXTENDED2

IEXTENDED4 1 ARBITRARY.

PAGE = REVERSE SOLIDUS "S" R EVERSE SOLIDUS CHARAGI'ER.

AlPHABET = R EVERSE\_SOLIDUS "P" UPPER R EVERSE\_SOLIDUS.

EXTENDED2 = REVERSE\_SOLIDUS "X2" R EVERSE\_SOUDUS

H EX\_lWO I H EX\_TWO I END\_EXTENDED. EXTENDED4 = REVERSE SOLIDUS "X4" R EVERSE SOLIDUS

H EX\_ FOUR I HEX\_FOU R I END\_ EXTENDED. END\_ EXTENDED = REVERSE\_SOLIDUS·xo·R EVERS E\_SOLIDUS.

AR BITRARY = R.EVERSE\_SOLIDUS "X" R EVERSE\_SOLIDL'S HEX\_ONE. HEX ONE = H E.X H EX.

HEX T\VO = H EX\_ONE HEX\_ONE. HEX\_FOUR = H·EX\_TWO HEX\_TWO.

6.3.3. I Ko,illtponau:He 110.lTf. Oro arJ$l(l)rrn. no-cmu.MprnM oepHH HCO/M9K 8859 nHyrpu cTpoKH

B CTa i UJ,apTax cepmt HCOf M3K 8859 *0 (xjy)* MReTCA o6031-I ll\el nue.M CtlMBOJia n "KOJIOuKe" *x*

"c1'0.116U.e" *y,* T. e.'Ui ll1- emteM Ko.a.a (J 6•x) T *y* o 1".t6 mu.e KOAOB. Ka-\*.ll,aJJ \lac.Tt. HCO/M3K 8859

I HCO/M3K 8859- 1 - l1CO/M3K 8859-9) oKJIIO•IaeT n ce6" OCHOOHOA an<j>am<T (eM. 5.2) KaK nosii­

I.Utll OT G (02/00) .a.o a (07/14), Pa.3.r1iflfl-t t..fe lfaC'Tn crauAaproB ceplllt JitCOjM3K 8859 OTJIHli310TCA

CMMBO:J3MH pac.wJtpeul roro ua6opa CHMBOJIOB - no3mvtnMu OT G (10/00) AO 0 ( 15/ 14). ATJSI Toro

lfTo6LI llK Ji O\ltiTh B CTpOK)'Cit MOOJlbl U paCWUpeHIIOTO f.lil6opa, Heo6XO}U0t0 •tCOOJlb3083Tb ynpaB.r1SIJ0 4

uute AnpeKTitn\_bl.

YnpallJISIIOUlYIO anpeKnmy PAGE -*o6pamndJl KOCOJJ tepma\_. nponuCJtafl 6yKsa S, o6pamuan KOCOfl*

*t pma C'\S\*") CHARACrER (eM. rn6.1u, 4) - ttcnollblY•or n- CTpoKe JLJlR roro, 'IT06b1 no300.1 1Tt.

CttMUOJJY OC•I ORI-I Oro a.-1cl>.3lllt'T3 npe..llCT3fHITb CUMBOJI 8 COOTDeTCT8)'10 ert 003JfUIIH )XLCWIIpeHHOfO aJl$3

BtlTa. Yn paOJItowytO .nltpeKnmy PAGE Cllen.yeT lutTepnpeTuponan.n crpo.:e. KaK o\_n,.tuOlflbiA

cnMBO.TI G l(x + 8) /vi. rAe G(.\'*1*y) - CHM00..1 oc•I OOI-I Oro an$}n1na. CJJC!I.)'JOW.ero Ja ..\S\". TaKatM o6pa30M,ecmt C tMBOJI ocu:onuoro art)3.nura tn.teeT 3113\lemae KOJl<l·. ero c.ne)IyeT •mrepnperuponart. Ka CUM00.1CO 3113\lell'lte·M KOAil *V* + 128.

An- TOfO lfT06bJ )"l< alTt., 'f1'0 TO.TibKO 8 ,.!(31-UIOJl CtpOKe nocne)l,)'lOUUt e ynpilililRlOWJte ,li.Upet<."'lltnt.l

*o6ptunuaJIKot:aillf pma,nponucuaJI liyKRa S, OOJWmuaJlKOCOJIW!pma* 6yJl.)'T uurepnpeTit JX>BaTbCA KaK CCbUUm

1-1a pacw t«J)elnlt.IA a.-14>aeafl',orrpen.e.ne.uubltl n roA qac:ru CT'JHD.apron cepuu J1CO 8859. Koroponpe,n;e

J111e:TC-SI 3U<'l Jel-ll tCM UPPER, )lon::tala 6biTL Jtcnoowonaua ynpaac1k)UU1R At1pek'TJtoa*<16pa1wtafiKOCbil 'lpma,*

*nponucuaR 6y :ea P,* UPPER, *o6pamUafl Koca'lepma. flponuCJtafl 6yKoa* (06o31-laliCHtt aR KaK UPPER)

n,oJlllil 6bt'Tb O)liiOA illCJlC-JtYIOU( tX: ''A",..B",..C","0'',.. E","F', "'0",..H","I". B aamlOM KOrlt'eKCTe

*6)'K80 A* onpe)len"er 11C0/M3K 8859-1;*6yK80 8* - l1CO/M3K 8859-2 H T.Jl.ECJlli !lllm<a" ynpaM•IOUia•

.II.UpeKTitBil He nMM$1eTC$1 B CTpoKe,nOJtJ>a3yMeDaeTC·R 3lfil \lemt e " A",T.e.AO..Ue:l-1 6biThTOT paCWifJ)eHIIWA

an1aBHT,KOTOP•IA onpeJieneu n HCOjM3K 8859-I.

g

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Op u Mep

XpaHallUUCcs• '-lpo)(II

'CAT"

'Don"!"

'\S\Dq,'< r'

'h\S\tt<l'

'\ PE\\S\"\S\U\S\b'



Argl'r hiilel

fin

KotttweHtapult



6.3.3.2 Kon.uponaune BltYfP•t crpoKJf "a6opa CJtMOOJJOO •t CTaHAapron ce.ptiH HC0/1"3K l0646



B rocr p MCO 10303-11 (CM. 8.1.6) onpeAeJieHO,'ITO 8 CtpOKe ).fO eT R01101ffbC1. 1 mo6on CIO.(no.rt

tf3 CTa l.llaproo ce.pHn HC0/M3K 10646. HacTOSJUI.HA CTaiUI.ilPT ycnuJan.rumaerTPn ynpanmuolll,ue JlltpeK·

TlfBbl,KOTOpble noJDOJU tOT KOAltpoBaTt. ct< MDOJILI m HCO/M3K 10646.

C'!'atiJlilJlTLt eepHtf HCO/M9K 10646 onpenenA tOT Rattottuqeck')'10 <!>oPMY. oropM ttcnOJtL3)1.'T

ttellolpe DOC-LMt6l •tnn.le rpynlTLI )t!UlRpeJlCTaD.r1elltl.SI Jlk)60ro CHMDO.IJ.3 113 ROJIHOro Ml-10\*"tC'rn3 KOAHI)OU3• tUUL 3'nt ClfMBOJIW oopeaemuoT C()()'I'OO'TCTBeuno rp)'nny, ypooem., PM u SJlJ erlK)'. Aono.rn-nrre 1t.HO CTa J IJlllpThl cepam HCO/M3K 10646 onpeJJ.MsuoT OCHonuon Ml-coroSJ'lld'lltwn ypose1-c1. (OMY),npeACTa8- nAIOUJ.un yponeHl.00 rpynnhl 00 nOJiuoro .\_moJ+:ecrna KOJl tponamUI. CnMoo.rtLI o OMY npeaCTaB!IeHLI

.any1oH1 6afrra1.u4, onpe)le..rut tOU.(JtM)t J)SilJ. l1Jlqe b,y.

flpIt Me'I ll HIt *e-* 0M}1llK.'IIOll3crr 1J cc6fl C::·IIM80.,bl,llOCHOl.iHO.)IIICIIOJtblycMble 8 att ¢l3SII' 'Hb&X1 UOCJIQl'OIIblX

u tt,Aeorpa4m'f.eetmx 3llUHC.flX al.tec:re c paJJtHIHhl l>llf'J.HH.K.ItMH 11 u.u 4Jp:tMH.

)lJut roro '1To6bl n:oxa3aTt., liTO oqe.pe.nHaSJ noc.rte.nooaTent.tiOCTt. )13 Kpanur.x'ICThl peM wecrua.rw.a­

repnlllfb!M Clt,MDOJIOM 6yaeT Ht.JTepnpentpooan.C11 KaK JaKO;lJtpGBal lll31f )l8yx6aATULIM RJ)eACTaR..1etnteM

ctt MOOJIOB lt3 OMY OQ! HCO/M3K 106461. n.o.roKJ-ta 61:dTt. Jtcno..-1.t.Jonaua ynpaMJUOUI.M )lltpeKnm.a

*<J6ptunuaJIKOCliJI otefJma, nponutuaJI 6yK6a X, t(tl(/!pa dda, olipamuaJIItlJCllfllttpma* "\Xl\". Ko;mpoo..·unte 8

crpoKe n crpytcr rpbl o6Mena JlOJI:t::JIO 6wTb c...1e.a.ytOUllu.t:

• KruK.!lwA CI«MD0-1. npe.ncra.n..1e1nu• H:J CTaH.n.apro8 cepuu HCO/M3K 10646, no.Me.:t:alll)tn KOAJtpo­ O<lHHIO,AOJI:t::eu 6t.ITL npeo6paJOnat-c 8 ADa 8-6)mlbiX 6aATa,KaK onpe,.ae.1euo B HCO/M3k 1 0646 1;

• J-:3:+::IIb. 1A n3 n.nyx.nonytl etUibiX B pe.JyJJbTtrre 8 6tnuux 6aJIToo n.o.rr::Ke.11 6b1Tt. 3aKo;utpo8aH KaK )lft.a

mecnHI.D,U,aTepW- HLIX Clf!MDO.Tl3 8.OClfOOHOM M<f>anwre, COOTBeTCTDyJOUUIX rpa$1-t..,l eCKOMY OJ>eACTaDJJeiUUO

mecnlan,u;rrepwlUhiX l.llf$p.

n p II Me p I -JhlTIIHCK 'lO *nponucHyto 6yKsy B* npeo6polylOT c nOMOlUb,l() -m6nHU.bl I Hl 1-iCOjMaK 10646-1

II WCC1'H l\!lUWI'CP U 'IHOe JH81'C UHC "0042'. UJecTHM,I.l,<l'l'epHI'IUoiM it U.llcJipaMH, <:C>0'111CTCTIJ)'IOW.II MH :fl'OMy :JH.a'iC HI HO,

$1a1fliOTC:.H 0,0,4 II 2. KOBHpOIIOtiHHe IICTpyt.."T)'pe o6MtH3 C HC::UO.tl b:JO UIHlleM OCHOIIUOI'O llll<llamna H pe)J.CTIIWI:HCT <:ofioH

'leT'blpe nDCne.li.OI:JaTCJbl HbiX C UMBOJJa:0042.

)lJISJ TOm ltT06bl noKa-3aTb, liTO oqepeJIH3SI OOC...1e)L083TeJibi.JOCTb 113 Kp.an1biX BOCLMll weCTH3,.1lUaTe• I>II'IHbiX :maqemdt .ao.1 J1a 11t-tTepnpentpo8an.cu KaK :k1KOtutponaHuaJJ '-leTwpe.x6allTIIWM npen.cranr1ewteM cmmoJJOR 143 nom-toro Mt-toJ+:ocroa KQllupooa.-m.R no crau.a,apraM cepmt HCO/M9K l0646,.llOJfi«l-13 61>3Tb ltcno.rrb30oat-ta )rnpan..1JtOOU.(as. AttpeKTJtna *o6pamullR KOCa» wtpma, nptmucuaJI 6yKea X, qut/J!KI Jemt. pe.*

*o6pamnaJIKOCOR "tJ.epnta* ...\X4\". KO..!Utponmme n crpoKe o C'T'p)'J.."T)'pe o6Meua no.ttJKHO 6Lrl'l. cnen.)'lOUUH>t:

- Ka.JK)lbiA CttMDOJI 8 npe11,CTa8JteUHtt lll CTaH.43pt'Oll cep1m HCO/M3K 10646, Koropt.di

.II.OJJ)KeH 6t:.nt. 3a.::on.upooaH, c.ne.ayer npeo6pa3ooart. 8 \l e"·Twpe 8 6U'TI-IbiX 6aArn, KaK onpe.n.eneuo 8

11CO/M3K 10646- t ;

Ka:K,llbiA lt3lten.tpex OO.Il'Y'-13e"MbiX n pe3yJJLTafe.86ltTIIbi.X 6aJlTOB Jl,OJJJ+:eJI 6t.aTh 3aKO.O,Hpo83H Kate

;ma wecruaJIJI.aTePttl-JJILIX 3Jta4emtll H3 ocuomcoro an$aBirra,cooToeTcTByJOw,Hx rpa$ H' l eCKOMY npe.n.crao­

neH)t tO WeCl'lla,/lU<lTe-PINHbiX UI-I)J).

npIt,..*c* p 2:- JlantHt:K)'to *npoiiUCU)Ito 6)'1.:6Y B* u peo6puyKtT c lt()M01UJ>Kl TI!6JJHU,hl I lU HCO/M3K 10646-1

II UICC1.HM)J;ITCpll<tHOe :m:&'f.CHIIC '00000042'. WeHtU.IJIUilTt"pH'IHbiMit U).l ( )p<I. II MIIJUIKlTCfl 0, 0, 0. 0. 0, 0, 4 H 2.

Ko.AupoaaHit c. s C·TJl)'k1)'1>e o6McHa c llt:nO.flb:toaaHttcM OCHotJuoro aJICIamna npen\_cnta'lflM" eo6oii tM>CCMt. ti OCJien,otm­

TC.1bll biX C::·IIMS0.10ll 00000042.

rocr r HCO IOJOJ-21- 2002

JlJHI TOrO l.Jl'06W OOK33ilT'b OK0H' 3 H 4e KOAi tpODiliiJHI CJIMOO.fiOO no CT31I- .!l3PTIUt.

ceplUt

J.1C0jM3K 10646 0 CTJ)OKI! ll 0030J>aT K nps.-Mo.uy KO.lmponaJ-t t tO C liCflOJl b301Hi teM OCIIOBHOffi an$aOlffa,

II.OmKua 6bJTt. Jtcnont.30D<ma ynpaMAIOUIAA Jll tpeKTitM *oi'ipamuan JWCan 'tepma, nponttCJtOII 6yKRO X, qu(/)fJO*

*110/lb, o6pamfiOil KOCOR 'lepma* "\XO\".

6.3.3.3 Ko.o;atpooaH ue o crpoKe e;:onmJlHoro 861fl'HOro 6aftra

B crpoKe MO)I(eT 6wn.3ilKO)Utpooan 8-6JfTJ iblll 6ai1T co:mal.feune.t OT' 0 AO 255.,QJJJI Toro \ft'06bl

YKa33Th, 'ITO cne}l IOW.Jte JlDil rneCT113!Ul,3TepJI'4ULIX CUMBOJlil ll,<>.r-1)1Qibl 6t:.m. IUJTepnperupooaut..t K3K

8-6Jm-t wl1 6ali:T,llO.:Itl:Jta 6Lil'b wcnom>lOBilf.Ja ynparuuuowaa AlipeXTitoa *o6pamua.n KOCa!l Jepmo,11ponucua.R*

*f5)'K80 X, o6panotOR IUJCQ.tl itepma* ..\X\", mtTepnpentpyeMil.R JQlK 8 6HTHbln 6ai1T 11ttellKllCHMOOJiil ypODUJI

0 OMY no cra1u,1prn>t <:ep"" HCO/M3K 10646.

flpltMCI' tiHHe-CuMfiOJi bf. onpe;e.e.cHHLIC., HCO/M3K 10646-1 H HCO/M3K 8859-1, noo»:Hbl 6bl11o

y-KR:taHbl IJ COOTliClCTS)'k)W:C>.t }l utiiiiJOHC.

Opsu.tc p

XpawutUlMCSICTpOK:I

'see \X\A7 4.I'

'line one\XOAJinc two'

Co.n.cp:.:a.1-me CM. 4.1 t..'TpOK3 O}liiH

crpoKa .llllll



OO}lC:p>tarr HOm.IC CTp<)KI!

6.3.3.4 MaKcnMil.r1Lil<UJ MJma crpoKJt

MaKCUMMLJ-cau .a;11Ha CT])()KJt, coxpauRer..ta11 n CTpYK'fYpe o6Me1Jil,orpaJlt'fe.JJa 32769 86•tnlb1Mit

6ailT<lM f.DICIKN311 ua"'MbiiLifi , KOHi?"'I•J Ltti *anocm/')()ff)w.* ECJOt D Xp3lUIU(YIOCJI CTpoK)•DKJ110tletlhl *I(08bi'IAU,*

*o6pamJtafl KhCtlfl otepma, anocmpo¢111,* A•t pet.'.T•t DLJ ynpaonemt.R ne'-laThk) (CM. palf(e...-1 II) u.1n CJ tM BOJJ hJ,

31..KQII.ItpoDaHJ J Lie- B COOTJ.eTCTJUUI C 6.3.3.), 6.3.3.2 llJJJt 6.3.3.3, M3KCUMM bl laJI JUUUHl Ae-riCT1UtTen bJ-10fO

CO)Iep\*ilHH11 CTpOKI-1 6y)le'r Me-1-JbUte., lJeM 32767 rpactnNecJCHX CMMI)()]fOB.)leftC'TintTeJlbllbiM CO,l{epUt-flfeM

JIDJIReTCJI nocneAOnaJ'e1LilOCTJ. rpa<lmi.JeCKllX CUMDOJIOO,OOJI)"lleHHaJI OOC...1e TOro, KaK 6y,llyl' BLJnOfiHei-J LI

cornaiUeJmJI no KOJJ.nponanHlO.

6.3.4 HM e J:t a 3 K3eMnJu :p on o61.ex Ton

H.MSI :>K3eMO.r1JJpa ofYJ,eKTa .O.OJOKI-!0 6Lm.3ilKO}J,tt poOaHO KaK *:max UOMI!f10* "#"', 33 KOTOpbi.M CJie)(yeT

u\_e:.oe 6e3 31-taKa. UeJJoe JlOJI::t:J-J O npeACTaD.1r SITL mo6yto KoM6m•aumo J t3 o.a.u on ttJnt uec.::<>.:-b1 K11X )leC1mttt

JtbJ.x lHt cPp. no Memr. uen Mepe o;uta uml)pa u e n.o.n:.1ota 6t.tTb "0'". Ope.JJ.wecroyk)uot e Hy.rm n UMeun

:>K:eMnuJpa o6'bel<Ta ue'"MeJOT 31-liltteJ-UtJ.l.

CHB *MU* UMell :>JOeMnJJ upon o61.et..'1'0D npuBC)leua n Tafurlme 2 o npan11,1e noACTaHOOKJJ Ef'•

TITY \_INSTA!'iCE\_ NAME.

OpuMep

npanll.1bUOC IJiolpa:«eHIIC H.!tiC:UII

#12

#023

He-u,xum,.wu>c nblpa,.;ceme HMC:HII

#+023

#00.1

74

#439A6

3Htl'4CHIIC

H.!tlt:H)'CT 3Kle1UUJflP o&t.c tm• Will ccLI.1UCTCM -ta

:';UOel>tn.flp o6l.c-KT:! *C* 5lAeH1l < HKU1'0po.!ol 1 2

1-b.l C U )'eT K:SC..\IIlJfllp 06'bCt.".Ta Will CChl,9ClCM Hll

:lK3tl>H1.1flp o6b<:KTa C U,II.CH'Jlt(JtKaTOpo.\.1 2J

Owu6Kit

Ccmc:p:«HT aHax ·+·

Con,ep:.«HT }lecwru-.H)'IO TO'fKy

He l tlNUH.ae'lt:SI co *JHaKa HQ.I.ftpa*

Ccmc:p:.«HT c.uuoont.l w1<t>;uunu

Ecmt UMeJ-ca 9K:JewnnSJpoo o6be..'.TOB no11wunoTCSl ouyrpil cmtcKa aTpu6yron 3K:leM01SJpa ofit.el<.'rn,

TO ltX 11CnOJJI>3)'10T KaK CCbUlKtt Ha AP)'flfe 3K3eMT1JUipbl o61:.eKTOB. Pa3peWi?l blCC.bUIXI1 KaK onepen.. T3K It

J-ta3..'l!l..

6.3.5 ne.petJ MC.JHieP.t hte:lll3lle J-I IHI

0epe41iC,\_lJSJeMoe 31Ul\leHlte Jl()..-1))(110 6bJTb JaKOJllfJ)ODaHO K3K nocne)lOBaTeJibl-tOCTb *llfJOIUICII blX 6)W6*

Jvtlt *l411f/>P,* Jta\n-maiOutagcu- c *nponuruofl 6yl(8bl ,* or)aJmtteJJtJaa *mO'IKa.wu.* CMbJcn 'l..'Ulal-lltoro nepei.JJ«C..1Ue­

Mom lJia\.feHJ-ISJ 3a,llaercn EXPRESS·cxe tan I t cooTneTcroyk)UJ.I1M I4 onpe.!le..1eunu-M tt •fl Me.uHn nepe­

'IJtC.TUJeMoro TJ na.

iO

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OpnMep

0pGIIIl.r1bHOC II<·PC IIlCf.l,C)ti)C Ublplt»:<: Hite

STELL.

He-upauu ,wu>e nepe•l tcs.,t eMoe ltblpalt>eHHe

.R ED

.121

6.3.6 ,llDOU'I II Oe llll CJIO (B inary)

Jua'feHue

OoKtllt.UI<te:r JHa'leHHC STELL

0WH6Kil

npo H )lU,CH9 *m.O'fKO* U KOHIe

Ha•umae1-cfl ue *c* wttJmuuTuoro CltMIIOJUI

JlOOUlfiJ LIM lfHCflOM RBJUie'l'C$1 OOCJie,.!lOOaTeJi bHOCTb 6UTOO (Q U.O it J).,llOOJt liJ-J oe \fltC.1r 0,11,()..-1)KJ10 6b!Tb

aaKOAJtpooauo Ta.K, KaK onpen.eJJeuo CJteoyK>UieR npol.lenypon:

• OO}IClUfTLIBaiOT KMit'leC-TOO 6tT08 0 ROC.TfeA00..1Te.:JbiiOCT1t. H33b1DatOT f)e3)'JibT3T *p;*

• onpeJI,e.rtftiOT \fHCJJO *n,* 0 <= *n* <= 3, TaK 'ITO *k* = *p* + *n* SlllJUleTCA Kpal'I..JbiMlJeTwpeM;

- JLOnomuuoT c.nena ABOlt\fH:oe quc.1o *n* uy.1enh1Mit 6JrraMtt. Pa3.!leJJKJOT nOCJJe..a.onaTe:JbHOCTh 1-1a

rpynnw no te1·wpe. 6a m;

- neJ)eA noc.neaonaTe.Jit.ltOCTb)(') BDOAwt "le.no pex6unJoe npeLI,ctan..1emte *n;*

• ec.TJ· t aecun t LI-tLIH: 3KJUmanenT 4-6•tTuoH rpynnLJ9 iUltl Men >we.>tTo6w n<>.r1y'ltfTb -6HTJ-tLii16alh,

ao6an.runoT K n.ecR nt"'UOMY Ha•temuo 4S; eCJnt .necuTwHtLlft 3KDJtnaJleuT 4-6•tn t of1 rpynnM 6on1>we 9,

'1To6bl nQ...1)'qJ fT'b 8-6HTI-II.rft 6a T,.llo6aBJhUOT K )le.CftT f'tliOMY 3Hiltle1UUO *55.*

0p II *Me*'Ia H IIe- 3fo llpto6pa30iilllHHC ,llliOHIHOI"U 'tltC.,ft S UlCCTUII.lUI.OTCPII'HI OC;

- JaKOJIJipoiJ.!IHHOe Jl,liOH'I HC>e 'UICJIO COCTOIIT 113 /.:/4+ I Wet.'THitJU!,Irt'ep.ll'lHWX u.H<IlP· OcpU.lllbpa MWIMC'TCM

:ma • CUit<:M *n.* 3a neii CJl<:Jt)'tOTIUCCTHil,IUI;."'Tt'pll'Hble U.lltllPtol ,HpCJJ.CTaWUUOIU)IC' .111101-f' UOC. 'WCJIO

- Jl80U"IIIC>e '-ltlC.IfO OTAeJIKIOT K3Bbl'tKaM f ""''".

Op u Mep

lliiOU'tHoe 3Ha•temte­

'nuU' wm'empty'

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0pc:KC.. <lll!leHIIC'

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•·31 - "238"

··092A-

7 0rpyK'JYpHpo.BaHHWe THOW JISHHbiX

E.o.t fHCT8eiiHLU.1 CTp)'k'TypUJ)OB<'UIHbiM TttOOM AaHJ-IbL'!, KOTOpbt A OOSUS.r1St eTCSI B CTpyK1)'pe o6Meua,

11BJUieTCA LIST (cnttco.:), KilK no onpe,a,eJJet-to n Ta6Jmue 3. CmtcoK RB!UieTCJI nocne.o.onareJtbuocrt.Kl

(D03MO)f(H0 nycroA) •n m'ARAME.-fER (napaMC1'])08),Kax.::ur.n •t3 KOTOPLIX MO:.t.:e.r 6llfb:

KOJltponamteM npocTOro ntna KaK OOHC<HIO 8 6.3, tiJOI

COel(t arJMIOA rJeKCeMOh *'JIIOK tkM.?Opa* "$"', lfJllt

TYJiED\_PARAMETER. npeACTa0..1JUOUI.I M 31CleP.tn,1JlP Bt..r6pa1uroro Ttma (c L 10.1.8), mnt

LIST, npe;I.CTallllA tout:nM :>K3eMrut11p (Mo:.t.:enHoro) CTJ>Y..,'TYPUPOBaJJHoro n tna.

Jlam-tbtll cmcoK t\f0:4<eT co)le.p:.t.:an.*6one.e* o,nttoti lf3 Dbt wenepe\utcnem-t biX $QpM. B crpytcrype

o6Meua COHCOK 113'-I.Utaerca C *.tJ dOIJ tKo6KU* ..(,. tl t.:OI-I"'M1'CK *nJJlUJ(Ji) CI<06K(J t)* ..),.• 3K3eMfLI'JApb1 pa3Jle·.TU1JOT

*30II.Rmht.MU.* CmtcoK MO:f.<eT 6b1Tt. u.rJO)f(eHnbiM t-13 .1t06y10 rny6nHy.

OpuMep

Crpyk'typHpolmHHbut THn rutHHbiX

CuucoK U.eJihiX

CuucoK CTJ>OK

CnHcOK cnHctton &elueCTitc-HHhl'< ••a.,.eHuli

CnHcoK cnHctton IW:wecr tt-HHhl'< lHil•teHui'i

npe-nCTIU!JJI:Hue.

(0, u. 3, 7, 2, 4)

(CAr. 'HELLO')

((0.0,1.0,2.0), (3.0,4.0,5.0)) ((0.0,1.0,2.0).())

0 UOCJie;I,HCM C niiCKC: C HICKOItlCUl,('CTl!.e·U Hhi X 3Ha•l eHIIli wropoil WlOiKeHHhdi CIHICOK uycro.ii.

II

rocr r HCO IOJOJ-21- 2002



3aroJJOBOttuace.KllHR COJtep:.t:Jrr mt <f>opMau•no, Koropast on-JOc.•rrcst KO ocel1 CTJ>)fJCt)'J)e o6:.. eua.3-ra ceKu11a )lO;J I-ta 6t.rn npeacraRJJeua o Ka:Ka.OA CTJ)YKTYPe o6Meua. CeKLJ. Ut ,a,o,1XI-t<l HatlmtarbC:.SI co cnetUta.rthl-tOfi JJeKCeMbl HEADER" u 33KaHttHUilTLC cneu.tta.rn.uoA neKctMOit "EN DSEC ·.·

np 11 M *e*' I a H ll e- B np11.10»:CUilH H npeACTllll1CilllpKMep Jarn.10tiO'HI Oi'i CCKIHM BH)'Tpll CTpYKTYP"' o6MeHa.

8.1 <:'>&tterrw 3arOJ101 0llltOII CtKl.I,JIH

Onpe)lenem.a1')>Jt OObeKTa Jatonooon toi1: ceKwm,H o K3:4UlOA ctpy...\_Type o6Mel-ta TJ)e\)yeTCR t-lrutJf\lue OJJ,I-IOl'O 3K3e,\£0JfSJ pa Ka-\*JI,OrO Hl o6t.eKTOB. 06Le...\_'Ta Uf 3afOJIOOOt1Jt Ol'! CeKIUUI SIMSIIOTC11 file\_de. riptioo, file\_name Jt Oie\_sc.bema, u om1 .0.0-1:-+:Rbt pacnOJlaraTLCa B :>roll nocneAOBaTe.T[bHOCTH. 3oeMn.rJRPLI o6neKToo file\_populatlon, section\_language If section\_context MOI)'l' pacnonaraTbCR noc..-1e o6»eKT3 file\_scbema.ECJIH tMeJO.TC11 3k:JeMruJA)LI onpeAene-J-mLix no.llb30oaTe.neM o6l.eKTOBlarooonotJHoficeKIUnt,

TO 01-m AOJI llbt nou wurn.cA nOCJJe o6SI-33TeJrLHbiX K:aeMnJiupoo o6beKTOn : arOJToooqHoil ceKI.(ftli o

npott:JO<>.r-1LHOM nopS u.:.e. CmtTaKcnc 3K:Jer. nStpoo o6MKTou 3aro..1onottuon ceKu,.m npm ..n.en o CHB o Ta6nuu;e 3. Ki):«p,oe H.MSI o&beKTa,li,OJI uo 6btTb npeQ6pa3ooattQ o K EYWOR D (K.TIK>\feooe c..1ono) n)aDJtJia HEADER\_EN.TITY. Pa.:m.e.1 10 onpe,.!lenJteT npeo6pa30nantte. npocTbt:X 11 cocramtbtX (arperaTHLIX) Ttmoo n.au11LIX o PARAMETER\_LIST (cmtcok napaMeTJ)On) ;uut:ntalfemtA <npu6yTon n;aut-tL X :IKle nuu1pon o6be"-'TOB.

8.2 CxeMa laMJlOIIO'IIIOA CeKIUIH

)l3HI-t LI J1 00Jl.,P33Jle;J OOI)e)(enJieT o6t.eKTbl33f0!1000ili-10t1 CeKUIU1 It TltOL1, KOTOpL:te nOStB.TISI'IOTCSI 0

3arOJIOBO\IHOA ceKUHH ctpyK'l)'pbl o6MeUa. 06t.eKThl 33roJTOOOttHOil CeKLJ.HI1 OOJ)e)H!IIeJi bl C OOMOlllbiO HlWKa EXPRESS.

EX PRESS.cnemtdjUiKamts.:

')

SCHEMA header\_section\_schema;

TYPE exc.hange\_st.ntcture\_identfiier = STRJ NG

END\_TY PE

')

LlatmaScxe,m onpe.ne.1. Siet' o6be.....-rM 3arononoqnon ceKLUnt, ..:oropt.re cneu)utmtlHLI JJJUInpouecc.a

nepe}lalut .a.amtYX o6 ue.tnm clfC00..1L30oamteM CTPYJCTYPtd o6>Je•ta.

fl p II Me' l itH IIe- Tun excbaa&e\_.StrtiCtl:lrt-\_id ati(K'-r COOTJIC'TCTIJ)"eTTitO)' lt,.'l.C HTIU m.:aTOpa, yCTaJI OI!Jle'HHOM'

*U* rOCT p l>I CQ 10303-41. ItO ,IJ.U.tr.«CH 6bltb :JM;IU OTllCJi bltO. 'fl'o6bl o6ccne•r'Krb nel<1l111C-II MOC1"b TpC6oll<l.ltltfl

IUICTOMUtCro <."Till-fASP'JU OT M O)lCJlcii UllHH biX, OIIII C<lltHblX *U* rp ·nne llltTC I'pllpo8ilH it bfX pecypcos l."T'aUAitpTOS CCpii U

rocT P HCO 10303\_

8.2.1 061.eKT f ile \_ de. scr ip tion

06t.e"-'T file\_descrtptioo on pe,ae.r1uer aepct-no H3CT011"U ero crnHaapra, wcn()J(UK)nanu}'IO AJISJ cowwur

crpytcrypLI o6r. eua, a rae ee c.oJtep amt e.

EXPRESScnemtdfmKauuSJ

')

ENTI TY file\_description;

description : LIST II : ?I OF STR ING (256);

implementation\_level : STRING (256):

END\_ENTITY; ('

On!!tjllflff> :rrnufiyron•

d criptioo - He$op HLI1LIIoe on ttCilHJte CO,llep:.+::lt oro CTPYKTYPW o6Meua;

implementation\_Jevel -o6o3t-t3lt emte Tpe6oa:mu", KOTOJ>blM coorneTC'I'nyer KOAt ponauue n n.am-rott

CTpytcrype o6r.te1-1a,H ni06LIX coornercrnylOllUt.uapJtal-tTOD, npH).fe.t-JSt eMbiX np1-1 KO)ltlpooauHtt. 3uaqeune

3TOfO aTpu6yra )lOJI:t:HO )'Ka31.103Th COOTBeTCTDtte )laiUJOfi BepcUif l-taCT09utero crnu.o,apTa H<l/UflUfeM "l.Ha teutt11 "'3; 1.., n nt "3; 2". *Jl;ur* crpyKTyp oGtena, npmtw auutx K Kllaccy cooTnet'CTBtSi I I, 31-13\lelt ue n.on:.:no *Gun.* 33JlllHO n cume "3; l". ,ll.ru1 CTPYKTYP o6Met-ta, npm-t a.nne:.+::am;Hx K 1(,1accy COOTneTcrmut 2.

3t-taltemre .n.o;nt..1IO 6bffb "3; 2".

ECJtu ncrpe'faKrrcn: Htt e nepettiCJteHt-tLte orpamt'feH•tSt , TOrAa ..ll!UIyKaJaHHJI COOTDeTCTIUSi I HilCTo­

RW.eMy C'faii)IJIP'J'Y >JO.:t::eT 6b1TbICnOJtblOBaHO 31'i3 t eutte ..2: 1" IUitt ..,2:2":

12

rOCT P HCO 10303-21- 2002

KOIIKpeT11<1Sl CTpyKTypa o6Meua l\M:+:lta COAep)l(aTb eJUHICTDeHHYIO CeKlUUO )liliiHLIX, a KIUO'Ienoe

CJIOBO "DATA" ne AOJDKHO pacnOJJaraTLCSI 33 PARAMETER\_LIST;

• 33ro,10BOI.Jlla\_$1 ceKUU.SI CTpyK'l)'pb! o6Meua ue AOJJ:+I:ca OOAeP\*ilTb o6beKTOB FI LE\_POPULATION;

- 3aro,10B04uail ceKUitCTP}""-fYPbl o6\1e1-ta He A0..1:+:ua COAep:..-art. o&beJCTOo SECTION\_LAN GUAGE;

- 3aro; onolmaJJ ceKu.a•a crp}'J<TYPbf o6:MeHa f-Ie n,OJT:+:ua co,llep:...ar :. otThet..'TOD SE(.JJON \_CONTEXT;

- nepeul tcnJleMLie lHa\femu• (ENU MERATION) Ha R3LJKe EXPR ESS ue A0...1XHb1 KOA•tpooaTbCS! c

lfC.OO.fllo:lODai-I HeM COKJXl.llleHUbiX I-1314Mei1083Ulfi1.

3ua•l e H UI •'2; ) " H "'2; 2'" AOJllKIILI 06o3ualaTb C-T)YK'fYPLI o6\h!Ha.OTHOCRUI. feCSI K KJI3CC)'COOTDeT

CTfUISI I It 2.

flpHM C' UHH SI

I l(,aCCLI COOT TC1"UilM I II 2 Oll pc)lt!le-Hlol U 10.2.5.

2 06tuast <l>op.\.ta }1,.'1SI JHS•I C-HHSI ll MCCT UIUl Mv; *ce·.* r)l.e *v-* HO.\I. C:p t!CpciiH HaCTOfl.UJ,ero CTitH,.'l.1lpTit, K<lK

On pent'1C:HO 1'1n pU10»:C:HIUt C. tl *CC -* KO.IlH()Oil:'LHHe KJJQCCa C00111<:TCriJitsL 6)'JI,.V UHC: Bt'pi:..UI HIM..'1'0SIW.eTO (."fttJ- JIIlpnl

MOt)'T onpe;t.eJII Tb JI.OUOJIHllTeJiiHol e 3Ua<tt'HIUI A SI "' 11 *CC.*

3 3Hil"'C: Ui tM ..2 j I'" 1;1 ..2j 2" oficxl'l e<i ll JI.[IK.>T COSMC:CTIIMOC:fb *C* (>C"dJUI:J.aiJ,IlM.\.111, O(.'.HORtiHH WMH Hit Hpt.:.'J.h'AYU{dt

llCpiCUH H3CTOSIHl.C:rtJ CNIJ-UUtp1'11.

S.2.2 06'b e KT file . n a me

0611e KT file--name flpe;J.ctaMAeT ..a.ocryn uylO A.1Jl npottTemuJ 'te.rroneKOM tnutK>P'-HlLUtiO o CTpytcrype o6Meua. CoJJ.ep:...amte. ar.p•t6yron A<lHI-«Oro o6'be..'.Ta, 3a JtCK.c1to•remteM aTJUt6ym time\_sta.mp, 1-1e onpeae.na eTCA uacrom.HM craun.aproM.

EX J)B ESS.cnet m tfuuxm•u a

')

ENTITY lile\_ name:

name : STRING (256);

time\_suunp : time.\_stam p\_text;

author : LIST I I :'II OF STRING (256); organization :LIST 11:·>1 OF STR ING (256); preprocessor\_wrsion :STRJNO (256);

Ol'igina ti ng,\_system : STRI NO (256);

autho,·ization :STRI NG (256);

END\_ENTITY;

TYPE time\_stamp\_text = STRINO (256); END\_TYPE;

')

Onuca1mA armt6vron:

name -CTpOKa rpatl>H•teCKitX CUMBOJlOil,ltCOO.tJb3yeMa,.!lJUInaJtMeUOOatJIU1 A3UHOro KOilKJ>e'ni OfO

:n.'.:letnn1lpa CTPYKTYPbf o6t.teua.

flp II M*C*' I ll H lle- IIJMSI Opc)lH:tJHa<f<leTCR JVUI C8SI3H Me'\*'A.\_V OmpatnrrC'JICM ll II OJI)"fUTC. CM, t10JI.o6HO TOMy,

KQK OHO HCHWII>l}'I."TCJI MC'/-J.Y:nOJJbMH;

time\_stamp - .a.arn. I t ope:MA, noKa3wuaJOUJ.'te, Kor.o,a 6l:d.Jia COJ.Aaua CTPYKtYPil o6Mena. Con.epnmte CTpOK)t IlO..lJ:.KHO COOTDeT'CTTM)83TL paCWltpeniiOM Y ciX>P'-faTY OOnl-«Oil KMeu.,!lapHOil !J,aTbl, KaK OOpejll!'.leiiO n 4.2.1.l HCO860 I , o6-l.eA 1Hemi OMY c pacumpet t Ht.t:M <J>o)M3'fOM npeteult JlHA, ycTatton..1emtb1M o 4.3.1.1

1t.tnt n 4.3.3 H·co 860l. }laTa 11 npe-MSI n.o..tt:.KH'hl 6wTt. paJ,!leJieHt.a *nponucuOli 6yKoot'i T,* KaK onpe..a.e.1r euo n

4.4.( 11C0 8601. Af>ynte <fM>pMaTLI 143 4.3. I .I It 4.3.3 R03B0..J1IIOT)IOflOJJHHTeJibUO Bkiii O'IaTb onpe,!l.eJtliTI!':Jb

ttacoooro noca;

author -m.ul iOOttTOBLIA a.npec n uu.a, OTceTCTDei-11-IOfO 3a CQWHHe C-TP' )..Typbl o6:\teua

organizatioo - rpynna mm opraHu:tal{toJJ, c Koropon cuSI3at-l amop;

preproce:ssor\_version -C.fiCTeMa, JtCnOJlh3yeMaSI AllSI COlQ,<UUUl Cl'P)' KTypt.t o6Mel-l<\, 8K!ll0l.f3JI ltMSI I«

oepcmo Ct< cre.>.morolt'lll.eJTn.-.;

originating\_system -cucreMa,OT KOTopon ow.o.anw A311Hl.le any CTPYK'I'yJ)Y o6Melm;

authorizatktn - IIM$1 It RO'ITOBEd.i'l Mpec JIUU,il. rn0.1110MO•JeJ J UOTO OOCWian. CTpYKTYPY o6Meua.

ll

rocr r HCO I OJOJ-21- 2002

Op u Mep

3JJt:M t:H'r W nJ3..Hiil tspeMC:HH



Kanc:.•wpnast AaTa- 1 2 anptm1 1993 r.

BpeuM AHn- *1 5* •• 27 )IIIH 46 c

lJ!I<:OBOl% n<mc- *5* q 1-Ul 31UliL!l OT rp H IUnt'lil

Bhlwc:npiiiJKHHWC rorra.apeMM u ••aconoH uost c.

:trui:()AilpUBI!HH hle IIi 00.1C: lime\_Stillnp

1993-04-1 2

1 5:27:46

flOJ C: 'UlCOIMlrO tiOMCa Sl ll.,MC'IX·:.If HC:o6MJil' 'e!lbHhi M

*-05:00*

1 991 -04-1 2 T *1 5:21:46-05:00*

S.2.3 06'b e K1' f.ile schema

06'bet..'T file\_schem.a yKaJYBatrr EXPR E.SS..cxeMw, n KOTOphfx on pe,ae..eJeHhl 3t::eMn tRPLI o61,enon n

CeKUlflt Jl,aJIU biX. A'fl)ltfiyr SC.hema\_ideotificrs AO.lt)l(eW COCTOSI'T'b lt3 CRIIC.Ka CT)QK, Kll.:«A3R H3 KOTOpbiX

.II.OII:tala COAep.:«an IIM11 CXet .u.t,3a KOTOPI>IM CJre;IyeT Heo6Stl3Te-1bl-lbill ifJl,eunt$nKaTOp ofn.eKTa, np•I CUO­

eHIILII1 ::rro-n cxeMe.

ECJIHliMA CXe.Mbl CO,.!le-J>»::JfT *titlp()! Uble 6yK6hi ,* 'TO OHU AOJI:fCHbl6LITt.. npeo6pa3ooam.a D COOTBeTCT•

DY O IUte *nponucuiJ/t u)'KBI>i.* B crpoKax schema\_name JlOJI:.CflblfiwTb W..1bKO *upouuc11we 6yKeiJI.*

EcJBt lf3BeCTeu lfJI.eUT11clnt'K3TOP 061.eKT3, 01-1 )IOn.:t::eu 11MeTb cp.My, ycrauon..-1eUHYIO B rocr p J1C0jM3K 8824-1. HcnonLloa.atme. lfJI.eUT·HcpauaTopon o61,eKT08 6 ctau.a.a prax cepmt rOCT P J1CQ 10303 OOHC<lHO n 4.3 f0Cf P J.1C0 l0303 1. PeKO).feUA}'eTCA, no DOMlO:t<liOCTif, npm.teun.

1\!lt"UT·tId>tKarop o6'bet..'Ta,ra.K KilK :iTO o6ecne'lt-t0.1eT OJlJIOll1-3\fl-toe o6o3J-Iaqemte cxe->.thl.

fl p 11.\.1- 'l 9 U He- 06tU.II.\.I<llOp1!3TOM ll iX'JlC-n'lwteHHJI 11AtHTH(jmKaTOp3 01111Chi:SIICMOf'O ll pcJI.M e'Jil (ljlll::lU 'lCC­ KOro o€'ibe:KTtt) JlllllH IOTCII O"r!LC:JlbHble li.CJlbiC' 'tUCJJa. fiOC.tiC:)lOII<l 'rtJi t.HtX..1b !lntX 'UICC:.'l npe-JN."Tili!JUI Kn·ll C00Ttll.."TC1·llyi0-

UlH\_ X Cllf )'pUbiX CK06Kax "'('","r.

ex "8FSS-sot•"''PU!m'' " S

')

ENTITY file\_shema;

schema\_idemifiers : LIST 11:?1 OF UN IQUE schema\_name; E ND\_ENTITY;

TYPE schema\_na n1e = STR ING (1024);

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END TYPE·

(• ,

Oouca u!tt, mn u6ymp-

scbema\_Jdentlfiers -cxeuM, Korop :.ae onpe..te.nst tOT :IKleMTUIApbl o6loe-KTOB n ceKwna n.aanthiX.

np H M ep- Hn:.:eonucaHHblit KleMn11Mp EXPRESS-c..XCl>lbl HlllU<IH 'CONFIG\_CONTROl\_-DESJGN:·

f'lLE\_SCHEMA (('CONFIG\_CONTROL\_DESIGN'));

C.lle.!I)'IOU-'Hil 3K3CM IUU1p llCOO."'IU)'C·'l' IUteHTHlll l<tlTOpOUIU:'hlSEICMOI'O llpe.!I)Aent (<tm:sKqea.oro o61.c t.o. a)' Alff0-

M0TJVE\_0£S QN• n.s.t, YJ'II:lo!l.HIIst KOH KJ>eTHOi'i t CpcHH EXPRESS-c:'CeMbt:

FILE\_SCHEMA (('AL'TOMOTIVE\_DESIGN {t 0 10303 214 II I )'));

8.2.4 06'be- KT file \_ p opu l a t ion

06W KT' file\_popolatkln 1a.naer 1-1a6op (KO.tt!leKJUtiO) 9K3e1tmnsrpon o61.eKTOB n ctpy'Kl)'Jle- o6.\tena c u.e.rlblO onpe.o.e.ne1-m11 •ax cxeMantt.tecKoro cOOToe>rcnuut· KOI-fKpernoA EXXPR ESS-cxe.Me..Um-tHaJI KOJ11eK­ IUHIAOJI::t..'l-ta 6wTt.Ja,!ltu-ra nocpeJtCTDOMa.rrropttTMa,onpell,e.rJel-moro aTptt6yroM detemlination\_method M1l

1-1a6opa ceKIJ.ltfi ..a.amll>IX, YJ{a33HJILIX arpn6yroM go·erned\_sectlons. Ec..-111 n no:..t arpn6yre t--te yKa:tauo KOHKpencoe lt--JaqeuJte, .nam1Ltlt anro)niTM Jl.O;r1)KeH 6bm . tCnO..IJLlOBal-1 .0,1ll ocex ceKUtiil Aat-tl-lbiX n CTp)'X· rype o6Mel-ta.

Crpyl<Typa o6Me.JI3 MO»::eT CO!I,e.p>K3Th IJOJIJ,, O)llfl-l tJl f UOCKO.TibKO :n"..le.M0,1$1J)08 file\_popul ation. J.iM11

ceK11.1m AaHHbfX MO)I{eT 6b1Th YKa3.1.1-I O o arp•16yre govemed\_sectloou. ynenoro, *o;moro* lLlnt 1-IOCKOJibKJtX

'lJCeM0.1Jtpou tue\_populadon.

fl pUMC'III H H

I B F.2 :tM.a-Hbt -rpH ltOOMo»:u.bfx MeTo,tla oupe.Aent-HHSI' .n,aHHOro o6'LCICr<L

2 Ec.1u u trrpH6yre go•c,med\_scctk•Ds He ltl.!W:HO KOI-tKpeTHOC J-Wt'leHue,ero KOAU PYIOT*.1HaKo.v iku11opa*(.. S") a

COOTtleTCTIIIllt C· 10.2.2. a ne IJ lUI.lLC n yct·nm C niiCKa.

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EX !)B ESS.sneu ucfm¥a"ua

')

ENTI TY file\_populmion;

gO'\erning\_schema : schema\_name;

deremtni ation\_method:excharlge.\_s.trucrure\_identifier;

go\'erned \_sections : OPTIONAL SET II: ?I OF secrion\_name

END\_ENTITY;

TYPE section\_naJne = exchange\_.SU'UC-I'ure\_identi fier;

END\_TYPE;

('

On1tcau ne arnl t6yrm:

go•femlng\_schema: IU.tJI BXI)RESS cxe?t.n, UCR0..1b3yeMon ,lLJUIC-OBOKYOli OC1lt :>K3eMfUUIJ>08 of5'h.. eKTOo:.Ja,.!UUIHLfX 0 3arOJJODCNHOA CC'.KUUIo6bei<T3 file\_populatlon. ll,an1-100 HMSI MO eT 6hfTh Pll3Me-W,eHO B.3aro.nOOOtl1-fOi1 teKlUfHl 06'LeKTa file\_schema:

determlnatioo\_method: - crpmca rpac H'leCKtt.x CJtM00...1on, npltMer:cJ:Ie.MaJI,WUIonpeAe.rtemur anrop1rr·

).ta,)I C00..1b3)'eMOrO Dpll RLI6op e ))':leMOA$11)08 061.ekT08 Jl!UIo6Meua;

govemed\_sections: - 11Mel't3 CeKtUd1.ll<l -IHLIX. l'tCOOJlb30Bil1Uible 6 K3'-leCTIJe ltCXOJJ.H blX Jl.1Hlll.IX AI'UI

BY6pcumoro Met'OA3 onpe..t .e.lleu JUl.llatlJJ Oro o6u..",l'a.

8.2.5 06'b eK T sec Lion \_ l anguage

06'beKTSection\_la.nguage OOpeJleJJ$1eT no YMO.II''I<lHHIO S13bi.K omtcautt$1 ctpOKOULIX 3JI.1lJ ellHfi B C.eKL1,H f

..tUUH-I hlX.Arpu6yr dcfault\_language )lOJD(el-1 con.ep:«an 113UMeuooamte KOHKpeTtJoro Sl3wKa. HaJn.fe.nona­ une Sl3bJ Ka A.Ofi:»!:I-I O 6h1Tt. JaKOAJtpouauo B coorneTCTJUUt c 6t-t6:JHorpa<l))t'\Jec.KltM KOAOM Alpha-3, onpe,n;e­ ne-HlJ t.IM n H CO 639-2.

ATpu6yr section ;lOJl)l(ei-J CQ.Ilep::+.:an. ua.tt.MCHOnaJ-me oeKL1.1tll .o.auttbi.X o CTPY 'l)'pe o6>.teua, JIIISI KOTOpoJ1 no rM0fi'3Hift0 33,1:\al-1 COOTBeTC:l'BYIOlUI. tft SIJblK.Ecnu 8 CTJ)'}K1)'Jle 06Mel-!a CO,Aep;ttttTCSI eAJIHCT· OCIUI 3R ue OOUMeHOD:aJI HM CCKQ,I 11,llai-IJJLIX,TOrn,a 3JI3lJCfUie 3Tp!t6yr-J section HC OOpe.QeJUUOT (CM. 10. .2).

3aroJtOflOlfi-J311 CeKlJU,I I CTPYK'TYPW o6.\teua JlOJI;KH3 COJlep::+.:aTh no KpaitHC-A Mepe O)[IIH 3KleMO.rl$1p o6'beKT3

section\_Language c ueonpe.ae..-1eH JlbiM:ma•JeuueM atp1«6yra seclion. n p1t ueo6xot ,ttMOCTI13aJI,am-t bl o noM

'!)Kle.m;utpe no YMO.fJlJ uuno 11lbl k )IOJI;tteu 6bln. ncno..-1bJooa.n DJU1 ocex ceKtJ."A )l3.JUJ LIX o CTPYI't."Type o6Meua, o KOTOP >X 1-1e onpe,nenem.r u:::Je1ttn.R11PLIllPYntX o6bet-..'TOD seetlon\_language.

flp u Me p- OpHMepaMlt :u-m'feHuii :upu:6yra ck>fault\_lllngu oc Jl ll.1M.IOTCM:"cmd" -wur tLHrt.JIiIkKoro M3b1Ka, " frc• -AIUI < )p<'LUU)'lCKOm,'rus' -.IL1fl p)'CCKOI'O 11.111 ·ger• -)IJlfl HCMCLI.KOI'O.

EXPRESScnemrd?t Ko1unSJ

')

ENTITY sectjon\_fa.nguage;

section :OPTlONAL secti on\_name-;

defhult\_language : language\_name;

UN IQU E

U R I :section;

END\_ENTITY;

TYPE 1anguage\_name = exchange\_strucrure\_identitier;

END\_TYI'E;

('

On1tcaune arn& t6vroB:

section:- 1-tMa ceKJ.UHt ,llauHbiX,Jl..1JJ KoropoJl npuMeHSJIOT st3wK, 33,1:\ai-JHblA no yMMllatuuo arptt6y-

TOM deraull\_language;

default\_laoguage: - uanMenooamte R3b!Ka.JtCOOJlbJyeMoro tJ..ISl J C1'poKonwx 31-ta JeJ-udt.

8.2.6 06beK T se. ct ion \_ con t ex t

06'beKT secfion\_context 33LJa, eTltn$QpM3Uit10,OOitCbTDaJOI.llYIO KOUTeKCTbl ltCnOJJblOt:JalntSI 3K3C-M·

flJUipoD,33KOJUtp0Billlllt:.IX D CTpyKType o6r.teua.

ATplt6yr sootion A0..1:>Kelt CQAep:.t.:aThIO.UIceKL1,1ilf .!1.1< HHLIX 0 crpyKrype 06\tCHa,JL1SI KOTOpolt ltCOOJTt.

3YI01' XOIIJCpenlblelt.!lCHTI-I Hn::aropbl KOifTeKCTOD. Ec..-1H B CTpyt.."Type o6t.teua CO,!I,ep:«:I1TCA eAHIICTBeiii-HUI

1-«e nouMeJ-tooamtM t.eklUfSJ n.am-JLIX, TOr:!l3 Juaqemt e aTptt6yra section ue onpe.o,eJJJJ m (C-M. 10.2.2).

3aronoooluJaa ceKunu CTPYKTYP >o6MeHa ItOJI;ttlla cQ.!lep::oKaTt. no KpanHeA Mepe OAnn ::>KJ em u:1p o6'beKTa

section\_context c ueonpelle rreJmMM 3H3 leJ-uteM a'fp-tl6yra sec.tlon. Op1<1 uoo6XOJIHMOCT33A3HHwe o MOM

i S

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'!JK:leM0.1Ji pe lt.!leiiT11c1>mcaTOPI:J KOHTtKCTOD )lOJI::«Hbf 6b!Tt. H.COO.tlb30Dallhl )UUl BCeX ceKQitft )laHI-ll:.lX

crpyKType o6Meua,o KOTopwx ue onpe)lenemo:n:::let.tnn.RpLI .npymx o61.CKT08 section\_coute.xt.

EXPRESS.cneund?uKauuSJ

')

ENTITY seclion \_context

section : OPTIONAL section\_name;

C.OJlhX!t\_identiflers : LIST I I *:'!J* OF comen\_name;

UN IQUE

UR l :section;

END\_ENTITY;

TYP.E comext\_ narne = STRING; END\_TYPE;

('

Qmsca•'W m!Jfiyrpp-

section: - tiM$1 CeKU,Uif A3Hl-IWX,*n,..1SI* KOTOpoJl npHMeiLSUO'T KOifreKcn.z,33Jlai-1Ht.le aTpn6yrOM COD•

text\_ldentiners;

context\_identifiers:- UAel-tTucPJt KaTOpbl , COAep;t:.auote mutx>pMill.llt)() o KOnTeKcrax 3KJeuruupl on,

'laKQJI. tJ)ODaUIIhiX B CTp)'K1)1J)e o6MeHa.

np II Me'IllH 11 e- B np11Kilan.HOM npoTo,;OJ1e ).IOIYJ' 6bl'fl• :taAUmol CltMliOH., 'tecKIIe H,A<:-UTJU!tH.KIITUpbl A!l.lf

Ka;«.!l.OrO K:!9CCil COOTIM:TCTBIUI :noro ll poTtn.:OJJa. l'btHTlltllllt<9TOpt.t KOirrC.:KCTOIJ,A!UI oeKIUIII ) 101')T :J<mlllilll'rb KOHK'peT­

Hbli't Cmt<:OK K.1llCCOIJ COOT il!TCT SII.M npiiKn:tAHOfO npoTOKOJta, o6eCnC'It8UCMbl fi )l.aHHblM H tl3'roi'i ceKU.HU.

flp II Me p J -}].J.bi!K H II.QC:ffTtt4)1U<aTOp KOHTeKC'Itl laJI,aHbl )I,H.,

UOH.\.t C:.it Oit;!UmOI'i. Ct'KU,Hit ,.';'HIHbiX:

HEADER;

CTp)'K"I)'pbl o6MeHEI IJ CJI,MHCTilCHHOii HC:

FILE\_SCHEMA (('GEMETRY '));

SECTION\_ U\NG UAGE ($, 'cnd')t;;======> A SECTJON\_CONTEXT (S;tag\_a');- > B ENDSEC;

DATA:

ENDSEC;

A: Jl.I .R Ct'KlliHt Jl3HH.hlX IU..6JXIH llHI'nUiicKJIIi H3t.IK,J<LKOJl)lpoSIIHHbfi't K.!IK · ng.·

B: ,.'1./LM t."eKlllllt )LIIHH.WX ab16pC'IH nputtlaK ( n:r) KOHTC:KCTtl •wg\_ a·

fl ptI.lot e p 2- .A3b1K H lt..'J.C:·IITtt tllHKirrop KOHTeKCTa :JWlttHbl lf..1.11 CTpyKTypbl o6.\.tCHU ll HC:C.K01. bKHX CC!K U,IIJ:IX

!UlHHbiX:

HEADER;

FILE\_SCHEMA (('GEMETRY')):

SECTION \_U\NG UAGE ('OSI \ ·ger); > A SECTION\_ U\NGUAGE ('DS2', 'epo'); > B SECTION\_U\NGUAGE ($, 'haw'): > C

SECTION\_CONTEXT ('DSI·, ('ta!La', 'tng b')); ---> D

SECTION\_CONTEXT ('DS2·, ('tag\_c')): > E

SECTIOI'<\_CONTEXT (S. ('tog\_d')); > F

ENDSEC;

DATA ('DS I', (GEOMETRY'));

ENDSEC;

DATA ('DS2', (GEOMETRY'));

ENDSEC;

DATA ('DSl', (GEOMETR Y')):

ENDSEC;

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DATA ('OS4',('GEOMETRY')); ENOSEC;

A: )111M C<KU,IlUW\HHl>lX C UMCHCM '0$1' 8b16pflH HCMe-Ukllii M.JbiK,3llKO)lllpoBSHHbli1 K3K'ger .

B:)lllM CCK.tll l ) l<U-IH.hlX C IIMCNCM '0S2' Bb16paH fllbiK 3<:-IICJXU-11' ,3aKWI,IIpotta.l-llfhl fi K3K 'ep o'

C: Nlfl CCKUMii)la.HI-tblX *c* l1Mt::H.aMH '0$3' II '0$4' Bb10paH rasaHCKitH II:JblK,3<1KOAHpoB':IHHhti't Kat.: 'haw'.

0: n.. 11 CCKUJtH .11,3HH:b 't *C* IIMCHCM 'OSI"l hl6paHW II.!ICHTU ))UUITOphlKOHTCKC1"08' tag\_u' II 't!lg b'.

E: A/l.ll L"<:KU,IUI JUlHH:IotX C IIMCHC.M '0$2' aw6pau liACHTI·Him Kll·rop KOHTCK "f'a ' tag\_c'.

f: AJUI CCKU il ii A,aHHLIX C IIM CUaMH '0$3' '0$4' Ub16pG H HJlt"-IITII clll iKilTOp KOHTeKCTa ' tag\_d'.

•J ENO\_SCHEMA: ("

8.3 Ofn.eaw 3aroJ10IO'IIIOA ctKu;HHonpen.ueu11we nonblO•aTeMM

B 3aro.rtouolft-toA cet.:LUm MOI)'T 6Lm. noMetlel t-tbt 3JeJeMnJL PLI o6'be-KTOo 3aronooo'-moi'i ce.Klunt, onpe.aeneJtHLie n<>.r1L:lODaTeneM,c KOt-tKperuwMu orpatU«lJeuns.:MJt , nepett t tC.1. enn"WMU t t t:«e.

a) 3KJeMTLTJ$1pbl o6beKTOD 3aro.1080\fHOA teKUl ut, OnpeJteneunl.le· OOJrb30DaTeJJeM,AOJI.:.CI-ILI co6Jt10.

.!UlTb TOT )KC CUHT<lKC iC, "'TOIt DCC 3K3eMnJlSJpbl 06t.ek'TOD :JarOJtOOOilUOft ceKI.UHI , C ,.(I,OOO IIUtTenbULIM TJ)e6ooamteM, liTO nepobln cm.tOOJJ KJtJOqenoro cnooa .aM:.<eH 6b!Tb *80CI(:.•rtu amt'AbllbW 'JuaxoM* .. !...

b) Arp•t6yrt:.t oth.ek'TOD 3ilf'O.r10DOlii!Ort ceJCwm, onpeaeneu•tue nont.30naTe.neMn, .o.TJ::.t.:ut:.t tt>.teTt.nmw

!lilHIIbtX u:. R3btKa EXJ)R ESS u oro6prut.:aTbCJJ o 3aro.TJonotmon ceKutm,..:aK onpen.eJJeHo n pa3J],e.rte 10.

Op u Mep

HEADER;

FILE\_SCHEMA (('GEOMETRY'));

!A\_SPECAI L\_ENT!TY ('ABC' 123); -> OOPF.AEJIEHHbiA 00Jlb301lATEJIEM ObbEKT

ENDSEC:

9 CeKUHH AaJJRloiX

CeKumal amrLIX co)leJ))KltT :>K3eMn.nsrpbt,nepe..a.anae-MLJe. ttepe3 CTJ>)'KTYPY o6Mena. B Ka:t:Jiolt CTJ>YK rype o6r. eua.llOJn+:ua 6wrb npeACTi.lMeua no K')>aih-te.it. Mepe O. lJta CCKUHJIJI;IHHLIX.Ka:.<,a,a11 ce-Kunu ,nauJt t.tX COJle.p)KJtT' 3JOeMn rmpw -ofit.eKTon,coornercrnytOume oauof\ BXPRESScxeMe.onpe)lene.mton D laro.rto-..

ootmon cetauu.

Cm-rraKCJtc ceKttmin,atunt.x 3an.au 8 Ta6mure 3. Ka:t:.nau ceK:UJtft n.atnrLIX rtOJl:.t.:ua uatutuaTbCR c

K.110tlenoro CJiooa •DATA.o. EcJltt B CTPYKTYPY o6Met-ta BKJUOlfeHo uecKO..lLKO ceKLUtfi Jlat-IHt.tx,8 ..:a)l{.!lort

t tJ mt x :sa K1liO\tenhiM c.1onot •DATA• JlOJJ:.<eH 6t.STL npencran.neu PARAMETER\_LIST.cQllep:.t.:auudt

napaMeTp CTpoKU (STR NG) liDII COJlCKa (LlST).

flepBt.IM napru.teTf)OM .llOJt'..t.:Ha 6b1TL crpor<a (STRI NG), C.O)lep:.<alll.aSJ tHJUtD•IA)'<lr1bHOO liMU ceK U Uf.

Bropl.IM napaMCTJ>OM AOJf:.<e•t 6hfTL CRitCOK (LIST),CO)lep:.t.:am.ttfi OJlltYCTpOKY (STRING).llaHH3SI CTpOKa

.llO!I:.O:Ia CO)le.p:.<aTt. ll.MU CXe,),f bl,ynpaM1110lUeA 3ao,auuof\ ceKUtteA A<liiUhiX. HMJIJI.aiii-IOti CXCMbl )lQ..-1:.0:110

DXOA)ITlo D 3arostOOO\f iYI!O CeKl( UO o6beKTa file\_schema.

EC.T!Jf CTpyiCl)'pa 06Mena CQAep:.t.:lfT TOJibKO O,!JI IY CeKUlUO .a;liUi biX, TOTA<l COitCOk napaMeTpoD (I'A· RAMElER\_LIST) MOXeT 6t.m. onyu eu. B 3TOM CJJ)'ltae n 3.1.ro.rtonotntoA ceKU.Hto6t.etcra mescbetna AM:t:l-l a 6blT1.onpe..a.e..1. etta TOJibKO OJU-13 CXCM<l,YOJXlMJIJOIU,3$1 3M311110A CCKLUteA A311Ht.IX.

Ka:4<.!1,au ceKnuu AatmbtX )lOJI::«.Ila 3aKat tt t«8aTLCU cneutiarJL.non .1eKceMo'"ENDSEC"'.

np u Me'' a H 11 e- B upuno»:CHIUI H l l peJI.CTaWI<:·H I I WI Hhl fi nptt.\lep ceKUIUI M I I HLIX u c ll')'K1-ype o6Memt.

9.l 9K3tJotRJUipW IITOB CU:UHH JUUIII:WX

Ka-:«n.MA 3K3eMMQP o6t.etcra J(omc:eu oro6pa;«aTbCR Ha t.:ouCTpyxu.•tiO ENTITY\_I NSTANCE (eM.

T36JUttzy 3) 0 ce.KIJ,mi )lilllllblN, K3K onpeJleJJeuo B l0.2. K<U.O:bln 310eMil!Upi

ofu.eKTa AO DKell 6b1Tb

npeACTaD.r1en 0 CCKUlnt ,n;tl-11-lbiX lte 6onee ontJOro pa3a;pa3.1TM i 3101UJteCSI 9K3eM£L->1 lpb1 o6bet..'TOD AOJUKHbl

IO.feTb pil3JIII\fUble O.tl!-113.3ie!eMn,1>lphl o6t.e..\_"T''fi 8 CTpytcrype o6Meua ue H iliOTC11 0 )'l10J)11.0.0ilCHitlt.

Cc bt lJ.Ka ua IIMU:n.'.3eM n1>lpa O&beKTa MO\*eTOOSI lJUITbC·AJlOTOro,K3KOI-I06y,t.eTonpeaene•to ENTJTY \_IN·

STANCE n crpyKl)'pe o<;Meua.

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9.2 3Kle"\tW19pW 00i.e:IC1'08 CCKlUU JUHHWX,OOpeAeJlJICMLIC OO.I[Ji.lOUTeJICM

3.::JeMn..u•p o6beKTa, onpen.wuteMt.ri1 nOJJhlOoare.,.eM, 11e DXO..!UfT o EXPRESS-c.\:eMy, onpen.e.rtel l t)'lO

0 33f'O!IOOOI.fUOft ceKU)tll.3 K3eMI'LTJ$1pbl o61.e.KTa,OOpe.,a,e!UieMLie OOJib300areJJeM,AM:t<llbl C()('YI'DI!TC"rnOOaTb ctn-JTaKcttcy ocex :>Kle)tnJu:rpon ofrbe..".T''a 'lron ceKU.HJt ;tallltMX, uc.K.tno4asr ot.16op USER\_DE­ FI NED\_KEYWOR D, KoOTOpLirt AO..UCeH fi Tb ltcno.rrlllOnaH o SIMPLE\_RECORD, BXOMUI.eM n A3JUCoe omtca1me. Ctt.twCJioooe CQ.Ilep:Kamt e JK3eMJ'LfUipoD o6'beKTOB, onpeAeJUieMLIX nnr1LJooareneM,u-x KOJUflfe.­

CTBO, Tiffibl A<lllll bi X tl co,aep:«3H'Ife COOTDeTCTDyK>lUHX aTplt6yroo $1M$110TC9 npe.a,.'leTO:\t COrJJilWeHttSJ MeJt:,lly

cropoua.Mu, tcnoJJ.b:r)'!Olll•tMn 33Jl3HHYK> CTPY'KTYPY o6r. e11a.

fl pltMCp

DATA;

# I ,;, pT (1.0, 2.0, 3.0): - -- > O&YCJlOBIIEHHbiA 3K3EMnJIP ODhEKTA

•2 • pT (1.0, 2.0, S.>Ol:

P J 2!M· YCURVE (0.0, 0.0, 0.0, 1.0, $,$, $): ->3K3EMnJIP ODhEKTA, OnPEJlEJIEHHblnOJib-

30JlATEllEM

ENOSEC:

flp II*Me* 'lU HH C -ll.O UC00.1b30WUIIUICHH1'3JI:Cltca, Onpe,!I,C.! CHHOI'O OO.lt b301m1JICM U COOTI lliMU *C* HUt.."TO­ JIUliiM pa:w.enot.t, cnc.n\_ve-r on ucan.EXPR ESS-cxeM)'. onpe.iel\_ .ruuOut)I'O UH Mau,u10. 3a!J;utaeMytO no.1tol0113Te1eM, H Ct' KOJI.)tpOmliUfC IJ OTJtC."'bHOi\ CXKll,lllt MHHhtX.

10 Orolipa.JKeJJHe H3 EXPRESS a CTpYKTJ'PY oliMeHa

Ll<Uutblil "J>33ACJI OmtCbtDaeT,K3.KHM o6pa30M )K3eMOJUipl>l TltnOO .a,aHUbiX, OOpe)leJiemU:JX 8 Sl3b!Ke.

EXPRESS,oT06pa:«:aJOTC11 n CTJ>YKTYPY o6Mewa.

li3LIK EXPRESS o>:.moqaer B ce6• o6'bOM<HIIB TYPE (mnoo), ENTITY (o6MKTOB) 11 CONSTANT

(KOliCTilll'r), CRCI.ll$maU,H t orp:muqemt A Jt Ofn!C3HIUI a..-1ropuTMOO. TO!IbKO lKle"-fn.IISipbl TUOOB)Iai.JilblX, onpe)lene-1-u-JLie KaK THRDT .n.a•n-tLIX EXPRESS c noMOU{LJO o6·M1a1emt n TYPE •• ENTI-TY, oro6pa:t(aJOTCR o CTPYJ-'.T)'P)' o6MeJ-ta. !lpynte :l!!eMeHn.t $1:lt.rKa o ClPYt-'TYPY o6Mena ue oro6pa.<aiOTCA (ct. rnfuntJ.Q'5).

Ta *G n* ti ua 5 - KpaTKasJ cnpaooln t;UI Tafult tU.il oro6pa)l(emt A

|  |  |
| --- | --- |
| 3neMeof1' EXPRESS | OT06p;\_t:.;\_aercJI n: |
| ARRAY BAG BOOLEAN  'BINAR Y  CONSTANT  DERI VED A"liTRillt-'TE  ENTI TY  ENTITY AS ATrRIBUTE ENUMERATION FUNCTION  INTEGER INVERSE LIST  LOGICAL NUMBER PROCEDURE REAL | cmtooK (lisl)  cmtc.oK ( ist)  6y; eBCl..J'10 nepeMet tf.t)'10 (boolean) ABOJI'IUOe ( binary)  HE OT061'A)I(AETCll  HE 0T061'A)I(AETCJI  .'lK3eMM11J) o6'hetcril  H"MJI :lKleMn.Tl11pil o6t.eKTa  nepe'-lttCJie.t t tte (e-nume.ration)  HE OT061'A)I(AETCil  u.enoe (i meger)  HE OT06PA)I(AETCll  CRIIOOK (lisl)  nepe'-lttcneHJte (e.nume-ration)  oeutecroeuuoe (re--al)  HE OTOEPA)I(AETCil  oemecnse1moe (real) |

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*OJWuiiOJiue ma6llllt(bl 5*

|  |  |
| --- | --- |
| 3neMeorr EXPRESS | 0To6palKaeTCJI a: |
| R EMARKS R U LE SCHEMA SELECT SET STRING TYPE  U NIQUE R ULE WHER E RULES | H E OT061'AlKAETCll H E 0T061'AlKAETCll H E OT061'AlKAETCll CM. 10.1.8  cmtc.oK (list) crpo.:y (stri ng) C M. 10.1.6  H E OT061'AlKAETCll  H E OT061'AlKAETCll |

10.1 Oro6paxe1uee nmoa .n.au u:w..-x EXPRESS

.!la1-mwn no.np<t'lJI.e.rt onpen.ens.er npeoG·paJOoanHe 1.3 3JJeMeHTOD EXPRESS, 11MSI IOUlltXCR nmar.m

Jl1<1111b1X, o CTPYKTYP' lo6Meua.

10.1.1 0To6pa::.::etut e npocTNX T11non JlaHHbiX EX PR ESS JO.l .l .l Tun J&aiH-IbiX integer (u.e.;me)

3Jm4eJH«RJJ.31111biX o EXPRESS Tnna INTEGER oro6pa-\*a10TC11 B CTPYKTYPY o6.\h·••a KaK u;eJJO lttc­

nei-III- Lifi Titn D,aHll Xl .CoCTaD U:eJ10liHcneUHOf O T1tna )laiHILIX OOHCtlH 0 6.3.l.

10.1.1:2 TJtn ,mlllllbiX string (crpoKon o it)

3ualJ enltR .n.an na:.1x n EXPRESS nma STR]NG OTo6pm«aJOTCSJ n CfPY..'.TYPY o6r.t eHil KaK CTpOKOO blit

nm A3HI-tbiX. Cocmn c:rpoKoooro Tltna AanHwx omtcal-t B 6.3.3.

10.1.1.3 l·•m Aa•t n bt:X boolean (fiy.TJe.ncKJtit)

Jua\remu1 Jl.UutbiX. o EXPR ESS nma BOOLEA N OT06pa:f<aiOTCSJ o CTJ)YK'TYPY o6Meua KaK A3.HIIbte nepelfttCJJSJeMoro nma. Cocnn AaHnwx nepelf t tc..S.J-leMoro nma omtca•t o 6.3.5. EXPRESS ;a,aHHble nma BOOLEAN AO!I::ttm.a 6LITb o6pa6onmoKa K npe,n,onpe}leneult wn ne.pelfuCr1Si eM w A THR ..n.a t-tf-tbiX co 31-f3lle· utteM, KO)l;ttponamtb!M rpactmlfeCKH:M ctoHIOJIOM "T" Jt.1Jt ..F".3m 31-ta•tem m coorneTCTB)'IOTtrue (ttCTtma)

1-1 false (JIO:t:L).

10.1.1.4 Tun )lan Ht.tXlogical (.tJOntltecKuA)

3ualteu tul aa nubt X: o EXPRESS Tttna LOG ICAL oro6pa:»:aJOTCR n CTJ>YKTYPY o6Me1-1a KaK aam-t hte nepelf ttCr1SteMoro nma. B 6.3.5 on:uc.an cocran ne.pelluc1... Jlemro nma aaH nbt:X. EXPR ESS )Iat-ttude Tuna LOG ICAL .a.o.rnKH bl 6t.m. o6pa6oTilHbt tGaK npe!l,onpe)lenemt biA nepetlHCJTSJeMbd-1 TlfR n.amt biX co 3Ualte·

1-ltteM,KOJUlPOOflHl-ILIM rpacl t flfC·C.KitMH C1fMDOJI3MI1 ..T",..F'' U.1.H ..U". 3nt 3Hfll.JeJUUI COOToeTCTB)'lOT U'lte

(ucnma), fa se (no o) ,. unknown (1-tet3oecruo).

10.1.1.5 THn )lat-u n.ax real (nemecmemt bi'A)

3ualtetHtR )l3H1-I blX: D EXPRE-SS nma REAL ,Jlon::tmbl 6wnoro6p:.t:«et-t t.t D CTP'KTYPY o6MeHa KaK

oeUlecrnemtLin ntn n.aH HLIX. B 6.3.2 omtcauo c.oaep::«atme oew.ecToe.mtoro nma JlaWU,ax.

npIt Me p- Onpenc.1eHUt - o6t.eKTa IJ WJhi Ke EXPRESS:

ENTITY widget:

il : I NTEUER; - - > A i2 : I NTEGER: ---> B s l : STR ING {l); ---> C

s2 : STRING; ---> D

I : LOGICAL: ---> E b : BOOLEAN; ---> F rl : REAL (4); ---> G r2 : REAL; ---> H

END\_ENTI1Y:

06plr.leU, 310CMIVUtp.:1 o6l>C:II:Ta B CCKU.HH .liJlHHbiX:

1 1

A 11

*R2* WIDGET (99, 99999, 'ABC', 'ABCDEFG', .T., .F., 9.. 1.2345);

A

A B c D E F G H

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A: S rOM ni:lCMitJIMpt- 06bi!ICI'l'l lnpu6yr iIIUICCT JHa0tCUHC: 99.

B: u 3TOM 3IC1C'-Ut11RJPC o61>e.K111 a:rpu6}'T i2 HMCCT :ma•1c:.mte 99999.

C: 1J 3TOM '\*K:JC).II L'l$1pc. o6bC KTa i1Tpu 6yr s J ltMCeT mll'tC HII e 'ABC'.:':}ro 3HilI' C HUC ll OO WJ,SC:'r 1J )llllliiii:IOH (lplt

C I UI BOJJa), Ollpt:JJ,CJIC.HHLII'i .U.."'fl JUI.HHOro aTpu6ym.

0: 1J 3TOM 3KJCMI.I1fl pe o6 oeKra :rrpu6yr s2 UMCCT Hiil'feHuc:. 'ABCDEFG'.

E: u 'lTOM 3K3eMttJ .Mpe o6beKI' 'S a tpu6YT l uMeCT ntaqcuue TR UE (Hi.'11' 1Ha).

F': n 31'0M 3K:temvucpc. o6beKnt t TpH6)•r b *H.)..ICCT* :SHa••euue FALSE (JtOll:h).

G: s 3TOM :JKXMruut pc- o6"bC-Klll mpu6yr rl lt.MeCT :ma1.1eHue 9. Tpe6oaau uc TOIHOCTU He ll.1JUtcr Ha KOA,upo­

aaHMe.

H: n nrut :JKJ.emL1.11p: o6bCt..'TU rrp.u6yr r2 IIM('('T ltut •teHue 1.234S.

10.1.1.6 Tttn aal-lnbl-x binary (Aoon•uu.tn)

Jua•reu1U1 Jl.3HIIYX n EXPRESS ABOU\fHOro nma oro6pa.:«lil OT n CTPYKTYPY o6MeHa KaK JlilOU iHLift n m Aili-CI-tblx. Onucanue. AOOifliHOro nma ;l31-llf bXi - no 6.3.6.

npH·Me p- Onpe-n:e."!C:HIIC: o6b('KTBIJ fl:lbiKC: EXPRESS:

ENT11Y picwre-:

bn: BINARY:

END\_ENTITY:

06p<UeU, :.liCJC:MitJUiptl ofu.eKTa U CeKttHH ,il,aHUbiX:

•4 • PICTU R E ("15S6Fil0"):

*1\*

A

A:8:nu.)l3K:teMn1Ui pt:bnlllKOJI,IIpoaaH K.<\K -I S56fB(Y'.•ITO COOTMI :TClBYl"TUOC.1e;J,Oii3TC:.f .bUOClli6JrfOS 101 0101

0110 I I II 1011 0000.

10.1.1.7 Twn.n;H-If.lbiX numbe1·( mC!looon)

3ua\reHH11 Jl.31-1Hb1X. o EXPR ESS T1ma NU l\•IB ER AOJJ.:«HLI 6t.1Tb oro6paxe1u.a o crpy..",l)'py o6Mena

Kat.: OeUI,ecTOOIIJi hiA Tlffl Aalll-tM X. (J>opMupoDal-U1e Delll,eCTDeHHOffi THna .ll31lHbiX - 00 6.3.2.

10.1.2 TJt n ;lal-11-thiX l i s t (cnJt COK)

3ua\reHH11 A3HI b1X n EXPRESS T1t na LfSToro6pa aJOT nCTPYKTYPY o6Metla KaK Al!HHbl eCnHc.Konoro

THRa. 8 palO,ene 7 OITI-IC-au COCT"clD A'ttiiHbtX COUCKOBOrO Tttna.Ec..- 11 C.nltCOK nyCTOi1,TO 01-1 .llOJr:Ke-1-1 6b1Tb

JaKQ.!IJfpoDaJI Kak *Jtf?tWR CKo6K.a* "("',Ja KOTOpoi1: Cl)iU)' C.1r e)l.yeT' *npaaan CK.ofHUl* ••) ".Buyrpu CnttCKa Kax,!ll.lfi

310eMI11Uip Tlffiil 3JteMei-LTa JJ,0..1-:.t.:etl6htlbl lKOAI-ti)OBaH,KaK 1"J)e6yercu (COrJLllCI-10 palO,eny 10) *fl.r1SI* K<UI{llOfO

nrna Jl.ll-1-IHbiiX B EXPR ESS.

flp ll ),1*e*'Ia H ll*e-* ECJut 1J KOHKpeTHO l :)IOtMfL!IJtpe o6bt"-KTa OTC)' 'ClByeT Hil I C:HilC )Ulfl Heo6fl3aTe.1hHOl'O (OPTIONAL) aTpu Drra, •teA TIU1 ; ,<1UHbi X- LIST, atpufi)'T A0.1"'eu 6wTb 3aKOJlllpollaH *:maKtMI do.uapa* "$", Kii.K onpent.C,HO IJ 10.2.2. U 3'1'() He nyCTofl CUHCQK.

npItMe p- OnpeJIC.1CHJle o6beKTll u fl:lhiKC: EXPRESS:

ENTITY wi-dget;

au r;bu te.l :LIST (0:?J OF INTEGER; > A attribute2 : LIST II : ?) OF INTEGER: > B a!lribu <c.l :OPTIONAL LIST II : ?] OF I NTEGER;---> C attribute4 : R.EAL; > D

END\_ENTITY:

06plY.Ieu\_':liUC: nt.II Jtpcl o6beKTa U cet.:ttHH .113. HUbiX:

•4 = WIDGET (0, (I, 2, 4), S, *2.56):*

I I II

A B C D

A: attribute I Jta'JteTC)l nyt.b,i'M CllllC-KOM (c tutcoK, conep...:amuli H)'Ji b :1./lt.\tc:wrou).

9: 8 :JIO' M 31CJC:MI1JUI)pC attribute 2 C-O)J.Cp)t(JIT TJ)H 3.'1CM.C tn'l:l.

C: u noM 3KX·MHJiflpe attribule .l He uMc-eT 31-tllo.tetutM.

(): 1J :n ot.:lK) UL1fl pe itUribule 4 HMCC:T lH il CIHiC 2.56.

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10.1.3 T•t n A an HbiX array (Macc a n)

3ua\tel-ltUJI (aHilbt X o Sf3h1Ke EXPR ESS Ttma ARRAY )lO!I::talbl 61.1n.oro6pa:.Kel-t bl n crpyKTypy o6Meua

K.aK )la m :.e cnucKoooro runa.Palll.e.r 7 om-tcbloaer c.ocran JlaHilbiX cmtC.Koaoro nma. fCJJu aTptt6yr o

JllWKe EXPRESS RMRercn MHOror.t ept-cbtM >.taCCJtOOM,onJIM)f(el-t 6hi'Tb 33KOJUtponau KilK cn tcoK cn•tcKon, MO-\*etm brll ua r.rry6t«t-t)'', panuy.o palMe.puocnt Macc•toa. B co3.Qamut TaKitX c.mtcKoo caMl>ti1 ouyrpeuttu1t cnHCOK,con.ep:«am•th TO!IbKO 3K3er.tnnapbt rnna :meMettTa,.a,o.rr)f(eH cooToercroooan.caMOMY npanoMy t43

onpe.-1eneHft A ARRAY n oneparope SJ:JhfKa EXPRESS.onpeJtemuolU,eM o6UKT. Yno(m..II.Ol!euue sneMeuroo np11 KO}luponawuiOC)'llJ.eCTD.r1.ReTCSJ taK, 'ITO ..!UlR Ka:«noro 'leMeHra cne 'lOLu.ero DHewJ-tero cmtc-Ka KOAf tpyiOTCSI )JieMeJmJ. DHyTpeiiUerO cmtCKa. lJ.ilJUtblll OOPMOK 03uaJaeT, qTo 8 K.1.)KJI.O>.t CmtCKe C3MLifi npant.JA Uf.Jn,eKc GyAer .r JMeusm,c.g ne.pn :. M. BI-I YJ'P)t cnuc.:a Kablll 9KJeMn;np Tuna 3JieMeJ..JTil AOJ1Jt::eu

6bJTt. :'k1.KOAuponau, KaK TJ)e6yercn (oor.1acuo pa.JJl,eJry lO) Jl!UIKa:4Ul,oro nma JUHfllbCX n EXPRESS. Ecn1t

T rn A3Hi biX MaCCHBi.l J4).(eeT ueo6SJ3a:re.Jibf.lble (OPTIONAL) 3.11e-MeUTLI• .:.t06ort 3.1eMeHT,JVUI KOTOporo

OTCYfCTO)'eT 3H3\Ie.Jme,.Q,0.,.1eli 6bJTh 3akOAUJ)OBaH *31t0X()M IJavttlpO* ''$".

flpItM C'la HUe- Ec.tlll ll KOHKpeTH0.\.1 310CMf\JUlpe• o6bc:KTlt OI' 'CYfCTil)'e'l' 3Hil'IC-HJte lL111 HCo6113<rre.1hHOl'O

(OPTIONAL) atp1f6yra,nm SUlHHWX KOTOporo ARRAY. :JTOT aTplt6yr !l.OJ .»:.CH 6t.ITt. lllKQJ upoaaH *JNaKa.u ihuapo*

*{'"'$"),* K:lK OUptAeJICHQ ll J 0.2.2, II 31'0 Ht 11)'(..'1'0fi CnllCC)t>.

0pHMe p I -Onpe-neJJeHue o6bc:Krn u EXPRESS:

X : ARRAY 11:51 OF ARRAY 1100:102) *OF* I NTEGER;

3ro KO)UPI Yt'lCM 8 C-Jte.il)'tOUJ.CM llopS !nKC-:

((X II , 1001, X II , IIli i, X II , 1021 ), (X 12, 1001, X 12. 1011, X 1 2, 1021 ),

(X p. 1001, X 1 3, 1011, X p. 1021 ),

(X 14, 1001, X 1 4, 1011, X 14. 1021 ),

(X 15, 1001, X 15, 1011, X 1 5. 1021 ))

np 11 "'ep 2-Onpc:AeJlCHite OOt.et.'.Ta lll lI'l:.IKC EX PR ESS:

ENTITY widget;

au ribuoe l : ARRAY l-1: 31 OF INTEGER; > A

au r;buoe2 :ARRAY I I : 5) OF OPTIONAL INTEGER; > B

aur;buoe3:AR RAY I I: 2] OF ARRAY II: 31 OF INTEGER;--- > C ENO\_ ENTITY;

06pa.JC:U, K:JC::Mit!Ulp<:l o6'beKTa IJ CCt>ltHH AI'IHHhlX:

P30WI DGET ((1, 2.3, 4, 5).(1.2, 3, S, S), (( I , 2.3), (4, *5,* 6)));

A 0 c

I

1

A:ttttribut el COJlCP\*-ItT c.,CJI...VIOIU.IlC:· :maqcH I Ut:

auributcl 1-IJ "" 1

attribu teI 101 ... 2 attribute I Ill... l att ribu te! 1 21 a 4 attribu te.! 131 ... *5*

B :allri bu te2 coA.ep:.otT CJie.a.\_vJOuuJ. e :tua•teHmt:

attribu le-2111 .,. I

attribute1(2l •2 attri bUic2 131 • 3

attribu tc2 141 •mcyr<.'TB)'C"l'

attribu te-2 IS) .,. S

Opon)'CK HS'IC'HIUIn tttaccJunpeA)'C).tO'tpeH u onpen.e1eHitll EXPR ESS-cxt.\.tbl.

C : atl ributel con,ep:t :HT CJteAY.Ullttte 3H31' CHlUI:

attributd (I,I) - I au ribu te3J1.2l - 2 attribu te311,3J - 3

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auribu te.l 12,11 - 4 attribu te312,21 ""' *S* attribu tc:.3 12•.11 •6

10.1.4 THn A il n HhiX se t (ua6op)

3uallemut Aatnti.IX n SJ3LJKe EX PRESS nma SET n.o.ua-t ot 6wTt. oro6pa»::emoo crpyt.."l)'PY o6Mea-ta KaK tUlwH.re cmtcKonoro nma. Pa en 7 omtcblnaer COCTaB A3111lhiX cmtcKoooro ntna. Bl.yrpu cmtcKa Ka:4(Jtbt i1 ::lK3e UIJUI)> nm:a 3JJCMeHTa .0.0.1XCU 6LIT!.• Jil KOAitPODall, KilK 1"J)efiyeTCSI (cormlCI-10 pa3)leny 1 0) JlfUI Ka oro Tuna AaHHblX B EXPRESS. Ec.111SET nycroA,cmtooKl O!IJt::eH KOAttponaTt.eSJ KilK *,1eea11 CKoliKa*

'T'. Ja Koropon- qXk3Y CJJe,nyer *npaoa» C.Ko6Ka* ")....

flp IIM*C* 'l*8* HHe-.Ec..tiU llKOHt.:pem0.\.1 •jiC'JCMfl.!Uipt' o6hCKT8 OI' 'CYJCTIJ)'e'f JH !i' CHHC lLUI HC(){)fl331'C'.1LUOrO

(OPTIONAL) <rrpH6yra, •tblll>l ntnoM JtliHUbiX 11'8JIJteTc,.SET,3TOT mpuOyYJJ.Wl»:tH 6ht1'b :taKonHpomur *lHmw.v ihMapa*

··S". K:IK OnpeLt1!'.1CHO B 10-2.2, H 3TO He nyt.,-ofi CHIICOK

np lt Me p- Onpe,!0!.,1CHHe o6t.e-KTa "fl:JLIKC E>..'PRES.S: ENT11Y widget:

a\_numlxr: SET OF INTEGER:

END\_ENTITY;

flpKMCp 9K:SC.\HI.'U1pa O&hC'Knl 8 <.KUIUI )UlHHLIX:

Pl • WIDGET ((0, L l)); --- > A *R3* • WIDGET ((0, $, 2));---> B *R4* •WIDGET ((0. 0. l)); ---> C

A: 8:n 011 :n:::tettUtllMpe aTpu6yr a\_ number onpCA.eJLeH Hft6opo11 'Hlt:CJI 0. I , 2.

B: c»HmKcuo.teCKH :,)KJCMitJLMp npa811J.eH.On.Ha.Ko :liK:SC.).HI.1stp HenpaaHJI CH m·uoc.un:JlbHO onpe e1. eHIUt SET 8

E-XPRESS, nocK0.1hKY S IT He MO.lKe-r UMeTb nponyw.euHhlX 3Jtc:MenToa.

C: cuHTaKCII<tectcu 3:KlCM11.1flP npaou.netL 0;J.naKo 9KleMIL11Jp HenpasmL eH ontotlfrcl- lbtto cm\_pe,a.e.1cHuM SET 8

E-XPRESS, no<:KCl.1hKy' S IT He MO.lKe-r UMeTb OAtlH3KOtthlX 31)CMCHTOIJ.

10.1.5 Tun Aau ltl>IX bag (Mynt.Ttt MJro:+: ecTno)

3uaqemuz .n.am-tLIX 8 K3LIKe EXPRESS THna BAO ,llOJI:«Ha:.t 6wn.aro6paxeuw o C'TJ)YKTYPY o6Met-t a K.aK Aill-nu.re cmtcKoooro nma. Pa3JJ,e.rr 7 om•cwoaer cocrao AamtYX cnuc.Koooro Tuna. Bt-tyrpir cmtcKa Ka:4<Abli1 lK3eMI'UUIP nm:a 3JieMeiJTa .0.0..1:+:et1 6L1Tb JaKOJUtpooau, KaK 1"J)e6yerc(comacuo pa3,.!leny 10)JlJISC Ka:4C!lOro Tlma n.aum:.x B EXPRESS. Ec.1• BAG nycroe.cmtcoK )lo.rr.«eu KOJll tpooan.cA KaK*,,eaa11 c o:oi5Ka*

"(,.., 3a KOTOpoti Cpa3y C1teJIYIOT *llpaflflfl CK-00KO* ..)".

fl p II MI ! Ia H IIe- ECJIII 1J KOIIKpC'I'HO),t ;)ICJI!MitJIMpt- o6'M:-KTR o·rc "!'cm)"C:T J.HII'iCHit e J.l!UlHCo611:taTC.1hHOro (OPTIONAL) aTpU6YJa.'l hltM TlUJOM·ARI-mblx natuleTC.:If BAG, aTpu6yr JlO!L::«eH 6h tb lEIKOll.Hpo JaH *3UOKOM ihu.rapa* "S", KaK onpel!e,.eHO n IOM2.2. u aTO ue ny<."Tofi cml OOK.

np II ,,e p- Onpe .,eHue o6toeKTa 8 fl3hiKC EXPR ESS:

ENTITY widget

a\_numb<r.< : BAG OF I NTEGER:

ENO\_ENTITY:



Rl• WIDGET ((0, I , I , 2)): --- > A

#3 • WIDGET ((0., 2)): > 0

A: B <TOM ::>tcJe uvuape rrpu6 'T a\_numbc:.rs onpcnt:.11eH ua6opoM <tHceJJ 0, I, I, 2.

B:CHHltlKC it'eC::Ku 3KX1tn.1111' npaaHJi eH. O.aHaKo 3K:lt.MtL<snp Henpo1m.1eH OTHOC·IIn:.tl hHO onpeAeJ CHitM BAG

ll EXPR ESS. noc::Koot.Ky BAG *He* MO.lKC'r uMen. nponyuJ.eHHhl.'( ')JteMemon.

J0.J.6 npoCTLie o npe)leJle JHible TJIO bl

npocron onpe;tenemu.rn nm sc-n.ruterc-sa THOOlt, onpette.rtsceMwM o6Mm.r1e1-meM EXPRESSnt na, o

KOTOJ>OM onopi-IWM TtlnOM ue JIOJlfCeTCjl ne.pe\II1CJI11eMwn nt n (ENUMERATION) ltJUf DLr6upaeMwA T m

(SE-LECT). Opoc;roA onpe.nene.tHl- Lii1 Tl-tn )lO!I:»:eu 6LITI.. OT06pa:»:eu B CTPYK'T")'PY o6:'1JeHa KaK TOT THO

.tl.aHI-lbiX, OTOpbi A UCfll)Jfb BilJICSI 8 ero onpe£teJieiUflt.

npItM ('p- OnpeJ!C.1CHIIe o6 >eKTa IJ J 3hiKC EXPRESS:

TYPE

typel ... INTEGER;

ENO\_TYPE;

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TYPE

type2 a LIST 11:.21 OF REAL; END\_TYPE;

ENTITY widget:

attribUie I:LOGICAL;---> A athibu tc 2 : TYP.El ; ---> B attribu te 3 :1YPE2; ---> C

END\_ENTITY;



*P4* • WIDGET (.T,. 256, (1.0, 0.0));

11 1

A 8 C

A: B 3TOM 310eMrutape:JHa'lems eM aTpu6)'Tll attribu te I IUIJlMCTCM TRUE (m.,.'M Hll).

B: Type I Ramu:n:.-K u.C:nt.IM llnio"t n, <:.rten,Oa:rrCJi bH6, 3HS••CnHc 256 ; .onS'CrUM6.

C:Trpc 2 JUl.llMeTCM cnuc-KoM H,CJi e,lloaa reJi bHO, cn uco.:. snn,ayx ac:tu,oc11k"IIHbl:< (REAL) allt:.).u:uTos n,onycnu.t.

10.1.7 T•t n .n a l-tt-cwx enume ra L i on (nep e\ltlC!Ieu•t e)

3ua•telltHI .a.atnrwx a st lt.IKe EX PRESS nma ENUMERATION .o.o.rnK tiM 6wT1.0T06pa.:Ketu.t o ClPYK·

T)'PY o6Met-la KaK nepe4•t CJl11tM btfi ntn ..a.am-t wx. B 6.3.5 omtcaHo co.n.e.p:.t.:amte nel)el-t ttCJiae.Moro Tuna

.!l,ilHilLIX.

ECJilf )lOK)')teHT,OnpeAe J.SIIOU{ trt KOI-t KpeTI-tYIO CXeMy, 'lKJe.!otrut11paM)t KOTOpoft 11DJI11eTCA npe.!lMeT

:nocceKUtt tf ,aan·t tblx,JaruuouuA ua6op coKpamet HW X HaHMettooaf.t tA ;vu1 nepequc.1.R eMbiX JJ-t.3 11enno

:noncxeMe, Tor.n.a cj)atctwteCKitM:matceJ..IHeM KOIIKpemoro n::'le mnapa nepetcuCJtei-IIUI(ENUMERATION) MO:.«eT 6t.aTb COKj)aUJ;et-moe ltattMeUOB<H-IHe, COOTBeTCTB'IOU(ee O,[ll-10,.1\_ )' 14'3 nepe'llfCJJeMbiX 3H3\Ietmft B Jl.al-lnotl EXPRESS-cxe,.-,e. B nponnn-1o:M CJJyo1. ae ¢aKTtit.tec.KJM 31-la•JeJ-meM n.run+.:uo 6YTt. o u-10lt:J ne.pe­ t.t tCJJ.eMLIX maqeunA 8 EXPRESScxeMe.B JIJ060M c.1. )1\fae *tmpO'Iittlle 6yK8bl* JlOJIXHLI 6wTbnpeo6)il:100."li-ILI

o *nponucmwe 6yKttbl,* a Jllal.JeiUt e orpamtqeuo OT)le.TJeunbiMI4 *mOIIK.OMU* "."',KaK To onpeD,e.neuo 8 Dbi BOAe

ENUMERATION n Ta6iiHQe 2.

np ll Me p- Oupe,tte.1CHUe o6t.eKTII IJ HJbiKC EXPRESS: TYPE

primary\_cool rur .. ENUMERATION OF (n-d, green.blue);

END TYf>E·

ENTITY widget

p\_c-Oiour : primary\_co our; ---> A

END\_ENTITY;

flp l1 Me p 3K:K'.\.HI.1s:lpa U&be.tmt tl ceKI.liHI li,OHHbiX:

Pl • WIDGET (.R£0.);

A

A: B 3TOM :}K:JeMnnRpe- ofu.eK1i! JH3"leuHeM s:rpu6yrn p\_col our SII !JUIC:TCSI RED.

10.1..8 B1o6 upaeM blti tun A 3UI-c w x

Bbl6upaeMwrt nm A3HliLIX n SL3b1Ke EXPRESS onpe,l:\eJL eT cnnc.onmon ,Jlam-lt.tx, uaJwnaet.u.dt

"CmtCOKw8bi60pa" ("seiCt•Jsi t"), 31-l il'CeUURMJI KOTOpOro RD.1JIIOTC$1 OJXlBlLflbl bfe OIOea.JO.TJSipbl )l3HHLIX Ohl614paeMoro Tuna.3K3eMn:Jp .a.amrbiX ow6J tpae:\tOro T tna )lOJnKeH 6wTb 31-la'lel-l t eM no Mem.weA Mepe OJ;lt-IOrOlt:l TlmOB .!131-11-l t.IX 0 COliCKe-BLifiOJXl:

- eC.TJif 31-laqeHHe $1.0..1JleTC·3K:Je:MO 'Il p0>.( T1tna )l.aHHbiX 06t.eKT3 0 C.nttCKe-Ot.J60pa,Ol.tOAO»; atO fibiTL OT06pa:.+.:eHO 8 ClPYKTYPY o6Mel-ta K<lK JIMSI :>KJe fTUUipa o6t.eKTa (CM. 6.3.4);

• eCJut 311a1tet me SIBJJ.nel'CSI :>KleMrLIJapoM npocroro onpe)leT.JS!eMoro T1ma n cmtcKeDbl6opa, o•1o

IJ.OJI)I(IOl 6b1Tt. oro6p.1.)f(e.uo o CTPYKTYPY o6t eua Ka.K TYPED\_PARAMETER (CM. ta6;muy 3), n KOTOpo.\t KEYWORD AOJJ::«I-10 o603J-Ial.Jan. npocroil onpeaen11eu.d1 nm, KaK onpeAeneJIO 1m:.<e, a PA RAJvtETER n.on:.«eJt 6b1Th KOft\_uponautteM iHNefutll npoc.roro onpene.nSieMoro nma, KaK onpe.a.e.-1e1t0 o I 0.1.6:

2.l

rocr r HCO I OJOJ-21- 2002

• CC.Q)l Hial.fe-1l11e SID!UUrrCSI ')JC:ler.tn;JSlpot nepe4HCJIS1CMOrO THOa )laf.JJ-ILIX 0 CITIICKe-BW6opa,OJ-10

.II.O!I:t::l-10 6b1TL o·ro6pa:.KeHo o CTPYK'l')'PY o6Meua Ka.K TYPEO\_PAR.i-\f\•IETER (eM.ra6:nuzy 3), B KOTOpoM KEYWORD AOJt uo o6oJuaqan. ne.pe:lntC 1.Re&.u o tt Tltn A<lH I I blX, teaK onpelJ.eJien:o mt-:«.e,a PARArvt ETER AG.n\*CI-1 6b1Th KOAtpl 003HUeM 3H34eH)ISI nepl!'fi,(C..1111CMOrO Tttn a A3 UibiX,KaK onpeAeJJe-1l0 8 l0.1.7;

• CCJUf :lU3lfei UfC· JIRJJ.SleTCM 31CleMOJIJipoM (BJJO:KeJlUOI"') Obi6HpaeMOfO Tl tn3 )l31illblX.OHO )lQ..-1\*110

61.1Tb OTo6pa:.KCI-10 0 CTPYJ<TYP)' 06 fCl-13 D lntJl.e 9K1eMflHrpa BLI61tpaeMOro Tlf03,KaK )'Kala.l-10 D .o,aJH-I OM

pa3;lene..

Jl;u, 31Clet.tn,1JJpoo npocnx onpe.!le:JSJe n. x nmon u nepet.JHCJ!Jh.M! t:.LX nmoa ;J.<ll-tl-lbiX K EYWORD

..a.on:ta-10 o6o3ua'-laTb nm..a.aunwx3K3e,.mnapa.06oJHat enn o lt nm)laUH>:X JI.0.1::«en 6Lmo.ru-mr.u3 nmoo B cmtcKeoLI6opa. EcJiitl n.oKyMei-IT, onpeJJ.emuou.udl c.xeMy, lK3eMMSipt.t xoropon n.n.snorcnpe!lMeTOM ceJ<l{tt t )laHt W:\:• Tae OOpe)leJUII?T l·ta60p COKpaUJ,eUt-tbiX HMel-1 OJ)OCTLlX OOpeAeJUieMblXIInepelltfCJUieMbiX Tttnon o ;taHt-toA" cxea.te, KEYWORD 1J.OJiji(HO 6LITL coKpaW.eHitbtM tuAeHeM, cooTneTCTBYJOLU.tfM nrny muu-tLtX 3JOeMn.1srpa. B nponmt-tOM c.rryqae. KEYWORD .O.OJJ:.+:no 6LIT'b ca.Mt tM m.-teueM npocroro onpeae· JJJ er. oro nma tun nepe-·4ucmt:eMoro Tttna Aamtwx. B o6ot4X CJJ)Ilfa$1X nee CTJX>lnlble 6'KDL.Ino.rrA<Bbl 6t.iTb npoo6pa30Bilt-ll.l B coor&eremYJOuute npomtCHLle 6yxnw, T.e. KO)lttponaune ue )lonx-uo COAe.p>Kan. CTP<>'·

1-U,JX 6yKB.

fl pH M. e' a H II fl

I Ec.1H IIM.eel'Cfl 1'111'1 A,.:'lJ-U-ILIX (8 CUHCKC·'-Bht6opa},lH tt..C:HlUIM II 3K3C'Mtl.t flpoU KOI' 'Oporo JI8.'1JieTC8 C:!tolUbl611 -

paeMI:dJ1 TUil )l.aHHhtX,TOm.a HllC'I'OMUU1i't O)'HKT J.l0.1.1:4r:C:H 6hlTb iiCIIOJlL:lOli3JIpcK)'pt:·IISHO JJJlfl KO;J.IlpoSaHIIJI :JHil'ieUitli.

PerulLHO MOI)'T 6hl1b' 3aKO)tllp<)tlaUbl TO.I' bKO TltObl.ttaH HblX ( bi:K1U, !'I)X)CThtC OII Pi:AC:JlMC:Mble 11Hibl II u epe•utC.f,lC:!.tblC:

TltJibt )l.aHHbtX (Cr.t. npllt. e-p 2).

2 8 coo-ruc.rernuH c :rOCT P HCO 10303-1 1 3K:ft.Mn'lflp nwuuna Tmal AaHHioiX o6l>t"KTa H.liJUieTC:-H 3KX).ULt RpoM

Tttua .tt:aHHbiX o61.c >.T.i. TaK. "3K:teMtLf,lP 1'11llll .n.auHwx o6beK1a n cnuc:.xe-nb16opa'' st.:.,IO'lacr a c:c611 :.JOCMri.!JRpbl

110Jl,1lttl0b C00T9e'f(."T8YIOIUJXI Tll.nOII)UIHHbtX 06'bc:.-.a.

3 fc.,H THIIIol ;J,aHUbiX o6'bCKTIJ IJ CIHICKe-lllottiop;l UC' JIB!I MK>TCSI IJ'JilKMOHCKJI IO'IIl.Otl.I.Hl.Ul. TOnta JH51' CHHC:

llot6111XlCMOI"O TIIII.R )Ull-tHbXl M Oll:eT 6bln. IIPilllUCilUO HCC-KUtl bKIIM nlll3.\l ,'lOHHhiX 06l.e1Cra 8 CnHC«e-I!Jol6opa (CJ.I.

npll.l..lep I).

4 ECJut ml•teuue ne H.WIRCT'C113K:teMtLII:Hpl).\.1 o6bC-KTa,TO OHO RWI:HCTC:-H 3KleMnllRpo.\.l upocroro onpe.acflC:.\.101'0

Tltna IUIH llC:pC'-iHC:JJSI C.\.lOf() THI13 )l.t!HIUoiX. 0AUilKO 31-lll'iC:HIIe MO:C:CT 6t>rrb 4JGKTU'iCCKII :JK )Hl1flpoM U C:C·KO."'W.:HX (wtO..CC:-HHblX) BhJ611pl!eMhiX 1'\tllOU .!J..(IHfUot.:< lt. CJI C:,.IlOOOTCJibHO, t!pllttHCLI Sa'l'bC:H HC:CKOJlbkiM 1'11UftM 8 HCXOJIH. OM COIIC:-KC:-1Jbl6opa (C..\.1. npup 2}.

np II M c: p I -Onpc;teJJC:H liC: o6'beKTR ll M3bl KC EXPR ESS:

ENT n'Leader SUBTYPE OF (Emplorce);

project: STRING; END\_ENTI1Y:

ENT n' Manager SU01YPE OF (Emploj<e);

unit: STRING; END\_ENTI1Y: ENTI1Y Em p oycx-

name:STRI NG;

END\_ENT11Y;

TYPE Supc:-rvisor •SELECT (Manager, leader);

END\_lYPE;

ENT n' Moetmg:

dale :STRING;

attendee-s: SET (2:?) OF Supervi:!ior;

END\_ENT11Y:



*R* I • LEADER ('J. Brahm·s , 'Academic Pc:sli vttl');

*P2* • .MANAGER (';S. Omwa', "Tok)'O S)•mphony );

#3 • (EMPLOYEE ('G. Verdi') LEADER ('Aida') MANAGER ('La Scala·));

#4 c 1£ETING ('14921012',(#1, #l. #3));

D·rophlM a-rpufi 'TOM 3KleMrt.t1Jiptl # 4 SI WUIIO'J'C:Jt )''-i3CTHHKH: SET or Supc:n•isor. 3K:SCMI.I1flp<)M #I IUliiMeTCM

leader, u no3TOM)' Supcn•ilsor uepcH. 9ocr.m utpo.\.l #2. m!.1flC:1'Cfl Man:q.>er, H n O".JTOM)' Supe.JVisor IK'-peH. CJK:Je.\.UI.,Ji p

#3 m!.'lfleTcfl K:k'Mwu:,po.\t .tmyx ..-unoa Leader Jt Manager 113 cuucKa-nb16opa Supervisor. Bee 310C'- tnmcpw oTo6p9;Kll­

IOTCfl corm'lCHO 6.3.4.

np II M ep 2- Onp<:..tlC=.'IC:H II C: o6'1oc=-KTU ·113b1Ke EXPRESS:

TYPE Mass •SELE:Cf(Mas.'i Spec, Mass\_Substil ute);

14

rOCT P HCO 10303-21- 2002

END TYPE·

TYPEMass Spec D" SELEC'f(Mcasurcd\_Ma..Computed\_M. Estimated\_Mass:);

END\_TYPE;

TYPE Me-asu red\_ Muss ... REAL;

END TYPE·

TYPECom;.ted\_M-8$ .., Extendcd\_ Real:

END\_TYPE;

TYPE &.imatcd\_ Mas...; • REAL;

END\_TYPE;

TYPE MN\_Subsitute • SELECT (We-igh t, Estimated\_Mass);

END\_TYPE:

TYPE Weight ... REAL;

END\_TYPE;

TYPE Extendcd\_keal •SELECT {FlomingNumber, NoLaN umbc.r):

END\_TYPE;

TYPE FloatingN umb<r • REAL(?);

END TYPE:

TYPE Nota Number ·• ENUMERATION OF (plus\_inftni1)'. min us\_infin ity, indet erminate. inv<•lid);

END\_TYPE; EN'!'ITY S!cd\_O.r, bar\_lengt h: Extc:nded\_ Re.a l:

bur mass · Ma!S·

ENO\_Ei·;il'ITY:'

06pa'3CU, KOHKptTUl&UHII ceKll,lllt JlltHHhiX:

*R l* •STELL\_BAR(FLOATINGNUMOER(17.0), MEASURED\_ MASS (13.2S));

*P2* • STELL\_ BAR( NOTANt;MOER(.INDETERMINATE.), ESTIMATED\_MASS (10.0));

*R3* • STEEL\_BAR(Ii'LOATINGNUMOER(17.0),

COM PUTED\_MASS(FLOATINGNUMBI?-R(I4.77719)));

Ocpllblfi ln'pH6yr JK.:Jer.cn.1scpa # I upeJI<. :Talt.,HCT 3Htl'lCUHC Extendcd\_ Rcal, KOTOpoe Mll.ucrcfl F'loatingN um­ ber. 0HO OTo6pa.;«l:'leTC-Jt (corJJaCHO 10.1.8 .ILII Mlillol6upae>tOro THna.IWHHLt X' Extended\_Real) KllK TYPEO\_PARAME­ TE.R *c* KEYWORD FLOATINGNUMOER (npoc Tofl onpe.n.cmteMw A THII s cnucKe-nbt6opa). 3Ha'fCHHC 77.0

PARAMETER oro&pa»:m·T:C;H. 8 crpyKTYPY o6totcHa,cor.1uc:-Ho 10.I.6.Nifl Flootmg.Number, ttaK 3tta•l eHue npoctoro

nwa REAL

8Topoi'i arpu6YT :-JK.X..loHL1S1pa #:I npc.n.craa1HCT 3Ha••enHe Measu n:\_Mas.<\, KOTOpoe Hll.1Si erCsl npGall!lhHhtM

:Jua•ICHIICM Mass\_Spco 11 no:JTOM)' raK.:Ke npaaHJi bH.hiM l ta'ICHIIC).t Mas.... 0Ho aro6pa}KS.e1'Cfl (nucpe-;lC. TIM>M pc..:yp­

Ciumoro npHMtHemu• 1 0.1.8. no<:t.:MLK)' Mass flBJJM'C1'CH a.w6jXli -!biM THri 011 JII'IUHLIX,n Mass\_Spec. -mo 6upot';).tblM mnoM AlUll I Wx) twK TYPED\_ PARAM ETER c KEYWORD MEASURED\_ MASS (npocroi'i onpeAC.1flCMb1fi nm 8 cmtcKc-a.w6opa).3Ha••euue 1 3.25 PARAMETER 01"06pmtUK'TCSI a crpy crypy o6MeHa,cOrJI«:Ho 10.1.6 ;vtlf Mea­ sure\_Mas.<\, KHK 3H3'lC-HHe npocruro Tuna REAL

Oepabli'i wrpH6)'T 3K'3er.tru1Mpa. .lf2 npeAcnHJ.'IHCT 3Ha•I CHHC Extended\_Real, IUIJUi toLU.cec.sJua'teHIICM NotaNum ­ bcr. 0Ho OTo6pa»:aeTCM (corJJac.uo 10.1.8 ..vue Extend'td\_Real) KaK TYPED\_PARAM£TER c KEYWORD NO­ TANU MBER (nepe'IUCJI.HCMblfi THn a cnuc..:e-t.lolfiopa). 3Hil'-«eHue -indete-nni natc"' PARAMETER oroOpaxaeTCM a crpyKT)'py o6MeHa cor,,ac:Ho 10. 1.7 KaK ttepe'IHCJIJteMbti'i Tltn NotaNum ber.

lhopoii wrpH6yr 'JK X.)tnml pa .11' 2 npeA<."TUa1fleT JJ-I ll•u:wtc· Estimated\_Mass. 0Ho SJarute-rc:JI npamtnt.HiolM JHa<te­ IUIC:M Mass\_Spec. a 1'llKJ«e npaaHJi bHlolM JHa•teHHCM Mass\_Subsitute 11 IIO"JI"O).I)' np<unult.HbiM :ma••c.mteM Mass. 3-ro JHa•l tHitC·' < lllK1"JI<fCCKII li))C..'-Cl Tflati CitO .!l8YMM (1Jbt6Hpat:).llol.!o.lll) T UlllMH 8 C-IHtCKe-Bb16op<l Mass. 0HO OTo6paJ«EtC''fCM (nocpcUCTliO.Io.t pet.:ypCUIJHOrO llpUMtHCHitSI 10.1.8, fiOCKOJibK)' .Mass SIWI.MeTCJI Blol6pi!HHWM 1"1tn0.1o.t )lUHUbiX, II Mass\_Spec- 8Lt6upaeMbiM TUUOM.!l<U-!Ht.IX) K..<tK 1YP£0\_PARAMETER c KEYWORD ESTJ.MATED\_MASS (npo­

croi'i onpe.nt.1fleuwn ·ru n a cnHcKe-llw6opa). Jua•l tH»e 10.0 PARAMETE-R o-ro6pu:aeTc.ft a crpy.c-1ypy o6Mt-Ha,

cor:l!acuo 10.1.6 )1..11 Estimated\_Mass, t.:a.K lml 'fCHue npocroro Tnnn REAL

flepSblfi <rrpu6yr 3K::SCMIL1flp0 Jt3TOT :41:C, 'fTO H nepahtA lflpH6)'T 3KlCMl'UIMpit #I.

BTopoH aTpu6yr :3t.:3CMI.I1SJpa #3 npt.!lC1aati MCT JHa'ieuuc Com pute-d\_Mass.. Ko·ropoe flWt'SJeTCM npaa11.1hHLIM

3HU'leHue. o.t Mass\_Spcc 11 nonoMy npanHnbHhU t mu••enuerot Mass. Otto om6ptu•uteTcs• (nocpe.n.<:TJIO. M peKypcHa­ uoro npu. o.euemtfl 10.1.8, ntx:KOJlbKY Mass SJWISier:a nw6paHHlolM TitHOM JlaHitLI X, a Ma.ss\_Spe-e- Hbl6upaeMLIM THIIOM JUIHHbiX) Kat:. TYP"EO\_PARAMETER c K EYWORD COMPL'TED\_MASS (npocrofi onpe.a.enflcMwit 1·un a cnuct.:e-Bh16opa). 3Ha4eHHC PARAM ETER KOlntpycTcfl , cornactto 1 0.1.6 .111111 :SHU'fCUitfl Computcd\_ Ma.ss,

KOTopoe JUL1$1CTCSJ :ma•tcHIICM Extended\_Rcal. Extendc.d\_Rca.l ABJUICTCfl aw6paHHbiM 1"11ROM .u.aHHhtX. Cor.,n<:-Ho

1 0.1.8 :Juu•l eHue Extended\_Re.alKO.Ifllp)"CTCH Kat:. TYPED\_PARAMETER c K EYWORD FLOATINGNIJMBER (upoCTOft onpcAeIISJeMhl ii·nm 8 cnHcKe-nbl6opa) H K.OK Jutt•l eHue 14.77719 PARAMETER.KO.Aitpyetotoe cor.1acHO

1 0.1.6 AJHI Fl oatingNumber.

*25*

rocr r HCO IOJOJ-21- 2002

10.2 Om6paxemtt! THnoa AaiiHWX o&w:na H A wKa EXPRESS

3K3em..u•p nma aawiLJx o61>eKTa ••:t EXPRESS AOJl:«eu 6wn.oTo6p.u:eH o cTp'l.'TYPY o6Meua Kak

ENTITY\_ I NSTANCE.

KaK onpen.e1euo a rocr p MCO 10303 11. "'3K3eMn11SIP npocroro o61.eKTa" ("s mple e-ntity in

stance") SJB.r1UeTCSJ 3K3eM0 1.Rpo\t o61:.et..'Ta, *He·* SJ n.n.suomerocR K3e).Cil.lfAJ)OM no}rrama Kat.:oro Jilt6o runa

ll.af-JHLXl o6'beKTa. Bee r.Jpo<.llfe. 3K3eMOJUlpbl o61.e.:T3 1-la3Lifi<UOTC11 •':>K3e tn!11lpaHl C,-10 HOro 06be.J<Ta"

(..complex entity ins-tan s").9K3e:MOJUIP npocroro o61.eKTa AOJJ:«eu 61o1Tb oT06paxeH cornacuo t0.2.l,a n: ::teMn uJp cno noro o6'bet..'Ta - cornact-JO I 0.2.5.

0 p 11 M e' I ll H ll C- 3'KXUil1flp npOC'IO' IO'

o6'beK1'3 M.ll.-'ISI CTCfl 3K;tCMnJI.R()OM o6l.ct.."Tll, KOTOpWH. UO)IUOCThiO

onuc waaeTCJI *edu tcml!t'HHW:.V* o6WJat CHIItM o6hc t.".Ta u EXPRESS. 3K3eMnmtp CJIOlKHon> o6DC'Kta IUIJUI CTCM:n.:JeMI'I 'I!.fl·

pol.t,OOUCaUIIC KOTOpl)fO IJKJUO..JICT IJ CC6M He<:KOJi bKO 06'hlJit.1CHIIi:f o6'bCKTil.AillKC CCJIIt TOJlhKO O,!IHO 11:.1 HltX CO)l.ep»W1' fliJHhl e atpU6)'Tbl .3oCMfl.ll -'lpll pOC't:OIO' o6loeKTil MOXCT 6bl1'b 3K:SC).UIJfilpoMcynepnma,li OKa nocne.nHIIfi HC JUIJllfeTCII

'JKlt'.\HI.1flpOM KSKOI'UJI·Itl io IIO)l'1U'!Ht,HO 3XJI!MIImlpI O)ll'II'Ua liCCfJlll flll.1flC'TC$1 <'C.10lKHb1M•.

TO!Ibio:O DuLle 3Tpl>t6yn1 o6t.eKTa R EXPR ESS OTo6pa:.t:aiOTC11 o crpyKT)'PY o6Mena. Cneu.Ha.JJt.Hble Cpe)lC1'831OAH3KO, npu.MJt.HSIOTCR K Heo6J 'Ja'Te.1bHbiM (OPTIONAL) RDHbiM arpu6yTOM (CM.10.2.2),DHhlM aTpu6yra.M,311<11-J eUHRMU KOTOpWX JIBJUIIOTCR 3KJeMn.1pbl o6LeKTa (CM. 10.2.4),1t DCeM nepeo6'bSlD.TJenWU.I ROHblX i!TpJt6yTOD (CM. l0.2.6- J0.2.8).

fl p f *Me*'Ia H *He-* K <)JI,HOMy It 'I'OMY iKC 9Tp116)'Ty MOlKeT 6b1Th npltMCHCHO HCCKUJlbKO CpeACTB.

10.2.1 0To6paxeutt e :IKJeMnJHIPil D )OCToro o 6'beKTa

9K:Jer.tnnJ;lp npocroro o61.elCTa AOJl::«eH 6Lm. oT06paxen B C'TJ)YK'I)'PY o6),teua KaK SJ MPLE\_EN· TlTY\_JN.STANSE. HM$1 nma n.amtt.JX o6'beKTa JlO.Tf;.t..1tO 6LITb oro6pa.:.<eJ-tO n K EYWORD Jl!UJ SI M ­ I'LE \_R ECORD, <a< o tpene. e <o B 10.2.I I .

Ka)t(Jl.blll nnwrt aTplt6)'1' Ao..-1:-.:eu 6t.1Tt. oro6pa)t(elt Henoc-pe.AcroetiHO n PARAETER MSIMP

LE\_R£C0R0 n crp)'..'.1)'J)e· o6:\teua. nopAAOK napaMeTpoo (PARAMETER) D crpyK1)'pe o6Me11a .AOn:.t:eu

6b1Tb rer.t ::«e, 'ITO" noJ)o1UloK COOTBeTCTByloumx a rpt 6yroo o o6L.slonemtH o6"t.etcra o EXPR ESS. nepown PARAl\• ETER AOJI)t(eu 6L.ITh 3Ha'tel.f JteM nepooro 11BHOro arpti6}'Ta,mopon PARAMETER -3Jt<l t euneM oroporo srnuoro al'J)H6)'1'3. Jt TJt. EcJUt Ti m }lamt wx OOt.eKTa n EXPRESS ue ltMeer RDUbiX aTnt6yron, cnHCOK napaMetpoD (PARAMETER\_LIST) Jl.0..,.1)t(eH 6t.m. nycrwM.

<l>opMa K<l\*!loro PARAMETER .llOJl)t(Ua .JaOJtCeTb OTTnna }l3HIIt.IX COOToerCTBYJOutero aTpu6yra,KaK

onpe.neneuo n 10.1.

np II Me p- Onpc,tte.1C.HIIC b Ja:lblKC EXPRESS:

TYPE

pri maT)'\_oolour\_abbreviation •ENUMERATION OF (r, g.b);

END\_TYPE;

ENTI1Y widget; > A attribu te!: I NTEGER; > B attributc2: STR ING; > C au ribu td: LOGICAL: > D attribu te4: BOOLEAN; > I! au ribu td: REAL; > F atl ribu t<6: LIST I I : 21 OF LOGICAL: > G attribu<c7: AR RAY 1- I : ll OF INTEGER; > H attribu teS: PRIMAR Y\_COLOUR \_ABBR EVJATION;-- -> 1

END\_ENTITY:



*P I* • WIDGET( I , ' A', .T., .F., 1.0, (.T.,.F.). (1.0, 1, 2, 3), .R.);

I A 1 I I

I

1

A B C D E F G H

A: IIMil o6t.eK'Iil widgel lt:l EXPR ESS crro6pa..-aeTCH nC'f3Haapmoe KJuo•e el- tOe C.I OIIO Wl DGET o6t.e-Knl Ct:KLUHI

!UlHHhiX:

16

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B: a ::lt'OM »IOe trtJUipe o6beKr.t nttri butel lll>t eeT lHU'fCHHC I;

C:u 3TOM 3KXMtVIMJX' o6bc-KTll auribute2 H.MC:CT 3HO•tt:HHe A

0 : :noM "JtCJC:Mtt.111,pe o6 >C t.".Til attributd H.\ tc"T 3H ilI C:HHC T (ucnutn):

E: a 3TOM 3!eleMnnllpe o6t.eK1l'l attribut e4 IIMeeT :JHa<teHHC F (.10> U>);

F: n noM 3K:telttLtutpe o6beKnt attribu teS ll.).t t:C'T:lHa•t eHtie 1 .0:

G: a 31UM 3K:teMlL'11l.JX o6"beKTil au ribu te6 J tll. 11t:TCH ctut CKOM OOnt'IC:C-KHX nepcMt:HHhtX. CttHCOK:m.a<teHnf'i:

ATfRIBUTE6(1) •T

ATfR IBUTE6(2) • F

H: n n<>M :JK3e-MtL1M.P: o6·bC-KTa actribu te7 JtU. MeTCst waccHOOM ue.1hl.X. CnHCOK :nut'ieum1:

ATfR IBUTE7(-I) • I ATfRIBUTE7(0) •0

ATfRIBUTE7(1) • I ATfRIBUTE7(2) •2

ATfRIBUTE7(l) •3

1: a 3TOM "JKJeNrvuape o6t.eKTa altribut e8 JtatuteT1:-Jt nepe•mcneHHt:.\.1. uttributeS nt.teer :ma'ieHue R.

10.2.2 0To6pa)f( eH ne lte o63 aTe JibULIX (OP TIONAL) JIOULIX aTJ>If6y TO O

HonMi'i a-rptt6yr,o6'MI L1emt we\ KaK OPTIONAL. ue o6SJ3.1H H.MeTb JJ J aqemt e o J:aM.HI-t mt:noem.1Rpe

OOMICfa. Ec. 11 11eo6 ,oe 'lll34emle noC'TannneTcn o K:teMnnnpe o6UJtmt, 0110 JLOJtlltllO fitJTb

'laKQJmpoatu-t o o OOOTOeTCTB tu c n tnoM Ailtm wx arpu6yra,KaK onpen.e:.eno D lO.l. Korn.a J-t eo6MaTeJtbl-loe

3uaqeuue aTptt6yra orcyrcrnyer n KJeMrm11pe o6t.eKTa,ouo )lor:»:uo 6bi'Th "JaKOA 1ponauo n CTpyJcrYpe

o6Meua Ka.K *3ual(., OoiuiOpa* "$".

npllM t- p- Onpt.Qii!.1CHI1C o6be-KTB IJ Sl3bi KC I!XPRESS:

ENTITY JOO<;

attribu te I : REA L;

au ribu tc-2 :REAL;

END\_ENTTI Y:

ENTITY m•;---------> A

a ttributel : OPTION AL LOGICAL; --- > B at tri bu h-2! : XX:<; > C auri bute3 : xxx; > D attri bute4 : OPTIONAL JNTEGER---> E attri buteS : OPTIONAL R EAL; > F

END\_EI-.'TITY:

06pa:leU 31C'JCMi.t!Ulpclll ofu.cKT9 IJ CC::KUHH A/lHI-tbiX:

# I • XXX (1.0, 2.0):

•2 a XXX (3.0,4.0);

•3 •*YYY* ($, •2. #1, $, S);

rr:rrr

AB CD[F

A: IIMst o6'beKra yyy B EX PR ESS OTo6pwtweTcst a CTill-tAIIP'f HOC KniO 'fesoe c ooo YYY o6'beKTa ceKLt ttH Jl<tHHblX;

B: u TOM 3K3eMnn-HJi>e o6beK1ll <lltri bule-1 1-re li).IC:cT :JHa•e CHUII:

C: nuri.bute2 MWUIC'TC·M C-C-bl. IKOH Ha 06l>CKT :ax KX-Mn1stPOM o6- oeKTa #2;

0:altribule3 HWI.HC.Tt:-M CC-btJIKOI'iI-ta 06t.eKT XXX:n.::Je).lll.'1Sip()M o61.etcrll #I;

E: a :J "OM 31UtMnn.llpe o6t.eKTanttributo4 Ht"- UMt:CT :JHa•e t:HHst:

F: " lTOM 3KXMtl!lsti;X o6bt:.Knt attribu teS He 1useeT.;u-ta'ICHil.M.

10.2.3 0T06pa »ee JIt e 8bi IHCJI11eMLIX 3 T'p t6 yTOD

8Lol lfltC!I11eMhle. arp.H6yTbl o6'1.oeli.'T3 He.aomKIIhl oro6pa aTbC11 n CTJ)YICTYPY o6MeHa.Kor.a.a Dbllf l tC..1SJe­ t.n.!n aTJ)t t6yr n no.lfl1tne nepeo6'b11 n.rnJeTC$1 Kak aTpJt6yr n cynepntne, oro6paxemteno.rnKHO npotCXOAlfft., KaK OnltC3HO D 10.2.6.

np II Me p- OnptJt<.1CHilC o6t.eKTa IJ H.Jt.IKC EXPRESS:

ENTITY yyy; qO: REAL: ql : R EAL;

q2 : REAL; END\_ENTTI Y;

rocr r HCO I OJOJ-21- 2002

ENTITY xxx: ---> A pO : )'r)'; ---> B pi : ·n·;---> c p2 : )')')';---> D

DER IVE

aHribS : \'tctor: • func\_nonnal (pO, p I. p2); ---> E attrib4 : rttl : • func\_diameter (pO, pl. p2); > F END\_ENTITY;



*P9* • YYY(O.O, Ok 0.0): R lO •YYY(LO, 2.0. 3.0); P I I •YYY(4.0, S.O, 6.0);

R l2 •XXX(R9, #10, #II);

I 1 *1\ 1\*

A B C D

A: IIMM o6'beK1ll xxx a EXPRESS mu6pll}t;8eTCJll c1-aH)lapTHoe K.'fto"''eJ)()C c.rmoo XXX o6·t.e..-.a ceKUHH,n,aHHwx;

D: pO 1Ul1Uie1'Cfl CCJo"l IKotiHa o6t.eKT yyy 3K:temlmc poM o6l.ctrra .If<)

C: p1 11Jtrut c:.Tcs• CCblJIKuii Ha oOl.eKT yyy '3K3c:MruLMpot lo&beKnt # JO;

0:p2 MWlJ(CfCII C::CbltJKOf\ Hll 06'hCKT )')')' IOCMitJUipo.\1 ofil>eKTa #II

E: altribS a :JTOM :i!K.leMIIJLMpe- o6'bC::Knl He oro6ptt;KaeTcfl. nOCK0.1LK)' *OH* mmSitTCR Bl>I'IUCJt.MCMhtM !1Tpn6yrot-t;

f: attrib4 B 3TOM 3KXMnJUipt' o6't.eKTII HC OTo6prot::< CTCfl.IIOCKOJLl K)' OH JU!..If.MCTCJf Kbl"lHC.'UICMLIM nrpl16)'1'0M.

10.2.4 0T06paxe H Jt e aTpu6yTOD , 31-t a'te i-Ut K KOTOpLIX $18JIRIOTC SI 'lK3eMOJIR•

1)3Mif 061.eK'TOB

Ec.mt 3K3eMWJnp o6'beJ:Ta onpe.a.eJJe-1l K3K 31'J)H6yr ,11,pyroro (ccwrakluterocR ua uero) !)K3eMM$1pa

o6'bet..'T3,nepowA (1-13 KOTOpbiA CCWittiOTCJI) ':>IOeMflTIRp o61.eKTa AOSJ::«elt 6bJTL oT06pa:.Kelln CTPYJ-'TYPY o6Meua Kat.: UMH "lK:leMOJLS.pa o6beKT3 (CM. 6.3.4). CCWIK3 ua 3TOT :>KleMrutftp o6bet.:T3 MO:teeT'6t.ITb 81-tytp t ceKU,Ui1..Q.aHIILIX,TO e-CTJ:r. Ae TO 0 npe)leSJaX CeKUitA .o;ur•I YX 3K3eMMAJ) o61.et.."Ta, Ha KOTOpbl ll CCLI.Ramc.SJ ,

.ll.OIJ:.(eu 6LITb YKa3all c rena OT *3JtfiKO paoeJtcmaa* "'=''. 9ro on)t )le1emt e MO:t.'eT npeaweCTnonaTb npuMe·

uemuo 3K3e10.1Jipi! o6vna B Ka'lecTUe aTpu6ym lt.Tnt CJJe..a.ooan. 3a lfUM. Ero omtC-<Uute ue n.on:«uo

UXOA) TL 8 'lTY ceKUIUO B K3lleCTne arp•t 6yra UCn0.1h3yeMOfO 3K:Je.Mnnapa o61>tt.:T3.

0p 11 M *e* IllH lle. - B npHJI O;t;:CHIIU f OOIKitHLIMC'I'O)lhl OU,CHKH COOT K:TCT8Hfl CXCMlol npu Hatlll'illll B CTpytcr)'pc o6.\.1eua HeCKOJ bKilX ceK-IH>t A .!I.I! HHhlX,oCHOllllHULIX na pa:JHhiX EXPRESS-cxel.JaX. aK.,Ml• aM cchL1KJI e\*Af JKXM· IUlMpaMH o61.cKTon. onpe-.!u .,eHHbiX u :;rrux CC'Kl\KflX Hn ocuolle pa3HLIX EXPRESS-cxe. >l

np Jl M *c* p- Onpe.ttC.,CHIIe o6toe-K:nt n fl3LIKe EXPRESS:

ENTITY yyy;

X : REAL:

y : R EAL;

z: REAL:

END\_ENTITY:

ENTITY=;

pO : )')'Y; ---> A

pi : )')')': ---> B

END\_ENTJTY:



*R* I • YYY (3., 4., *5.);*

*P2 -* XXX (•L #3):

#3 - yyy (I.,2.. 3.);

10.2.5 06'beK T bl , onpe- AeJieiHi ble KaK OOATttOLI n.p y rux 061.tKTOB

rocr I' 11CO 10303 ll onpejle..1Jie1 tOeMOJIJIPbl o61.eKTa.HMetOmero palJle,1 SUBTYPE (nO!J,T110),

RUJUIIOlUUAC11 ..'lK3e,\_tflJJ:SipaMll CJIO::f<UblX o6'beKTOn'•,TaK, 'ITO 01I- H MOryT BKJIJOqa-TJ. 0 Ce6JI arp•t 6yrLt 143

1-tOC.KOJI.t.KttX o61.JIMeuHC. nmon o6beKTon. Bl:taCTos.meM nymcre onpeaene.1o, KaK uoer.m.11np oc.1. 0).1..1tbJX

o6beKTOR )l,OJI::f<llbl 6wn,. OTo6pa:«ellbl B C1p)'J(T)'PY 06,\teli3.

*18*

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3K:leMn ulphl CJIOX1-10ro o6t.e.\_"Ta AOJrA< -lt.f 6b1TI.oT06pm«el bl n CTPYKTYPY oGMeHa na OCI-I OBe OAHOro lt3 n.oyx npamm: m-lyrl)e:HHero oro6pa emts. ltJlH nueun-1ero oro6pa::t::el 1U.I K Ka»>J.OMY 3K3emnapy ROJI;TI«Ra 00t.eKTa .Qo..rt>KHO 6t.m, npHMei-J eJ-cO OAHO OpilBit.llO OT06prut,:eHIHI.

fl pU MC- IIlH II

I 9bt 60p o-ro6pa:«C:HMfl laJIIICIIT IJ 6o.llbLUCfi l>IC:,PC OT 3KXMfl.' RP<J 06'hCKrtl. C:..\1 OT ero ·ru ua. An11 plll.l-l biX

3Klt'.\1111Sip08OAI-IO fO IITOro *»:C* T1tnU\_.!llHl HhlX o6t.ek1llll0l:loi0)KU0 ltCU0.1b30WlHitl!PJ.lHhlX (YI'06p3lKC:-Hitll:Ja811CIIMOCTH (7r TOrO, SllliUIIOTCS- I JIK 01-111 3K:JC.).H1.1flP3MII II() JU tnOb II KaKUe UOA, tnbl OHII npeA,CTUBJUUOT.

2 Hac.nmutHH nyH.t,. npHMC:.JmM 1'0.1bKO K 3K:seun 1HfX'I.M c.10»:Horo o6t.eKTa.He-r Heo6xo)l M O(:nt npm.tcHHTt. t:ro K K3}KAm.ty KX-MII.1SipyKta C)'IIC PI' IIna. B 'II!CTH()t."rll,OH *HC* UpHMCHSICTCfl K 3KleMI1.1SipycynepmntL KOTOp otH m: stlli'lsten:st 3JOeMtlJ stpo.\t mo6om nOJ(ntna.Tatme 3K:te.\UH1Si phl ,).t Oiyr cyutecrtiOflan.,ec.•,t cyueprun *He* JlWUte·rcM a6cTpU.KTHbiM cyne.pnmoM 11 noJtTunoM Ka..:oro-1u6o ,ttpyroro om.c ,a. Ta..:ue 3Klt:Mtt.1MPhl 01'o6pa..uttoT cor.1acJ-tO

10.2.1.

npann lO OTo6pa:.KeH1411,KOTOpoe CJ e.,ayeT .fCOOJlb3083Tb JUJSI K3)1(AOrO '!>K3eMTlllJI)>a o61>tna,Dlol61(· paiOT' n 3aoucn.Mocm OT K!lacca coornercTOH$1, DLl6pannoro JIJUIpearnoaumt . Jl,.TJ pe.a m:mutd c Kllaccm.t COOToeTCTO UIIBb16op OTo6pa:.«etutOOJtCal-1 0 I 0.2.5.1. .[l.,"'$1 peantt3t1LUdt C K.1\<1C.COM COOToeTCTDU 2 )11111

OceX 'J K3eMnJUl(>OO CJJO:t:ll hiX o61.eKTOB J[OJl::t::UO 6bi'Th •tCOOJJb30B3HO Dl-JeUJuee OT06pa.»::eHJteOOHC3HUC>e

B 10.2.5.3.

10.2.5.1 BLI6op OT06pa::.::emt11 no yMOJtJlauH.IO

Ha6op onpeAeneHJtA nma .a.aunLIX o6"LeKTa, Koropwe cof.!Janbl Dt.lpa.»::euHSI).ut OQJll' tnaIf nouoro

IUilt 1-1e1!BHOro cynepnma,onpe,LlenJiet' 1-1a6op CTPYt..'TYP KleMtvurpon cno uoro o6t.ekTa, ua KOTOpLifi

CC-biJI<llOTC$1 KaK Ha onpeAenaeMOe MI-IO)Kecno B npuno:.<eiUnt B roCT p HCO 10303- l l. Ka:.KAblA \l;teU

OOpe.lJ,eiiSierttOrO M I O::t::eCTDa YCTaH3DJIUB<le-T COIICOK UMeH TlfROB Jl31Uil:d..\! o6'beKTOO.

Ka)KAI.>In KOJIKpen uolrt 3K:le-M0,1$1p T1lR3 )l311HLIX o61.eKTa COOTneTCTB)'C·T O)IIO>JY t);JeMel t T)' onpeJ[e­ JlReMoro MI-IO)I(CCTBa. Oro6pa-»:emt e,npUMC.J-HieMoe K KOIIKpentOMY 31CleMMJipy, 3<1B tCJIT OT '1J1er.1a onpe· ae;- t$1eMoro MHO:.Kecrna.'Koropmcy cootDeTCTnyeT lK3euruutp.

.li.JUI TOrO l1To6bl ycTafi OR tTh,K<lK<>e •t3 npilOiiJl aro6pa)l(eiUUI 1-laAO IT]> OtetlltTb K ,ll.aHI-IO).fY lK3eM­

rut11py o6t.eKTa:

3) ORPClleJlSIIOT CO HCOKI MeJI TimOR )laHHt.IX ofYbeKTa, KOTOpblil CTaUOin!TC3JleMetrroM ORpe!lenSI­

eMOfO MIIOeCTDa, COOTDe'TCTDYtoUJ.•tM 3K'3eMfi.rutpy ofu.eKTa;

b) oT6uparor tt:lcr.ntCK. oce nmw o6t.et.'.TOB, '"'e nMeiOlll.•t e nonT1fDLI,1-1 oce.n mLI o6'beKTon.KOTOPbl e

MOryl' UMeTb nOJ [I' fflhl, 110 Jl!UI KOTOpl.IX UC onpeAe.rteHLI ROJU'Itnbl 0 CnHCKe (ttneue onpe)le!l$1eMOfO

}.UJO:teeC'I'Da) .ll,IUI .a,auti OTO 'lK3eM0.1Jipa;

c) n c.rty1.1ae onpeae.rremu1 l'();lt:.KO O}luoro ntna .a.auuwx o&be.\_'Ta era CJie;zyer o-tHTaTb "KouetubiM

rtmoM AaHHhiX o6'beKTa"" (''1eaf en t y data rype"'), u AOil::lat o 6wn.nptiMeJ-t euo nuyrpem-tee OT06pa;Keuue. B npoTURI-IOM CJJY'I ae..AOOt)ato 6b1Thltcno.nblOBaJ-10 ouewuee oT06paxe1me.

f p t M C' lil HIt *C-* Dpu pea.l,tlllUHH J100.,>KC'Hl Ul b) .IIOl. ::K·H 6b1Tl> O'I'06paH nO .\I CUbUlcii MCpe OAHU TIU1

o6"LCKUL

10.2.5.2 Buyrpeuuee oro6paxewte

ECJiu ttcno.rrb3yeTC11 onyrpetmee oro6pa::t::euue. :uoe,\mliP o6wKTa Ao.rr.«eu 6WTb oro6paiKeu o SI MPLE\_ENTITY \_INSTANCE (eM. ra6n111zy 3). K•IO'Ienoe CJIOBO (KEYWORD) 0Jill<l10 6Ltrb 11>1e11eM KOIIe'ntOro ntna A311 1LIX o6het.".T3, KaK YK-ll3<1HO B 10.2.11. CnuCOK napaMeTpoB (PARAMETER\_ LIST)

.ll.OJJ)I(el-c co.a.e.p)l(aTb 3Ha"-Jeuuyt-lac..-1eJlOBlHmt:.rR Bllt..IX aTpt6l yroo ocex o6-wtcr<>o C)'nepnma •• 1181-t.t..Xl

3TpH6yrOR KOHC\fl-10£'0 TJtna }ltlliHblX ofu.eKTa. 00p11,ltOK,8 KOTOpOM )'H3CJle.Q.ODaHHLle 14 SIOI-Ibi C arpu6TLI

6yJ1..VT OOSIMSITLC.SI B CTJ>YK1)1)e· o6Meua,J[0..1»::e11 6l.l'Th onpe.a\_e;teU C.. e..!t,yiOUl fM o6pa30M:

- nee ynac.qen.ooauuble aTJ)u6yrw )lOJl::t:H hl nona..111TbC11 nocneAOB3TeJILI-IO nepe,a DULlrtUt aT)nt 6yra1tnt

mo6oro oGl.e -".T'a;

• aTpJt 6yrbl ofu.eK'Ta cynepntnaA0;..-1 J-Iwuac.rteAooan.cn o nopMKe lL\! noMemtfl BCaMoM o6beKTe cynepnma;

• eCJilt o6wKT c.ynepntna ca.t.t ROJUiercn nor;mnou .opyroro o6LeKTa, arp116yThl 6o.ne.e BbiCOKoro

cynepnma AOJI::t:Ht.t.uaCJJe.aoBaTbCA nepot.u.nt;

• xorn.a yKaJauo tl ecKo.nt..Ko o6unon C)'fle.pnma, arp•t6yTLt o6beKToo cynepnma ,a\_o.uat w 6wTb o6pa6oTattbf n nop.n;Ke-,onpeAenemtO)t n Bbl)<}::t::enl nf SU B1YPE OF.

B pe3ym.-r.ne 3TOA npoue.a.ypt.t- ua o6t.etcr cynepnma MO::t::er 6wn.1-1ecteonM::o ccbl.lloK. 8 3'TOt c..-n1:1ae oce ccWJK•t,xpo:..te nepnon,)lomttJ.I bt 6brrt. uruop&tpooam.J.

rocr r HCO IOJOJ-21- 2002

np H Me p I - Opoc:rot- OTHOlU('.HIIe n()Jnun/cynepnHL Onpene.1eme o6&eKnl Q 11:lh1Ke- EXPRESS:

ENTI TY aa ABSTRACT SUP£RTYPE OF (ON£0F(bb,cc)l:---> A

aurib\_a : *u* > B

END\_EI-.'TITY:

ENTITY bb SUBTYPE OF("")

ABSRTACT SUP£RTYP£ OF (ONEOF(xx)); ---> C

anrib\_bl : n· ,------------------> D

attrib\_b2 : )')'; > E

END\_£NTITY; ENTITY«SUBTYI'E OF (lllll;

attrib e : REAL

END\_ENTITY;

ENTITY *xx* SUBTYIPE OF (bb):

aurib\_x : REAL; ----------------->F

END ENTITY:

ENTITY zz;

au rib\_z : STRING;

END\_ENTITY:

ENTITYyy

attrib\_ l :REAL; au rib\_2: REAL; au rib 3:REA'--'

END\_ENTITY;



•1 • ZZ(ZATTR');

•2 • YY(1.0, 2.0. 0.0);

•l - yy (2.0, 2.0.0.0):

•• •XX(# I. #2, H 4.0);



A: nocKOnbKY o6be."KT a.a JUlJ\_ teTCM a6cTpaKTHbiM c.ynevr•mot.t,ou He oT06pa:c<•ercsa a CTPYKTYPY o6.\teHa;

8: llTpH6)'r Utl.rib\_a 6yACT OT06pa»:CH B CCKUHH .llllHHhiX KllK )'HSC.!IC:OOli<II!HWi'f arpufiyr TOfO o61.cKT<l.KOTOphli%

npst.\10 IUIH KOCI'IeHHO SIU.'I11eTC11 t!OJITIIUOM o6beKTil lUt. Q :¥10.\.1 CJty•wc attri b\_a ll pe,!lt.."Tlli!JteH nepabiM ll1pH6}"1UM

"}. f.::JC:-,\HL,Sipa O&bc),"''lt XX II CCb1.11leTC-Jl l-ta ZZ !IKX,\III.111p o6bC:KTil # I;

C: II OC·K0.1b.KY o6bcK:t bb 1UI.IUI C1'Cfl a6c.TpllKTUblM C')I'CpTHfiOM,OH He 0'1'06p3lKUe1'CSI 8 crpyuype 06MC1ta;

0: 8Tplt6yr Bltrib\_bl6yn.er <:rro6px4{CU B CCKU)IIl JUlHHhlX K3K Yl-tlle.ltt.AOWHIIbli1 wrpu6yr Ofu.CK'Itl., KO'fOphiH

npflMO KJI.Il KOCSCHHO Jll111fleTC)I 110,.'1.THll0M o6·bCKT'd bb. 8 31"UM CJf)lfle Ultrib\_bl flpetiC.Ttlati CH &TOphlM UTpJt6yroM

3K:)eJ.tiL flp3 00t.ct..,.U XX ll CCh.,lleTC·-" 1-lU 'JY- ':JIOCMnJUtp o6t.eKTll #2;

E: wrpu6)'1' atllib\_b2 6yAeT oTo6JXliKCH a t.'CKU. IIJ aaHHhiX KaK yHaCJie.aonaHHhtH wrpH6)T ofu.eKTa,KompwH

npm10 Jt.tUI KOCitcHHO flaii,.CTC·fl nQA.nHI O).l o6be aa bb. 8 :JFO).l C.ll rt:te attri b\_b2 npc11,C111WI CH" Tpc-ThltM U1plt6yTOM

3KlC.'.loHI.1J1pa 06-t.cKra X.\: II CCb11. lCT.CAI-ta *"fY-* 310CMllJUip o6t.eKTll 3;

F:arpu6yr tlllrib\_x: npeJJ.cTllk.TI C H ctl(>fl).l :tJI.a<teH ue-J.t 4.0.

flpHM ep *2* -0ro0pa:.;.cmte cyncpmna,KOTOphlfi He HWlS CTCfl afx:Tp< KTHhlM (ABSTRACT) c ·nepllHIO)I. Onpe,.ttC·JteHHe o61.cnu a M3b1Ke EXPRESS:

ENTITY 811 SUPERTYPP. OF (ONEOF(bb,dd));---> A

anrib\_a : STR ING;

END\_ENTITY:

ENTITY bb SUBTYPE OF (a:t)' > B

attrib\_b: INTEGER:

END\_ENTITY;

ENTITY cc SUBTYPE OF (bb), > C

attrib c. · REA L·

END\_ENTiTY: '

ENTITY dd SUBT\'PE OF (aa); > D

au rib\_d : R EAL:

END\_ENTITY;

ENTITY<<: --------------- > E

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attrib\_e: aa:

END\_ENTITY:

06paJCU. 31CJCMUJU1ptl o6t.eKT3 8 CCKttHH A.'lHUbiX:

•1 • AA CSAMPL£STRJNG'): ---> A

*R2* BB )'ABC');-------> B

•J • CC ('DEF',123); > C

•4 • DDCXYZ', 99.99): > D

*•S* • EE(•I): > E

•6 • EE (#2); > E

•7 • EE(•J): > E

•S • EE(•4): > E

A:llOCKOI: bKy061.e K·L .oa *He* 1111.11t(:'fC1l a6<::rpaKTHbtM c.ynepniiiOM, OH .to}K('TJl f>HC·yn.TOO Io: TbiJctp)'K't)'pC o6MeHa.

06-t.ct..-r HMeer TO.nbKO OJIHl-1 wrpu6yr I!Urib\_a, KOf,[l)l llpl1C·Yit:TB)·er 8 C·1p)'K1)'pe.

0.: o6l.e.:-r bb SIWJSic.'TCJI II QJI1'11110M atl 11, C.1C'Jl0ti3TeJtMI O, ero :.I)::SCJ.HI.'Ut pbl 6y.oyr Co,l.Cp»:an, ltTpH6yrbt It aa, H

bb, HO TRK K UC. o6l.eKT bb He Ollpc.l.CJIMCT *liCe* aTpu6yn.L U JUIHHOM arpu6yre 11,UJ :4<CH ll pll C.Yl'CTBOSil'rb T(l.TfbkO C-IUCI OK

napamr:poa attrib\_a.

C:ofna(KT *«* KB.1Ht'TJI 11UATHI10M bb It, t- 11CAOISUroldiU,ern 3'KX-!111JIJIPhl 6y,!tyr \1JACp,.;arb arpu6yrbl aa,bb It .

0:O(h,eK1'dd MWIRCTCMli<UI,TMii0.\.1aa 11, C.'!CAOU<tTe.1bH0,ero '!ICJeMtlJIJipbf)I.UJl:C.Hbl CWI.Cp»:3Tb wrpH6)'Thl 06'bCKTOQ

aa 11 bb.

np ll Me p 3-Oto6pa;KeH He o&t.c-tmc. He<:KO.I hKHMil cynepnmal.UI IJ Qhl pmt>C-HI-tK suBTYPE OF.Oupen,eJte­ IUle o6t.eKTa n SUI>IKC EXPR£SS.

ENTITY base SU PE.RTYPE OF(bmnch\_one, bmbch\_lwo): --->A

attrib\_a :STR ING;

END\_ENTITY:

ENTITY brubch one SUBTYPE OF (boso); > 8

attrib\_b:INTEGER:

END\_ENTITY:

ENTITY brubch\_two SUBTYPE OF (b.,<e); > C

aurib c · BOOLEAN·

END\_ENTTiY: '

ENTITY leaf SUBTYPE OF ( brunch one, bralx:h\_two): > 0

aurib\_d : RF..Al

END\_ENTTI Y:

06paJeU, liCJI!MtVUip:l ofu.e-Knl IJ CCKttHit JU)HUbiX:

Rl • BASE('SAMPLSTRING'); > A

•2 • BRABCH\_ONE('ABC',123); ---> B

*R3* • BRABCH\_TWO('DEF',.T.); > C

*R4* • LEAF('XYZ' . 123,.T.,99.99); > D

A: 061.tKT HC tUICeT Cf i'I CpTHilOtL npu IJHOCCHHil Q <::rp)'KT)'p)' 06MCH!t CI1HCOK ei'O IIClpltMCTJlOS )lO.tl:t{CH

COAep»::rrb TOJthKO 31-t1NCHI1e IITpH6yltl.Ultrib\_a.

8: 061>eKT brancb\_One flWUI CTClf IIQAllHI Ol.t OCHOSHOro 1'11111!. flptf SHCCCHIHI IJ <:1pyK1ypy o6MeUa CIU1COK Cnl

napaMCTpOS )lWI»:CH COJiep;t<IITb )'HOCIIC,nOIJitHHhfe StpltfiyTbl,C.t C·A)'IOUUtl! 3a f1Tptt 6ynnt branch\_one.

C: o6bCtn branc.h\_tWQ SII1.1SICTCSI HO)lTIHIOl.t OCHOSHOfO ntna. npu BHCCCHIUI a C1p)'KTYPY 06MCH3 CltUCOK CfO

napa.MetpOa )\t>Jl»:CU Co,aepo:t{IITb )'HOCIIe.Q.OIJilHHhlC 3Tpu6yn.t. C.IIC:U)IOU\ItC 'Jit 3Tpii6)'TOM bmnch\_ ....'O.

0: o&beter nepCI'IIC.'1CHIIM, MWIIUOI-UH. fiCM HO)lTIHIOl.t o6'bC..'.1'01J branch\_one *H* branch\_two. Op11 fiHCCI."HIHI 8

CTp)'KTypy o6.\teHa CllUCOK .erO nOpaMeTpOB;I0.1<Ke-H CO,l\epatt'1b )'HaCJIC-.UOIJ!tHHhle O.tptt5)'Tblbranch\_one, BKJI JO'iatOUUlC

ll Ce6M arpl16)'TblOCHOliHOI"O o6t.eKTa,C..1CJl)IOW.He :13 yuaCJle,ii.OSitHUhiMH 3Tptt6yratoeH o6'belrm'l bnmch\_ WO.A·rpH6yn,. OCHOSHOro o61.etmt A0.1<KKhl 6bl'rb Olllt CIHhl OllHOKpaTHO npH Oll iiCaHH il trrptt6)"1U8 bntn<:h\_One. 0HH A,OJI;K'Uhl 6blTh npoHrHOpllpoll<I' Hhl npll KOH<Im:H..\_'TC C 3TpllfiyTIIMH o6be-KT8 branch\_IWO.

10.2.5.3 BJ-teumee oro6paxen:ue.

ECJiu lfCOOJib3)'e·TC11 oueuruee oTo6pa:..:en1-1e, 3K:teMn: np ofu.eKTa }lonxen 6t. Tt. oro6paxe1-1 a COM·

PLEX\_ ENTITY\_INSTANCE (CM. m6mtuy 3).

rOCr P J.1 CO J03C)J. J I onpe..a.e.1SteT "qacntoe 3113ltemteCJIO::ttl-tOro o6'bet.."T'.t" ("partial complex entity vaul e") x.aK MHO:«eCTDO 3UiltleJt nn a-rpu6yroo \_, ont-tcauut.t:x e-AI-tncroeHI-tbiM EXPRESSo6MMemt eM o6t.­ e.tcra. Ka oe toul THna .a.anlbl iX o6'beKTa n MeMettTe onpeAe.rtReMoro Ml-tO)f{ecToa o6o3uaqaer qacTl-loe

3t-tatletnre CJJO uoro ofYL.e.\_'Ta *n.nn* )lauuoro 3K3eMM11pa oGbeKTa.TaKI-tM o6pa30M.3:JeMet tT onpe.!lenst:eMoro

MIIO:.KeCTDa o6031-f3ltaet' ).fHO\*eCl'BO t.taCTI-ILIX 3Uat.tet-utl1 CJIO)t(ttOrO o6'beKT3,'ITO, BMecTe C UMeH:eM 3K3eM•

ruutpa o6LekTa, no...1HOCTbJO onuct.maeT :m.a.aum.ati :>K3eMrut1ip o61:.e1...'Ta.

ll

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Ka)I(Jloe ltacncoe 3Ha'lemt e c.10 1-toro ofYbC'KTa, o6olHtl4aeMoe UMI?-HeM ntna JaltiHbXl ofil,eKTa o

3JieMet-rre onpe)le.r1SJeMoro MHO:.Kecroa, .o.omKHO 61>1Tt. oro6p.u:euo n SIMPLE\_RECORD (eA•mwutaS

3.101<c•J ""YTP" SUBSUPER\_RECORO. nopRAOK SIMPLE\_RECORO ""YJ'PH SUBSUPER\_RECORO Aon:t:etl6wn. ooJpacr.LJOLll.en nOC.Ilen,onare;u,uOCTb)() to.feH Tunoo aatnrhlx ofu.ek"'Ta c tcnonbJOnatmeM cxeMw ynopM,o'lemut, npune;temton o 5.2.

Ka)l{llaSJ SIMPLE\_R EC.ORO AO-'I:lKHa KO)lJ-tf)OR3Tb OJIJCO li3C T -t0e 3t-13lfet-ute CJJO::tef.I OfO o6t.eKTa. K EYWORD n Ka:.:.a:on SIMPLE\_ RECORD no.tnKuo KOAtiJlOBaTb c.ooToercroyaowee ttM.Q Tt tna A3HIIbtX o6beKTa. KaK onpeJLeneno B 1 0.2.11 , a PARAMETER\_ LIST .a,o.rr:.t.:eH KOJI.Jtponan. 3113\leiUtJJ $JOIILIX atpu-

6yroo, ec.rnt TaKonYe no}'lnnsuorca n coornercrB)'IOlll.eM o6hl!Memm o61.eKTrL rlopR,.!loK PARAM ETER o

CTPYKTYPe o6MeJ-ta ao..-nceH 6btTt. TeM :.:.e, ITO H nop.no..: coornercroyJOW.tiX artm6yron o EXPRESS-oG"h­ stMeJ.um o61:.e"-'Ta. ECJJH EXPRESS-o6La11.11em1e o6t.eKTa ue CO)lep:.t.'.1fT 11DIIb1X aTpJt6yron, PARAf\•IE­ TE-R\_LI "T )IO!I::«eu 6wTh nycn1M. <l>opMa Ka.:t:Jtoro PARAMETER JlOJrACHa 3aDiiGel'l.. or Tltna .nauu biX cooroercraytOlll,ero arpu6yra corJTacuo TJ>e6ooamt11M IO.l.

O pu Me•t tlH II M

I OOCJJe,llot" TeJlbHOC-n. 'liiCTHbiX tta'leuuti. o61.eK"ra (SlM PLE\_RECORO) onpe-Ae.rtst eTc,st llMC:HeM mna .!IIIHHhlX o61oek1'3 (nut lUllhiSiteMblM "J!.,tlltHHhtM IIMeHcr.t")a He ·'coKpaUtl:HHLI '-t 11.\I C:HeM " (ecmt 1<1KOIM>C CCTh) .COTOpoe 110}t;eT IICJ I Q.!I b:K>SllThC--JI )1,;11 KO UtpDllotlH IUI.

2 Ka.:tol,oe 'lllt.,.H OC: :!H ilI CHUe o6t.eKTII 8 onpeACJISICMOM MHO:«C:t:Tae ,AO.ti XHO 6bln. OpeACTIIk1C:H O, SKJUO"lllM

cyneprunbl,ue HMetoutHe :HUHhiX aTpu6yroa

np IIMe p I -Oro6pa:iKC:HHeIIO )l 1HIOU,CWI33HUbl'X nocpeACTtiOM ANDOR.

On ll,eJteHHe o&hc:KTa a lllbiKI!' EXPRESS:

ENTITY bose SUPERTY.PE OF (bb ANDOR cc); > A

attrib\_a :STRING;

ENO\_ENTITY;

ENTITY bb SUBTYPE OF (lUI); B

attrib\_b: INTEGER; ENO\_ENTITY:

ENTITY ce SUBTYPE *OF* (lllll; > C

attrib\_e : R EAL;

ENO\_ENTTI Y:

ENTITYdd; -------------------------------> 0

aurib\_d : aa

ENO\_ENTITY;

06pa.JeU, 31CJCMRIU1pa o6'beKT3 IJ ee.-ttHH AaHHbiX:

# I ... BB('sample string', 1 5); > A

*R2* • CC('S'\_ 3.0): > 8

*R3* • (AA(' ASTRID-lBB(I7)CC(4.0)): ---> C

P4 • 00(#1); > 0

*R5* • 00(#2); > 0

•6 • 00#3; > 0

#7 • AA('ABC): > E

A: # l SlBJUie'I"CS- I 3K:te.Mil.!U pclM KOM61tH9llllll aa II bb.

B: #2 stwtste-t-c.st 3K:JC..t.ttt.1111X)M KoM61tHaU.tlll aa 11 cc.

C: *P3* IUJ!meTCM aK:teMJUtll oM KoM6muu.•HH aa. bb u <:c-

0:o6t.CKT dd CChL13C'TCM Ha of1t.c.Kf' aa IUlK Ha Urp116},.. CJtCAOBIITCJlbHO.3lOCMltJUip 06l.cK'ra dd MO»:Cf IUl C'Ilo

ptllpeUJC:HHhi C: CC-biJI KII H8 Jt to6oii 113 ,K.lCMil.!Uipoll # I , #2 HJIII #3.

E: aa uc: JUl.rtllt:TG'$1 a6cTpaKn-thtM cynepnmoM 11 MOl<e-r 6t.n·,. npe.a.e-rnBJlc:-H noeun.tulpa.Mu, AJJst K(IT()pbiX

npHMC:HJteT(;.Jl IJH)'TJ)C:HH« OT06palt><:H.Ue,rtUCK0.1hKYIJ 3'1'0M C!t)"U'Ie Ollpe;J.C:J MCM()e. MHO;KecriiO cocrOIIT 1'0.tlhKO lt3

0;\HOru 3.1CMC:HT3

np ll Me p 2 -0 1'0{)pii»:CHHe 6o.rtc:e C.10:t:U OJ'O rp<Uj)ll n()JI.ntn/q•nepnm. Onpc;lC:-JICHIIe ofu.ettTtl " fl'lhiKC'

EXPRESS:

ENTITYx;

attrib\_x : fNTEGER:

ENO\_ENTITY:

ENTITY a ABSTRACT SUPERTYP£ OF (ONEOF(b,c)); --- > A

attrib\_a : x; > 0

ENO\_ENTITY:

ENTITY b SUPERTYPE OF (d ANOOR e);

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SUBTYPE OF (a);

aurib\_b : REAL: - - - --- - -> B

END\_ENTITY:

ENTlTY c SUBlYJ>E OF (al; > C

att rib c · R EAL-

END\_ENTfrv: '

ENTITY d SUBTYPE: OF (b); *>* D

aurib d·x·

END\_ENTiTY;

ENTITY *e* ABSTRACT SUPERTYPE SUBTYPE OF (b); > A

aurib e ·x· > B

END\_ENTITY:

ENTlTY f SUPERTYPE OF (h);

attrib f·x· > 8

END\_Emi1Y:

ENTITY g SUBTYPE OF (e): > E

attrib\_g; INTEGER;

END\_I!NTITY;

ENTlTY h SUBTYPE OF (e, 0: -- -> E

att rib\_b:INTEGER;

END\_ENTITY:

A: nOCKtl.tl bKyo6t.eK Tbl *0* ll e11a1 st10TCM a6crpaJ..OHhl l>llt C,YOCpTI I fi3MH, OIUt He MOJ)'T npHCY'fC'rltoUiiTb 8 <'.TpyKT)'IJC

ofht t:tU& 8 B\*VI,t: C-IUitX".TOMlt:'.11>HbiX 3K3CMit!IJipoU.

B: mX:K0.1bK)' nurib\_a, aurib\_b. attrib\_e, u aurib\_f MwuuoTcs• atpu&yraMH o6bC."k1"0B cyuepntno, oHu 6yJQo,.

O'I'06pa;KeHLI KaK yuac.1e)l0ti3HHLIC: IITptlfi)'l'bl 8 TOM C.ll)''!ae,tCJIIt npu OTo6JX'l}KC:-HHH fiOJ,I.nt n a llpHMtHCUO SU)'l'peHHC:C

O'ro6pa»:eu.ue. n1 11Tpll6)'l'bt 6yJJ.yr oro6pa»:eHbl KaK arpu6yru o6bcscron, n KOTOpbl:< OHH o6'wlatJeHbl, ec.111 non:mn

Cn'06p<'l;KC:U C ltCn0..1 mlH HCM IUICUIHCI'O OTo6pa..;KCHilfl.

C: ntx:KOJtt.K)' o6J.eKT *c* Y 'ilta.,yeT •onepaTope ONEOF, aero cynep..-un He )"facrayeT HH a t.:aKux oneparopax

C CYII C:pTH03Mil,) l!HI ofibeKTI! *C* 6').li.CT IICI·I OJi b3083HO UHyrpeHUee 0'1'06pltlKC:HitC.

0: OTo6p:t:«CHIIC: *d* 331UIC·IIT OTt-,,pyk'pbl Ollpe)lC:J MC.\IOl'O I>IUO;t :C'CTill&,U t>OTOpclM OHO OOJiliJUlCTCM.

E: noc..:o".tbK)' o6t.ekThl *g* 11 *h* H..\I C:toT c:yuepnm (o&beKT *e),* KOTOpwii Y'ttCTuyer a onep0rope AN DOR, HX

<7rO()pa;t.:C:HHC 6y.AeT 3a811CeTb OT crpyt:.1ypbl Otlpcxte.1HC:M0.1'

MHO»:C!Ctaa, a KOTOpm. OHH rtO.IUUUutCb..

3 3K:tc"'UIJUIP 06'bciMtl. fiOKal:hllllUOU1Hi1 BHytpei-IHC:C 0To6pa.:.<C:-HHC:.

PI = X( l l;

#2 - C(# l , 2.0);

A: onpen\_e.1JICMb.l.\l ).IUOiKCCrli0.\1 AJUI '#2' f l UJt eTCfl (C & a) H, C.ttC:.ItOilltTe!lbi-IO, llCrtOJJbl)"CTCfl UH)"I]>eHHC:C

aro6paiKeHHe.

8:aUrib\_a )'H3CJit,AOI:t.l tTHIIOM rulHHbiX o6beKTll.*C.*0 npeJJ.tJIMCMOe ..\utO:KCCmo fli1.1JIC:-TCSICCLI!IKOii Jut 3K3CMIIllflp

Tltl13 Jl;lHHbiX o&l tcra *X.*

C:altri.b\_c nOMI1. Jt e1"Cfl nocne acex )tl1iCl Ji e-AoaaHHhax tnpu6yroa

4 9Kle.omml p o6'bc:tMS,not.:a.JhlaatOutHi1 aHyrpc:HHee oro6paxeuue.•

••• X(J);

# I • X(I):

•2 - 0(#1. 2.0. #4);



A: mkKOJJLK)' :tKXMtLtutp o6KTa #2 npnHl'l!liiC-»:IIT Ollpc,ll«:JUI C:.MOMY MHOlK«:C.."TBY Ia & b & d(, KOTopoe nMoc:l·

ltriHO Q.'J.H)' IJCPWitHY (d), >01-1 OT06pmtuu::TCSI auyrpe.HHIIM 06piUOM.

0: ln")»t6y1• o6t.e-KT3 *JJ* C ltMC'HC'M lllt rib\_a YHaC!lCJ.I.OtlaH TIIOOM lUlHHblX O&beKTa *d.*

C.:attrib\_b yH&1t'!lOS3U TltltOM .IUIHHhiX 06l.eKTtl *d.*

0: attri b\_d JUJI.MC"f<:M IIOCJtetHit.M :rrpH6)"1'0.\I 1J 9KX..\111.1flpe *d* OOTO.\ty, 'iTO atpu6'fhl, )H'' aCJI OU:UIHhl e 01' ofu.cK'10a cynepnma *a* 11 *b* nosl n.'lfl OTCfl nepahiMit.

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*5* 9t:.le.\.11HUIP 06l.c'..-nt,IIOK9lhiiiiUOutHil SHC: JUHee oto6pa»:C:HIIt:.

P I X(l);

#2 • (A(•I) B(9.0) D(#l) E(•l) f(#l) H(4));---> A

A:noc t.:Wi bKY 3KX'.M11.1flpo6bc:KTil #2 Jl'lUl I C'TCSI••ne.HOM Ia & b & d & e & f & hl u :rro onpe;J.emcewoe "mo.lftecroo OUt'!HKH lt:.teeT 6o.Jtee OAHOMIIC."pWUHht ( JIIICra) (d H h). lt C-U OJibJyeTCM BHCUtHee OTo6pa»:CHti('. HeC)'U\e>C1'tl 'fCAHIIOfO llMCHH Tllll!l .llaHHWX o61<nt, KOTOpoe MO;KtT 6bln. COH.IQHO C o6'bCK'TO.\I, CKOpee *o(n.c.)..O* JtOJ »:t:"-H lll>le'J'b COCTllbUOC

liMN it-b-d-e-f-h. *flpofie bl* t.tt:«A\_V 31UIIICHMII of1t.eKTOil Ht'06MlaTI:.tl bULI 11 )l.06aafJCHI>l U 3TOM npm.u:pe ;VITOfO ,l'f06bf

o6JI C-1' 111Tb -.·reH II C:-.

10.2.6 51 DI-lLie a Tplt6yTLI, nepeo6'baor.enuwe KaK DER I' VE

EcJJtt o61..e"''T noJJ,Tttna nepe.o6t.:$1ll1Uie'r atplt6yT cooero cynepnma c noMOLU.bk) onepaTopa DER IVE,

a ttCXO)UiblaTJ) t6yr 111UUieTC9 RfUUJM, TO 3U3tletme HCXOJ(IIO rO aTJ)u6yra 0 cynepntne ,a.o; r:tafO KO)lJtpo­

B3TbCSI:u"SellJ.O'Il<Oil "•".

np II Me p- OnpeJ C.,CHilC- o6t.eKT3 Q fl lhlke EXPR ESS:

ENTITY poinl :

X : R EAL;

y : R EAL:

z ·REAL·

ENDENTrrY;

ENTlTY point\_on\_cUive SUB1YPE OF (point);

u:R£AL;

C : CUI\' 'C;

DER IVE

SELF\poim.x :real:...- f.x(u, e);

SELF\.poi n t.)':re.al:•fy(u, c):

SELF\point.z : re-dl :• fz(u, c):

END\_ENTITY;

ENTITY c.ur•e:

aur:STR ING;

END\_ ENTITY;



P I • CURVE('curve\_att ribu tc')

•2 • POINT \_ON\_ClJRVE(•, •. •, 0.55. # !);---> A

#3 c POJNT(2.0, 3.0, 4.0): > B

A: II OCK0.11.t::)' :t.tl,et-t. UC.IIOJi bl)'CTCM f10)1.TUl I C l bll'llC. SI C: I.I bi)UI <lTpllfiyTllMH, llpllfiyn.l *X,* )' " *Z* JaMCHC:Hbl

JS(' A.'O.lfll.

B: nOCKOJthKY POINT uc:. flU.. MCTCfl a6crpa.\_,.H bl.\t cyncpTIHIOt-,•cTpf.t.."l)'pc o6 eua Mo»:er npucytcr KlITb

3K:'M:J.UL1MP POINT. A1-pu6ynot *x. y* 11 *z* noJutmuon:fl 1UlK HopuMLH hle aTpu6yn.t.

10.2.7 A1'p Jt 6y1' LI, nepeo61.11Bneu1-cwe KaK I NVE R SE

Ec;nt o6l.ek'T no1J.TJ:1na nepeo6t.stnJUteT arp116yT cnoero cynepT1ma c noMOUlLIO oneparopa I NVERSE..

3TO 1-ce. MuSierr ua Ko;utpooatme..nepeofu..siBJieHHLII'i a·rp•t6yr n mo6oM CJiyt:1ae ue KOAiiPYfOT.

10.2.8 AT plt6 YT LI, n epe. 061dl one 1-11-1 t.l e K a K 011LIC aT pIt 6yT LI

Ec.rm o61:.e-KT non.THna nepeo6b R.r-1SJ er arpJt6yr o;u-toro 113 cnoux cynepra1noo KaK ADI-tblil arplt6YT.

T.e.ue c no.\tOUJ,LIO oneparopa I NVEH.SE 1m1t D'ERIVE, '>TO 1-1e wuUieT 1-ca kOAI«ponatme.

3ualleune arpJt6yra AO.rt:+..'liO 6bm.33KOJlJtpooauo KaK arpJt6yr cynepnma (eM.10.2.5)c npatMeJ-teuueM

oro6pa:.KetHHJ,onpe.o.e.nenHoro n pa3;lene lO .DJUJ nma .na1mwx arpJt6yTa o cynepnme. nepeo6-w Mem-awil aTpit6yr JlOJI eu nmopstpooan.cSI, r.e. 01-1 1-1e AOJJ::t:el-1 np&tMeiUtTLCSJ n :all.ecroe arpJt6yra no}lnma .lVlSI u.e..1en KO\_.Il fpotlaHJISI.

npIt,. e p-Onpetc,eH ue o6beKT9 B M:..lbiKe EXPRESS: ENTITY aaa SUPERTYPE OF (ONEOF lbbb, ccc));

a l : NUM BER:

a2 : curve; INVERSE

a3 : SET Of mmm FOR ml ;

END\_ ENTITY:

ENTITY bbb SUBTYPE OF (aaa);

SELF\oaa.al:INTEGER:

b : RIEAL:

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END\_ENT11Y;

ENT 1Y <:<:c SU01YPE OF (Wlll):

SELf\aaa.a2 : lii!\C;

INVERSE

SELF\aaa..J : SET 11:21 OF mmm FOR ml;

END\_ENTI1Y:

ENTITY curve-:

END\_ENTI1Y:

ENTITY line SUBTYPE OF (e.u rve):

END\_ENT11Y: ENTITY mmm; m l ·aaa·

END\_ENTlTY:

06pauu.t :)K:Jf:MJUISIJJOU ll CC:K11)111 )l.aU HhiX:

#1 • LINE(...);

•2 • CURVE(. ..);

*P3* • BBB( LO. #2, 0.5):

*R4* • CCC(U. #1,):

Jl.rut 31<3C:MilJUtpoH ,it.) H # 4 KOA,IIpoaauue n li(O¢ »:e, KIIK eCJllt 6111 He 6hiJJO nepeo6l.MWUIC.\.I WX 8Tp t6yrou 8

o6'bCK1'3X bbb ll CCC·.

10.2.9 ROK<Lil bHble npanu .r1 a ,!lJ19 o6'be- KT O O

LI.JUJ o61:.eKTOo noKa.-1t:.llbiMI1 SIMRIOTCA npamma WH ERE It t;NJQUE, Karop.>Je J-teAOJI'.t::moaro6pa·

.:«aTJA:11 B c:rpyK'Iypy o6MeHa.

np II Me p- Onpe1 CHite o6t.eKTa IJ SI:.JhiKC: EXPRESS:

ENTITY widget > A a : REAL: > B b: REAL: *> C* c : REAL: > D

WHaE•R•E +b••2 -c•• 2 • 3.0;----> E

2

END\_ENTI1Y;

06p!rti!U 3ICIC:MilJUtpa 06bC-Kn'l IJ CC:KllHH AaHHblX:

OpiUIHJI!l WH ER E He npc.ACTtlMC:HLI a 310eMruutpe o6-..eKTa.

12 •WIDGET(LO, 1.0, 2.0);

1 111

A B C D

A: IIM.lf o6'bCKTa widgel Ha S :thiKe EXPRESS OTo6p!ixeuo 6 KJ110-.euoc c.1oao Tllllll AAHHbfX o6beKTa JVUI o6t.cK·m

Ct'KtUUt A3HHbiX.

B: a 310eMMRpe o6 K·ra tnpu6)1T *o* nMe<:T ::JHfNe-HHe 1.0.

C: a 3KleMi t.'lstpe: o6-bctcru IITpu6yT *b* ltMeeT :u-ta-.cH u t: 1.0.

0: IJ 3KJC.\HI1Hp<' O&.btiCTll arpu6yr *C* tUICeT :JHilI ('.:J- e 2.0.

E:npamt.rlo WHER£ He oro6pa-:.:cHO ., crpyKrypyo6MeH3.O&t.t-tcr CHH11Ut.cn-.ecKH npo11111JeH.O..aHa.Ko:s-ta-.euua

Tp<:x ltTpti6)"1'0B He yaoll.1CT1top1UOT nparmn. y WHERE-.

10.2.10 0To6pa:f<euue uuo e pcut.tx ( INVERSE) aT plt6y T o a

A'rpu6yrbl, omtcaH!moe n onepaTope INVERSE, 11e .AM::«tn.t o1'06pn:an.cs. o CTPY..',l)'PY o6Mena.

10.2.11 K o.n H p 0oB a11 1te 14Meu Tltn on o61.eKTOB

ECJllf ,!lOKyMeJ..I'f,o.npeD,eJ SIIOUUtn CXeMy,:liOeM0.. Sipb1 KOTOpolt RB!l1110TCR Rf)eAMeTOM CeKUI-IH A3U·

1-« bl:X, onpeAeJUieT taK;t::e tt 1-ta6op coKpaLU.emn.ax HMe·l Jl.,-S1 I Ka)fiJ[oro nma JtaHI-rhiX o6J.eKT'.t o cxeMe,TO one

coKpalll,eHllbl e tn.teua AOJJA' <.Hbl Gbm. ucno; :3. 0oat t Y nptt KOAttponamnt uMeu nmon .lt31-IHblX o6"Le.KTa. B

.llPYr<>M CJI}II.fae JtMeuaMu Tnnoo A3HHLIX o6w.\_'T3 np1-1 KOAJtpooaJ-Itut Gy;!lyr caMtt lfMeHa n mon AaJ-ntbiX o6'LeKTil. B o6om: cnyqaSJX nee *t.mpOitltbi6)'A:6bi* )lOJIXHLI 6LITb npeo6pa30Ballbl D COOTBeTCTB)'lOLlUt e *npOnUCIUllt 6)'K8bl,* T.e.KOJJ. ne JlOJI)I(eJ-1 con.ep:f<at'b HH.KllK tX *CII1J10ftlfbiX 6)'K6.*

l$

rocr P HCO 10303-21- 2002

10.3 Oro6p.,.eouoe aneMeorra EXPRESS AA• SCtlEMA

:!}JJeMeiiT' EXPRESS )lii.A SCHEMA ue .a,o.rr)t(eu oro6ptl::«aTbCn crp)'KTYJ>Y o6Mem . HMs. cxeMM,

KOTOJ UI omtcw.oaer o6he..'.TLI, noJtM.910lll.ttecA B crpy..,"fYpe o6Me.ua.A0..1::«no 6wn.oro6pa:«et..o B :JarOJJo OQ\IHon ceKtJJtH crpy..:zypw OO·MeHa c noMOUlbk> :>K3eMrtJUJIXL nma tull-tHbtX o6'beKTa me\_schema,KaK :no OnlfC3HO 8 8.2.3.

10.4 Oro6p.,.emoe a•.eMeorra EXI'RESS M• CONSTANT

3neMtHT EXPRESS .r..ru1 CONSTANT ue AOJl)Kftl OT06paxa1'..CJI 1CTp)TJ)'p)' ofiMeHa.

flpIt M*C*'I ll HIf e- .Kor)I.!J )UlHHbiC OTo6p0 UOT ll CTpyt..-rypy U6MeHa, CCbL1KH HO O)IH)' ItIY }KC. KOHCT<ll -ny HC COXpaUIUOT.

10.5 0ro6pliJI(euHe :>O<Meorra EXPRESS M• RULE

9.1leM.eiiT·w EXPRESS P.IUI RULE J.te )IOJI:.<Hbl OT06pa aTbCfl s CTPYK'TYPY o6Meua.

10.6 .KOMMCitTapHW.

KOMMetfT:lputt J.Je JlOJI:f< -11..1 OTo6pa.»:aTbCSI 8 CTpykl)'PY o6MeJ-ta.

11 lle•oaTHoe rrpeJICT&BJienae CTPYKTyp o6Mena

Ltns. ynpaB.treutUI noall!tet-nteM crp'KTYPLI o6Me-1-1a o nettantoM BHJle MOI)'T' 6wTJ. ucnortL30DaHLI KOM6UIIili.IJUI rpacl>Httec:KUX CltMBOJIOO, K3K 3TO Ol111C3HO 8 Ta6JU(Ue 6. n t JUt(>eK'TliBLI MOfyl' 6b1Tb npen.craa..1eubl o mo6oi'i no3ul.Un4,rAe MO;,KeT nosrntnt..Cn pa'lJleJUtTMh JteKceM (lol::en separmor).a -rax:.:e Bnyrpu CfPOK (SUing) 1-1 )lBOU'fHhiX Jlla\fef.IHn (binaries). rlo\_rtpo6J-I OC'Ut ,tcaCaiOU{IfecK palJI.e lHTeJJeA .!leKCeM, npttne)lettbf B1'a6JIHLte 3. KOM6J11-13UUH rpa<fltt'IOCKHX CllMBO.ti OB Jl,OJDKHbl R09BJUITl>C$1 8'-teCTe 6e:l DC.TaB'k f

Me»>:J;)' 1-Ufi\tlt K3.'..ltX.11 6o rpa$1-t \l eC.KJfX CI-IM00-108.

BH)'T'J>t t CT'J)OK T'.tJCt:e pa3pewenLI 11UHbl e AttpeKTtmLI }'flpan..1enun npoue\_nypoA neltaft.t..Qupe.Knmt.l

"\N\" II ..\f\" ue OK.r-110ltaiOT 0 ll!alUtMoe CO}le-p:.catme CTp010t. Optt KOAitpoR3Hitlt CTpoK CM. 6.3.3.

,llt1peKTtmbl ynpan.1euun: npou.eJl.)'J)M nelmnt ..\N\" u "\f\" nc.no..1MYIOTTOJibKOJUlSI ne'larnoro npen.crao neum1 crpyiCI)'pt.a o6Me·t!ta. If o.ltPYrHX cnyqanx 01-ut Jl.OJDKHbl ttntopwponanc.11. OptUJo emte G npeJI.CTao­ JUieT pyKOBOJI.CT'BO no pacnettan:-e CTP}'KTYPtJ 06MeHa.

T a6.11 1t u.a 6 -)lJtpeKT11Dbl ynpan.Ttel-tlUI nettaTMO

|  |  |
| --- | --- |
| 00CJie)lOBaTeJJtI. IOCTI. rpa4HttteCKUX Cf!MBO.r10R | 3uatlelme |
| \N\ REVERSE\_SOLIDUS N R EVERSE\_SOLIDUS  \F\ REVERSE\_SOLIDUS F REVERSE \_SOLIDUS | HonaK crpmca  Oepeoon CTJXliUUt.l |

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OPH.OlKEHHE A

(oOsrJinenbHoe)

OpeACTaa..rteuHe aAna ua HOCNTe!le /.UlUHWX

J>a:snH•t<liOT CJic:JI.YIOlU,II C UIUibl HOCIRCIICI'i. COJK-p...att.tll t: crp yt.."T)'pbl. Ofhtt:l-ta:

- nepeHOC C .QOC1)'U0M *K* :JaOilCHM (Record-Ori ented transport)06bl'lHO XllpaKTt:-pHJ)'eTCH KllK M9fHHllt3SIJlt:UTil

110 MO;t{eT 6hll'b JlK)()blM HOCil1'eJ CM )UIHHb&X C JJ. nyl'IOM K 3<'1011CMM;

- nepc-UOC *C* JI.Ot.."1Yfl c.ll.l K <.";"JpC:n.:aM (Li ne-Oriented (r.tOSport)0 6h'IHO X:"lplik1l:pll.lyeTCM talK Jl, H:Kenl ,HO .\IOlt>C "

6bltb nJ06hlM HOCKTCJlCM .11-IUIH hlX C .AOC'I)'Il Olol JC CTpoKUM.

8 o6oHX C.1Utlf.Xl.leJlbiO IUIJlSICTCM UCpr:CbC,;'IKII ll OC I e.tiOIJUl1:JlbHOCTI1 rpltiJIII 'lCC t\:UX CUMSOJIOS OCHOliHOro &.1(J)a-­

lll nl,Kax onHcAHO nHIICTO:Sill t:M C'll.iHllap·n:.Am• HOCi rreneH, CO..'l,cp»:aJU.HX crpyKT)'pyo6MeHa,npuMt:HRIO "CJH .owHc

cormUUC:HIUI.

A. I Co)t('.P»JlfiHt" HOCttTUJI C JI,OC"1}1toM K :JUICI SN

l\1iUl'lt1"Uast.,CHTa MO eT Co;J.C:p»:an,HecKOJi bKO Ha6opo6;taHHbi X. KbdHl a6op MOJK<:T 6bll'bII OCJit:-UOIJU1'ellb·

HblM < )ll \.riOI) ,CQ,!LepJKaHtl.e KOTOporo MO:iKCT 6b1Th mrrepnpe:rnpo lllHO Ka.K CtpyKT)'pa o6Me-Hil,COOTIIC:TCTIJ)'IOWilM U3CTORUlC-'M)' C.."JilH)UPlT)'.

Omplltu rre,•• neHn.a He<.'-t:'r OTfte"t'Cv. l'l-e-HHOCTb la coo6ttl<"HIIe mo60).I Y no.,yotS'feJliO JleHTLI (<icpe.;s .1C:HT)' l VIIt

IIHLIM CII OCo6o)l. ) HUcj)oplot.UlUHII 0 TOM, KUKHC Hll6opbl )UlHHLI X SUIJUUOTCH crpyK1"Yp<L)H! 06MCHa.C001"a.eTCrfi)'IO·

IU,HMit HiiCTORWUI Y CT'd.H)lllp1y.

<PopMaTbl TPilHCIIDp' 'llpOlU::It (1paHC00pTHbll! < )OpMaTLI) JV M Ka oiiC.."TP)'K1)'pbl o6MCH3 C.1C;Q'IOW.IIC:

- $'Jiin .!lOJI.IKCH COC' 'OH'fb Ill UOC!le.iiOllaTeJILHO<rrll 3tUutcdi;

• tiC'pUiol.\.111 rpa$11'lC.CKIIMH CH)I. OOJlaMH IJ11C'f180fi l U tcH)l0Jl:t:.lU- " 6ht'1l>CiletlltaJi hi-UUIJIC'-KCC)Ia •· ($0-10303-21;'',

K01'0p.'UI IIHIH Itllp)'e·T crp)'"Kl)'p)' o6).1eHtl. <J>op'-tlrrllpoli<Uute HOC-111'eJUI ,ll.3HHbiX lllSHCUT OT OUep<Ul.IIOHHOi CUCT'e..l\ bl

II lff!JUICTCSIUpe!IMC'TO)ICOt:lalUCHUfl MC:jftJly Ompaa1fli0UldiII nO.t)"flliOUI<"- it.i'OpOHat•UI

- U0C.1C)UUISI JllJUI C-t. .llOJI:t:l-tll 6blTb :IIIJ10JU! ei-Ul (ecJJtl HC:06XQJliiMO) *nptJfie. OMJI* Ja *ltiO'I.A:Oii* C' *JliiJJUitoli,* 01'HOCSI·

ll.ldicfl K cneUJIMbHOiineKce.Mc··ENO-IS0-10303--21 ;"'.

A.l.l <I>OpMHT H C- PC .!l ll llt )lJffl HO CHTCJifl U ti Mll r H IITH OH JIC H TC

A.t fl ll <'pt:.Aa'llf 1-UlJJt' :-H1'e- o6MCHII biX tlx'lflJJOIJ 1'1pc!.!l,J10'1'111TeJi bUbli1 (jXlpMirr o6MCHU Orlp('Jl.eJUUOT CJI(' 'klUI.HC X<'IJKXlTepu<:-'11KII, ycraHOilltCHI-fLi e a HCO 3788:

U.UtpUHII neHTbl 11.7 \JM (0,5)ll0bi aa);

Hepa:IMC'C: mUfl J C:Hn'l;

.ll.<'bfl'lll.llOpQlt:C'fH<I II JI C-HT3;

UJI OTHOCTb 3!U'IIICII Uti .11etrre- 63 C·IIMBOn/UM (1600 6mj.lltO" h 1);

- paJMep ll.:ui'fe:CKOro 6J OK3- 4000 OKTC'l'Ob (8-6U'THb :l( fulhoa);

- 6J OKil p<U..'J.c:JIC:Hbl llpCHi yc.KIUCII Melt:A)' 31l.ftltCJI)IIt;

- la OOC.Ite,ll IIM fir OKOM )IO.lt li:CH C.1e,li,OS.."TTb &tapK<:p JlC'HTbl.

TtUOKC M0»:CT6LI11> HCfiO.tl bJOIUlH,llpymit C1'llH.IlUPT HOC-IITI:J .M Hll MllntiiTHOi'i .fiC:I-t'TC.l ltUipUMep MarHlfl'l-tllM JleHTa

C 11.10THOCTbKt a3n11CII 246 CIIMli0.1/MM (6250 6uThl,)oi'i.M).

A.l.2 .Q. p yr u e H UCitTC JI H ,llU HHbiX C ,li.OCTYIIOM K lll ii HC II

,npyrue HOCm'eJlH, Ha K01'0PbiX <T. pyKT')pht o6Mt:H3 XpllHSI TCfl Kll.: IIOCJte,ll081m:Ji bHOCTII JllT1HCeit, MOIYf HCIIOJi b·

l01k1Th 1'aK»:C clX>pMaT fiCpe;l.ti'IH. OnpeU,C'JlCHI ibl il ,.1.11-M.1CHT.

A.l CoJ\4.9' »UlfiMt HOI:MTVUt C ACK"T)"UOM K CTpOIUtM

J-ICKOTOphfC tl. llrHirt"HhiC HOC-ItTCJIIt C-O.AC:p:iKaT Ha6ophl A9HHb1Jt, XpiiHSUU.lleot KllK riOCJI C:.ttOIJUTeJibHOC1"1> '- POK.

Kait:J ,LI 'i Il l *:nii X* Hll60pob MO:..:eT 6bl tb llOC!IeAOSa'IC' Jil>Hloi:M C aiiJ OM,CO)lCp:t:aUIIe KOTOporo MO.:ttcr 6bln. 111-trepnpe­ TllpollaHO KaK ¢otin, COOUte'I"CTtiYIOtU.Hii HUCTOfl.U{CM)" CTilHAtlp l)'

<PilfL!I ,li.OJlJKCH COCTO'Jn'b H3 OOCJI OU'I.' "C.II bHO(".Th ctpOK:

- nepnr.1e rpa(j)ll'iCC-"tiC CHl.IIIOJlbl ll nepuoA C-TJXIKC .ii.OJ..,KHbl 6htTb CllC tlllll,bl-f Oii ! lC'KC<:MOil "J$0-10303·21;",

K01'0piUt IIHHU)lllpyc'T CTpy.KT)' Y o6r.teHa:

- OOC.1C:,li. M,fl <."TpoKll .Q.0.1}t{Ha 61.rrb .llOIHlJIHCHil Uplt HCo6XO)UIMOCTH Upo6e.1<1.\.UI 311 cneUIIlli'IMI Oii neKC<.'). OH

··END-JS0-1 0303-21;", lfCaep!mUoweA Clp)'KTYP)' 06Me -ta.

Cpe)IC\_ TB3 OrjX'U-III 'iCH.IIM CTpOK II npe,!IC" "l:'UIJ C:Htlfl KOHtlO < mitJIU:utaHCflT OT onep<U.ltl lmOA CliCTeJI. bl II flB.!ISUOTCII npCJUI, C'TO) I COI":'UUUCHH$1 l'llC)t;lly O'I"IXII'UUI1C' !el.t It n0.1 1lTt"JlC:M C )' ! <"TOM TUrO, qyo OrjX ll I'UITC.lt ll H<" Jl.OJL:«Hbl llCIIO.lt b:tOSIITb KaKHXJ·IH6o CtU.utOJI OIJ OCHOI\HOl'O AJt tiJo!Ui n'lnpu JIK)6oftl IIX Up<'ACT<ta1CHIUt Or(XIUIIillle.lll l <. rpoK H

< mlt.19 ,1 . .. :iKHbl HI'HOpiiJ)()gllTbCJf IIPII ofipafi<ITKC C1]))'K"f)'pbl o6MeHa.

A.2.1 iCl> o pM OT n cpeJia.-. u )l.HC HOC.II TCJt fl HQ )llfCKeTe

.Q.t fl fiC\_ penaqu C p)'KT)'pbf o6).1C'U.9 MO:KeT 6biTL UCIIOJi blOIH mo6oit H3 11011)'.1flpHblX HOCHTC'.1Cfl Ull i.HCKeTaX

{3.5AIOiiMa, 5,25.AIOib.ta. Hl llKOil 11.111 m.tOOKOit llJIOTHOC.ru JllUIICII).

*l1*

rocr r HCO I OJOJ-21- 2002

flOC.."ltlJilU)IK T&Kofl ):liiCKC'Tbl HCCet OTbeT"lTIIie HHOCTb l!t COo6JU.CHIIC .III060M)' np11HH.\19K)IUCMY tul ¢lopMtUUUO ('ICPe:J. )l.IICKC:l)' 11.111 HHbU.I cnoco6m.t) 0 1'0.!J. K3Kite 1-tlt6opbl A,aHHblX flll.1fliOTCN l"lp)'KI' )'pilMH o6MCHa, COO'JliCTCI'Il)'­ IOtUH)U. l HI CTORIU.CM)' (. 3t(..'lap1)'

*A.2.2* ,[l.pyrHe H OCHTC .tlU

.QpyrHe HOC I11-e.ll ll, H:t KOTOpbiX < Sfulbl XjXUUITCM Ka.K I IOCilt.U.OBit1'eJlbU()(;l'JI CTpOK, .\IOIYf llC I I OJib:K)ti3Th T01' :«C

<I>OpMaT tlCpc')lll'tH, K<n'Opl>l.ii Oll Pe.ACJIC:H AJIII A.J I C KCT. 0 '-lltCTHOc•1'1l,TOT tJIOp ttn MOlt>.eT 6b1Tb npurOACH *)1..111* I'ICp::Aa'fll

•tepel CCI'II CBU l Jl (£-m'ail).

Al 06pa6ona MHot'CYrOMHWX +aiino•

Mo:Ker' 6bt'Tb Heo6XOAIIMhlM pacnpeu1!.11l'I'L CTpyKl)'PY o6MeHa 1-Ul HCCKOJUoKitx m ii'ICCKUX ro.)t WL Cnoco6

opra.HH:lllU,HH MHOroT<U.IHbIX 4Jafuton B lU'tCTORlllCM (."f'tlHJJ.;lprt. HC paCCM:trpH B:lCTCfl.

flp II M *e* Ia H H C - B31l8HCHMOC1'1t OT t.:OHKPCTHLI.X )'C10llti1 o6'beJU' UUITb ¢ 1l.:lll'teC-KI' l pa.:t,!.leJibHbi C: TOMS l>fHOr<>· TOl>IHOro tJKlilJIIl 8 O) H)' MHOfOTOl>IH)'IO (.,'Tp)'Kl)'PY M0<41:HO C· llOMOill,biO COCU)tMbHblX nporpO.\.UtHbi.X Cpe..ti. lll llJUI OnepI; UilOHHOtiCltCTeMbl.

nPIUOlKEHH E B

(o0fl.i ' 'CJI bHOt-)

CorJtuIIeiUJJI DO 3aDBC11 a CHIITlUCCHlfOCKOII BOTaU,.KH 8HpT8

CuwraKcHc (i1J>)'IO)'pbl o6MC:·Hil onpene.r1eu a c.ut-tntKCH'lecKoH uomw m Bupnt (CH B), onyfiJutK0113J-moi1 Htttt­ J ayeoM BHpTO.!o.t ""Comm·unicaL.ions or the ACM. 20:11 (Nov 71), 822-8'23".CHB COCTOIIT H3 Ha6opa hbiSOAOUIUlH npaaHJIIIO ACT UIOIJKi l 3.tt C:..\.IC U1ll.1C110tf •tncnt UbUI()A.-"1 (T.C:.IIC:peA 3HilKOl>l pllliCHCTBa) M(:t:CT 6b1Tb l-tCU0.1b30113H Jl,JIM

rtpCACTill:t.IIC:· UUI IIOSULti C:.UtJI o6pQlU,Il 8 npaooH '11!'1:1'11. 3-JteI) C-1-fnlpHblC CUMUOJibl, KO'ropt.l eII OHtiJUUOJCM 1 '0. 1>KO 8 rtpS!IOH

' l-llC1- '11 TllKII.X IJbi iiO }lOU. t-ta U.tSilJOTCR TCpM1Ht3.11>Hbll>tll. 3.1C:MCH1'LI,kOTOpbiC: H0111Jf.l,K71UI a .1e110J% 'l!lt."T.. hbUIOOOif,

1Ul3b11Jiti01'C11 HeTt'pMI-tHaJi bHbi Mlt.

ComatueHIIM no J:iUI UClt JtltH.bl t-m; Ce. Ta6ru-uw B.I ttpe;tC1lllt.JlMCT cawoonpe tentHHYto CHB.

ClpoKa *nponUC'HbiX •fi.l'KR* SIIJ.'1.SI C·:1'CSI 3.1eMCHTOM 11llo1Kl1; CTpCU(3 JIIJ.1flC:1'C11 llMeHeM 'JJIC-MtHTil (AJifl )'JlofK.'Tm'l

*C'nlpo'lln.te 6)'KN61* UCI10.1h3)' 11'C·Jl )L1H HC:OR()CAC.10UH b .X HJI,eU 'rtl IIKt'ITClpOS IIKOM.)I. C·UT!IpHCB).

nK:J6aM crpOKa,'l3K!TK) !CHHilM 8 *KtNUtl-lfKit,*1)'lU:f0 onpe,!'J:eJb1eT OQ.:I.CplKUM OC: ll-tyrpll *KIJIIUW!K.* f.nHHCTIICHHbl ).l UCUIUO·

'feU.IICM H3 :noro 11Jl:OSHt. ll SII./IJlt're.M lla.K *Ktfflbl<te.K* liH)'TJ)It 1'e:Kt.."Ta. lho6bl pc:rutu30tl:lTb ero, JHilK *KOIIWYeK* Cpoly JKe

IIOB'fOpSIIOT O,ltii H pal-. nOCJI CAO I.'IleJi bHOCTb . ... ..lnrrepnptTHpycTCSI KaK'', a H0CJlt)l0 f 'e1bHo<."-Tb -AB'"'C- KaK AB"C.

*3JtaK fXIHeH<'mtUJ* \_ \_.. oJua<taeT llblliO.A. OnpeAC:."'CHo,'ITO :l.II C:).tt:HT CJl lm)lOJJ: Ke-U 6b1Tb Jo:OM6H Haqudi l.'C:MCU1'0B

CUpasa••I'Jto6t.te *npolfe:Uii,* 001ta1fliOlUltCC:R MC'»:Jcy' 3.tl eMet-rr<UIIl 81>UIOJI.Il,He flatUtJOrC.M lH<NilUlllMlt,e<:JtH Oml HOSIIJ.11· IOTC11 He tJH)'TPll JIIIT¢plt.1a.8bltiOJI lanepwac:rc11 *mo-.t..:oii* ·•". .

*<IJrU)'pHhle CKo6KU* "'I )"' 3Ha•t UO'I' HYJi b MJut 6011ee rtOtnOpeHII .

*Ktrat)panmwe ct..:OOKu* .., I" oJutl<fatoT HC:o6Mli re.tl t.Ubli1 nnpa.Mt:'l"fl.

*lkpnruKOAhlttJR JJwtuJt* ··r· olJm••ae-r ,oru<tecKoc 11.0 H.

*CKo6Ku* ""( )" nOK93blllaiO'r npttOpHTCT onepau.uil. 0'IUCniOCTlt.Ta.\.t, rne c-Ko6Ku lftulKNO.toT a cc6:me.MCHTI.t,

paJACJitHHble *ttepmUKQ.IJWIMMII AfmlllUIU,* O..tlHH H3 3.1CMC:HTOS AOJ1lKC:H 6bl'rb Ubl6paH ll CO'tCT:lHJHI C nJ06oit A,p)''I"Ofl

oneptJ.u.nett

flp 11 M *e* p- 0oCJteJtOIJit1'e.tl bHOC.T • ""A(BfQO)" 3KfiUIIWlC:HTHa "AOjACjA.O...

Ta6n 11 u a B.I -Ca.\tOO 1pcAC:.JJC'HHaM cuu-raKCH' C:CKWl HOTilU.Hst OupTu (CHBl

SYNTAX =·IPRODUCTI ON ).

PRODUCTION = I DENTIFIER "=" EXPRESSION ".".

EXPR ESSION = TERM I"I" TER M ). TER M = FACTOR I FACTOR ). FACTOR I DENTIFIER

I LITERAL

j")" EXPRESSION") "

j"(" EXPR ESS ION ")"

I'T EXPRESSION ")" IDENTI FI ER = leuer lleuer ).

LITERAL = '"' "" ch.arnctet·character t ·.,.m.

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OPHJIOlKEHHE C

(o6suan:l.l bHoe-}



C.I OGU3Ha'fetute AU IQ'MCHTll

Jlml1'0ro orro6bl o6eCIIC'llfrb 0)l,H OJH 3 1HOC 060:JHil'iCHUC: H H¢x>pHilltHOIUIOt'O o6J.c:J..-ro b O'KpbfToii CHCTC:Me,

H aCTOMUlCMY t".TilHJltlPl)' n p IICOOCH ltAC H TitcbHK:ITOp 06lter1'3

{ iso slandard 10303 pal1(21) ve rsion(3) }.

C.).UolC.1:mlro .JHU'f('HHA onpeu.eneH " rocr p HCO/M9K 8824- I H OIIII C;IUI · rocT p J<ICO 10303-1. C.l OGu:ata..e cxru.w

*llmt* Torn'lT06bl o6ecnt'll nL QJJ.H03Ha•tHoe o6ou: -u'lieuue bcader\_sccliun\_scb{'UIJ. a on :pt.noilHluj.>opM IU,ItOHHOPl

CHCTC'Me,be tdcr\_s tC ioa\_sc:be.rnll (CM. pal.!le\_ .fl 8) npHCik>CH Hll,CI-f'lIUIUUlTOp o&M"KT<t

{ iso stombrd 10303 part(21) vo,;ion(3) object (I) header-srction-schema ( I) 1.

CM btC.131'0.1' :mtl•CIHHlf onpeneJIC:H B rocr p HCO/M3K 8824-1 "Oflllctllt · rocr p HCO 10303-1.

l9

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(o6suan:.llbHOe-}

OcuoeuoA anc »aaKT " 1111.00p rpacl:tMlfCCKMX CHMBOIIOB

f!Xl<l)lt'I<:C-KH.I.UI CHMaiO.tlti.MH, llC-HOJtbl)'C:M hUUI IJ CTpy).."T)'pe o6MC-Hll, HIIJUUt:ITCR CUMB0.1hl CrtlJl6U.OU *02-01* Jlu­

TIIHCKOro atu aama Iconwcuo HCOjM9K 8SS9-J .

flp H Me'Ia H II *C-* fp<MII'fecKIIC CltMOOJII" II"J06pll«C'Hhf S nt6.u, u.e 0.1.B tiC'pXHefl C-TpO (C' npHlle)l.eltbl crap­ IUHC' 'tC'Tblpe 6ara n.aHHOro fkdha. B C8.MO.\.I JIC'liO.M CTOJ 6U,e- M!IIUI.WHC' 'feThlpe 61rra.

Ta611 1t ua D.I - Ha6op <:HMUOI.IOB oc-HoaHoro ll1<aaum, ucno.nh3}'t:M Wil a CTp)'I(Type o6).teHa

001 0 0011 OIIKI 010 ) OliO 011 1

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0000 () 0 @ I' p

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00102

2 B R b r

00113 # 3 c s c s

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0101 5 % *5* E u e u

O l iO 6 & 6 F v r v

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11 01 13 - = M I m }

1 1 10 14 > N A n -

I I II 15 *I* ? 0 0

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OPHJIO)f(EHHE E

(o6srJaTellbHoe)

(l)opwa 3aSIIKJt 0 COOTaeTC'J'BHH peaJIKUIJJIH RpoTOKOJIY

<PopMa l!UUIKH 0 COOTlleTCI"tuut pcatut:J.a l.U IIt npOTU K.OJty (3CPn) llpc,.!I,HIIll-l ll<tCHl:'l ,!I.!UI 06eelte'tC'HIUf OUC'HKH COOTIICTlTIUUI pea.'JH31lllllii HaCTOHUIC'M)' C·n'IH.!lllpT)'. HacTOH.utOC·: UpH.II U.lKC'HHe coc:raa!JeHO II cJ>OpM.e BOOpC>CH IIKS. J.aHHhUtltOUpOCHilK A0.1:lKCH fihl11> :J:'IJIOJIHC'H peB.'llt:J3TOJ)OM II.\I. OlKeT 6b1Tb UCIIO!lb:JOSilH HCII htTtll'eJi hHOi'i JUt60p3TQ­ plteft l l pll J10AJ'OTOIJKC'· ll'm::CTn tliiOHHOI'O tOCTIIp()llaH IUI lllSI WJCH H O.ii pe'dJIIt I<'ILU tlf.

Doe pca.nn:wtopw JlUJl»:Hbl onscnrrh Hn aonpochl,3wt,aHUbte a nyHtnl'lx E.I 11 E.2.

E.I Coonettntte :t.IIJI,aHOOH cjJ)'HKLI.MH

flpoiM:"p$UOr COOll!eT'-"TIHI C: )'taU::U' Hi m.ty 11 3CP0.

E. l.l KonupOIHIIiH<' "1K 3eM n.1Mpa o6 'bc: K TII

06ecne•UISae'r .1H pe·aJIU:s.<U.liMi KJJOOC COOTUCTC:TUHM 1?:

\_ 11,.1$1 11'CHII M , \_ JVUI lllOHCil.

<>€kC:f1C'. IIlOr ,1H pt'WIIf:JO\UJ,UK KJIIICC COOT11¢lt'TUitK 2?;

\_ ,.!1,.,1 ITCHl UI, \_ ,IVUI3llUHC.IL

E.L2 K o.ttupu uaHue cuKp3lUCH H biX II MCH

06ecnc•lll 81te"r •111 pe•<uut:JallllM npeJJCTaWICHIIt' COKp:UUt,'UULOC ft.l> CU o6Le-KTOS?:

\_ .!1,.111 '11'eHUIC, \_ AJUI 33UHCII.

06ecnC : IH8ae'l'.11l pc-Anltl<tll.ltll npencTii.Mi:HIIt' COKp!Utl.eHHLIX H.).. CJINJ.M:tuil'ICHIIfi llbl6paHHhfX TIHIOii?:

\_ .!1,.111 'lTCHitiC, \_ J,.!UI 33UHCIL

06eCU C'Il81te"r .111 petl.lut:WU.l,ltlf Upe-aCT:UIJICHilt'· COKpaU.l,t'HH.biX MMCH MM nept'IIIC J 11CMbiX:ni U'lCHHi'l?:

\_ ,.!1,.111 '11'eUIIM,\_ JIJUI 3aUHCIL

E.L3 K onupOIHJ HHI!' <: TpOKH

06ccne•maaeT .111 peMU:J:!Ul,llll KOJI.IIJlOP.."'HHC 8(0p}.181'C \X\ ,11.'111 8·6Un l biX 6a l'hoa?:

\_ .11.111 I TeHitM:CC.'111 Jill, lai.K080) l Mlll'lH OcII'IX\llCTaBJJeUHC, ltCil0.1.h301JaHHOC 8 peaJUt:I..<JUI. Ut?•

.!1,.111 :t.il.llUC-U.

06e<:.n C' H6aeT .111 pc'.aJIIIJ.al.l,IUI KO)lltpOS3HUC CII.MJI.OJ108 a >OpUUTilX \S\ H \f'\ 110 craH)lapTaM C¢p11U

11CO/M3K 8859'?:

\_ AIUI 'l'n : UUI: CCIIII..lUi, KaKOUO JlJI()U IHOt' Upe,IICTilll."'CtiHC,liC H OJi bJOSaHJHX a pc:'.WIHliiUH.H?.

\_ JVUI :JllUJtc.ll.

06ecnc,'ltlUaeT *nH* petUIItJ aU UI KOlllli>OStiHIIC CHM80.,01:1 a < lOpMIITtiX \X2\ tiO CTIUI) UlpT3M <:eptUI

11CO/M3K 10646?:

\_ .tL11 '11'elutM; t"C.t"l ll ,IJ.Il, k11K080 )lOOil'lHOC llpellC'J'3tiJIC-HHC, HCU0.1h3QllaHHOC U aJIIt:JalUut?,

\_ )l.1SI:J.'lii111Cit.

06e<:Ot''lltUaCT *nH* peaJut:JaU UI KO.IUl poBUHIIe CHI.IB0.10B U < Opl.UtTtlX \X4\ 110 t..'TitH)lllpTaM <:CpHII

11CO/M9K 10646?:

\_ .111. 11 '11'eHIIR;ec.'IH Aa, laiKOSO )lOOII 'lUOC llpe;l.C-n' lBJfCUUC, ltCUO.,h30JI.aHH()e 8 peaJJ.ltltUJ,IIf?.

- )1,.111 :JaiHlCif.

£2.

OrpllHH..ttQUIpl"1t!JOlltm•

f<aKOaO Mfi.KCH.\ aJibHOC'IIIC.'JO C XC<\.1, Ha KOTUpbiC MO»:HO CCb1Jfa'1hC11 6 t"..'' p)'KI' ype 06Me-Ha? KaKOBO ).tS.KCit.\tatl bKot UIC.10 CCto:tJ,Hi'l JJ,aHHbiX , IXO)IJ'IU.l,KX B CTp)'JtTypy o6Mt'Ha?

fUtKOBO Ma.KCH.\13JibHOC'III CO., 310CMll1flp()B o6'bt'KTOU,JUO)UIU\UX U CCKUitlO AllHHbiX? KaKoao }.ta.KCH}.taJibHoe •ntc.1o :JK3CMM 11poa o6t.t.aou, •nwvuuux n <:TpyKl)'PY o6wcua?

fUtK080 M4LKCIUt8JlbHOC: :JHS' CHHC ( 11..111 JJ, JOil'l.HOI!' llpc)I.CT.'UIJI CKHC, HCUOJI.h30UilHHOC a pC.tt. 11'lllliH1t) )VIM IVJ,C H·

TU¢11Ka TOJlOll 3K3CMWI.Mpoll o61>eKTOll?

KfiKOSbl MllKC·Il).HtllbHhfC It Ml lltltMMhHblt' 3H<I I f HIUI(nnH)lM>H'IHoe U pt'Jlt.'"l .IIJlCHIIC, 11CI'IUnt.:JOS3HHOC U pell.ll ll­

:sit iJIH) .11.111 U.eJi biX *'IU<:cn* (INTEGER) a CO<Yrae:rtmHH *c* fl.:u.IKO}.l EXPRESS?

IUJKOShl OfpaHII'tC:HIUl 110 T()'fHOCTU (11.1H ..'l,OOM'lUOC II(JCACTIIlIJl CHitC, ltCIIO.'llOOII:.'IUHOC a pcll111lllUHH) AII M

ueJUe\_ cntcnHhlX •mce.1 (REAL) a tOOTIICTCTnnH c SJ3bi.KOM EXPR ESS?

KaKoaa t- tiKCIIMWihH311 AAHHn cn>OKII (STRING) a <:OO'JliCrcTl'IIIU c M3blKOM EXPR ESS?

KaKoaa l>UlKCIIMMhH311 MHH<I )lliOH'IHOro •utcml (BI NARY) u cOOTiteTCTBHit *c* fflhCKt>1t EXPRESS?

KiiKOBO }.taKCHMMbROC'IUC.10 ll!leMetfl'OU,.).I. OfYU.l,ltX BX<Wt11t U arpernT (M<lCCH6) npll ero KO)lllp()l'IUHitll?

fUtKOSa }.l.tlKC·ItMWlhUaff my"6UHaI!JtO»CCIUI.II npll KO.!lltpoli<UIItH S!Oll:eHHloiX arpef'STOIJ (MaCCHIIOb)?

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nPHJIOlKEHHE F

(o6srJaTeJJbHoe-l

MuolUCTIO EXPRESS-.c.xe.M a crpyKT)'J)e o6111e1ta

0 CTp)'t::rype 06Mt H.-il *C* UCC-K(>..1 KH.tlll otKl.lHSIUII )UIJIHhiX Moryr 6b1Tb np HBCtlC: Hbl CChiJIKII H3 lkXMtLt Jipbl o6loC:K1'0U. onpe..1.C:.IJC:HHhtc u ceKlKl MX AllHHbiX no pl.l.IIII 'IUI>IM EXPR ESS--cxe)taM. Opu peartKlll.lHtt cc.Jof.IIOK *.Me'* CXC:r.taMII liiOOHIIK::UOT)l81111011poca:I)UICIIeCCbiJIKil MO:t:HO C'IH1lnb eepHb .>l.l!'?:2) K3Kite ::HocMri!Ui phl C.1CA.)'CTC"llfril1"b

npaBHJi bHhl1otK, OCH Oil<I HHhi MH H.a KOHt:.pcTHOIi' C::-XC:MC:, nplt U H peAC.tiC: IHtH CXC:-lt a111'11XKOIO'

o6. t.tc:Ka.

F.l AonycncM.w0 cchl.'1KM

C0(11' 'CTBH11 CTP YKTYPC:

D Hll<.'TOMIUC:-M nOJ iX"'llteJie onncttHLI um Mero.aa onpenc:1eHi ut npaau.1MI OCTit ec.ht.JIOK Mc::«.a,.v :uoer.cnn.Mpa1out

o61>Ck1'08 nplt )'C'TUHOI!.1C H l i lt C:XC:).I Irl'l l'fCCt.:Ol'O COOTIJefCTBIUI .llJUl CTJ))'KT)'pbl 06>.U-HII. MO:«U O II C-OOJJblOllaTb JlP)'OiC

.\tClOru.L H C:- OltpeACJlCHUhte IJ HaCfOiUUCI>t CTlhWlpTC.

0p II M C "' 11 H ll C- B AaHJI0.\1 HU)I.pal!K.1. C Olllll'.CIHhl CIIOCo6hl. OOCCllsOM KOTOPbllt OIHOp JJ.O K)'MCHTOIJ, onpcne1:stiOUlltX EXPRESS-c.xeMbt, MO»:t'T 1'llK ...:e 3ll.!llrrb npasttJtbHbiC: CCbiJtKII MC:\*A\_V ABtst tutu HCCKOJtbKIIMU cxcwar.au.

flpH onpCAeJI C: HIUt CXC:MaTH' I e<:KOro C00111CTCTUIUI Jlelllll uatJ,II:Il MO...:c:r· CC hfJIUTbCM Ha KOHtq.lC'llfblli .II,OKYMC:HT, onMcw saiOuudC AaHHYIO cxeMy a jXI.\.IKIIX onpe.ae.1c:Hni1HEI JUhiKe EXPRESS, coKpauteHHhL'\:MMCH HJlpyruxTpc6on<tHH"' I UIIt Orp<t.HII'lC: mtft. £c.111 :satl.aH H YIO CXC M )' IICIIOJUt3)'10T a CO'lC:TtlHUII C)l,pyrm.ut,)UIHHbltf AOKYM C-'1-fr TllK *:«C* A0.1;t{CH onpe,!le.1SITb npm: lt.1bH OCTh CChL1otC MC:JKJl)' 3TIUtlt CXCM&.\111.

ECJJH npcu;wname-rCM, •t ro ,n.at-t.uoe onpeAe.,euue AeJI.aeTCst OJJ.HOKpaTH O " oxMn.tllllt-T P"A cxe!>t. u e. c.rte;t.) T

.II,OOQJI HHTCJUoHU Olllk\!l.eJUflib llq)HOt.. . b CCblllOK 1:1 KOHKpeniO"' C1p)'kl)'J>e· Olht et-ta.

F.l.l Mc:Ton. c n e u,HcIIKttU.H II II HTc: pciJei1cn H a M:1t.tKe EXP RESS

flp t HCI I OJiblOllllH IIIt AllH H OI'O MCTOna CCbiJI KII MC:«..!!.Y 3K:teMnJI Rpll"ut o6DeKTOllp33JI II 't H hiX C XCM )ltlii.:«U hl 6bTl b l<UW.Hhl 110CpeJI.<.". T80M OUf>CACJIC:·HIUI nun:pclleika Ha MlbiKe EXPRESS ll OOOTiteT' C-TlU UI c po:sn.eJI OM I I rOCT p MCO

10303-1 I.

Ha 3KlCM IIJlSip Tll nll, JallaHHiod\ Jl CXI.':Me,MO:t.:U O CCLtnaTbCJI <tCpel ::..KJCM ilJJSi p 1'11UII, Ot'l pc,!l<:JleHHhlfl 11 ).l.pymH

cxer.tt. c:cJUs:no-r mn csR:lU.H c nOCJte)Ul CI'i uocpc.a.cmo.)t KOu cspy..:r·u tKJa USE l tnH REFERENCE.

flp II Me p- fJ3cc.\.laTp11BaiOTClf .IItie C:X('.)..t hl II OC-HOSIIH HWf H-a HII.X ClP)"KT)'p!t o6MCH9.

SCHEMA bose;

ENTI1Ya;

range : REAL; END\_ENT11Y; ENTI1Yb;

name :STRING END\_ENTI1Y; END\_SCHEMA; SCHEMA exlcnsion: USE FROM bose (a. b); ENTI1Yc;

add\_ilem :b add""":STRING;

END\_ENT11Y:

R ULE a\_rangc\_posirive FOR (a):

WHERE

WR:I SI ZEOF (QUER Y <inso <' •I inst.nl"ll< < 0)) c 0:

END\_RULE;

END\_SCHEMA:

JS0-10303-21 ;

HEADER:

PILE\_ SCHEMA ((·BASE'. ' EXTENSION')); ENDSEC;

DATA ('ONE',('BASE')):

R l • A(-3.5);

*P2* .. B('Sam Smith');

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*P3* • B("John Doc.'):

ENDSEC:

DATA ('TWO,' ('EXTENSION'));

#4..,. C(#2, '100 Main Stn--c-1 ');

*PS* • C(#3, '1300 Elmwood Aven ue');

ENDSEC;

END-IS0-10303-2 I:

flpu ucno.\_t.,:K>U:::IHIUI MCTQ!lU 3ll.ll.iiHIUITpe6omumfi K mrrepclei1cy ua: st3hiK<' EXPRESS )1..11 onpene.1emu• npasH!lbHot."TH CCbiJIOK pca..ti U:tat.UUt JlOJI;lKHa YI' IITI>IMTL, <fto o6·1.eKT Tuna B flBHO c-wua.H co cxeMoi'i 'EXTENSION'. lt03TOM Y ;J.OnycntMbl CCb1.1:KH lU 114 H9 !1'2 H ltl .II'S Ha !1'3.

F.l.2 Mero.a. onpeA,c.,eHH R :H:a u aa ne HT HOCTH o6na c T u 3Htl"'e1Hii'i CWJl.A

Hpu ucnUJlb:JOllllHIUI JWHHOro MeTO,I&a cct.n.::n .ote y 3K:JeMrLtutpa.MIIo6t.eK1'0a. lWHHLIMII a pa3HbiX cxeMax, JlU.I XHbl 6b1TbllbiUU.tiHCHbl.IUl OCHOIIC MC'TO)lOB 011pc;l.CJ1CHIUI :\JKUIUJa.t tH11HX.'TH o6Jlacrn JJi il"'CfWi'i,)'C'TaH OWle-HHbtX

• roCT P HCO 10303-22.

Opu Jl.VJ,nHitH 3K:teMnmtpa nma.. oupe. .c.r•eIHoro a cxewe, 3K:JeMHJUIPhl mo6hfx 1 uuoa o61.eK1llll H3 .uaHHoH

CXCMhl ,CChlnatOut.IICCM HU .ltltHHblii 11111. l'aK;KC MOI)'T CChlJIUTLCSI Ita 'jKJeMIUMl pbl Jn06biX 1lf llOU, o6wtwtt:HHhiX S

3K81lml !lCH1'HOA 06.'1aCTit Jl! lfi'C:HIIfl Utpll01'01'11rlit.

fl pItMe p - P CCM3Tplla·aiOTCJf .use CXe,\.I W IIOCHOBllHHfUf Hit HIIX CTpyKT)'jXI o6MCHa.

SCH EMA LONGA; ENTITY a;

range : REAL;

END ENTI1Y. ENTiiYb; .

name: STR I NG : END\_ENTITY: END\_SCHEMA;

SCHEMA LONGO: ENTITY a;

rang. : REAL;

END\_ENTITY;

ENTITYb:

name:STRI NG END\_ENTITY: ENTITYc;

add d\_tiem :b

add=<·STRING· END\_ENTiTY: '

RULE a\_rangc\_poSi!!ive FOR (a);

WHER E

WR I: SI ZEOF (QUER Y (inso <'•I inst.mnge < 0)) c 0:

END\_ RULE;

END\_SCHEMA;

ISO-10303-2 I : HEADER;

FILE\_ SCHEMA (( 'LONGA', 'LONG B'I); ENDSEC;

DATA ('ONE". ("LONGA')):

*P I* • A(-3.5);

*P2 ..* B('Sam Smith');

#3 • B{'John.Doe');

ENDSEC;

DATA ('TWO", ('LONGO'));

*R4* :r C(#2, '100 Mai n Street');

*PS-=* 0(#3, 'l lOO Elmv.'OOd Avtnue");

ENDSEC:

END-IS0-10303-21:

8 HIICI'USIIU.C:M npuMc-pe npenno.,araeTCJI UltJlH•ute ltHtiK>P.lttu.U.IIIt o6 o6.tl acru :tKIUSI ilI. CHTHOCTH .:um,.eHm'i, Xl.ltftHHOi'i C· ucn0.1b301!-a UlCM: OAHOrO 113 MCT(),!IOU, 011H(3HHhiX a rocr p HCO 10.303-22, ycraH3WIIUIIUOuteH

3KBJHmrtCHTHOCTb o6nm:nt 3H8'lCHllfi TIIUOS A II B U o6eHX CXCMitX. 3-ro llpeji,CTal:lJlCHO Bllll)l.e:

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LONGA.A is DEQ *w* LONGO.A LONGB.A is DEQ to LONGO.A

LONGA.D is DEQ to LONGO.O LONGB. B is DEQ I<> LONGA.B

f lp t IICHU.lt b:lOBilHHII o6.t !IC1li :fKBHKIL1CHUIOCTit )IJt.M Onpe;I.C:.1CUil.R npaSU!lhHOCTIICCblJIOK petl.11l3aUi!fl AO.'Iltma

)l'llfrhlaan., 'ITO TH U o&1.et.:ra LONGA.B flsmce\_ n:sa o6J•ac11.10 3Ktmalll1CH1"H OC"l'll Jmt.'leu u ii ./.I.!I.M LONGB.B, 'ITO

li,Ony<:KilCT' CCbiJIKit ll:l #-4 Hll *P2* H 113 *R5* Hll #3.

f.2. Onpt:Jte:utc Cora.ot>.yllhi)CTM c:xc.Mw

06bCK T fiie\_popul.aticm B JIU'OJI Ofi()IHOii CCKlllllt C-JUI:st.ftlllC'T £XPRESS-cxeM)' I I ua6op (K<l.TIJICKUJUO) 3KXl>tiL11·

pon o6heK1'0B c KOHKpentoi'i crpytcr)'poli o6MeHa A1-p1t6yr deltrmjn. icm\_mdbod onpeJI,e.rtMeT anropun.1 at.16opo KWli C'Ktlllll ::JK3C'.\UlJUi po8 Ofu.CKT08,:Ja.W)UHbiX B Htl6ope CC'KQHii At'IHHbiX.. 8 Hacrofll.l.<l 'l.l UOl!p<l11l,C.I e OfiiCiiHbl Tplt MC'TO.U.Il H:l(: OHpejlC'-Jle-HHJI. Molt>HO 11C il 0Jl.b:J08ltrb AJ))'nte MCTO)lbl, HC' OllpCAC.fi C' HHLie 8 HllCTOSII.U.C.\1 c,.UJ-IAilP'I'C.

flpH Ollpc:tt<"JCI HIIII C.XCM.!tTIIC'ICKO.rO COOTIICTCT UUI CTpyKTypbl o6.\ CH.il K 01JI CK.U.IIR :Hi CJ<:.).HIJUi poa o6beKTOO, l!UW HH iJI u coorae-n ...,uyK>ttUIX r.dt:\_populatic)o, AOJ JKHa 6hn"b npOittpeHa ua cooTOOTCTtme EXPRESS--ac.)t e. Ee.mt Ha KfltcyiO-JutfM> CCKUJUO il,aH:HhiX HeT <.:Cht.I' KH 113 K<U{Ofo-JU16o o6t.eKTQ filt:\_p<)plllllti(ta, ,-ra CCKU ) M )J(, ).!I:CHa 6hl1"1•

npoaepcH<l Ha <.:OOTtte'I'Crau:e OllptAeJi eHHOtf IJ HCi1 CXCMbl nO MCTOJt)' Orp:lHil'lCHHM CCKUlll. OIIMCattHOM)' HIIXC.

flpH l tp6fltpKC c06Tat't'(.'T81!# CXC'.\I.hl y(:TilH08.ttCHHhi M Tf)c6ou&tutM It Ul"pliHII'lCHilKM CC·hUIKH Hll 3K:kMtvUipbl o6'bCKTOB, CJIC.tiO.HIU>Ie UHe KOJL,CKUHH MHHbiX :>lK:terttn!lRpOtJ, .!tOJJ:lKHbl aocnpiiHlt. \ aThCM IW.K UWM6o'fHhiC.

fl p H M*C*'Ia H ll *C-* 0ocJII!..IIj'toU llJf Upottc:nypaOIHIChl mleT MeTO)l nposepKII CTPYKT )' hl o6MCIW IJ C001"11CTCT UUI

C 8.2.4 II UhiWt'll.:l.IIOlr:CHHhlM llUplfJXI( )())t.

AnA K:l)t(Jl ro ofu.e.Kn fiJ€\_popubllM•n, H.\ C·IOtU.ero a C·TPYK1)1' X o6MeHa aml'feHHe -P':

- uaxO.NrT utt6 op H:,teMII.,f lpou nocpe..craoM ttCIIWi blOBaHHM r.terQ.!la. :Jit.llllHHOro o61'.t'.Kl'O"' F.ckttrmina­ tion\_metbod.Jltl.M ceKt.ud\ nJUtHbiX, nottMeuoaaHH.hiX e o6l.eK11: P.&cm rncd\_sectioas. Ec.rm o6>e-KT F.&tlrt!med\_S{;!!Ciiun:s fla1fle'Ttfl llYCTbl).l ( Heonpc,aeJICUHhiM),TO JUlHUbti1 Me'I'UA, IICOOJiblYIOT M fl SCC.X CC:kl.lUti: )UI.HHLIX S CTp)'Kl)'pc o6'-ttHa;

- U()OilCpfliO'f tUU{Htolfi Ha60p HQ CUOTIJC:'I'CTBHC UpaB HJ llM t Orpl; l .lt'l t:HIUIM. laAtlHHLIM R o6ltoeK11: F.gO\'-

€min:g\_.sch€ma;

- 01Me•tll101" C<KUIIH .!SilHHhiX. MIIJIMIOIU,II e<:Jl IIC:.XHhi MII JI.UHHh lM t .ll.l fl 06'bet.-.rrlf.dettrmiaation\_mcthod.

A"'fl Ka}K.Q:On ueMtLpampuu.tiHHOti CCKU.lllt .lltuiHbiX "'0" upottelbJIOT Ha6op 3KxMrt.l flpott a n o'i cetcUHtl Ha

C001"1lCTCTIUlC np:l8HJlllM II orp:LHIII CHHlUI. 3!t,il.llHHhl.\l B CXC.\l C:-.

F2.1 M eTO A orpa H tttt eH tu t c<: KtliiH

flpu UCnom.30IJilH tlS MCTO.tlB orpaHJl'lC:HIUf OCKU.Ilt UTpH6)'1" F.tk.'fcrmiruttion\_mclhod ,ll,O.tl <fi:CH HMCTh :'JHfi' CHHC

··SEC'f ON\_.BOUNDARY". Ha6op (KOJL1CKUHfl) 3KXM11!1J¥pou o6l.t:KTOB.:Jil.!lllHHblii Kll•u:cne UCXO.tiHhlX .llllHHbiX

.!l!lfl Ol!HO!i ll.' IHCCKOJibl(llt"( CCKU.Hii ,ll,WI.:t:C:H CO.UCpJK.IlTt.:

- aCe KXMU.1flphl 113 3a.'U'I.Iut0i'i CC-KUHH AllHHbiX.

fl p H Mepbl

I Pac<.:MOTpll.<lcxhthl u crpyKTyPy o6Me.Hil,otUK"<I ltHLt e nnpntt cpe lt.l F.l . .3.aro."'oao-.uwr ceKUHJIHe cOJl,ep:.:m· KllKIIX-Jllt6o lK:JC.\UinstpoB o6t.eKTtl ftle.\_poptdation. flp11 Oflpe.'leJICHHH C·XeMaTH•teCKOfO OOOT ICTCTSHSI <.."TpyKl)'pbl o6MCKilli,O.tl li:HO 6LITb )'-.TCHO <.::te.a,ytOw,C>C:

- Ha C<:KUJIIOM JI- HL :X ONE HeCCh lllllOT(;.fl 113KaKOr0-.1H6o o6beKTII me\_populal.i(ta, nOOTOt.l)'*CnCA\_Vt'T* npotte.pun.

OCe 3K:SCI>lll 1flphl of1t.eKT01J :rtOi1 CCKUHll Kit OOO'fue1'(,'T.BHC JalllliOUl,t:'-f'i C:C CXCAlt". Bee UCM1111Rphl IJ <.:(KU)III .!IIIHHhlX ONE .!1,0.1/KHLI YtlOWICT KJPSITt. 1 pc6ott.."'HIIRM H orp<um•tCHilM).l CXCMLI BASE. B AaHHO.!o.l npuMepe. cosoKyl tH()(..'Th YAOWI CTUOpRCT OCC.!tl OI"!>< .H lt l t:H tlUICXCMbl BASE;

- *HU* cctcmuo ;J.UHH btX TWO He CChiJtatoT(..'H u:s Kat<oro-JtH6o o6bc:KTa filc\_popuhalion, rtO".J'I'OM)' C.1C:·A)'CT

npouepiiTh IJCe 3KX.M11ml phl 06bCKTOil ':}TOil CC:KU,IIH uti COOTSCTCTtute lMUtoutC: fi CC CXC:MC·. Bee 3K.:te.!oI. UJIMphlIJ

<.:C:KUHH MIHHbtX ONEAOJJ:.KHhl)'AOU..1eTnopwrh1 pc6oa..<tHHMM n orpauu•t e-Hillf.\1 <.:x<:MLt EXTENSION• .B HIICTOflll.lCM IIPilMC:pC: CCK'Ll,ltfl A,aHHbiX HC CO.!Itp»:ll'T KUtc:HX-111160 K3c:Mfl.1flpotJ 06'beK1'3 A, ll03TOM)' OUU )'tl,Oii.I CTUOpMC:T llpamtJI)' ll\_ra.ng \_pOS th·e.ATpltfiyr llddRS.!iCd\_j(('DI 3K3eMII.1flpoiJ #4 H #$ <.:.C-hlJU'IC:TCJI Ua 3K:JCMUJfllphl IIHC )lllHUOfi

<.:OIIOKYilHO<.:.TII, rtO'.HO'-t)' 3TII CC·hUIKit <.:JIC)()'t':T paCC)t.Il'l"pUSUl' K3K Oum6o'tHbiC. AtpufiyT add re"scd\_ilt:m UC:

flWiflCTCM c:J)ItK y tbT aT tllHbiM (Heo6fl iiTC.-,I>HbiM), IIO'.nOM)' )IDHH3.M COBO.K)'lHOCTb HC Y.IIOBJieTaOpMCT OrpaHH'IC:HI-UIM

<.:XC:Mbl EXTENSI ON.

2 P::'iccM<YrpU.!o.l CXC:Mihl H C1p)'trtypy ofiMC-Hil. OllltCilHHhiC II npltMC:pe H3 f.J.J , HOC :slt!U"'OSO-.HO'ii CCKI.ltldt.

UpHlfC,Ilt:-HHbiC HH:«e:

HEADER;

FILE\_SCH EMA!(' RASE' , ·ExTENSION.));

FILE\_ POPU LATION ('BASE','SECTJ ON\_BOUN DAR Y' . ('ONE'));

FILE\_POPU LATION ('EXTENSION','SECTION\_BOUNDA RY', ('ONE', 'TWO'l): ENDSEC;

rOCT P HCO 10303-21- 2002

nplt Oflpe;I.C'JIC: UIUt C:X:C: UtlTH 'lCC.KOrtl OOOTac."fCTBH H <". Tpyii". Tf phl 06MC:I-la )lO!J:.CH O 6t.tTb )'1' 1'tHO CJle;I)'IOUlC:C::

- nepuo1i'i o&l.cKT fik.>.\_popuJ:atMln onp e.nMCT Ha6op (KOJJ.1C:KUHIO) 3K:SCMIL1flpoa, ynpawutc:Mbl.'( cx.c::r.toK BASE. *Dee* t.:XA-tn".'Hpht a ceKU,H <.naHHbiX ONE .!I.WI.:«Hbl YAOB.1CT K>psm. Tpr6oaaHHstM H orpaHu<teHIUUt cxc:r.tbl BASE. B JUIHHOM npHtcl:pe coooKynHOC."Tt. )'AOMeTOOpHeT acc:r.s orpaHU'fC:HJUtM c.xe>.n>l BASE;

- BTopoR ofu.eKT file\_populaliononpcJteJUit'T a-ta6op(KOJJ.1CKUHIO):n::lCMOJIMpon.yupawtRel.thL'\: cxet.toH EXTEN­

SI ON. Ike 3Klle 11l.1HPhl 11cc:KUHI1 ;uumLix ONE u TWO AO.,:IKHt.l YJJ.OWlCToopMn. -rpefiosaHIUIM H orpaHU'fC:HIUlM

cxc:Mhl EXTENSION. 8 pll>CC,utrpnaae.\tOM npltMepc. upaaHJIO a\_raag \_posilivtc HapYJUC:Ho a 3KlCMIIJUipe *Jt* 1. ntY.1rOM)'

1llHHas• coaoKynmx:.n.11e COOTIII."TCm)'-cT orpaHU'fCHIUIM cxe.-ubl EXTENSION.

F.2.2 Onwctt.H u e t cex coa. o cc T HMblx r.cer· o)lo a

ArpH6yr ddcnninatton\_metbud JIOJJ>Kt:H HMc:1balta<teHIIC "'INCLUDE\_ALL\_COMPATIBLE'" a c., ae HCIIOJi b·

301l."'HIUIBCCX COQ). CCntMhlt"( MeTOAOS. Ha6op (KOJLIICKUI, UI) KXMtL1stpoB o6-t.cKTOIJ,3an;:IJIHblii U Ktl'fi!Crtte HCXOA,HhiX Jltlt-lHbiX )IJUIOJlHO A 11.111 HCCKUJUoKitX CC.K'U.Hi'i Aa.HHbiX )l.UJI:AI:I!H OX ts: hlallTt.:

- !ICC· l)KlCMnJUCpbl l:l pclyJtupyet.tbiX ceKU.IIJlX .1!3HHbi.X;

- BCC 3KX-MrtJUfpbl U Jl.P)'nlX Ct-KU.Its .X !lUHHbiX.rA,e TUU o6·beKn& 3KlCMWUtpll 0031toJUi eT OChlJt an.cst Hll 3KleI- IIJUipbl, 3il.ltaHHhiC C:XC10fl )'ttp<IU.11!HIIfl C-OfiOK)'nHOCTbiO.

np II Me p- PitcC-)tOrpiiM cxe>.tbl II CTpfKl)'PY o6M Ha. OfHICUIHble n npuMepe H3 F. l ,HI) c :Jaro.rtOIMWHOii

CI!KUHCH,11PII.fiCAC.HHbiC H..::K.:

HEADER:

FILE\_SCHEMA (('BASE' , 'EXTENSION'));

FILE\_POPULAT10N ('BASE', 'I NCLUDE\_ALL\_COMPATIBLE\ ('ONE')):

FILE\_ POPULATION ('EXTENSION', 'I NCl.UDE\_ALL\_COMPATI BLE', ('TWO));

ENDSEC:

fiplt OrtpCACJJCUIUt C:XCM8r:w-tCCK0l1) OOOTaeI' 'CTtUHi <".Tpyt.. fpbl 06Mt'H.a )I.O!l:.:.HO 6tolTb Y'"ITHO CJJCJI)'IOUtee:

- nepabti'i o61oC'KT fik>.\_popuJ:ation onp e.nwe-r Ha6op (KUJL1C-Kt.uuo) 3K:JeMIL1stpoa, yttp3Wlst e.\.l h&X cxer.toR BASE..

;taHHblH tm6op cep)I{HT liCe 3K3euuutpbl 11.1 CCKU)lll;t.aiHibiX ONE. OH TflK iKe A.Wt:«:c:H OOJI.t:.pxan . K3t"Mn.rutphl Ill ceKtJ.HH .ttaHHblX TWO, .!I.OUycKaKHU•te cca.tnKw Ha 3KleM:tU1stpw, 3Wt-1Hb1C c.xc-JtI. OH BASE. B H<lcTmut ;et.t npwwepe 3TO ue paccM01pe-Ho. OmtaKO cet.:uHst .'1.3HHbiX T\¥0 BKJUO<t.aeT 'lKXMtUUipbl nu10n A " 6, KOTOpwe Moryr 6bln. orpa.HH'feHHbiMH. B ;utHHOM npuMepe COliOKYi tHOCTb )'Aoa•t eToopReT seeM orpaHu<teHIIRM cxeMbl BASE;

- BTopOI'f Ofu.C:KT file\_popuJatioa OnpcntJUI CT H.a6op (KOJL,CKUHJO) :.lK3c:MnJUipt>IJ,yHp3WUICMbl."( <:XCMOH £XT£N­ SI0N. trr na6op coAep:.«.tTl liCe lJIOCMi tJt.apbl u:J «K.U.IIH AAHHbiX 1WO.Ou ntK;Ke con.ep:.:.trr liCe 3JOeMJU1Mpbl Tttnos A 11 B H:J l'tKU.tut il.ilHHblX ONE. noTOM)' •rro liX ntnhl no: .OOJuuoT ccblmrr otCJHit 3KlCMrustpw,onpeAC.1CHHbt e cxc·woH EXTENSION. B paccu rtptt tmcr..ow npttMepe upa.atmo a\_raagt!.\_positive Hapyul eHO ll3KJCMitmfpe #I,no:no. t.yn.a•utaM COPOKytiHO"lTb He COOTKClCTIJ)'eT OrpaHII'it"HIUUI c:<et.tbl £XTENSI0N.

F.2.l O nsfcaHHe M eTOA.O B cc:. t..•.t KU Ha 3KJewnnMp

A1pH6)'r ck'tcrmiaation\_mcttsod A.OJt.:«eH 11t.te11> 3Ha•t euHe '"INCLUOE\_REFERENCEO.. uCJI)"Iae. ICUOJi b30tJa·­

mut t.l e'f0.1 3 CCioiJIKII Ha 3KleHl1Hp. Ha00p {KO:IJieKU,IUI) 3KlC·l>HI "IstpOll O&beKTOtl., lrur.ll.HHbl:i% IJ .Kll'ICCTIM! HC·XOJJ.Hh&X

!UIHHbi.X )UUIOJlHOA 11.1,1 ltCCKOJihKIIX Cl"KU}!il ;'l.."lUHl>I.X),I.O.Il:.:CH OXIJa1•blaarb:

- OCC K:teftlltJ .Mpbl fl pefyllltpyt:l>lhl)( OC-KiliUIX .teaHHiolX;

- lJKJCMUJI.Mpbl ltl.llpyrttX CCKUHi:t JUlHHblX,K(1r0pble CChL1aiOTCR Ha 3K:JCMrtJIIfpl>l 9 :la!UlHHblX CCKltl flX Jl.jlHHioiX.

fl pIt Me p- PatCJ.. OTpiiM CX<:Mbl H CTpyKT')PY 06>.t e.mt..Ol'lltCaHHiolC 9 npiiMCpe I:J F.I.J, HO C :J.ai'OJIOIJO'>IHOH CCKUHCH, 11plliiC..1,CHHbl e HU;t{C<

HEADER:

FILE\_SCHEMA (('BASE', 'EXTENSION'));

FIL[\_POPu LATION ('BASE', 'I NCLUDE\_ REFERENCI>D ',('ONE')):

FILE\_POPuLATION ('EXTENSION', . I NCLU DE\_ R EFER ENCED'.('lWO'));

ENDSEC:

Opu oupc:ACJJCHUH c:x.c.>.taTII 'lCCKOro COOTtteTCTBHH crpytcryphl o6M<:tt.lt J OJt.:.:uo 6hlTb y•n HO CJit.llYJOutc:e:

- nepabli'i o61oC'KT fik>.\_popul:ation oupCAe.ttlfCT Ha6op (KUJJ."ICKUHk>) 3K:JeMIL1stpos, ynpawtstUI WX cxer.toR BASE..

Jl.auHwH tta6op c().ltep;t;.m *liCe* 3toeMIL•ucp o11.1C<'KU.Jut n.aunblx ONE. OH 1aK )t{C AO.tt<fl:eH OOJlt:p»:an.3tot:-MlUtRPt" tt.l cc:KUHH AaHHbtx. TWO, nott)'C-rauouttt t: CCblllKII Ha 3K:It\MIImtptot,3a.'l.aHHbi C a CC·KU)Ut .n,a.HHhiX ON£. B HaCT<)stuteM npHMcpe :no He paOCMOTpeun. B .'UIHHOM nptt t.tepe COliOK)'OHOCrb ):JJO. BJJeTao!)'t c:1·tteeM OtlX'IHit'tCHHM.).I cxeMbl BASE;

- aropoiiofu.ew:rr.Je\_JI()puJationonpc:M-.Ilst<:T n.aOOp (KOJL1CKUHJO) 3Kli:MIL!IMpon,ynpaWIRCMblX c xeMoi% EXTEN­

SI ON.3roT ua6op C.OA.<:pxu1·aoe 3K3e1utJUtJ)hl H3 OC-KU.utt Jl.itHHJotX TWO. OH TllK»:e co; .ep:.:m·tJCc. ..:JCMJtJt.Mpbl 2tt

#3 IIJ ceKUttH AaHHbiX ONE, noTor.ay 'fTO t tx 1'1111Lt n03liWtstiOT CCbtJt.aTtoe JI Ha atOel.lll.'tJlp.bl. tt ceKUJIII llaHHblX 1'\VO.

8 paccl.tll1'J)Httacwow npu,.u::pc 310tl.ltt•.,stp # I He JUlJtsteTCst •tneHo.etKl >KYliHOCTH, n03TOM)' npomtno :a\_nangc\_po$ith-e. YAUWJCTuopeHo• .£lntmast cOtK>Kynuocn. tooTt·1'CTayeT accM orpoutt'teHttJ:CM c.xeMbl EXTENSION.

4$

rocr r HCO IOJOJ-21- 2002

nPHJ10lKEHHE G

(cnpai Hoe)

PyKOBOACTIO no pacneqarxe CTJ))'KT)'pw o6r.teua

CrpyKT)'p.fl o6MeHa ,ttonycKiteT aK.110'teHue He< .:laTCJthHblX ,ut tpcKncu, KOTOpbte 11.aHO ynpawuuoT npeACTaWle­

•meM t:rp)'K1)'pbl *u* tu•nectantHHOM eune. Kor11,3 1'llK»e .!lHJX'KTMilbf He SK.'IIO"I t':Hhl 11 oon,.;.uo 6bln. oo.uauo ne•1.a1·uoe

npen,Cnlll.II C HII C- C1p)'KT)'phl o6MC H.O, C!le'CT IKII 0Jll>J(}ti3Tb HIJ6op HCMRHbiX )'IUOaH II fi rtO ynpaati CHIUO rtpi)U,e<:COM rtClflt1'1l. OllpeAtJi eHHhU1U 0.2. )IIHibiC' :UIKTIIShl ynpaMCHIUI npu rtC'•.aTil nepet.:phi&"UOT HCSIIJHhlC YK3:WIHHSI 110 ynpaa•1emuo npou.eccoM n<:'IIITIL

G.I Hauwc AMPU-TNew yupauctuUI apou(•cccuc DCTII

RBHbfe .UHpc-KtlUUol ynjXII!JfC'HHSl llpOUCCC()).I HC'llrnl MOryT 6b1Tb HCI10Ji bJOIJaHhl U CJi f'IWIX,KOrJJ,;l Omplti'UtTC-.1b

H f;«AtlC'TCJI a TO'IH O.lol )'Rp<l ll1.C HIIII II Oflll.,C' HII tM CTpfKT)'Phl o6M eHil 6 H<IU C' 'IIIT<IHHOM lllfAC'.

,At peKUUI.tl *tJ6pamHOIWCOJI 'lepma. lfj)OIUICHON 6p:tW N, o6paRJHOJI KOCOR 'iepma* ;.\N\" yn:UdattCT, 11'0 11Cp11.htl'i.

CH.).11$Q.Tl, cne.ll)'JOf.U ii (."J)S:W 3a AHpt'K1l1110i'l, nOIUJU! I C'TCM fl H!l'lll.IIC HOOOil CTpoKI I. Jlu pctci'IISil *o6pamHOII KOCQR 1tepnra,*

*npnnmwa.R 5yKIJD f. D6pamiiDJt JUJMR 11tpma* '1\F\.. yt:a:u.zuaeT.lito ne-4l:1TI. 6yJ!eT ll p{)AO.,\*e"a c "oeofi C'll)a"llllbl. B

JU060M CJI)''taC' JU1flC-K'1111Jbl ynpatvtCHIUI n poue\_ ccm.t ne<utTII caMH IJ Han e-.:rrllUHOM IJifJI.C HI! llOJI.I1.1fliOTCJl.

flp1-t Me Ia 1-l 1-t C- .0poU,eCC Ue<tllTU CTpyKTYJ>hl06MeHa 06 bl' HO He AOJI C:H )'Op<lll!lSI 'fbCSI JIIJHhtMti 11.111 HCSIIJ·

Uhl....ll )lllflCl>."TIISilMH y np UlllC'-HILM nplt ttl!'fSTtt. 00JJ.P9:JYMC' IGC'TCJI, 'fl'O A,ll peKTI UJiol ynpaa.,C:uti.M ttpotlt'C<:Ot ne'fSUI

6)'.flY'I' HC I IO.'I b301m'l'hC-M roJlloKO TOfJlll, KOr)Ul ompanlfi'C.'IL TpC6)'C1' )'llpall.'ICH IUf npeACTftll.IIC'.utstM crpytcrypht o6.)..1C' Hl11

H!Ule<taTtlltHOM UIUte. 3n& C-ltT)'tiUitSI MO;KC"l' IIMe'l b 11C'CTO. ee.111 C1p)'KT)'pa o6MCHII Jl ll.,flC'l'CSI -.aCTbiO OCI>IIU.IHL'IhHOl'O

KmrrpaK'rtl.

*G.2* Hl'$UUtwt- AMJN'KTDW ynp:n.'1.€':1nta ltpOttea"OM ,.... .......\_

flpu O'IC' YfC'TnltH SISJihtX A,llpCKTliiJ ) 'npll11.1CHIUInpH JIC'"- ttlTII <..,'J))'kl)lpbl 06MeHa MOI')'l' 6htTh UC-1'10JlbJ011SHhl

C.IIC 'IOUllte )lll JX'ICTUlllol:

4) Cfp<)Ka UhU.i.1iO"IIte1'C11 C!I C'tJil;

b) K3;KJI,llH OCKIUtM H31'11H<lCTCII C HOliOii. C1J)()l.:H;

C) o6'bCKThl lai'OJ1080'UIOil CC'Ktll ut JlOJllKitLI Ha'lltH£1ThCM C Htt'fa,a HOOOil CrpoKH;

d) UMSI 3KlC.\II L1Hpa 061.cKT9. n pe,.:I,UJCCTIJ)'IO"'c-e *.JHOK)' paeem:m6a* ....,.J.lOJI;teHO H.lllli-Ul1'l.CSI C ltOOOi'i crpOKtt;

*C)* Jlt KCCMhl, tte SI R'S$110U{ItecR CTpOKQ.)..IJI (string) II )l9011 Hh l1UI ma'fCHJUlMit ( b nary), HC' .tlOJilKHbl p<ll!I,C!UfTbCM

*MC'* C1p0Kll.l<IU. CTpc>Kit H A,QOH'IHhte 3H il'CHUSI MOryT 6ht'l'b p :i:l! eJICHhl 1'0.lt bKO IJ TOM C.,)"Lae, CCJIH OltH UC.!IIIKOM

u c. yMc uuuoTCst a OAHoH CTpOK.AupeKTuu:t h) onpeAe.t steT. r)lc !lott'XH bl paJJ1e.1sn•hCH c·rpoKu u,IJJWH'IHhtC lH.O'IeH ust;

I) KOMMtHrnpuu )lM.lt:JII>I HllU' lH!rrhCII C HOliOft C'IJ>OKH;

*g)* pU:UeJllfTt!Jlt. JIC'KCC'M, HC HWUUOIQMiiCn K01UI C'HTaplteM,H C' JlOJilKCit (X'Illl,tJUtThCS- I Ml!}t;Jl)' c..,poKaM:H. KOMMC H· Tapui'i MO»:CT Plll.'J.C'11MThCSI, CC. 11 Olt H e t OM<tu.tiC'TCM 8 OJUI Oii C1])0Ke• .AHpc KTHU.."' h) 0U pe.il.c:JI HC1,' f.Qe 6)'n)'l' pXll.lCJUl'l't.CM KOMMC-'KTap1111:

h) Cl'p<)KII A0,1<KHt.l IIMC'I'b li.!JH Hy HC·6o.nt.we 'IC:M 72 CH.)..IOOJI-Il. EC!llt Clt'tolliO., HC· MO:lKC'T 6t.rrb 1-tane antH b

Kll'iC'CTBI! 13-fi UOJHUHH, ero CJttnyeT Hane'l.lt1'3Tb llllCpaofi fiOlll llU II HOUOfi CTpOKM.

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OPHJ10lKEHH E H

**(cnpai Hoe)**

**Dpa\K'p no.auoii crpynypw o6Mtlta**

**If.I Bae.l\r:RJtt**

**Hu'\*'e npe; .cmw•c:u npur..cp <mp<:JleJJCHIIst cpeA.crlmMH EXPRESS CXC:Mbl, T96nuubl c:oKpaucHHblli: Hl.IIH H**

**CTP)'KT)'pbl o6.\.teHa. OpuaC)leHHtut EX PRESS-cxeMa uc OTpalt>ilc-r con.ep....SHIUI 1WKoro-11116o crn•wpm cepu'lt**

rocr P HCO 10303.

**H.2 0pMMep ( .XCMW**

**Onpe;tc-JteHMC EXPR.ESS<xc:Mw. uc,no.tlbJ)'CMble a npiiMCpc t"..l]))'t.:Typbl o6wcHa.**

**SHEMA example\_ gt"omctry**

**TYPE length\_measure- • NUM BER;**

END\_TYPE;

**ENTITY geometry**

SUPER TYPE OF (ONEOF(poi n t)J;

END\_ENTITY;

ENTITY poinl

**SUPERTYPE OF (ONEOF'(cartcsian pointl):**

SUBTYPE OF (geometry); END\_ ENTITY;

**ENTl1Y cartesian\_ point**

SUBTYPE OF (poirtt);

**x\_coordinstc : length\_mcasure:**

**y\_coordinate : length\_measure;**

**z\_coordinatc : OPTIONAL length\_mettsure;**

END\_ ENTITY:

**TYPE c:dge\_or\_logical • SELECT (edge, edge\_logical\_strucwre);**

END\_TYPE; ENTITY topol<>tlY

SUPERTYPE OF (ONEOF(vertex, «ige, loop));

END\_ ENTITY:

**ENTITY *vertex***

SUBTYPE OF (topolo y);

**\'erlex\_point : OPTIONAL point;**

END\_ ENTITY: ENTITY edge

SUBTYPE OF (topolo@y);

**edgc:\_start : *vcrte:x::***

**edgc-\_\_cod : \'t'rlc- x;**

END\_ ENTJTY;

**ENTITY cdgc\_logml\_structurc-;**

**edge\_ek-ment :edge:**

flag : BOOLEAN: END\_ ENTITY: ENTITY loop

SUPERTYPE OF (ONEOF(edj,'<'\_loop)); SUBTYPE OF (IOJ>OIO!ly):

END\_ ENTITY:

ENTITY edge\_Joop

SUBTYPE OF (loop);

**loop edge\ : LIST (1 :?1 OF cdge\_or\_ilcal;**

END\_ENTITY;

END\_SCHEMA;

**H.J 0pMMCp co :ptu:U\_tRuwx HToteH**

**HH-:KC )l,aHLI COKpaUCHHWC U).ICHtl o6be!n08 UhiWC:OpllBl':.ll,t'HHOI1 CXCM:bl.**

**1-fr.tst o6be-KTa carte;sinn\_point vertex**

edge

**edgc\_logical\_structure**

**edgc\_loop**

**Cot<pltUl eHitoe H.\Ul**

c,,p,t

ed **ed\_strc ed\_loop**

*41*

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**H.4 OpMMeJI CTp}ltl)'pw oGM('tta**

**Hu.:Ke upHII(AeH npuMep no.moii crpyJCI)l>hl o6MeHa. Ooc-KwtbKY cxeM.a sUlJLMCTCM TO.'lt.KO npuMepo-M. u**

**l!lrOJtOSO'lHOH C:CKUHH;;u.::.Cl.tnmtpa ofit.e-K'I'll fi((o.\_sc-hemll U IITpH6yTe stbr:ma\_nam:e OTC)'TCTUYCT penlC1palUf()HHhtH**

**IUI,C'HTIHIUIKOlOp CXC:Mbl (id).**

IS0-10303-21 ; HEADER·

FILE\_DEScR IPTION(('TH IS FILE CONTAINS A SMALL SAMPLE STEP MODEL'), '3: I ' );

FILE\_ NAME(' EXAMPLE STEP FILE •I ',

'1992-02- I ITIS:30:00'. ('JOHN DOE',

' ACME INC.',

' METROPOLIS USA'l,

('ACME INC.A SU'BSI DIA R Y OF GIANT INDUSTRIES', METROPOLIS USA'),

'CIM/STEP VERSION2',

'SUPER CIM SYSTEM RELEASE 4.0\

'A PPROVED BY JOE BLOGGS' ):

FILE\_SCHEMA(('EXA MPLE GEOMETRY'))'

ENDSEC;

DATA;

*r*

Cm'JlYIOillHE 1 3 OGbEKTOB OPE.!lCTABJl IOT KOHTYP CTOPOH TPEYfOJ1bHHKA

*'I*

#I • CPT(O.O, 0.0, 0.0); ./" 310 06bEKTTiofOA "AEKAPTOBA TOYKA" *'I*

#2 o CPT(O.O, 1.0. 0.0);

#3 = CPT(I.O, 0.0, 0.0);

# II •VX(•I); /' 3T006bEKTTiofOA"BEPW11HA"/' Pl2 0 VX(Pl):

#13 •VX(P3):

#16 • ED(•II , •1 2); /" 3TO 06bEKTTI10A "CTOPOHA" /

#17 • ED(•II, •1 3):

#18 • ED(OI3, #12):

#l l • ED\_STRC(#I7, .F.): /" 3TO 06bEKTTHOA ",10f11'lECCTPYKTI'PA CTOPOH W " /

•22 • ED\_STRC(#18, .F.):

•23 • ED \_STRC(# 16, .T.);

#24 ED\_ LOOP(('•ll. #22, #23)): /' 3TO OGbEKTTI10A "KOHTI'P CTOPOil"' /

*I'*

.,

*'I* B03MOlKH bl APYfHE OI HTAKC11Y ECKHE OPE,UCTABJ1EHH. OPE.!lbiAYllli1A OP11MEP

OPE.!lCTABJlJIET OAI1H HJ D03MOlKHbiX METOAOB.

ENDSEC;

END-IS0-10303-21 ;

**fl p U*Me*** Ia **Hlt *e-*.LlaHHhllt IIPH-"IC:p CTpy).."T)'plol o6).1C:Ua 6htJI O'lpCJ!aK1'UpOSaH.ll.!UIYJI)"'tltH-H! Hfl *ero*' lltTaeMO{'TH. JI,IUI ' lt'fO Jto6aMCHbl npo6el!bl, He "Wf.lUOIU)II."CH ()f;fl;:tafl.".1bHblMI1.**

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arperm (aggregate) . aJI$aBUT (!l.lpllabel) . . arpu6yT (attribute)

Uhl'l ltC.1flCMbl ii (d e-rh"ed) MtiHbfH (explicit) I IHliC'pcHbli'i (invt:rsc)

. .. . . • . .. . .- . .. .. ..8.1, 10.1.2-10.1.5

. ·· . .• . • •.. .. ..I, 2,3.5, nt6.11ua 4

. .. .. . • - . • -.. .. -.- .. ... .. .... • .. .. .- . • -.. . . .. . 10.2.1, 10.2.6

...10.2.1- 10.2.9

.. . .. . . . ... ..10.2.7

uepeo6DRW1CHHbli% (rt'declitred) . .

6tuiT (bytC') .

6y.1euc.-oc: (boolean)

ut-Jue\_ cmeHHoe (real) . . .. . .. .

KHCUJHOC- o1'06pa,.;.eHuc {e11:temal mapping) lmyrpeHHee OTo6pa:.:etme (ni ternal mappni g) llhf6op (select)

rno6ct.rlbHble npm: u.1a (S;lobal rut . . rpa4lll'iC'CKiti1JHaK (gntphic charoc-ter) ..

Jll)lllt 'IHOC (binary} .... • . •...

!lll pe... .uabl ynpilMC tlltM ne•mn.10 (prin t control dlm:cti ves)

)liiCKCTQ (diskette) •. .

:SUrO!IOSo<tHafl cet:.U)UI (hc-.a:der sect ion)

'JIJeJ,'.lO•I Ka (•) •••••

3Hilt.: A0.11JIIl.pt'l ($) .. .........••..

'JHaK HOMCpa (#) . . .. . . .. . .. . •

3HaK (charncter) .... • • • • . • .. • .

1uua :tKJC)mmcpa o&be-KTII (entity inslance na.me) ..

. .. 10.2.6-10.2.9

. . .. 5.2

. . . .. . ... 10.1.1.3

-rn6Juu.m 2. 6.3.2. 10.1.1.5

. . .10.2.5

. . .10.2.5

. . .10.1.8

.. . . .. .1 0.5

. .. ..·ra61. »u.a I

Ta6.'1HU.<I 2. 10.1.1.6

.. nptt.rto,..e-t-mc G

.. .. . A2.1

.. .. 5.3, S

. . . . . .. . . .. . .. Ta6m tua 3, 10.2.6

. ra6Jt»u.a 3. 7, 1 0.1.2-10.1 5, 10.2.2

Ta6Jmu.a 2, 6.3.4

. .. ... . . .. .. •. . •. . .. . .. . .. . .. .4

. .. Tlllimo ua2, 6.3.3-6.3.5, 9..10.2.4, 10.2.11

IIHSCpclUl (iO\'e-I'Se) •• . •• . •• . •• . •

IUI IO'tCfiOe CJIO.IIO (keyword)

KOJtupcmaHtte OTKpbiThtM TCKC1'0M (dear text encoding) ..

..:mmemapHu (remarks) KOHCT".u-tm (constant)

JIC·KCCMQ (Ioke-n)

JIO ni"'CCKOO (logical )

. .. . . .. . .. . ... .. . .. . ... .... . . . .. . . . 10.2.10

.. . . . . . ..3.5.4,1a6nuua 2.6.2. 8, 10.1.8, 1 0.2

. . .. 3.5.2

.. . .. . 10.6

. . .1 0.4

. .. . 5.4

.. 10.1.1.4

JtOKIL'thHbiC npGmma (local rules) •• ......... ••• \_ ••• .. •• .. • ••• \_ • . • . •• •• .

ManunHast neum (magnetic tape)

M<ICCHU (amy)

MelOn onpe.ue.1eHUM (determni ati on ml."thod) • . MHororoMHble- 4>.:t fL1w (mU:It -volumc flits)

. ...10.2.9

.. •• npuno:.:cuue A

. . .10.1.3

.. .. F.2

.. .. . A.3

MYJibTHMHo»:ccmo (bag)

ua6op (set) . . . .. .. • .. •.

ueofm:.< TCJthHbt1i (optional ) ••

lt OCII .,t.C )I,OCT)'OOM K lllOMCM (reCOrd- Oriented l mnsport)

uocute.1b c AO<.'Tynar.a K C1Jl0Kal.t (line- oriented transport)

o6t.cK,.(entity) .... •• . ••

orpaHHt'ltTeJtU C1J>OKM (line-delimite-rs) orpaHwum:JJH ¢laAJta (file-delimiters) OCHOSHOA IJI )<Ull n·(basic apl habet)

OCHOSHOH M HOroM3bi'IH ioU'i Y.J>Ol!CHb ( iC multilingual plane)

ttepe•mCJteHJte (enumeration)

noJJ.ntn (subtype) ••

noc.rtC,.tlOti<ITe.1Mtbti't <l>m<tl (sequential file)

npasHIIo (nde)

upo6CJt (whticspace)

npMK.!tMHOH npo-rotc.o.!J. (application protocol)

u pH.\.te'UlHMe (comment) • . ••

npocrofi onpeAc.rtJte).tt.tiTi Hn (simple detined type)

npot..Tble Tttnhl AO HHLt x (simple data types) pa·l!le.rtttrenL neKc-<:-Mbf (token separator) •• CeKUHSI (.st."C.tion) ••

CCKUHS' t Jli,'HIU LIX (data SC:C-tion) ••

... .. . ...... .... - . . .. ... . . .. . ..10.1.5

···-· ·-- ····-- ·-· ·-- ·· ····· . .1 0.1.4

. . 10.1.3, 10.2.2

.. . . . • . A.I

. . .. .. .. . A2

.. .. . 8.1 , 1 0.2

.. .. . .. 5.6. A.2

..... ..... •...... ...... .. A.2

. .. .3.5.1, 6.3.3. npwto;KCHtut A tt 0

. . .. . .. ... . ... . . .. .. . . .. . .. . ..6.3.3.2

. . • Ta6ntttla 2, 6.3.5, 1'36.,Hu.a *S,* 10.1.7. 10.1.8

. ..10.2, 10.2.8

..l.S.6

. .1 0.5

. . .. . .5.6

. 8.2.6

. .. . ..5.6

.. . . ·- . - . . .. . 10.1.6

. . 10.1.1

.. .. 3.5.7

. . .. . .. . .. . .. . .. . .. . .. . .. . . . 3.5.5

.5.3, rd6mtu.a 3, 9, 10.2.4.npHJte).)t;.e.utte F

CHO (WSN) .. . ..

. . . . • • . • . . • • . .. . . . .3.6, nptuJo».:eHue B

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cn uc:ot< (list) • . ... .. . .. . •

C:OKpau tt.IHble UlliUIC-1-COUilHHfl (shOrt names) •

c00111CTC11111e (confonnanoe)

. • - . .• . .• . .. . .. .. . . .. . .. . •. . .1 0.1.2

. .10.1.7, 10.1.8, 10.2.11

cxe.).tnI' WtecKoe (schema) . . . . ... . • • . . . 4.3. nplfJIO.JKe.uue F

t:uHTUKcH•tecKoe (symattic) . • . • . 4.3

cTpon (string) .. ........ •....... .. . .. . ..•.• • .. .... . . .. ..... ... .... .. . .•.n6m r u.a 2.6.3.3. 10.1.1.2 crpytcrypa u6Meua (exchaO"J,>e structure) . . . .• . • . . • • . • • . . • • . . . .4, *S,*··•6.-nJUa 3, 8, 9, npltJJO.JKemut A 1t G cynepn m (su pel1ypc.) . . . . . . ... . . . . 10.2.3, 10.2.S cxer.sa (schema) . • .. • .. • • . • • . • • ..I , *5 ,* 8, 10.3, npuJIO:iKeHHe F

Tltl1 JI,IUHi btX (data l)'pc) • • • • • 6.3

TIU1, Ort jX'ACMCM:hlfi ll UJlbJOSif i'C:JICM (U!le f defincd type) . . . . . . . ..• . . . .... .6.2. 8.1 , 8.3, 9.2

yTi paamuOti.UlM AMPCKmmt (cont rol di.rt"Clive) . . ... ... ... .. . .. 3.S.3

u.e1;oe (i nteger).. *1l!(mHu.a* 2, 6.3.1 , 10.1.1.1

(Ut<:THhdi:.lK!tCMnr.u1p c.1o:.:.Horo o61.eto:Ta (partial compkx en tity instance) ........ .•••..••..••..••..•• 10.2.5.3

•mcno (number) . ....... ... .... 10.1.1.1

3Kle:.\111.1fl P npoc-roro o6bet<TU (simple c:.ntil)' instance) . 10.2.1

:.lK3C\HI.1Hp c.noli:.Horu ofu.ct..-ra (complex emily insta nce). . . . .1 0.2

3.11e-KTpoHHIUI no•na (e-mail) . . •• . . .• •••. .• \_ . • . . • • • • . . .. . A.2.2

file\_descri ption . .. . .. . .. . .. . .. . .. . .• . .. . . . . . ...2.1

file\_name . . . . . . . .. 8.2.2

file

population . . . . . . •. • .. • • ..• .. . .• • ... \_ .• . • • .. \_ . .. •• • .. . •• . . ... . .. 8.2.4, F.2

|  |  |  |
| --- | --- | --- |
| lile\_schema . . . .• . . • . .• • . • • . . . • • . | . . • 8.2.3.9, 1 0.3 | |
| seclion\_conlcxt . .. . • . |  | . . .• 8.2.6 |
| soction \_language . | . . . . . .• . .. | . .. . *8.2.5* |

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YLlK 656.072:681.3:006.354 OKC 25.040.40 *ns1* OKCTY 4002

**K.rnO'ceoue cnooa:ao·roMaTt13aU.tUI, cpeACTDa ammfant33U.m1, n(HfKr1a,..l'lHble aDTOMaTt3H(>OMI-IltLie. catCTew**

**Mbl, npo.\JbiUVJelnJhfe ltUeJUUIn.auuwe. npe.o.cran..1em1e nauublX, o6.\teu Aaiii!Lta.nt, npeo6pa.30naJHte**

**.ll.<lHHI..tX, pe.anU3al{lt$1, OTKphiTbtfi TeKCT, kOA,UJ)OBaHlte**

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[MS **Office** 365](http://an.yandex.ru/count/3Q0YASZlAx440000ZhiMC7G5XP2u0PK2cm5kGxS2Am4pYB9aWw42YRzK_Ui3c0MUiqmC00ITfZ_l4Bhz4DL9oP90eGgcAOgqtxtX1Tonvzcd1xsy5Zrc1Qe1fQrEVGYyehiE0zq1tf0az96oLghe2u-yoDEB1f--wISM1fC2cM92ZA9Q4W6sb4vIjPB0HQ2YMX81hw9Q4W6pai15j9B0HTch0I81sf2xIPIJmYMdWnoelSCPgW6ai00002MiAQxtvy3SYMTWSWAme80ZGx41ig1I00AvfZ_l4Blfqcah6tqBQy7__________m_40SLypRNVlU45phJcsQS7qmBR-GHgxtL1OcG1tm9-7m00?test-tag=1237333409&amp;stat-id=1073792196)

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[365 бизнес](http://an.yandex.ru/count/3Q0YAHICMOm40000ZhiMC7G5XP2u0PK2cm5kGxS2Am4pYB9aWw42YRzK_Ui3c0MUiqmC00ITfZ_l4Bhz4DL9oP90eGgcAOgqtxtX1Tonvzcd1xsy5Zrc1Qe8fQrEVGYyehiE0zq1tf0az96oLghe2u-yoDEB1f--wISM1fC2cM92ZA9Q4W6sb4vIjPB0HQ2YMX81hw9Q4W6pai15j9B0HTch0I81sf2xIPIJmYMdWnoelSCPgW6ai00002MiAQxtvy3SYMTWSWAme80ZGx41ig1I00AvfZ_l4Blfqcah6tqBQy7__________m_40SLypRNVlU45phJcsQS7qmBR-GHgxtL1OcG1tm9-7m00?test-tag=1237333409&amp;stat-id=1073792196)

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