THE EIGHTH WHITE HOUSE PAPERS G raduate R esearch in the C ognitive and C omputing Sciences at Sussex

editors

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Preface

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From Genotype to Neural Network through Hierarchical Organisation

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Abstract nt_now Art_n_a r as pa_v r -tt- att nt_on to t prob- s or v - op nta-bie o Art r -st_n so or t r asons with s prob- s in the work



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The Causes of Neurite Behaviour

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References

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References

Automatic Debugging of Multiple-Function Programs

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Abstract 3 s pap r r ports on an int - nt bu in s st bas on t^2 p an a us or a s $\sqrt{2}$ at rs or auto at a t tin an orr tin s ant rrors in nove stu nt pro rais writtin in t^2 Its o put r p ntation is a E t^2 p and t^2 ov ranstructur of t^2 s st an is an overve wort a opt t 3 night over a structur of t^2 s st an is a so is uss t^2 approa t a tur to bu in sin - un tion pro rais a so is uss t^2 approa t a tur to bu pro rais with u tip un tions Fina - utur r s ar 3 wor is point out

1 Introduction

spap r r ports on an int -- nt bu in s st bas on t p an a u us or a s , at rs _______, at rs ________, pro ra s writt n n / Its o put r _ p - ntation s a -- E IFY _______ p an t ov ra -- stru tur or t s st an _______ v an ov rv w or t a opt t in qu or bu in sin - un ton pro ra s a so _s uss t approa t a us to bu pro ra s wit u t p - un tons Fina -- utur r s ar i wor _______ wor _____ spont out

2 The Overall Structure of EMILY

E IFY onsists of ter ou san two now-bass is ar te transation ou trans ator, te pro ra un rstan in ou te is art pars r, te but t tion ou bu r, te pan brar, an ter r n brar F ur sows te ov ra-strutur of test is transation ou is r sponsible for transatin a stunt is pro ra into its quiva int sur_ra pan r pr s nta tion



F ur $r \to ov ra - stru tur o_r E I Y$

b pro ra un rstan n o u a pts tè sur a p an o

or \dot{c} wron un ton s a b sta w assu \dot{c} wron a un ton s a so \dot{w} r s in \dot{c} pro ra an s orr t In \dot{c} s pap r w on suss \dot{c} s two as s nton \dot{c} pro ra at \dot{c} n or \dot{c} s pap r \dot{w} s an a p \dot{w} r \dot{c} s vow un ton ts is orr t an a so s orr t a so \dot{w} r s is in \dot{c} un ton but t s n orr t a in \dot{c} un ton asc_{-} \dot{c} is that a so orr t but \dot{c} s on a s \dot{c} wron ar u nt

5.1 Identifying a Call to a Function

Dur n \dot{t} bu n pro ss \dot{w} n v r E \vec{t} Y tr s to bu \dot{t} urr nt a t.v un t.on CAF or \dot{t} urr nt a t.v oa CAG t. t. t. t. st \dot{t} s \dot{w} \dot{t} r \dot{t} CAG s a tua p nt b \dot{t} CAF or

5.3 The Activation of the New Call

À n a n w a to a un ton s n rat ừ n E IVY trans rs tò s a n tò or at o tò p an a u us as an input rap, or tò à art pars r to pars à s nta s tò a un ton to b in n pan an its sur a p an s pars (* a tà tw) n v rtò à art pars r pars s an ints o tò input rap) with s in ro o sur a p an it à s with rits a a to anoth r un ton or not I to s s tò as to ntò pars r ta s tò sur a p an o tò a un ton an pars s tà at A tr tò art pars r à as in sì , tò ntò urr nt a tvo oa with E IVY was buillen tò pro ra or with n ration or to to to the to ntò pro ssr urs view in ration or to to to a to to to to to to an otò rw.s E IVY ontinu s tò buillen pro ssr urs view.

5.4 Dealing with a Wrong Function Call

L'È tas or È a un ton s r nt ro È urr nt a tv oa CAG an È pan r pr s nt n ts tas s as ov r È un ton È n È s ans t at È urr nt a to È un ton s wron È stu nt a a r nt un ton In È s as E DY ts È orr spon n a an r ov s ro È sarta pans u or parta instant at È at sav b n ntro u b È s a s n t o par s È CAG w È È nown tas so un tons to In out w so t a un ton w s so u to p nts è sa tas as È CAG L tons su s a un ton c n t n rat s a n w a to c a un ton w s so u b a Hav n on È at È r st o pro ss w ont nu as s r.b abov It s word str ss n È at w n E DY o at s È bu tr pars t as w s r par s on at È sur a p an v an E DY o s not on m ts w È p a o a asp to su r pars s at s pr s nt n È r pars to stu nts an tutor n È s to t tutor n o u or an I È at w p o E DY as ts o an prt o u

6 Experimenting with EMILY

av b nt st_n E IFY on r a stunt. F pro ra s In or r to ot sw av ta na orpus or stunt pro ra s s pro ra sw r wr.tt n to so v to probe or a in a ... In t art, - to an Ita an noun at stota a vn Ita an noun, t r ... ts n r an a an appropriat ... In t art, - to to ront or to noun r ar ... r n trues or sp ... n a t p or n r r ar a so pt on nouns to t s rues an t s ar provident stunts s pro ra s ar wr.tt n b stunts we o too an r ... n to nours ... n autun as t r... Inst ass, n nt ns t ts t...

8 A sample program

```
val masc_fem_exc_list = [
("ambiente", true), ("mano",
                                        false),
("animale",
                 true), ("bestiame",
                                            true),
("animale", true), ("bestiame",
("piazzale", true), ("brioche",
("comunista", true), ("sale",
                                            false),
                                            true),
                                           true),
false),
                 true), ("totale",
("sole",
                false), ("chiave",
("carne",
("mare",
                                           false),
                 true), ("radio",
                true), ("pane",
("mese",
                                            true),
                 true), ("turista", true),
("nome",
               true), ("fine",
("paese",
                                            false),
("legge",
                 false), ("ponte",
                                            true),
("piede",
                true), ("camice", true),
false), ("automobile", false),
("moto",
("biro", false), ("alce", true),
("programma", true), ("crisi", false),
("stazione", false)];
fun is_vowel char = member char (explode "aeiou");
fun fem_def string = if is_vowel(hd(explode string)) then
                            "l'"^string
                      else "la "^string;
fun masc_def string = if is_vowel(hd(explode string)) then
                             "l'"^string
                         else
                       if "s" = hd(explode string) and also
                             not(is_vowel string) then
                                              "lo "^string
                       else if "z" = hd(explode string) then
                             "lo "^string
                       else "il "^string;
exception Unknown_gender
fun sgender x = case last(explode x) of "o" => true
                | "a" => false
                 | _ => raise Unknown_gender;
exception Unknown_word
fun except (word,x) = if (mem x (word,true)) then true
                   else if (mem x (word, false)) then false
                    else raise Unknown_word;
fun ggender (noun,excptlist)
    = except(noun,excptlist) handle ? => sgender noun;
```

singdef "banca";

9 Summary

In this pap r w s this to ovra strutur of our int s in the in s st for stunt. For or s in the in s st for stunt or pro rais is use how E IFY t ts a a with a wron ar u intan a wron a to a funtion an how it in s submodely bus

ar pr. nt.n w.t E IFY's apab...t. son ra-stu nts pro ra s In t.s r ar w av .n u a sa p-o, su pro ra s.w? r a pro ra ons.stso, at - ast ? t.un t.ons ... nat t utur wor w? r w ar o.n to n ra-z t a opt bu ... n approa ? o, E IFY to a-w.t ot r as sw?? a o ur w? n bu ... n ut.p-_un t.on pro ra s

3.3 Incorporation of alternating learning modes

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In A Jonat an How Jos p' A oo, s, E' t 't Hous ap rs_r Gra uat s arc nt Contv Co putn c nc s at uss \neq n.v. rs.t. o, uss 200° o Contv Co putn n s. Br. 2 ton K, \forall s ar 2 aptr C, \forall

An Application of Artificial Intelligence Techniques to a Consumer Software Product

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Abstract An p ntation is is use $\vec{w} \cdot \vec{r} \cdot \vec{t}$ applied at on $o_{\vec{t}}$ Art

6 Conclusions

References

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In A Jonat'an How Jos p' A oo, s, E' t 't Hous ap $rs_{f'}Gra$ uat s arc'nt Contv Co putn c nc's at uss \neq n.v. rs.t. or uss , 'ooor Contv Co putn n s. Br. 'ton K, \P s ar 's appr C, \P

Multimedia interfaces and anaphora resolution

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Abstract n wa to tr to ov ro t ______nut.s_nvov __n anap?orar so ut on w? n s. n.n natura an ua __nt r_a s_s to bu_- a apab_t or ontro b t us r__nto t? int r_a ? us r and us ass ss w? t rt? ______ nt r_a _____ s_nt rpr t.n anap?or, r ______ r n s orr t- ut. __at ?no o o______ rs n w poss b_t sto_nt rat su ? ontro b _______ v_n t us r______ ba o____ o? r n b tw n t? urr nt_nput an t? on o_n ______ so urs A_t r a n ra _______ s usson o______ att rs on rn_n t? ______ nt ration o_______ v_sua an ______ so urs ______ nor a t.on t? pap rw______ rs n two _______ st_n att pts to us ut. __at ?n_qu sas s r______ abov It w___t? n _____ s usspart_u ar t? orn asp ts o______ anap?orar so ut.on w?__? ? _____ tb For instan , in natura - an ua assist raple s s v ra p. tur s an b asso i at with a sin - s n t n , b aus pr suppositions ar a rat or T in natura - an ua with a ontain ris pr suppos in t s nt n b ow

' w_n _s on t tab

a = a = a = a = b =

an point to a r proution of a r s o an as quistions sub as t^2 on **b** ow with t^2 appropriat r spons

20.5 \$

a onna

 \overrightarrow{A} F \overrightarrow{E} C a so prov. s a ou to v_{T} ba to \overrightarrow{b} us ro_{T} \overrightarrow{b} or r noun b tw n \overrightarrow{b} urr nt nputs nt n an \overrightarrow{b} on on sours \overrightarrow{b} us r an \overrightarrow{b} us r_{T} r_{T} sun rstan n so ur \overrightarrow{b} s atur a prov nva uab n as \overrightarrow{b} r_{T} r nt o_{T} an anaplor pronoun s nt \overrightarrow{n} n orr t

3 Two suggestions

n _____n u t prob w.t nt ont to anap or ar souton.s. nt ____n r __r nts w 2 ar 2 un s or __s ours u 2 2 un s var _n - n t but t ar not un r qu nt qu t on 2 anap or t p. a us or t s _n or r __r r n ar t onstrat.v s t s an t at a t ou 2 t p rsona pronoun t .s po _____or t s or o anap or r __r r n at t ____s A s st wou 2 av _____t a - to t r ____n w t r t r ____r r nt s an ob t pr ss b a noun p ras, or a _____s ours 2 un 2 s a b a a ot as r _____t us r _s p t to us a po_____n v. to _____t ob ts r _____r r t o 2 n v r no po______n o urs t r _____r nt ____s not an ob t but a _____s ours 2 un

wo ____n u t_sp rs.st > ow v r > _____nst on _st at t us r a o as.ona-- not point to an t in ______nt s r n_n sp.t ort _a t t at t r ____r ntint n _____s an ob t > s _____t b ov r o b a _____n a pro ur w >______ wou - n rat a natura - an ua ssa w > n v r t onstrat.v pronouns ar us without asso _at.on to point n > s on _s or ours to _____t t pr _s _s ours > un r _____r r to on t t p or anap orals as rtain A _____b a o u wou > av to r - on u - pro ss pr _____n s ours _____n or at.on to n rat a r _____r r nt an _ at It wou b or t n n ssar to pr s nt su ar s ontain n t ______n t ____n s ours as r so ut on options to t us r F ba ______r or t s or or anap or a n ut _____ ant r a s - ar _____ an s urt r s ar >

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4 Conclusion

a or o un at n s st _n r n s on rn _n _s ours pro ss_n to t us r a o a on wa to as t bur no anap orar so ut on _n natura - an ua un rstan _n s st s It _s _ portant to not , ow v r t at t _s bur n annot b s_ p - s _ t to t us r as ? _s or ? rr spons_b _ t B _ or t a v nt or ut _ as st s t _s wou b qua tor tu

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In A Jonat'an How Jos p' A oo, s, E' t 't Hous ap $rs_{f'}$ Gra uat s arc nt Contv Co putn c nc's at uss \neq n.v. rs.t. o, uss jooo, Contv Co putn n s. Br. jton, K, \P s ar j ap r C, \P

Reconstruction of the neuronal network underlying feeding behaviour in the pond snail *Lymnaea stagnalis*

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Sussex Centre for NeuroscienceCOGSUniversity of SussexUniversity of SussexFalmerFalmerEast SussexEast SussexUKUK

1 Introduction

I patt rn n ratin n ura ir utr un roin rit it in biaviour nit pon sna. Ly na a sta na sis an a an at orit n uro too a a stu oran ntr boo an ura n twor I a usin o put room to arn or about it is ans, sun roin to n ration of tisrit it is a nation of siswor is tain pa in or aboration with anot rapproaid in with the rout is short or or to so a not room to so and the rapport is not room to so an trop soon a not room to so a not ro

2 Feeding Behaviour

Ly na a sa brows n' rb vor t'at son sub r a a n' sor oat n v tat on Dur n r n t' bu a asspror sast rot p s r sor t' t' ov nts as p t nt' artoon sown n n u ' s sr p at or u r so sast an a ov sov rt' oo substrat, t p a ov n ts' a ro s to s ' ov nts w' r sut n oo b n s oop nto t' out an swa ow a b v up nto our an p'as s t'r a tv, an on ur n w' ' t' us u atur sat r st In v vo a' s t p a s t p a s on s n ur at on ' t'r a tv p'as sor t' r' t' an b su ar s as p o ows An n '


F ur Cartoon ross s ton p. t.n t bu a ass ov nts nt tr a t.v b avourap as s. p. us t int r at r st p as KEY: ar arrows n at t s qu n o_{t} t b avoura s a arrows n at ov nts o_{t} bu a ass is artoon s on ant as a s. p. r pr s ntation an as sub s t ns.v b avoura wor un r n t pro t

3 Electrophysiology

C -bo s n Ly na a ar t p. a - ar an r a - int tab ro on an a to t n t u tor u ar o our n an poston n t an a In a ton t nu b ro - s nvo v n t s r ut s r at v - s a - i s a ts av a t poss b to at or s n ar a t - s nvo v t r s napt onn t v t an π n i ara t r st s n r n t - n b avour s an os - ator r u to nt r u ros with n rat s t r t - patt rn r.v.n t - a t vat on o t oton urons i r t - output app ars to b a o - t v prop rt o t n twor rat r t an u to t a t on o a r - In a t on t s a







F. ur o patt rn a t.v.t r.v n b t ow s ator 5 nA or s. u at urr nt n t.on to t -2 rou d t t s tra r.v s a patt rn s. at to t at as s n.n. so at pr parations

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The Role of Neural Activity in the Development of the Cat Visual System

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2 Outline of the work

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References

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Whole Cognizers, Phenomenology, and Artificial Life*

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Abstract v_w v_w v_d at ontion ust b r pr s ntationalis a ons quin of v_d Cart sin assumption v_d at v_d intalian v_d at rial arriun a intallopposition of v_d or v_d r I w ta in an bolis to or a unit, rather v_d and union on the sin b of singular respectively. In the row state is usually the row of the r

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1.1 Representationalism is Cartesian

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3 Merleau-Ponty, Embodiment, and Experience

3.1 The Mind-Body Unity

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3.3 Taking Experience Seriously

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Creativity in Writing

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1 Introduction

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2 Hypothesis and Research Questions

3 Antecedents

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An Evolved Dynamical Electronic Robot Control System

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Showtree, the Next Generation

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Abstract ? owtr _s prov_ b op o _or _sp a _n tr s! but t? as _rta_n_ p = .t _______tat_ons ? _s pap r propos s an a t rnat v , Dott , w? .? .s or _n ra t? an ? owtr an p r _ts _nt ra t.v _rap? _a - an_pu at_on v.a X w.n ows Hav_n s? own t? at Dott ? as _w r _____tat_ons t? an ? owtr w a _n t? pra t. a prob - s o_us_n Dott _ro op o

1 Introduction

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- Dott spro ra ab an anb a tor spon to ous s
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As supp b A , Dott _s _n a t a rap v_sua _sat_on o a 🅤 o n o



3.1 Commands to Dotty

```
define showtree_to_dotty ( list ) -> name ;
;;; This procedure takes input in the form of
;;; showtree, and converts it to a series of
;;; output statements, that model the input to
;;; dotty. Preamble and postamble are ignored.
;;; list is the input list
;;; name is named head of the list
    lvars list, name ;
;;; declare head and tail of list
;;; and loop iterator
    lvars _hd, _tl, item ;
;;; if input is just an element, use this as the name
    if atom ( list ) then
        list -> name ;
    else
;;; split the list into head and tail
        dest (list) -> _tl -> _hd;
        if head is an element, then
;;;
        if atom ( _hd ) then
            name the head as given
;;;
            _hd -> name ;
        else
            generate a new node for the unnamed element
;;;
            gensym ( "void" ) -> name ;
            and use the list as the list's tail
;;;
            list -> _tl ;
        endif ;
        for item in _tl do
            find the name of the element, and print it
;;;
            lvars name2 = showtree_to_dotty ( item ) ;
            printf ( '%P -> %P\n', [% name, name2 %] ) ;
        endfor ;
    endif ;
enddefine ;
           F. ur Bas_ A or t > owtr _nput to Dott s_nput
```