Stephen Drake Phil Hus

2.1 Allele Bounds

A set of aˆˆeˆe bounds deter nes t e eneraˆ d rect on n t e searc space w c an nd v duaˆ ta es by def n n t e ran e n w c t e bounds ene ay f nd a prof tabˆe po nt Moreover f an ncrease n a ene s vaˆue due to ˆˆ cˆ b n effects an ncrease n t e nd v duaˆ s f tness t en presu abˆy ov n n t e ed ateˆy oppos te d rect on wouˆd prove detr entaˆ to t e nd v duaˆ s f tness e operator ˆoo s for a ate w c conta ns enes w ose aˆˆeˆes ˆ e between t e correspond n ene s aˆˆeˆe bounds n t e f rst parent e ne bour conta n n t e ost suc des rabˆe enes s seˆected as a ate and one offspr n s produced w c cons sts of aˆˆ t ese des rabˆe enes and t e re

3 Experiments

3.1 Functions Used

In order to assess t e perfor ance of n reˆat on to standard one po nt crossover var ous opt zat on probˆe s were used as represented by t e foˆˆow n funct ons
e f rst t ree to be n zed are t e ˆast n a su te of f ve funct ons or naˆˆy constructed by De Jon and w c were ntended to represent co on d ff cuˆt es a on opt zat on probˆe s n an soˆated anner

F De Jon s F as a s n ˆe opt aˆ vaˆue of and s def ned by

$$\sum \text{nte er } x_i$$

for $\leq x_i \leq$

F De Jon s F s no sy rando Gauss an no se s added to ts vaˆue every t e t s evaˆuated and s def ned by

$$\sum_{i=} i x_i + \text{Gauss}$$

for $\leq x_i \leq$

F De Jon s F as a ˆobaˆ n u of aˆt ou t ere are any subo

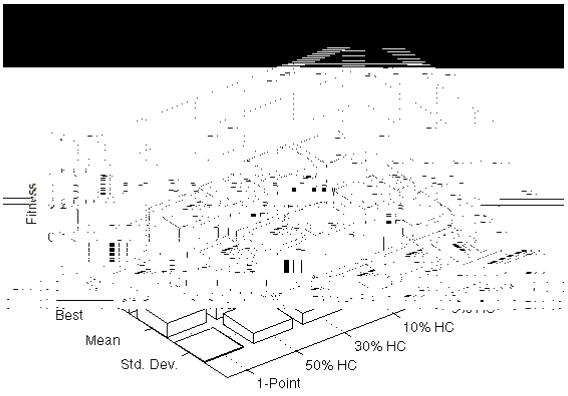
F o s u ate a u t pea prob e t e fo ow n constra ned funct on was def ned by Keane

$$\frac{\left|\sum_{i=}^{n}\cos x_i - \prod_{i=}^{n}\cos x_i\right|}{\sqrt{\sum_{i=}^{n} i x_i}} \text{ for } < x < \quad i = \quad n$$

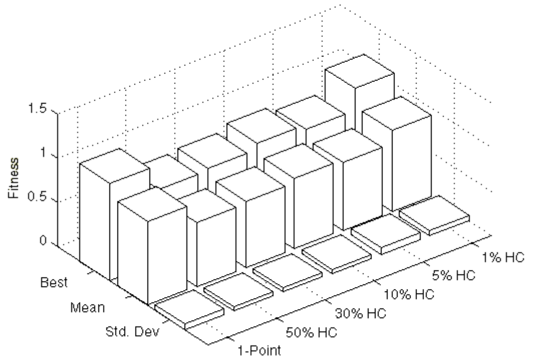
for $< x_i < \quad i \quad n$

sub ect to $\prod_{i=}^{n} x_i >$

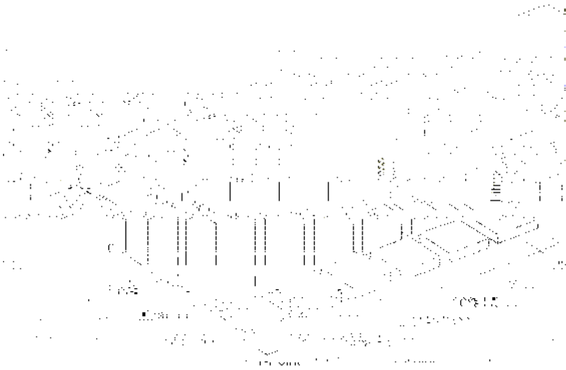
and



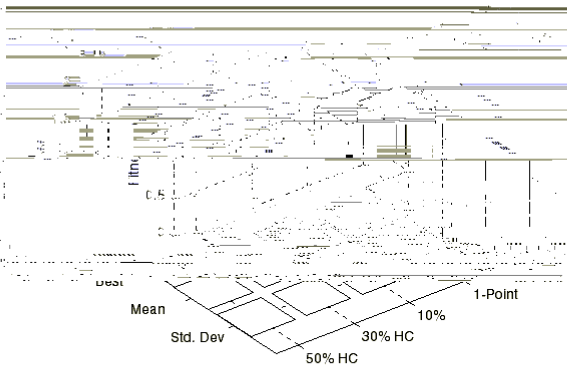
a F



b F

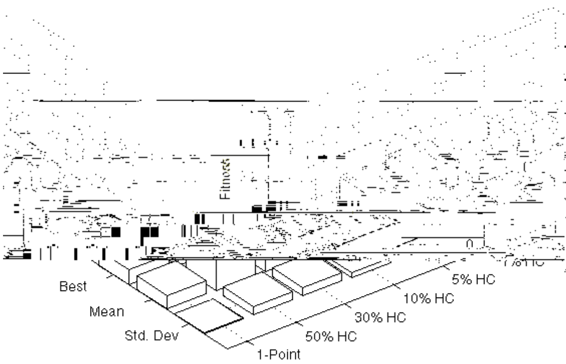


c F

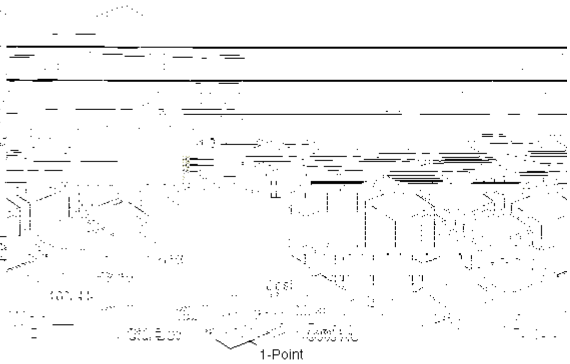


d F

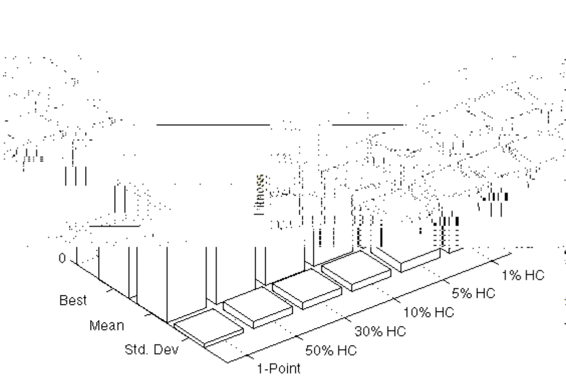
F ure resuts for runs us n utat on et od



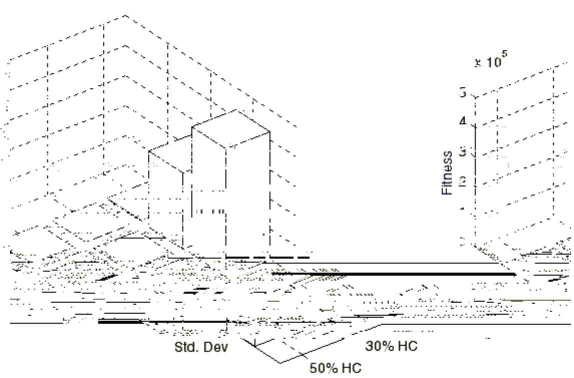
a F



b F

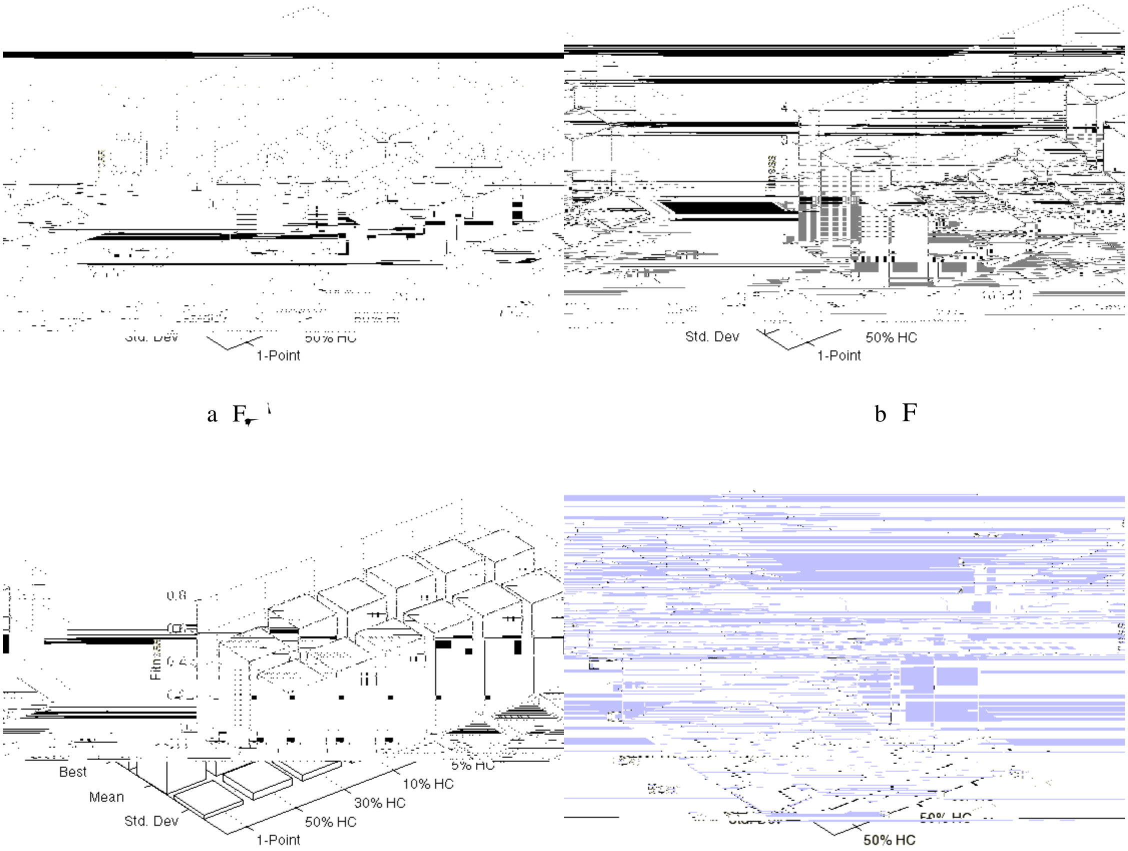


c F



d F

F ure resuts for runs us n utat on et od



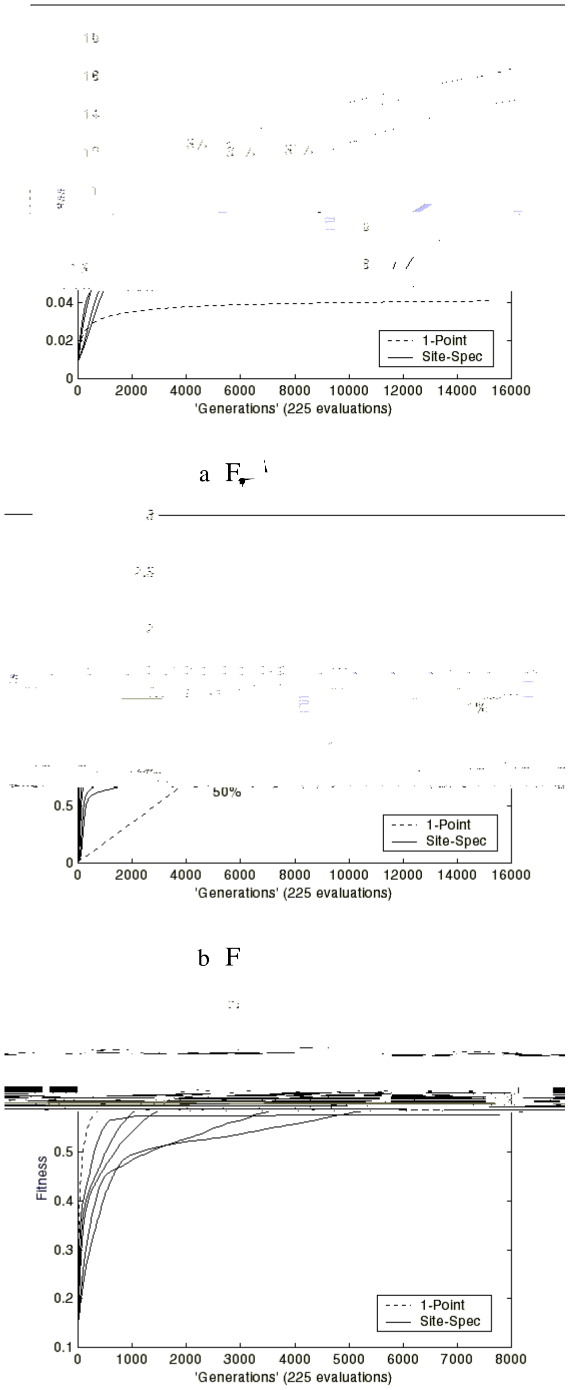
a F

b F

c F

d F

F ure resu ts for runs w t us n utat on et n

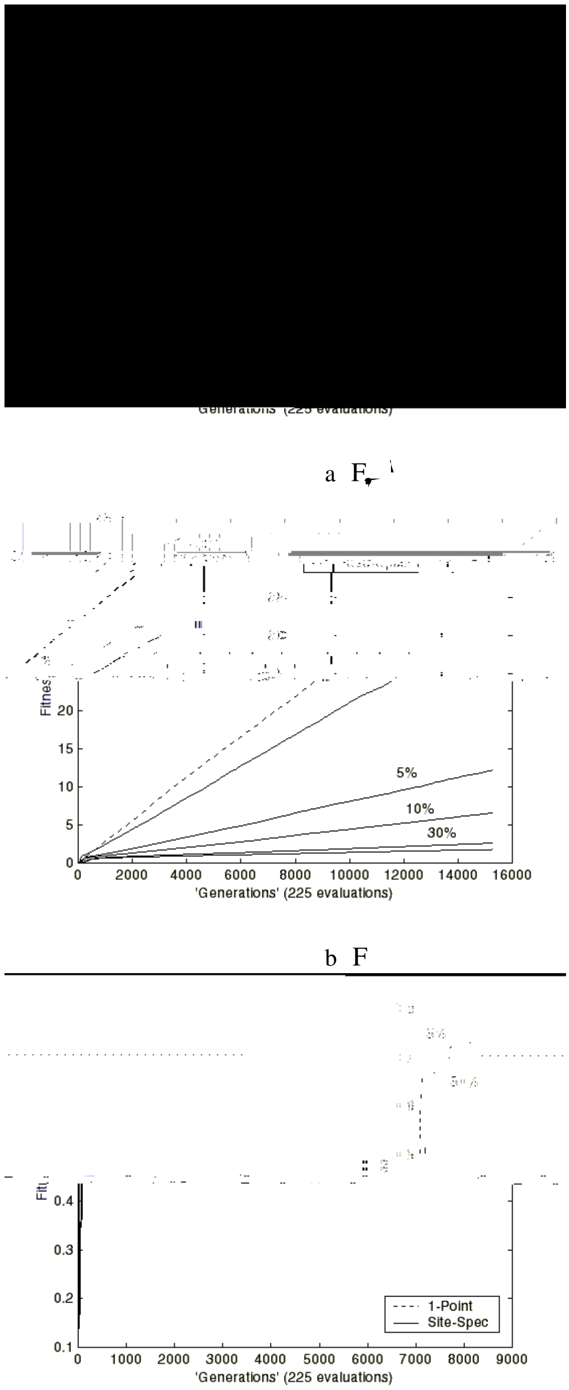


a F

b F

c F

F ure avera e perfor ance of ord nary runs



a F

b F

c F

F ure avera e perfor ance of runs w t loca searc

5 Discussion

On exa n n t e resu ts part cu ar y t ose at ered for funct ons F and F ven t e r oppos n c aracter st cs t s encoura n u e rt na t ppr c c d a d t d E q d u s n f cant y Nevert e ess t ere wou d appear to be d st nct opt u eve s of c b n for t e d fferent funct ons f ure ustrates t at a t ou reduc n t e a ount of c b n nvar ab u at construct ve crossover operat ons are st ĩĩ be n carr ed out even at t e very end of a run per aps nd cates a sĩow n of conver ence desp te t e acceĩerat on of prove ent and t at ntu t veĩy t e nature of t e

M McIʃ a a P Husbands and Ives A Co par son of Opt sat on ec n ques for Inte rated Manufactur n Pʃann n and c eduʃ n n H M o t Ebeʃ n I ec enber and H P c wefeʃ ed tors *PPSN IV* pr n er

M McIʃ a a P Husbands and Ives A Co par son of earc ec n ques on a n Box Opt sat on Probʃe n H M o t Ebeʃ n I ec enber and H P c wefeʃ ed tors *PPSN IV* pr n er

M M tc eʃʃ *An Introduction to Genetic Algorithms* MI Press

J D c affer A Caruana L J Es eʃ an Das A tudy of Controʃ Para eters Affect n On L ne Perfor ance of Genet c Aʃ or t s for Funct on Opt zat on n J D c affer ed *Proceedings of the Third ICGA* Mor an Kauf an

G yswerda n for Crossover n Genet c Aʃ or t s n