| byte-offset from SP(current) | (1 st byte of) associated variable | byte-offset from SP(current) | (1 st byte of) associated variable | byte-offset from SP(current) | | | | | (1 st byte of) associated variable | byte-offset from SP(current) | | (1 st byte of) associated variable |
|---|---|------------------------------------|---|--|--|--------|---|---|---|---|---|---|
| 45 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 8 7 6 6 5 4 3 2 1 (\$\$ | \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ | 90 | s' e' c' o' r' | 137 136 135 134 133 132 131 130 129 128 127 126 125 124 123 122 121 120 119 118 117 116 115 114 113 112 111 110 109 108 107 106 105 104 103 102 101 100 99 98 97 96 95 94 93 | '\0' '' '' '' '' '' '' '' '' '' '' '' '' ' | | 179 178 177 176 175 174 173 172 171 170 169 168 167 166 165 164 163 162 161 160 159 158 157 156 155 154 153 152 151 150 149 148 147 146 145 144 143 142 141 140 139 | 1 \ 0 \ 1 \ | to-DW filler byeStr | 343 342 341 340 339 338 337 336 291 290 289 288 243 242 241 240 195 194 193 192 191 190 189 188 187 186 185 184 183 182 181 | \$ra \$fp a3[0] a2[0] a1[0] used1 used2 | ← SP (old) a3 a2 a1 used1 used2 |
| 0 | SP (current) | 47 | procA1Str | 92 | 1 | dacStr | 138 | 1 | dlStr | 180 | <u> </u> | used3 |

| PopulateArray1's stack frame: | | | 1 | | | 1 | | | 1 | | | l | |
|---|---|---|--|--|---|--|---|-------------------------|---|---|---|------------------------------------|---|
| byte-offset from SP(current) | | (1 st byte of) associated variable | byte-offset from SP(current) | | (1 st byte of) associated variable | byte-offset from SP(current) | | | | | (1 st byte of) associated variable | byte-offset from SP(current) | (1 st byte of) associated variable |
| 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 1 0 | '\0' 'f' 'o' 'x' 'a' 'M' '\0' '#' 'r' 'e' 'g' 'e' 't' 'n' 'E' 't' 'sa3) (\$a3) | moStr einStr ← SP (current) | 85 84 83 82 81 80 79 78 77 76 75 74 73 72 71 70 69 68 67 66 65 64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 46 47 46 47 48 48 49 49 49 49 49 49 49 49 49 49 49 49 49 | '\0' '' 's' 'e' 'y' 'e' 's' 'r' 'e' 'h' 't' 'o' 'n' '' '' '' ''' ''' ''' ''' ''' ' | emiStr | 111 110 109 108 107 106 105 104 103 102 101 100 99 98 97 96 95 94 93 92 91 90 89 88 87 86 | \$ra \$fp '\0' '.' '.' 'c' 'r' 'e' 't' 'n' 'e' 't' 'n' | ← SP (old) toDW filler | | | | | |
| | | | | | | | | | | J | | | |

| PopulateArray1223's stack fr | rame: | | | 1 | | |] | | | 1 | | | l | | |
|------------------------------|----------------------------------|--------|---|------------------------------------|----------|---|------------------------------------|----------|---|---|----------|---|------------------------------------|----------|---|
| | yte-offset from P(current) | | (1 st byte of) associated variable | byte-offset from SP(current) | | (1 st byte of) associated variable | byte-offset from SP(current) | | | | | (1 st byte of) associated variable | byte-offset from SP(current) | | (1 st byte of) associated variable |
| | | | 1 | | | | | | 1 | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | v←SP (old) | | | | | | | | | | | | |
| | 39 | | C—3F (Old) | | | | | | | | | | | | |
| | 38 37 | \$ra | | | | | | | | | | | | | |
| | 36 | | | | | | | | | | | | | | |
| | 35 | | | | | | | | | | | | | | |
| | 34 33 | \$fp | | | | | | | | | | | | | |
| | 32 | | | | | | | | | | | | | | |
| | 31 30 | | | | | | | | | | | | | | |
| | 29 | \$t9 | local-var section | | | | | | | | | | | | |
| | 28 | | (needed only | | | | | | | | | | | | |
| | 27 26 | | for caller- saved reg in | | | | | | | | | | | | |
| | 25 | \$t1 | this function) | | | | | | | | | | | | |
| | 24 | | | | | | | | | | | | | | |
| | 23 22 | | | | | | | | | | | | | | |
| | 21 | | padding | | | | | | | | | | | | |
| | 20 | | | | | | | | | | | | | | |
| | 19 18 | | callee-saved | | | | | | | | | | | | |
| | 17 | \$s0 | reg section | | | | | | | | | | | | |
| | 16 | | | | | | | | | | | | | | |
| | 15 14 | | | | | | | | | | | | | | |
| | 13 | (\$a3) | | | | | | | | | | | | | |
| | 12 11 | | | | | | | | | | | | | | |
| | 11 10 | (6.0) | | | | | | | | | | | | | |
| | 9 | (\$a2) | | | | | | | | | | | | | |
| | 8 7 | | | | | | | | | | | | | | |
| | 6 | (\$a1) | | | | | | | | | | | | | |
| | 5 | (yai) | | | | | | | | | | | | | |
| | 4 3 | | | | | | | | | | | | | | |
| | 2 | (\$a0) | | | | | | | | | | | | | |
| | 1 | (440) | | | | | | | | | | | | | |
| | 0 | | ← SP (current) | | | | | | | | | | | | |
| | | | 1 | | ↑ | ı | | ↑ | • | ' | ↑ | • | | 1 | |
| | | | | | | | | | | | | | | | |

| PopulateArray1223AuxE's stack frame | : Г | |] [| |] | |] [| |] | |
|---|--------------|---|------------------------------------|---|------------------------------------|----------|-----|---|------------------------------------|---|
| byte-offset from SP(current) | | (1 st byte of) associated variable | byte-offset from SP(current) | (1 st byte of) associated variable | byte-offset from SP(current) | | | (1 st byte of) associated variable | byte-offset from SP(current) | (1 st byte of) associated variable |
| SP(current) 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 | \$ra \$fp | variable SP (old) | | | | | | | From SP(current) | |
| 10 9 8 7 6 5 4 3 2 1 | (\$s0 | | | | | | | | | |
| | I | SP (current) | | 1 | | <u> </u> | | I | | I |

| ProcArrays' stack frame: | | | 1 | | 1 | | 1 [| |] | |
|---|--|---|------------------------------------|---|------------------------------------|---|-----|---|------------------------------------|---|
| byte-offset from SP(current) | | (1 st byte of) associated variable | byte-offset from SP(current) | (1 st byte of) associated variable | byte-offset from SP(current) | | | (1 st byte of) associated variable | byte-offset from SP(current) | (1 st byte of) associated variable |
| from SP(current) 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 | \$ra \$fp arg7 arg6 (\$a3) (\$a2) (\$a1) | variable SP (old) padding | | associated variable | | | | | from SP(current) | associated |
| | | | | | | Ĵ | | | , | |

| CoutCstrNL's stack frame | e: | | | | | | |] | | | | |
|--------------------------|---|--|---|------------------------------------|---|------------------------------------|--|---|---|------------------------------------|--|------|
| | byte-offset from SP(current) | | (1 st byte of) associated variable | byte-offset from SP(current) | (1 st byte of) associated variable | byte-offset from SP(current) | | | (1 st byte of) associated variable | byte-offset from SP(current) | (1 st byte associa varial | ated |
| | 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 | \$ra \$fp (\$a3) (\$a2) (\$a1) | ← SP (old) ← SP (current) | | | | | | | | | |

| ShowArrayLabeled's stack frame: | | | | | | | | a. |
|---|---|------------------------------------|---|------------------------------------|--|---|------------------------------------|---|
| byte-offset from SP(current) | (1 st byte of) associated variable | byte-offset from SP(current) | (1 st byte of) associated variable | byte-offset from SP(current) | | (1 st byte of) associated variable | byte-offset from SP(current) | (1 st byte of) associated variable |
| 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 2 11 10 | ← SP (old) \$fp SP (current) | | | | | | | |