

ptype

keys:	[plist]	<number>	source particle parameter list
	sort	<parameter name>	name of parameter by which particles are sorted
	if	<expression>	logical expression specifying which particles to include
	unless	<expression>	logical expression specifying which particles to exclude
	Index	<number>	if all, ranking of the selected particle
options:	xref, yref, id, parents, holes, background, contact, xmin, xmax, ymin, ymax, hferet, vferet, aferet, bferet, hproj, vpoj, perimeter, area, xcen, ycen, mmin, mmax, angle, circularity		list the values of the specified parameters (up to a maximum of 5 parameters)
	all		print all parameters for one particle
	ascending/descending		if sort , sort on specified parameter in ascending or descending order

ptype operates on the particle parameter list (*ppl*) produced by the **analyse** command. **ptype** lists the values of one or more of the measured parameters for any particle or set of particles. Refer to *Appendix D, Particle Parameters* for a list of the parameters recorded by **analyse** and the names that should be used to refer to them in **if/unless** expressions.

Examples

```
analyse...; ptype area perimeter
```

This example lists the area and perimeter for all particles in the current picture.

```
ptype id angle unless circularity>.5 sort mmax
```

This command types the identifier and 'long' direction of any particles with a circularity of less than 0.5, in sort order of the 'long' axis length.

```
ptype 23 all if id=4
```

This command types all parameters for the particle with an identifier of 4.

Description

analyse records 25 parameters for each particle and stores these details in a particle parameter list (*ppl*). **ptype** types a list of the specified parameters for a particle or number of particles recorded by the **analyse** command. You can ask for up to 5 of the 25 parameters at one time. Alternatively, use the **all** option to see a list of all parameters for a single particle.

Semper 6 Command Reference

ptype

Use the keys **if/unless** to set criteria for selecting/rejecting particles. The **sort** key allows you to select a particle parameter on which to sort the particle list. The parameter names you can specify are **xref, yref, ld, parents, holes, background, contact, xmin, xmax, ymin, ymax, hferet, vferet, aferet, bferet, hproj, vproj, perimeter, area, xcen, ycen, mmin, mmax, angle** and **circularity**. You use these same parameter names as options to specify which parameter values you wish to be typed.

If you are using the **all** option, you can specify an **Index** key to specify the ranking (1, 2, 3...) of the particle that you want within the list, dictated by the keys **if, unless** and **sort**. Note that if you initially type the command **pset count** you can then write a loop reporting parameters for all listed particles in turn, for example:

```
pset count if area>99; for index=1,n; ptype all if area>99; loop
```

Notes

see also: **analyse, pset**

Defaults and Ranges

keys/options	defaults	range
[plist]	<i>ppl</i> held in the variable <i>pplist</i>	valid picture number
sort	particles ordered as in <i>ppl</i>	valid parameter name (see Appendix D)
if	true	valid Semper expression
unless	false	valid Semper expression
index	1	integer in range 1 to number of selected particles
ascending/ descending	ascending	