Microlensing parameters in `MulensModel`

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Microlensing parameters in `MulensModel` class `ModelParameters`:

Parameter	Name in `MulensModel`	Unit	Description
t_0	`t_0`		The time of the closest approach between the source and the lens.
u_0	`u_0`		The impact parameter between the source and the lens center of mass.
t_E	`t_E`	d	The Einstein crossing time.
t_eff	`t_eff`	d	The effective timescale, $t_\mathrm{eff} \equiv u_0 t_\mathrm{E}$.
ρ	`rho`		The radius of the source as a fraction of the Einstein ring.
$t_\star$	`t_star`	d	The source self-crossing time, $t_\star \equiv \rho t_\mathrm{E}$.
$\pi_{\mathrm{E},N}$	`pi_E_N`		The North component of the microlensing parallax vector.
$\pi_{\mathrm{E},E}$	`pi_E_E`		The East component of the microlensing parallax vector.
$t_\mathrm{0,par}$	`t_0_par`		The reference time for parameters in parallax models.[a]
s	`s`		The projected separation between the lens primary and its companion as a fraction of the Einstein ring radius.
q	`q`		The mass ratio between the lens companion and the lens primary $q \equiv m_2/m_1$.
α	`alpha`	deg.	The angle between the source trajectory and the binary axis.
ds/dt	`ds_dt`	yr^{-1}	The rate of change of the separation.
K (convergence)	`convergence_K`		External mass sheet convergence.
G (shear)	`shear_G`		External mass sheet shear; complex valued to represent both the magnitude and angle relative to the binary axis.
$d\alpha/dt$	`dalpha_dt`	deg. yr^{-1}	The rate of change of α.
$t_\mathrm{0,kep}$	`t_0_kep`		The reference time for lens orbital motion calculations.[a]
$x_\mathrm{caustic,in}$	`x_caustic_in`		Curvelinear coordinate of caustic entrance for a binary lens model.[b]
$x_\mathrm{caustic,out}$	`x_caustic_out`		Curvelinear coordinate of caustic exit for a binary lens model.[b]
$t_\mathrm{caustic,in}$	`t_caustic_in`		Epoch of caustic exit for a binary lens model.[b]
$t_\mathrm{caustic,out}$	`t_caustic_out`		Epoch of caustic exit for a binary lens model.[b]

Table 1: Notes:
[a] – $t_\mathrm{0,par}$ and $t_\mathrm{0,kep}$ are reference parameters, hence, do not change these during fitting.
[b] – The four parameters of binary lens in Cassan (2008) parameterization ($x_\mathrm{caustic,in}$, $x_\mathrm{caustic,out}$, $t_\mathrm{caustic,in}$, and $t_\mathrm{caustic,out}$) are used instead of (t_0, u_0, t_E, and α).

Some of the parameters can be defined separately for each of the sources in binary source models. In that case, add `_1` or `_2` to parameter name. These are:

- t_0_1, t_0_2,
- u_0_1, u_0_2,
- rho_1, rho_2,
- t_star_1, t_star_2.

Also note that there are properties of the microlensing events that are not considered parameters in the `ModelParameters` class, but are implemented in other parts of the `MulensModel`. The most important are:

- source and blending fluxes – `Event` and `FitData`; also see use case 38,
- sky coordinates – `Model.coords`,
- limb-darkening coefficients – `Model.set_limb_coeff_gamma` and `Model.set_limb_coeff_u`,
- flux ratio for binary source models – `Model.set_source_flux_ratio` and `Model.set_source_flux_ratio_for_band`,
- methods used to calculate magnification – `Model.set_magnification_methods`,
- coordinates of space telescopes – `Model.get_satellite_coords`.