Microlensing parameters in `MulensModel`

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Microlensing parameters in `MulensModel` class `ModelParameters`:

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`.

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.
$t_{\rm E}$	t_E	d	The Einstein crossing time.
$t_{\rm eff}$	t_eff	d	The effective timescale, $t_{\rm eff} \equiv u_0 t_{\rm E}$.
ρ	rho		The radius of the source as a fraction of the Einstein ring.
$t_\star$	t_star	d	The source self-crossing time, $t_\star \equiv \rho t_{\rm E}$.
$\pi_{{\rm E},N}$	pi_E_N		The North component of the microlensing parallax vector.
$\pi_{{\rm E},E}$	pi_E_E		The East component of the microlensing parallax vector.
$t_{0,\rm par}$	t_0_par		The reference time for parameters in parallax models.[a]
K	convergence_K		External mass sheet convergence.
G	shear_G		External mass sheet shear; complex valued to represent both the magnitude and angle relative to the binary axis.
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	$\rm yr^{-1}$	The rate of change of the separation.
$d\alpha/dt$	dalpha_dt	deg. $\rm yr^{-1}$	The rate of change of α.
$t_{0,\rm kep}$	t_0_kep		The reference time for lens orbital motion calculations.[a]
$x_{\rm caustic,in}$	x_caustic_in		Curvelinear coordinate of caustic entrance for a binary lens model.[b]
$x_{\rm caustic,out}$	x_caustic_out		Curvelinear coordinate of caustic exit for a binary lens model.[b]
$t_{\rm caustic,in}$	t_caustic_in		Epoch of caustic exit for a binary lens model.[b]
$t_{\rm caustic,out}$	t_caustic_out		Epoch of caustic exit for a binary lens model.[b]
χ_P	xi_period	d	xallarap period
χ_a	xi_semimajor_axis	$\theta_{\rm E}$	xallarap semimajor axis
χ_i	xi_inclination	deg	xallarap inclination
χ_Ω	xi_Omega_node	deg	xallarap Omega_node
χ_ν	xi_argument_of_latitude_reference	deg	xallarap argument of latitude reference
$t_{0,\chi}$	t_0_xi		The reference epoch for parameters in xallarap models.[a]

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