TABLE 1
Model Comparison

AICc Qualitative Comparison	Free Parameters	$N_{\rm free}$	$N_{\rm data}$	RMS	$\ln \mathcal{L}$	BIC	AICc	ΔAICc
AICc Favored Model	e_b, K_b, e_c, K_c, σ, γ	20	458	5.85	-1344.41	2797.57	2716.96	0.00
Ruled Out	e_b, K_b, K_c, σ, γ	18	458	7.28	-1423.15	2942.81	2870.08	153.12
	e_b, K_b, σ, γ	15	458	11.26	-1658.91	3395.94	3335.12	618.16
	K_b, e_c, K_c, σ, γ	18	458	19.66	-2161.34	4419.20	4346.47	1629.51
	K_b, K_c, σ, γ	16	458	22.06	-2191.81	4467.87	4403.07	1686.11
	K_b, σ, γ	13	458	22.59	-2279.88	4625.63	4572.80	1855.84
	e_b, K_b, e_c, K_c, γ	15	458	6.02	-3246.97	6572.06	6511.25	3794.29
	e_b, K_b, K_c, γ	13	458	7.71	-4200.65	8467.16	8414.34	5697.38
	e_c, K_c, σ, γ	15	458	45.49	-5540.60	11159.33	11098.51	8381.55
	K_c, σ, γ	13	458	54.29	-5850.37	11766.62	11713.79	8996.83
	σ, γ	10	458	56.88	-inf	12453.72	12412.94	9695.98
	e_b, K_b, γ	10	458	11.18	-21521.90	43091.29	43050.51	40333.55
	K_b, e_c, K_c, γ	13	458	19.97	-64798.32	129662.52	129609.69	126892.73
	K_b, K_c, γ	11	458	22.52	-66169.11	132391.85	132347.05	129630.09
	K_b, γ	8	458	22.78	-76996.87	154028.98	153996.29	151279.33
	e_c, K_c, γ	10	458	44.14	-418654.99	837357.48	837316.70	834599.74
	K_c, γ	8	458	55.09	-530177.21	1060389.65	1060356.96	1057640.00
	γ	5	458	57.15	-564158.37	1128333.59	1128313.09	1125596.13

TABLE 2
MCMC Posteriors

Parameter	Credible Interval	Maximum Likelihood	Units
Modified MCMC Step Parameters			
P_b	$1766.71^{+0.58}_{-0.59}$	1766.71	days
$T\mathrm{conj_b}$	$2456836.0^{+1.6}_{-1.7}$	2456836.0	BJD
$T\mathrm{peri_b}$	$2456673.4^{+2.3}_{-2.2}$	2456673.4	BJD
e_b	$0.3652^{+0.0035}_{-0.0034}$	0.3653	
ω_b	$0.3944^{+0.01}_{-0.0098}$	0.3946	radians
K_b	89.47 ± 0.42	89.47	m s^{-1}
P_c	19751^{+4700}_{-590}	19946	days
$T\mathrm{conj_c}$	2454808^{+250}_{-74}	2454830	BJD
$T\mathrm{peri_c}$	2451427^{+160}_{-140}	2451413	BJD
e_c	$0.372^{+0.058}_{-0.026}$	0.368	
ω_c	$-0.244^{+0.096}_{-0.081}$	-0.252	radians
K_c	$43.8^{+2.7}_{-1.8}$	43.7	m s^{-1}
Orbital Parameters			
P_b	$1766.71^{+0.58}_{-0.59}$	1766.71	days
$T\mathrm{conj_b}$	$2456836.0^{+1.6}_{-1.7}$	2456836.0	BJD
$T\mathrm{peri_b}$	$2456673.4^{+2.3}_{-2.2}$	2456673.4	BJD
e_b	$0.3652^{+0.0035}_{-0.0034}$	0.3653	
ω_b	$0.3944^{+0.01}_{-0.0098}$	0.3946	radians
K_b	89.47 ± 0.42	89.47	m s^{-1}
P_c	19751^{+4700}_{-590}	19946	days
$T\mathrm{conj_c}$	2454808^{+250}_{-74}	2454830	BJD
$T\mathrm{peri_c}$	2451427^{+160}_{-140}	2451413	BJD
e_c	$0.372^{+0.058}_{-0.026}$	0.368	
ω_c	$-0.244^{+0.096}_{-0.081}$	-0.252	radians
K_c	$43.8^{+2.7}_{-1.8}$	43.7	m s^{-1}
Other Parameters			
γ_{HJS}	$-31.0^{+3.2}_{-6.1}$	-30.8	m s-1
$\gamma_{\mathrm{HIRES-pre}}$	$4.1^{+3.0}_{-6.2}$	4.2	m s-1
$\gamma_{\mathrm{HIRES-post}}$	$-3.7^{+1.8}_{-6.6}$	-3.9	m s-1
γ_{ELODIE}	$-13876.1^{+3.2}_{-6.2}$	-13875.9	m s-1
γ_{APF}	$45.1^{+2.1}_{-6.4}$	45.1	m s-1
$\dot{\gamma}$	$\equiv 0.0$	$\equiv 0.0$	m s^{-1} d^{-1}
$\ddot{\gamma}$	$\equiv 0.0$	$\equiv 0.0$	m s^{-1} d^{-2}
σ_{HJS}	$-4e-07^{+0.00058}_{-0.00051}$	$-4e-07$	m s^{-1}
$\sigma_{\mathrm{HIRES-pre}}$	$2.73^{+0.45}_{-0.37}$	2.52	m s^{-1}
$\sigma_{\mathrm{HIRES-post}}$	$3.18^{+0.25}_{-0.23}$	3.1	m s^{-1}
σ_{ELODIE}	$7.22^{+1.0}_{-0.95}$	7.04	m s^{-1}
σ_{APF}	$3.31^{+0.26}_{-0.24}$	3.24	m s^{-1}

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Reference epoch for γ,$\dot{\gamma}$,$\ddot{\gamma}$: 2454185.380222

TABLE 3
Derived Posteriors

Parameter	Credible Interval	Maximum Likelihood	Units
$M_b \sin i$	4.86 ± 0.14	4.81	$\mathrm{M_{Jup}}$
a_b	$2.835^{+0.04}_{-0.041}$	2.823	AU
$M_c \sin i$	$5.34^{+0.53}_{-0.31}$	5.79	$\mathrm{M_{Jup}}$
a_c	$14.26^{+2.1}_{-0.52}$	16.75	AU

TABLE 4
Summary of Priors

e_b constrained to be < 0.99
e_c constrained to be < 0.99
K constrained to be > 0
Bounded prior: $0.0 < \sigma_{\mathrm{HIRES-pre}} < 10.0$
Bounded prior: $0.0 < \sigma_{\mathrm{HIRES-post}} < 10.0$
Bounded prior: $0.0 < \sigma_{\mathrm{APF}} < 10.0$

TABLE 5
Final Convergence Criterion

Criterion	Final Value
minAfactor	53.372
maxArchange	0.021
maxGR	1.010
minTz	2968.773

TABLE 6
Radial Velocities

Time (JD)	RV (m s^{-1})	RV Unc. (m s^{-1})	Inst.
2449464.59560	-13782.00	8.00	ELODIE
2449531.43020	-13751.00	7.00	ELODIE
2449752.60510	-13802.00	8.00	ELODIE
2449755.71830	-13812.00	7.00	ELODIE
2449766.70610	-13791.00	7.00	ELODIE
2449820.61120	-13844.00	8.00	ELODIE
2449851.52080	-13867.00	8.00	ELODIE
2449904.40720	-13863.00	7.00	ELODIE
2449907.40650	-13864.00	7.00	ELODIE
2449970.32770	-13852.00	7.00	ELODIE
2450021.26730	-13896.00	7.00	ELODIE
2450027.24440	-13882.00	7.00	ELODIE
2450091.69090	-13887.00	7.00	ELODIE
2450148.56110	-13897.00	7.00	ELODIE
2450150.63830	-13901.00	7.00	ELODIE
2450207.51160	-13907.00	7.00	ELODIE
2450212.52370	-13902.00	7.00	ELODIE
2450263.51030	-13902.00	7.00	ELODIE
2450265.44030	-13921.00	7.00	ELODIE
2450267.46700	-13900.00	7.00	ELODIE
2450324.35710	-13883.00	7.00	ELODIE
2450380.24170	-13888.00	7.00	ELODIE
2450382.24420	-13886.00	7.00	ELODIE
2450474.71950	-13907.00	4.95	ELODIE
2450531.64675	-13868.50	4.95	ELODIE
2450535.64130	-13873.00	7.00	ELODIE
2450561.56720	-13899.00	7.00	ELODIE
2450579.55030	-13882.00	7.00	ELODIE
2450623.48790	-13890.00	7.00	ELODIE
2450678.32870	-13865.00	7.00	ELODIE
2450701.30460	-13870.00	7.00	ELODIE
2450730.31730	-13857.00	8.00	ELODIE
2450731.30170	-13863.00	7.00	ELODIE
2450821.72290	-13802.00	7.00	ELODIE
2450858.69150	-13835.00	7.00	ELODIE
2450861.70020	-13825.00	7.00	ELODIE
2450885.66430	-13820.00	8.00	ELODIE
2450887.65080	-13821.00	8.00	ELODIE
2450911.59232	-13811.70	5.98	ELODIE
2450912.53990	-13832.00	7.00	ELODIE
2450939.58570	-13820.00	7.00	ELODIE
2450941.54990	-13813.00	7.00	ELODIE
2450967.43090	-13809.00	7.00	ELODIE
2450973.42890	-13813.00	7.00	ELODIE
2451023.37260	-13801.50	5.66	ELODIE
2451030.35060	-13793.00	7.00	ELODIE
2451036.38330	-13791.00	7.00	ELODIE
2451054.31820	-13784.00	7.00	ELODIE
2451088.27960	-13775.00	7.00	ELODIE
2451234.71050	-13708.00	7.00	ELODIE

Note. — Only the first 50 of 458 RVs are displayed in this table. Use `radvel table -t rv` to save the full LaTeX table as a separate file.

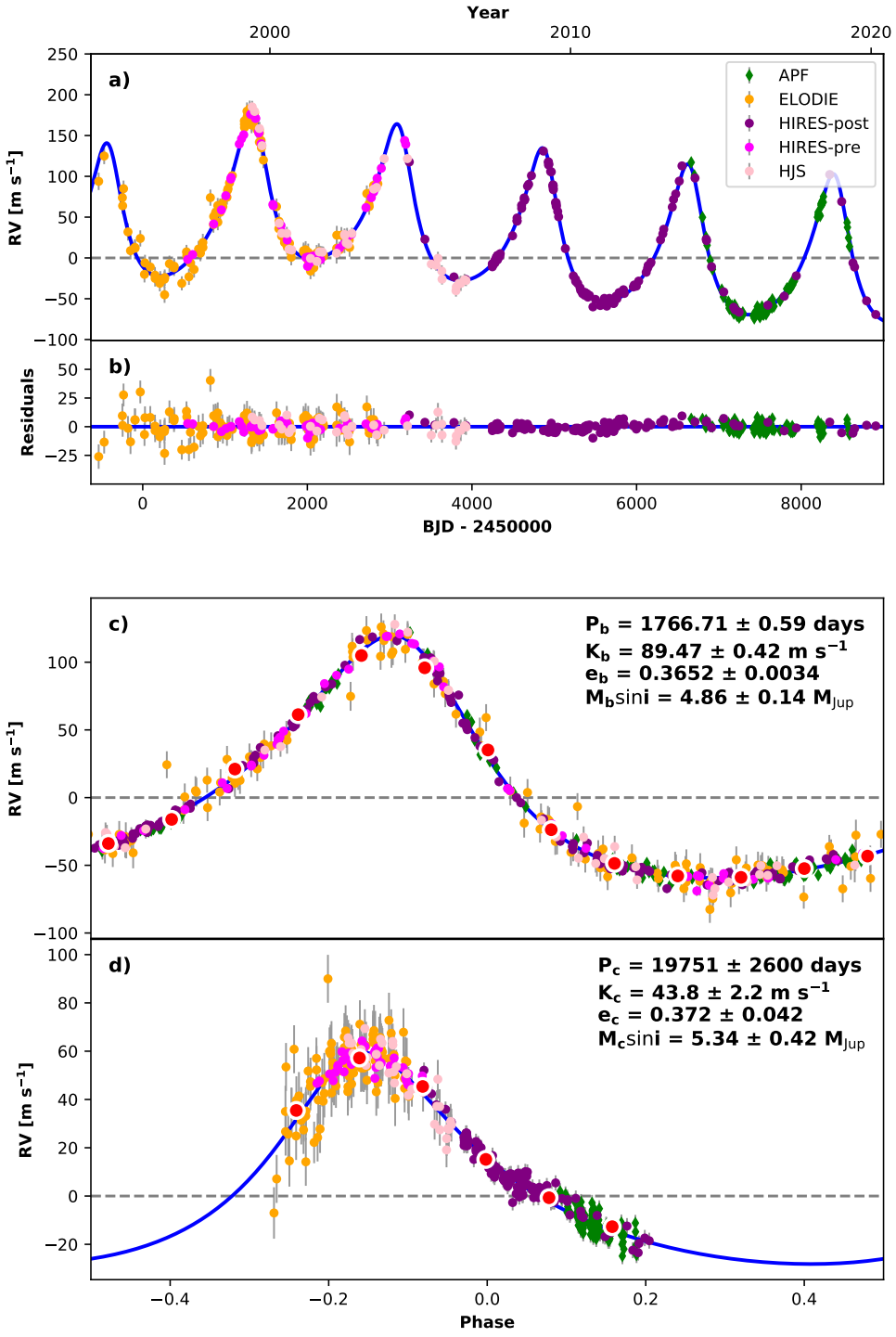

FIG. 1.— Best-fit 2-planet Keplerian orbital model for 14Her. The maximum likelihood model is plotted while the orbital parameters listed in Table 2 are the median values of the posterior distributions. The thin blue line is the best fit 2-planet model. We add in quadrature the RV jitter term(s) listed in Table 2 with the measurement uncertainties for all RVs. **b)** Residuals to the best fit 2-planet model. **c)** RVs phase-folded to the ephemeris of planet b. The Keplerian orbital models for all other planets (if any) have been subtracted. The small point colors and symbols are the same as in panel **a**. Red circles (if present) are the same velocities binned in 0.08 units of orbital phase. The phase-folded model for planet b is shown as the blue line.

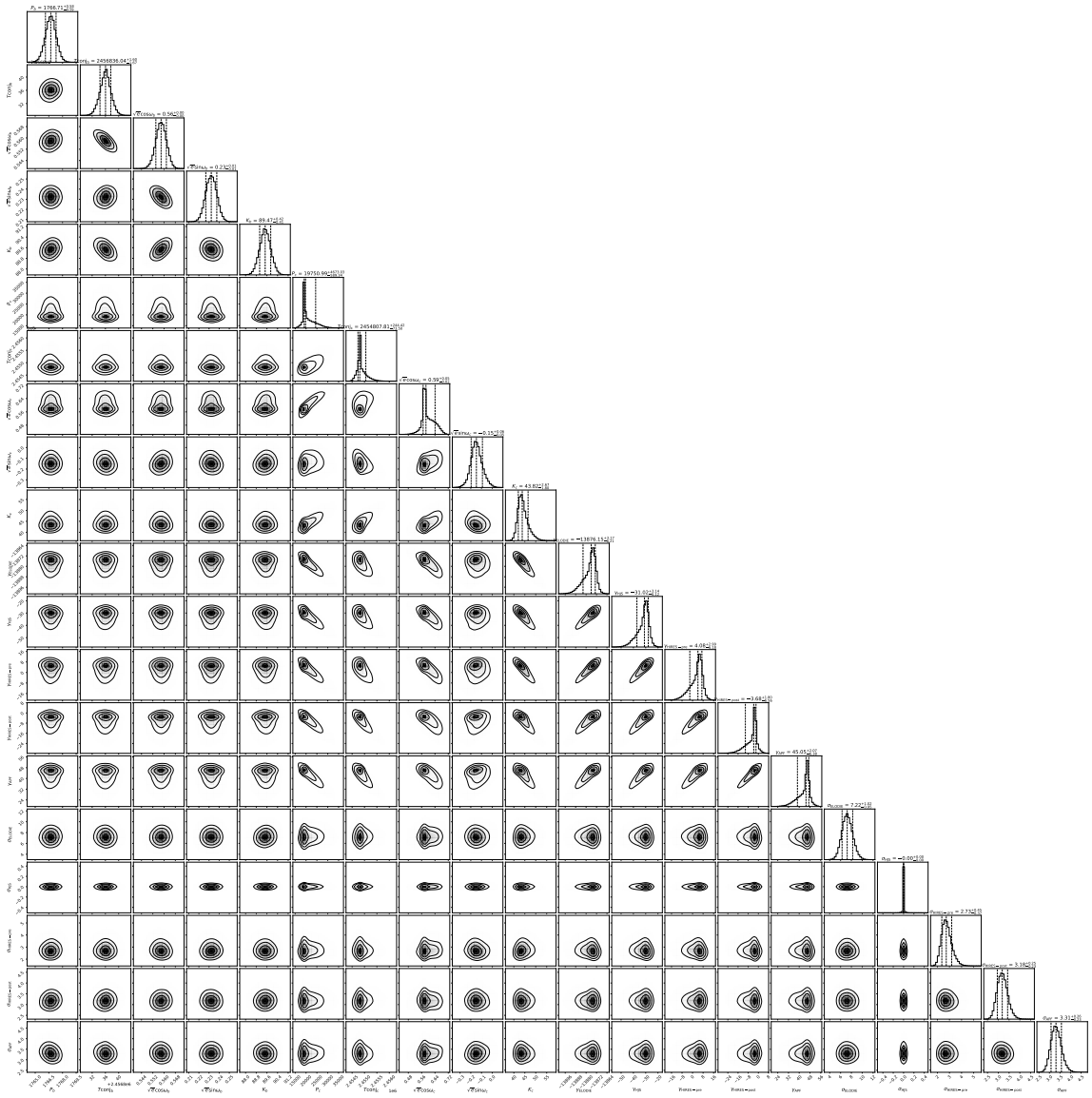

FIG. 2.— Posterior distributions for all free parameters.

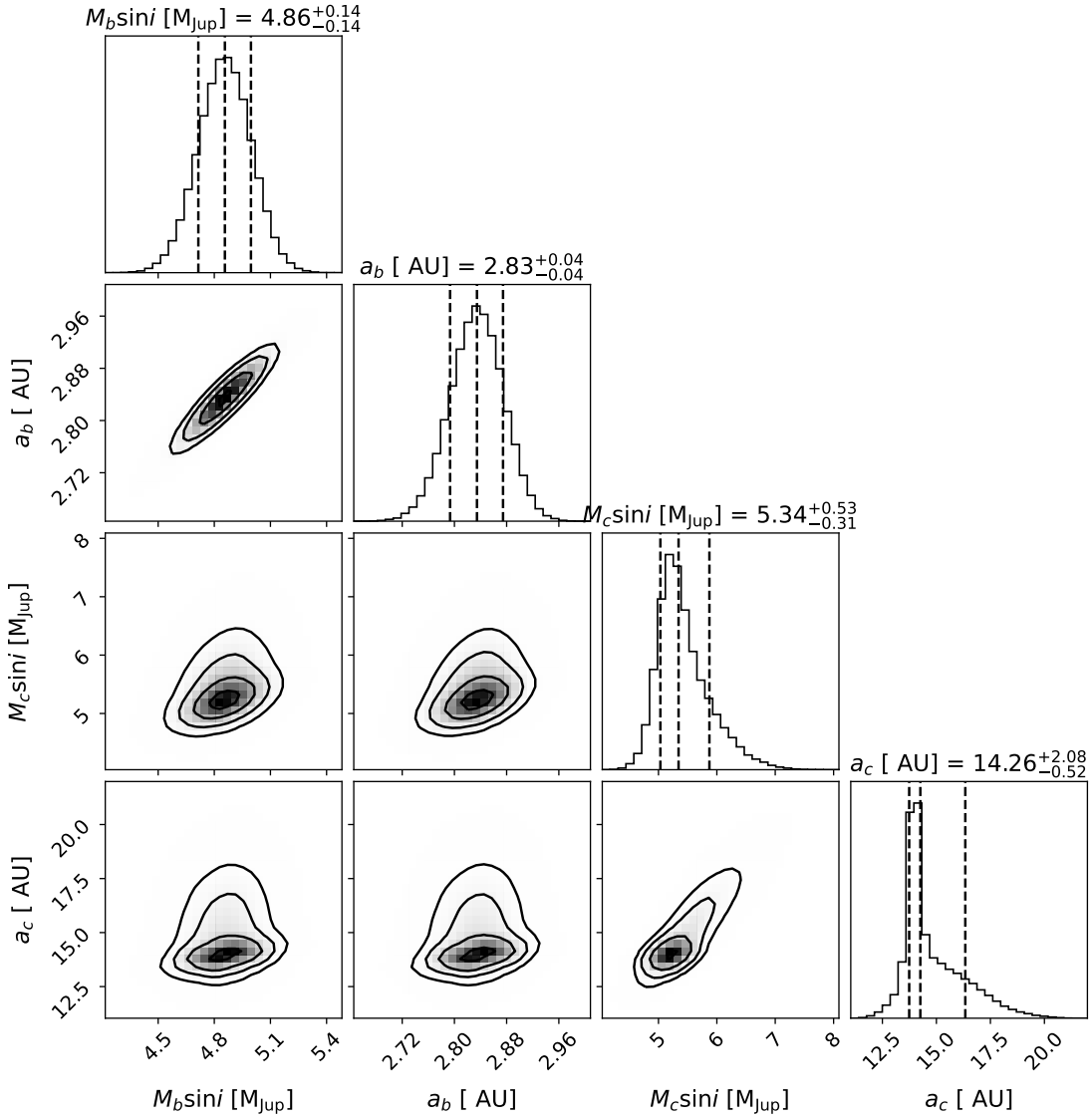

FIG. 3.— Posterior distributions for all derived parameters.