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	213	2.76	-511.41	1107.06	1044.21	0.00
Strongly Disfavored	e_b, K_b, K_c, σ, γ	18	213	2.83	-516.81	1107.13	1050.15	5.94
Ruled Out	e_b, K_b, σ, γ	15	213	6.93	-714.20	1485.83	1437.85	393.64
	K_b, K_c, σ, γ	16	213	8.38	-758.98	1580.75	1529.74	485.53
	K_b, e_c, K_c, σ, γ	18	213	8.35	-758.55	1590.61	1533.63	489.42
	K_b, σ, γ	13	213	10.58	-811.14	1669.00	1627.13	582.92
	e_b, K_b, e_c, K_c, γ	15	213	2.78	-897.63	1852.69	1804.71	760.50
	e_b, K_b, K_c, γ	13	213	2.84	-934.28	1915.26	1873.40	829.19
	e_c, K_c, σ, γ	15	213	32.22	-1788.98	3635.40	3587.42	2543.21
	K_c, σ, γ	13	213	32.84	-1832.06	3710.84	3668.97	2624.76
	σ, γ	10	213	33.84	-inf	3834.77	3802.24	2758.03
	K_b, e_c, K_c, γ	13	213	8.86	-8922.65	17892.01	17850.14	16805.93
	K_b, K_c, γ	11	213	8.88	-9040.74	18117.46	18081.80	17037.59
	e_b, K_b, γ	10	213	7.64	-10305.43	20641.48	20608.95	19564.74
	K_b, γ	8	213	11.80	-26198.61	52417.12	52390.93	51346.72
	e_c, K_c, γ	10	213	33.09	-129046.89	258124.40	258091.88	257047.67
	K_c, γ	8	213	33.73	-148392.45	296804.81	296778.63	295734.42
	γ	5	213	34.48	-197822.76	395649.34	395632.83	394588.62

TABLE 2
MCMC Posteriors

Parameter	Credible Interval	Maximum Likelihood	Units
Modified MCMC Step Parameters			
P_b	258.25 ± 0.025	258.25	days
$T\mathrm{conj_b}$	2459159.9 ± 0.66	2459159.9	BJD
$T\mathrm{peri_b}$	2459110.96 ± 0.96	2459111.04	BJD
e_b	0.2318 ± 0.0051	0.2316	
ω_b	$-0.084^{+0.024}_{-0.025}$	-0.082	radians
K_b	50.03 ± 0.29	50.03	m s^{-1}
P_c	6348^{+71}_{-53}	6345	days
$T\mathrm{conj_c}$	2461174^{+84}_{-40}	2461177	BJD
$T\mathrm{peri_c}$	2458512^{+420}_{-240}	2458444	BJD
e_c	$0.099^{+0.031}_{-0.032}$	0.103	
ω_c	$-1.2^{+0.29}_{-0.24}$	-1.21	radians
K_c	11.03 ± 0.29	11.01	m s^{-1}
Orbital Parameters			
P_b	258.25 ± 0.025	258.25	days
$T\mathrm{conj_b}$	2459159.9 ± 0.66	2459159.9	BJD
$T\mathrm{peri_b}$	2459110.96 ± 0.96	2459111.04	BJD
e_b	0.2318 ± 0.0051	0.2316	
ω_b	$-0.084^{+0.024}_{-0.025}$	-0.082	radians
K_b	50.03 ± 0.29	50.03	m s^{-1}
P_c	6348^{+71}_{-53}	6345	days
$T\mathrm{conj_c}$	2461174^{+84}_{-40}	2461177	BJD
$T\mathrm{peri_c}$	2458512^{+420}_{-240}	2458444	BJD
e_c	$0.099^{+0.031}_{-0.032}$	0.103	
ω_c	$-1.2^{+0.29}_{-0.24}$	-1.21	radians
K_c	11.03 ± 0.29	11.01	m s^{-1}
Other Parameters			
γ_{UCLES}	-20.7 ± 0.4	-20.7	m s-1
$\gamma_{\mathrm{HIRES-pre}}$	$-0.78^{+0.74}_{-0.77}$	-0.69	m s-1
$\gamma_{\mathrm{HIRES-post}}$	$-1.32^{+0.39}_{-0.4}$	-1.3	m s-1
$\gamma_{\mathrm{HARPS-pre}}$	$-28.16^{+0.41}_{-0.43}$	-28.17	m s-1
$\gamma_{\mathrm{HARPS-post}}$	-11.6 ± 1.2	-11.5	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_{UCLES}	$2.18^{+0.33}_{-0.3}$	2.04	m s^{-1}
$\sigma_{\mathrm{HIRES-pre}}$	$3.64^{+0.45}_{-0.39}$	3.49	m s^{-1}
$\sigma_{\mathrm{HIRES-post}}$	$2.31^{+0.34}_{-0.3}$	2.16	m s^{-1}
$\sigma_{\mathrm{HARPS-pre}}$	$1.74^{+0.27}_{-0.22}$	1.6	m s^{-1}
$\sigma_{\mathrm{HARPS-post}}$	$1.7^{+1.3}_{-0.7}$	1	m s^{-1}

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Reference epoch for γ,$\dot{\gamma}$,$\ddot{\gamma}$: 2454496.2653805

TABLE 3
Derived Posteriors

Parameter	Credible Interval	Maximum Likelihood	Units
a_b	0.818 ± 0.012	0.81	AU
$M_b \sin i$	$1.62^{+0.047}_{-0.048}$	1.59	$\mathrm{M_{Jup}}$
a_c	6.92 ± 0.11	6.85	AU
$M_c \sin i$	1.061 ± 0.042	1.037	$\mathrm{M_{Jup}}$

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: $0.0 < \sigma_{\mathrm{UCLES}} < 10.0$
Bounded prior: $0.0 < \sigma_{\mathrm{HIRES-pre}} < 10.0$
Bounded prior: $0.0 < \sigma_{\mathrm{HIRES-post}} < 10.0$
Bounded prior: $0.0 < \sigma_{\mathrm{HARPS-pre}} < 10.0$
Bounded prior: $0.0 < \sigma_{\mathrm{HARPS-post}} < 10.0$

TABLE 5
Final Convergence Criterion

Criterion	Final Value
minAfactor	40.463
maxArchange	0.015
maxGR	1.005
minTz	5338.500

TABLE 6
Radial Velocities

Time (JD)	RV (m s^{-1})	RV Unc. (m s^{-1})	Inst.
2450917.22820	-41.80	2.00	UCLES
2451213.27750	-61.60	1.90	UCLES
2451276.04750	-50.40	2.10	UCLES
2451382.95730	30.10	1.80	UCLES
2451413.88130	-16.40	1.00	UCLES
2451630.26770	36.10	1.70	UCLES
2451683.06090	-20.80	2.00	UCLES
2451706.09600	-43.30	2.50	UCLES
2451717.95640	-56.00	1.80	UCLES
2451742.93400	-57.70	1.60	UCLES
2451984.21540	-51.40	2.00	UCLES
2452060.97170	-35.80	1.60	UCLES
2452091.93940	-11.90	1.30	UCLES
2452124.94783	33.95	0.79	UCLES
2452125.93270	38.68	0.81	UCLES
2452126.91910	37.70	1.60	UCLES
2452186.87840	0.60	1.70	UCLES
2452189.86320	-11.80	1.30	UCLES
2452360.23790	7.40	1.60	UCLES
2452387.10610	42.90	1.50	UCLES
2452388.15320	44.90	1.30	UCLES
2452455.98770	-6.80	1.70	UCLES
2452476.97240	-29.50	1.40	UCLES
2452655.25130	52.50	1.60	UCLES
2452747.15020	-39.90	1.30	UCLES
2452785.08800	-50.40	1.50	UCLES
2452860.89640	-10.00	1.40	UCLES
2453042.25170	-50.80	1.30	UCLES
2453215.93890	7.30	1.00	UCLES
2453485.05920	-7.40	1.20	UCLES
2453508.17360	-25.20	1.40	UCLES
2453521.07840	-33.20	1.60	UCLES
2453943.92020	49.40	0.90	UCLES
2453946.93290	47.40	0.80	UCLES
2454139.25780	-28.80	1.20	UCLES
2454226.09850	36.00	1.90	UCLES
2454368.89080	-48.20	1.10	UCLES
2454543.28490	-34.20	1.10	UCLES
2454899.21830	-47.70	1.20	UCLES
2454900.22940	-44.40	0.80	UCLES
2454908.23570	-42.00	1.50	UCLES
2455017.97070	4.80	1.40	UCLES
2455020.01400	-2.80	1.10	UCLES
2455020.94160	-2.50	1.00	UCLES
2455021.94420	-3.20	1.20	UCLES
2455023.94010	-9.00	1.00	UCLES
2455029.92920	-13.30	1.10	UCLES
2455030.88910	-15.10	0.90	UCLES
2455032.00310	-17.60	0.90	UCLES
2455032.93820	-16.10	1.00	UCLES

Note. — Only the first 50 of 213 RVs are displayed in this table. Use `radvel table -t rv` to save the full LaTeX table as a separate file.

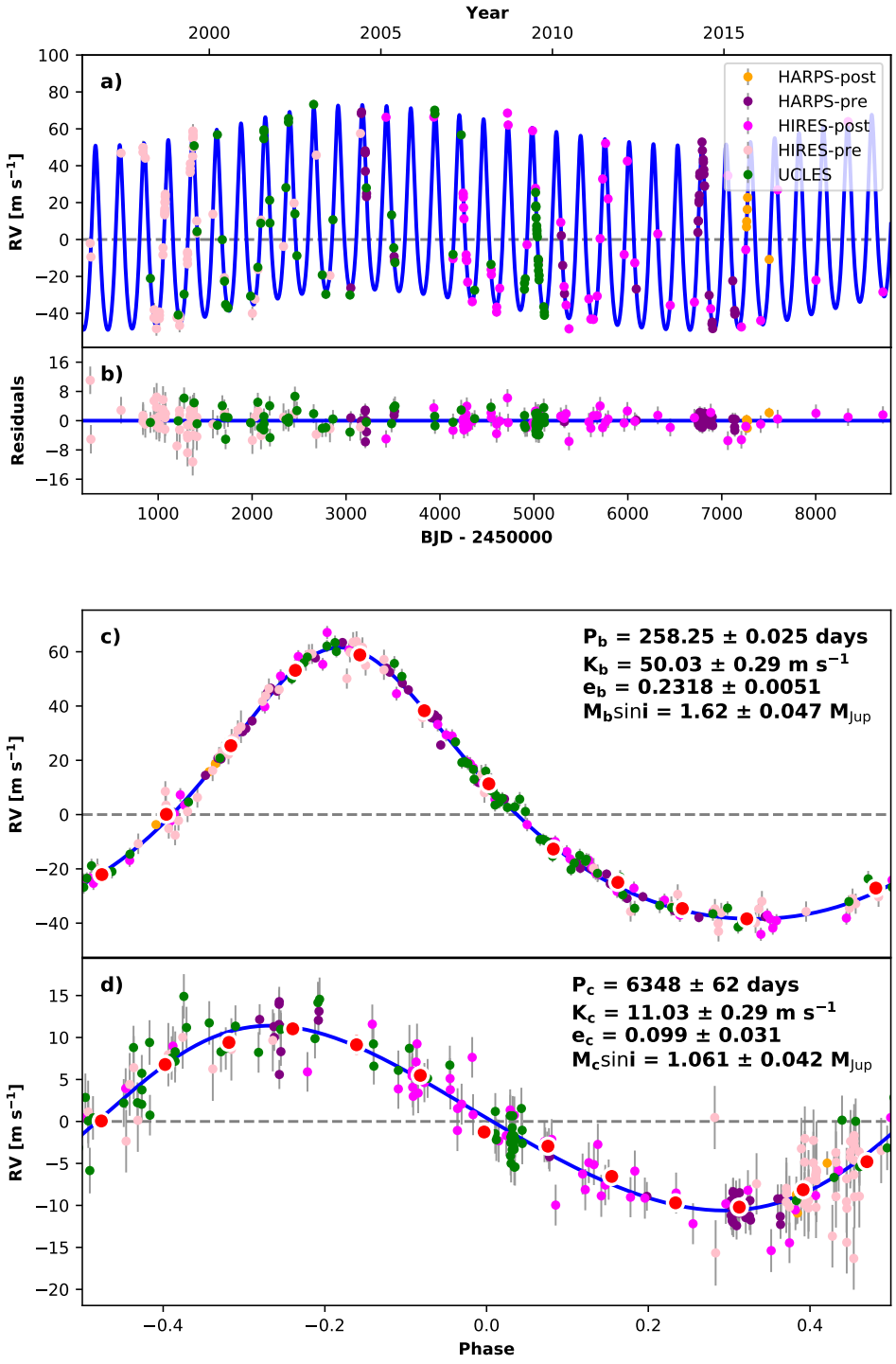

FIG. 1.— Best-fit 2-planet Keplerian orbital model for HD134987. The maximum likelihood model is plotted while the orbital parameters listed in Table 2 are the median values of the posterior distributions. The thin blue line is the best fit 2-planet model. We add in quadrature the RV jitter term(s) listed 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.

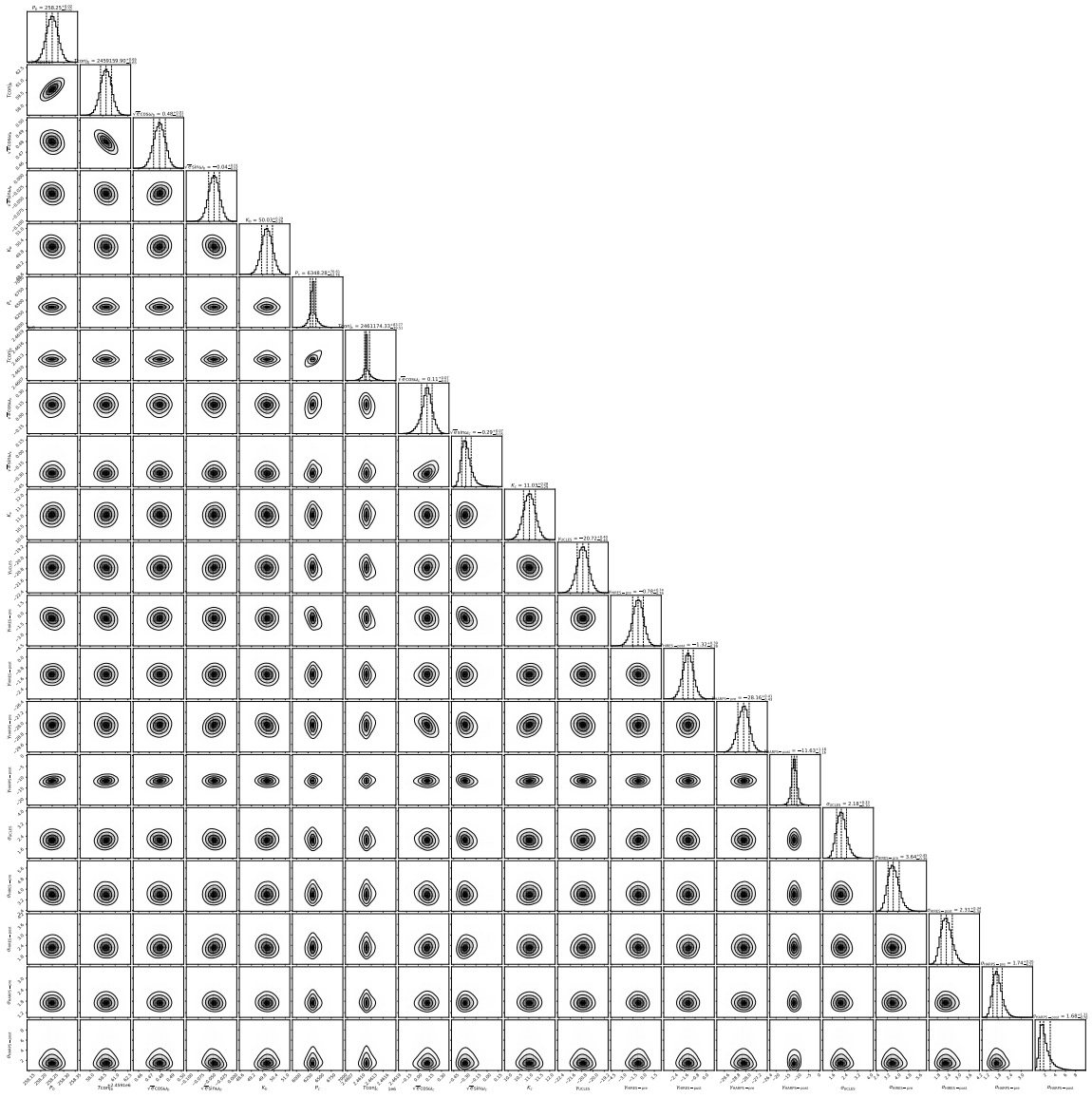

FIG. 2.— Posterior distributions for all free parameters.

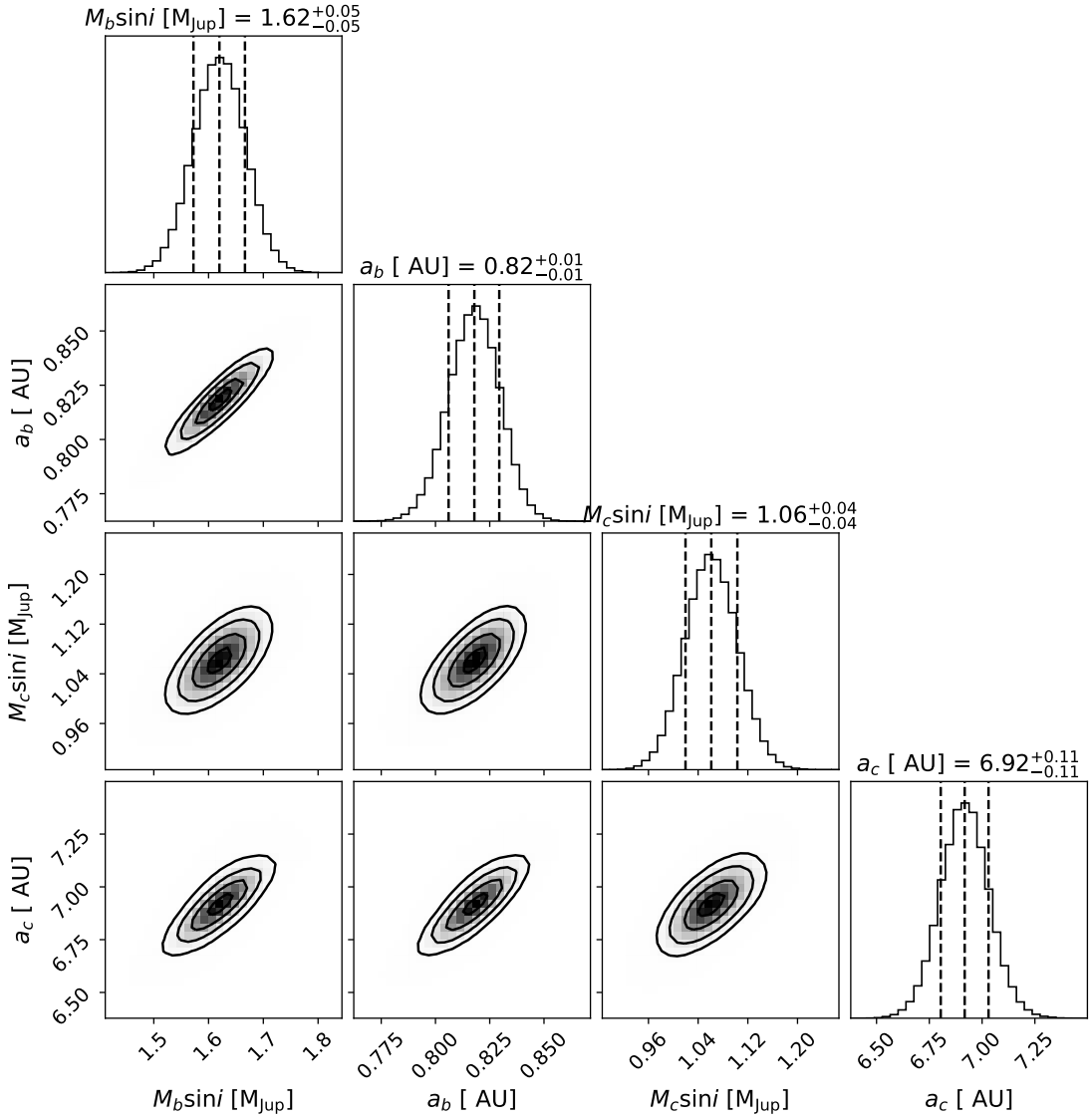

FIG. 3.— Posterior distributions for all derived parameters.