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Table S1. ^{1}H NMR Chemical Shifts of H1 in Titrations of Mixtures of Stereoisomeric 4-*t*-Butylcyclohexylamines (1) with DCl in DMSO-d_6 at 25° C.

	0.20 M		0.10 M		0.05 M	
titr	δ_c	δ_t	δ_c	δ_t	δ_c	δ_t
0	3.040	2.402	3.039	2.401	3.037	2.400
1	3.063	2.456	3.067	2.467	3.067	2.467
2	3.086	2.508	3.098	2.532	3.117	2.572
3	3.118	2.571	3.132	2.596	3.165	2.652
4	3.147	2.620	3.169	2.657	3.212	2.722
5	3.176	2.668	3.213	2.720	3.275	2.800
6	3.212	2.720	3.254	2.775	3.335	2.865
7	3.252	2.773	3.312	2.840	3.373	2.902
8	3.292	2.821	3.363	2.890		
9	3.339	2.868	3.373	2.901		
10	3.372	2.901				

Table S2. ^{1}H NMR Chemical Shifts of H1 in a Titration of *cis* and *trans* stereoisomers of 4-*t*-Butylcyclohexanecarboxylic Acid (**2**) with NaOD in 3:1 CD_3OD/D_2O at 25° C.

titr	δ_c	δ_t	titr	δ_c	δ_t	titr	δ_c	δ_t
0	2.186	2.629	7	2.117	2.581	14	2.056	2.496
1	2.178	2.624	8	2.109	2.573	15	2.052	2.485
2	2.162	2.615	9	2.102	2.566	16	2.042	2.460
3	2.153	2.609	10	2.094	2.557	17	2.036	2.444
4	2.140	2.601	11	2.090	2.550	18	2.028	2.417
5	2.133	2.595	12	2.083	2.541	19	2.025	2.408
6	2.127	2.590	13	2.065	2.513	20	2.022	2.396

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Table S3. ^{13}C NMR Chemical Shifts in a Titration of a Mixture of *cis* and *trans* stereoisomers of 4-*t*-Butylcyclohexanecarboxylic Acid (**2**) with NaOD in 3:1 CD_3OD/D_2O at 25° C.

titr	$\delta_{c\text{-}CO}$	$\delta_{t\text{-}CO}$	$\delta_{c\text{-}C1}$	$\delta_{t\text{-}C1}$	$\delta_{c\text{-}C2}$	$\delta_{t\text{-}C2}$	$\delta_{c\text{-}C4}$	$\delta_{t\text{-}C4}$
0	178.376	179.590	38.486	43.145	27.317	29.177	47.614	47.215
1	179.038	181.301	38.844	44.408	27.496	29.511	47.694	47.281
2	179.951	182.771	39.338	45.495	27.751	29.805	47.816	47.351
3	181.226	184.000	40.029	46.397	28.108	30.057	47.987	47.404
4	182.446	184.735	40.691	46.949	28.442	30.202	48.139	47.435
5	183.126	185.044	41.055	47.174	28.618	30.257	48.230	47.447

Table S4. ^{1}H NMR Chemical Shifts of H1 in a Titration of a Mixture of *cis* and *trans* stereoisomers of 4-*t*-Butylcyclohexanecarboxylic Acid (**2**) with NaOD in 3:1 CD_3OD/D_2O.

	15° C		22° C		33° C		41° C		56° C	
titr	δ_c	δ_t	δ_c	δ_t	δ_c	δ_t	δ_c	δ_t	δ_c	δ_t
0	2.624	2.183	2.625	2.183	2.625	2.184	2.625	2.186	2.625	2.186
1	2.607	2.151	2.605	2.149	2.603	2.147	2.601	2.147	2.599	2.147
2	2.575	2.110	2.571	2.108	2.567	2.107	2.564	2.107	2.562	2.107
3	2.536	2.078	2.533	2.078	2.529	2.078	2.526	2.078	2.524	2.079
4	2.497	2.056	2.493	2.055	2.488	2.055	2.486	2.055	2.483	2.055
5	2.435	2.032	2.434	2.033	2.433	2.033	2.432	2.034	2.430	2.034
6	2.399	2.023	2.396	2.023	2.395	2.023	2.395	2.023	2.395	2.023

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Table S5. ^{1}H NMR Chemical Shifts of H2 in Titrations of Mixtures of Stereoisomeric 2-Decalylamines (**3**) with DCl in 3:1 CD_3OD/D_2O at 25° C.

	mixture of *cis* and *trans* stereoisomers				mixture of *cis* stereoisomers		mixture of *trans* stereoisomers	
titr	δ_{cc}	δ_{ct}	δ_{tc}	δ_{tt}	δ_{cc}	δ_{ct}	δ_{tc}	δ_{tt}
-1	2.612	2.795	2.627	3.129	2.611	2.794	2.627	3.130
0	2.620	2.802	2.635	3.134	2.621	2.803	2.636	3.135
1	2.653	2.832	2.668	3.157	2.680	2.857	2.689	3.175
2	2.697	2.872	2.704	3.185	2.736	2.909	2.734	3.211
3	2.724	2.899	2.729	3.205	2.799	2.968	2.778	3.246
4	2.772	2.944	2.778	3.243	2.852	3.018	2.817	3.279
5	2.817	2.988	2.820	3.281	2.915	3.079	2.846	3.303
6	2.852	3.019	2.852	3.309	2.978	3.138	2.888	3.341
7	2.901	3.066	2.901	3.352	3.026	3.185	2.939	3.388
8	2.961	3.122	2.961	3.409	3.083	3.240	2.979	3.427
9	3.002	3.165	3.007	3.456	3.135	3.291	3.031	3.482
10	3.069	3.227	3.071	3.522			3.070	3.522
11	3.118	3.276	3.126	3.581			3.123	3.581
12	3.137	3.294	3.145	3.607			3.144	3.605

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Table S6. ^{1}H NMR Chemical Shifts in Titrations of *trans*-2-Decalylamines ($\mathbf{3}_{tt}$,$\mathbf{3}_{tc}$) (H2) with Isopropylamine (**4**) (H2) and with 4-*t*-Butylcyclohexylamine (**1**) (H1) with DCl in 3:1 CD_3OD/D_2O at 25° C.

	mixture of *trans* stereoisomers ($\mathbf{3}_{tc}$,$\mathbf{3}_{tt}$) with isopropyl amine (**4**)			mixture of *trans* stereoisomers ($\mathbf{3}_{tc}$,$\mathbf{3}_{tt}$) with 4-*t*-butylcyclohexylamine (**1**)			
titr	δ_{tc}	δ_{tt}	δ_{ipa}	δ_{tt}	δ_{tc}	δ_c	δ_t
-1	2.627	3.129	3.045	3.129	2.627	2.517	3.058
0	2.632	3.133	3.050	3.135	2.635	2.524	3.063
1	2.665	3.157	3.083	3.169	2.681	2.569	3.095
2	2.699	3.183	3.116	3.195	2.715	2.603	3.119
3	2.742	3.216	3.155	3.227	2.755	2.643	3.151
4	2.782	3.249	3.192	3.261	2.797	2.685	3.184
5	2.821	3.282	3.224	3.295	2.836	2.724	3.217
6	2.862	-[a]	3.258	3.347	2.895	2.783	3.269
7	2.913	3.365	3.298	3.384	2.934	2.822	3.305
8	2.962	3.410	3.335	3.429	2.980	2.869	3.350
9	3.010	3.458	3.370	3.478	3.028	2.919	3.400
10	3.070	3.521	3.411	3.529	3.076	2.969	3.454
11	3.107	3.561	3.437	3.577	3.119	3.013	3.505
12	3.146	3.607	3.463	3.607	3.146	3.040	3.537

[a] Interference from the CD_2HOD peak.