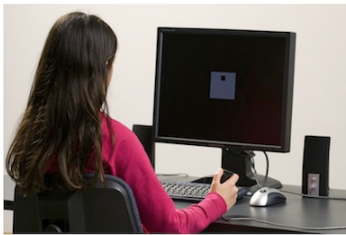


The Test Of Variables of Attention (T.O.V.A.®)

The **auditory Test of Variables of Attention (T.O.V.A.)** is an FDA-cleared, state-of-the-art continuous performance test that provides healthcare professionals with objective measurements of attention and inhibitory control. The auditory T.O.V.A. aids in the assessment of attention deficits, including attention-deficit/hyperactivity disorder (ADHD). T.O.V.A. results are available for children and adults (ages 6 - 29+) and should only be interpreted by qualified professionals.



The T.O.V.A. continuously measures performance during a 10.8-minute task or a 21.6-minute task, depending on age. It records speed, accuracy, and consistency of responses to a series of squares (in the visual T.O.V.A. test) or tones (in the auditory T.O.V.A. test) that are presented in two-second intervals. These measurements (accurate to ± 1 ms) are then compared by age and gender to a normative sample (a sample of people without attention problems). This comparison determines whether the test results are "within normal limits" or not. The T.O.V.A. also compares results to a group of people independently diagnosed with ADHD. The T.O.V.A. report is based on these two comparisons, as well as performance, session, and response validity measures.



If you have questions about this report, please contact the person who provided it to you. For more information about attention and the T.O.V.A., please visit our website at <https://www.tovatest.com/>. To contact us please email info@tovatest.com or call 800.PAY.ATTN (562.594.7700).

ID: 1 **Example Subject** (May 1, 2001)
Female - 16y 1m 0d

Auditory T.O.V.A. (v9.0-71 sn30000)
Jun 1, 2017 at 12:34 PM

Notes on the Comparison to the Normative Sample

Variability is a precise measure of variations in correct response times, and measures the consistency of response times. **Variability was borderline in Half 1, and not within normal limits in Quarters 2 and 3, Half 2, and Total.**

Response Time is the average speed of correct responses to targets, and is a measure of information processing speed. **Response Time was within normal limits.**

Commission Errors occur when the subject incorrectly responds to a nontarget, and are a measure of inhibitory control. **Commission Errors were not within normal limits in Quarters 3 and 4, Half 2, and Total.**

Omission Errors occur when the subject does not respond to a target, and are a measure of sustained attention. **Omission Errors were not within normal limits in Quarters 1, 3, and 4, Half 1 and 2, and Total.**

Response Patterns

In Q3, Q4, there were 5 episodes in which three or more omission errors occurred in a row. Usually, Omission Errors tend to be scattered throughout the test, rather than clustered together. Assuming compliance with test instructions, this unusual pattern of performance may be caused by a significant external distraction, severe distractibility, falling asleep (e.g., narcolepsy), the occurrence of seizure (s), or other causes (poor effort, fatigue, etc.).

In Q4, the standard score for inhibitory control (commission errors) was low and the standard score for response time was high. Despite being instructed to balance speed and accuracy, the subject may have adopted a fast response strategy that emphasized responding as quickly as possible, resulting in high commission errors.

Other Notes

Consider administering a Visual T.O.V.A. to this subject for a more comprehensive assessment of attention. This is important because an individual can have markedly different results on one test versus the other.

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Auditory T.O.V.A. (v9.0-71 sn30000)
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This page contains tabulated raw data and documents T.O.V.A. session parameters.

		Quarter				Half		Total
		1	2	3	4	1	2	
RT Variability	ms	119	212	229	205	177	219	216
Response Time	ms	502	554	433	375	530	403	433
Post-commission responses	#	0	0	11	12	0	23	23
Response Time	ms	0	0	635	499	0	564	564
Variability	ms	0	0	193	279	0	251	251
Commission Errors	#	0/126	0/126	13/36	14/36	0/252	27/72	27/324
Percentage	%	0	0	36.1	38.9	0	37.5	8.3
Response Time	ms	0	0	343	233	0	286	286
Omission Errors	#	6/36	1/36	27/126	9/126	7/72	36/252	43/324
Percentage	%	16.7	2.8	21.4	7.1	9.7	14.3	13.3
D Prime		5.23	6.18	1.15	1.75	5.56	1.39	2.5
Standard Score		65	73	50	63	75	60	62
Beta		5578.61	1425.08	0.78	0.36	3838.5	0.6	1.4
Anticipatory	%	0	0	0	8	0	4	2
To Nontargets	#	0	0	0	4	0	4	4
To Targets	#	0	0	0	9	0	9	9
Multiple Responses	#	0	0	0	3	0	3	3
Total Correct	#	156/162	161/162	122/162	126/162	317/324	248/324	565/648
Percentage	%	96.3	99.4	75.3	77.8	97.8	76.5	87.2
Skew	ms	114	85	151	173	43	186	217
User Interrupts	#	0	0	0	0	0	0	0
Hardware errors	#	0	0	0	0	0	0	0

Infrequent

Frequent

Session parameters

Format: 1 (standard)
 ISI: 2000 ms
 Stimulus On Time: 200 ms
 Stimulus Off Time: 300 ms
 Anticipatory Cutoff: 150 ms

Session information

Tester:
 Import Filename: example-subject.tova
 Import Date: Jun 12, 2017 12:00:00 AM
 Errors/Warnings: Microswitch message flooding (1)

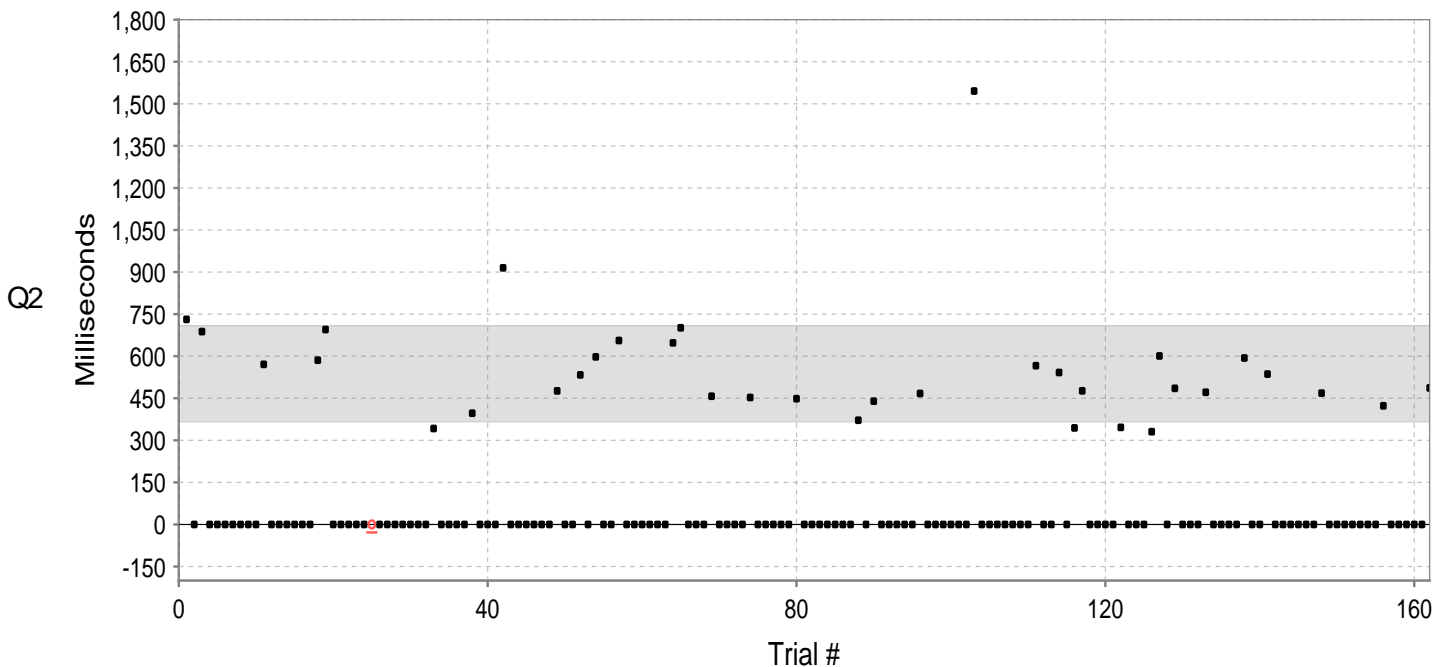
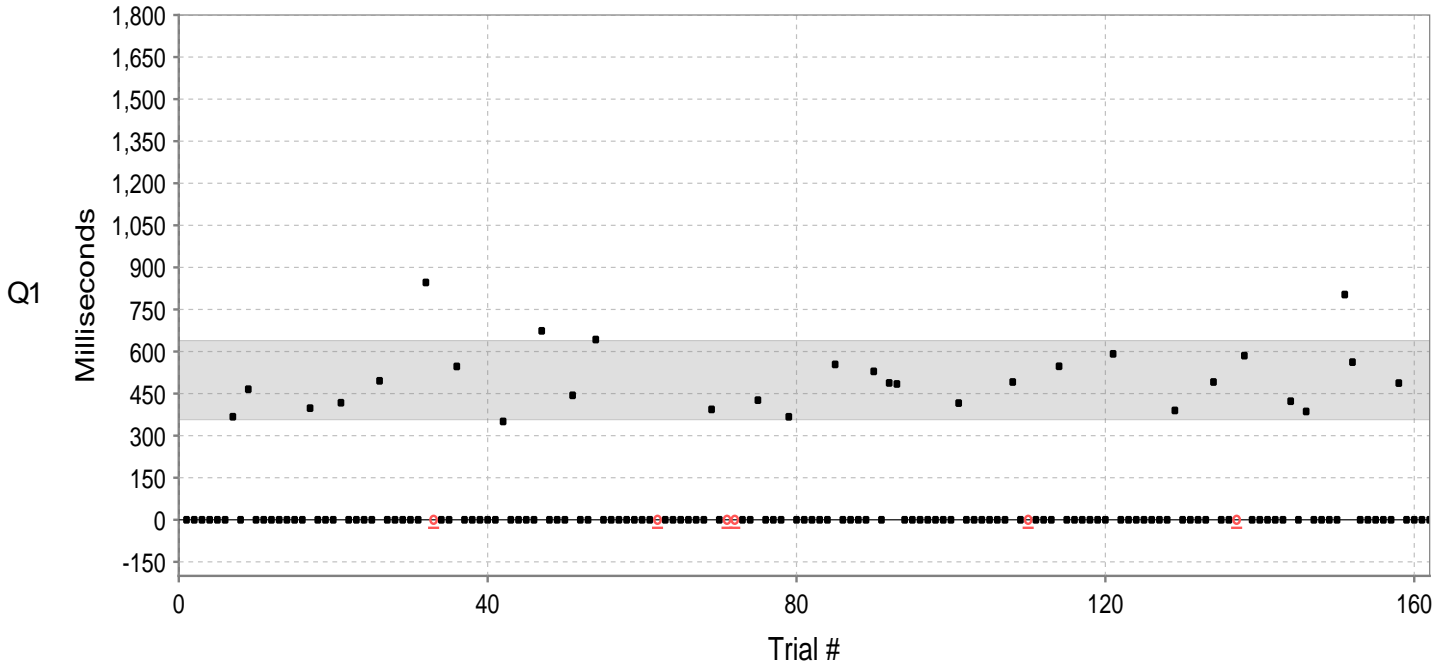
Hardware information

Session mode: PTE
 USB device: HW 5, BD N/A, FW 1.0-90-g8027812
 Microswitch: HW 2, BD N/A, FW 2

ID: 1 **Example Subject** (May 1, 2001)
Female - 16y 1m 0d

Auditory T.O.V.A. (v9.0-71 sn30000)
 Jun 1, 2017 at 12:34 PM

This page graphically displays the subject's responses. Black squares mark correct responses and correct nonresponses. Red 'X's mark commission errors, red squares mark anticipatory responses, and underlined red circles mark omission errors. The light gray region represents the normative range of responses. Commission errors followed by a correct response are linked by a line: an upward slope (light gray) indicates slowing down following an error (typical), and a downward slope (black) indicates speeding up after making an error (unusual). Red numbers above the zero line indicate the number of missed targets (if three or more in a row), and the red number below the zero line indicates the number of seconds elapsed between correct target responses.

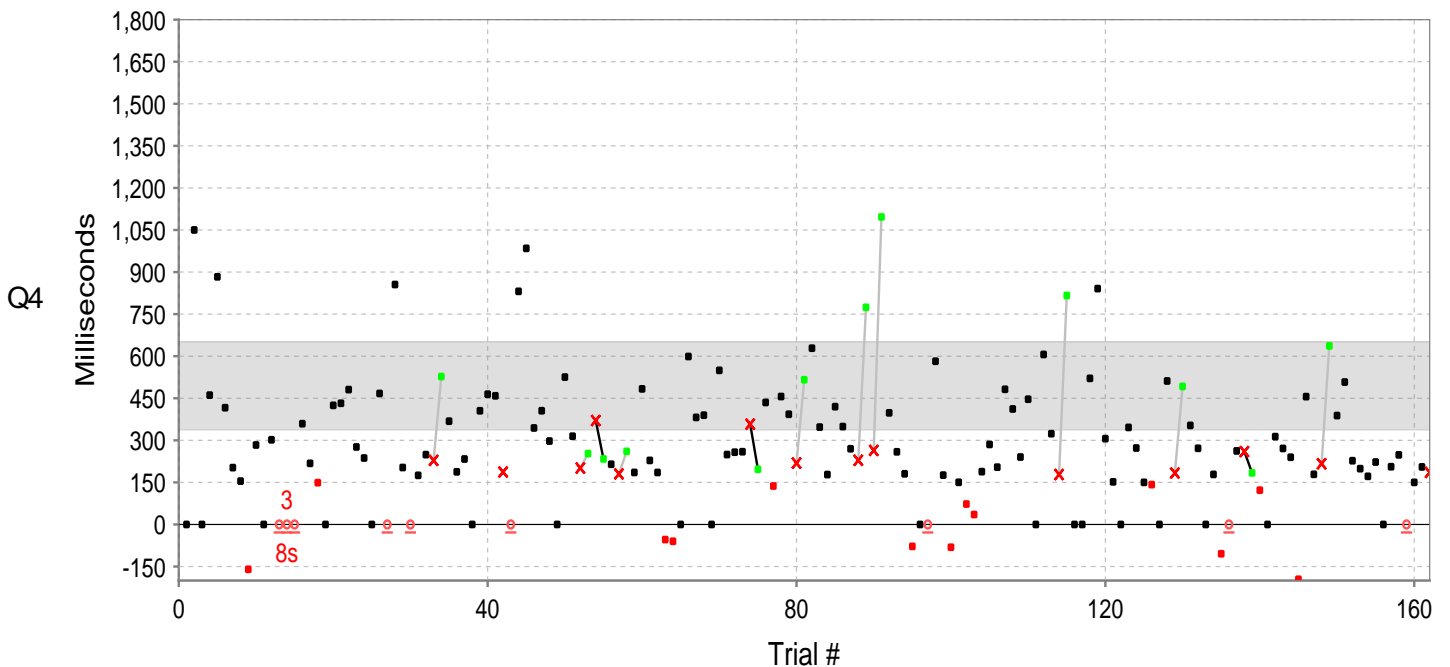
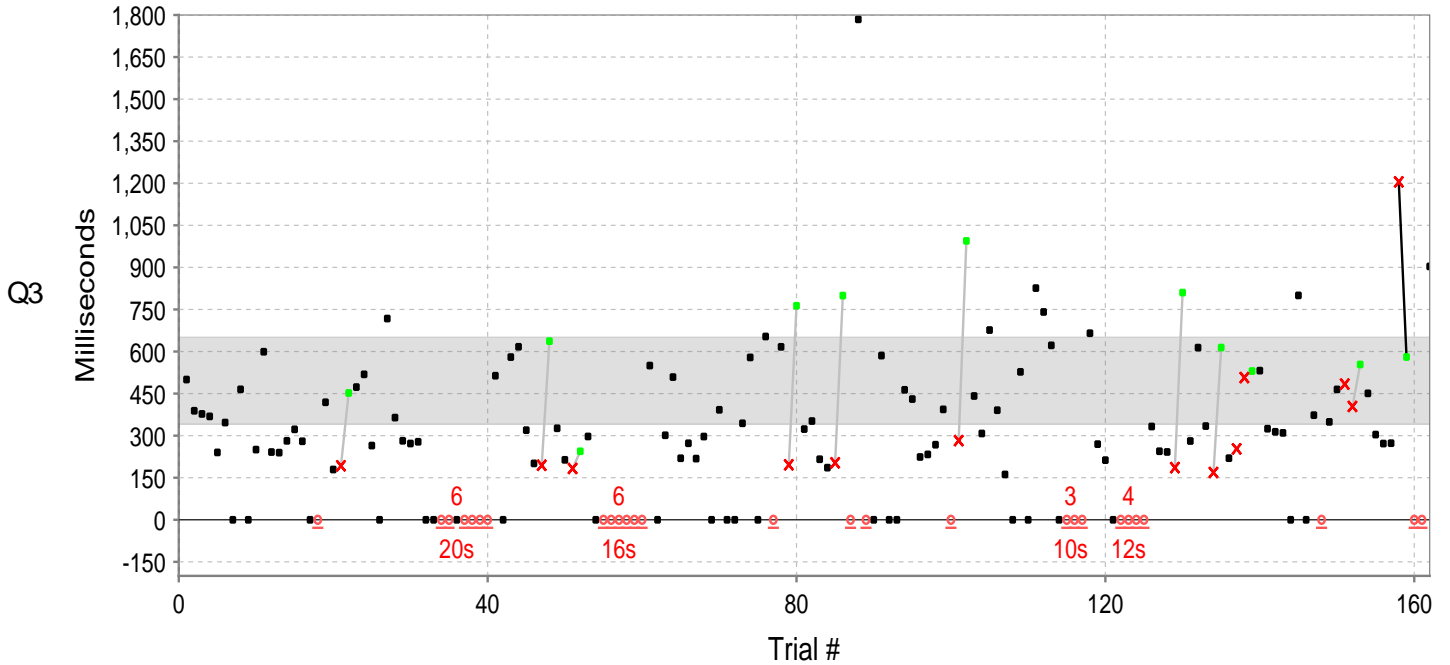


- Correct response ▪ Correct non-response ✕ Commission error ◌ Omission error ▪ Anticipatory response
- Post-commission error correct response / Slower post-commission RT \ Faster post-commission RT
- ▲△ Off-scale resp./error ■ Normative range | Interruption 3 10s Response gap (# Targets and Sec)

ID: 1 **Example Subject** (May 1, 2001)
Female - 16y 1m 0d

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- Correct response ■ Correct non-response × Commission error ○ Omission error ■ Anticipatory response
- Post-commission error correct response / Slower post-commission RT \ Faster post-commission RT
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ID: **1** **Example Subject** (May 1, 2001)
Female - 16y 1m 0d

Auditory T.O.V.A. (v9.0-71 sn30000)
 Jun 1, 2017 at 12:34 PM

This page shows a trial-by-trial view of T.O.V.A. test data. Each entry in the table indicates the stimulus type (target or nontarget) and the subject's response to that stimulus. Error responses are shown in red, and response times are in milliseconds. A negative response time indicates a response that was made before the stimulus was presented.

1-27	28-54	55-81	82-108	109-135	136-162
N	N	N	N	N	N
N	N	N	N	O	O
N	N	N	N	N	T 585
N	N	N	T 554	N	N
N	T 846	N	N	N	N
N	O	N	N	T 547	N
T 367	N	N	N	N	N
N	N	O	N	N	N
T 465	T 546	N	T 529	N	T 422
N	N	N	N	N	N
N	N	N	T 488	N	T 386
N	N	N	T 484	N	N
N	N	N	N	T 591	N
N	N	N	N	N	N
N	T 350	T 393	N	N	N
N	N	N	N	N	T 803
T 398	N	O	N	N	T 562
N	N	O	N	N	N
N	N	N	N	N	N
N	T 673	N	T 416	N	N
T 417	N	T 426	N	T 389	N
N	N	N	N	N	N
N	N	N	N	N	T 487
N	T 443	N	N	N	N
N	N	T 367	N	N	N
T 495	N	N	N	T 491	N
N	T 642	N	T 491	N	N

163-189	190-216	217-243	244-270	271-297	298-324
T 731	N	N	N	N	N
N	N	N	N	N	N
T 687	N	T 655	N	T 566	T 593
N	N	N	N	N	N
N	N	N	N	N	N
N	T 342	N	N	T 541	T 536
N	N	N	T 371	N	N
N	N	N	N	T 344	N
N	N	N	T 439	T 476	N
N	N	T 647	N	N	N
T 570	T 396	T 701	N	N	N
N	N	N	N	N	N
N	N	N	N	N	T 468
N	N	N	N	T 346	N
N	T 915	T 457	T 467	N	N
N	N	N	N	N	N
N	N	N	N	N	N
T 585	N	N	N	T 330	N
T 695	N	N	N	T 600	N
N	N	T 452	N	N	N
N	N	N	N	T 485	T 423
N	T 476	N	T 1545	N	N
N	N	N	N	N	N
N	N	N	N	N	N
O	T 533	N	N	T 471	N
N	N	T 448	N	N	N
N	T 597	N	N	N	T 486

325-351	352-378	379-405	406-432	433-459	460-486
T 500	T 364	O	T 352	T 527	T 219
T 388	T 281	O	T 215	N	C 252
T 377	T 271	O	T 185	T 826	C 507
T 368	T 278	O	C 203	T 741	T 530
T 240	N	O	T 799	T 622	T 531
T 346	N	O	O	N	T 324
N	O	T 549	T 1784	O	T 313
T 465	O	N	O	O	T 309
N	N	T 301	N	O	N
T 250	O	T 508	T 585	T 665	T 800
T 599	O	T 219	N	T 269	N
T 241	O	T 272	N	T 212	T 373
T 239	O	T 218	T 463	N	O
T 281	T 513	T 296	T 430	O	T 349
T 322	N	N	T 223	O	T 464
T 279	T 580	T 392	T 233	O	C 483
N	T 616	N	T 267	O	C 404
O	T 319	N	T 393	T 332	T 553
T 418	T 201	T 344	O	T 244	T 450
T 179	C 194	T 578	C 282	T 241	T 303
C 192	T 637	N	T 994	C 185	T 271
T 452	T 326	T 653	T 441	T 810	T 273
T 473	T 213	O	T 307	T 280	C 1204
T 518	C 183	T 616	T 676	T 613	T 580
T 264	T 244	C 196	T 390	T 334	O
N	T 297	T 763	T 161	C 168	O
T 717	N	T 323	N	T 614	T 903

487-513	514-540	541-567	568-594	595-621	622-648
N	T 855	T 233	T 628	T 240	O
T 1050	T 203M	T 214	T 347	T 446	T 262
N	O	C 180	T 177	N	C 259
T 461	T 175	T 260	T 420	T 606	T 183
T 883	T 248	T 185	T 349	T 323	TA 122
T 416	C 228	T 483	T 269	C 178	N
T 202	T 527	T 228	C 228	T 816	T 313
T 154	T 368	T 185	T 774	N	T 271
TA -160	T 187	TA -53	C 264	N	T 239
T 283	T 233	NA -59	T 1096	T 520	TA -195
N	N	N	T 398	T 840	T 455
T 301	T 405	T 598	T 259	T 305	T 178
O	T 464	T 381	T 180	T 151	C 216
O	T 458	T 389	TA -78	N	T 636
O	C 186	N	N	T 346	T 388
T 359	O	T 549	O	T 272	T 507
T 217	T 831	T 249	T 582	T 150	T 227
NA 149	T 984	T 257	T 175	NA 142	T 198
N	T 344	T 259	TA -81	N	T 171
T 424	T 405	C 357	T 150	T 511	T 222
T 432	T 297	T 196	TA 72	C 183	N
T 480	N	T 434	NA 35	T 492	T 205
T 276	T 525	TA 137	T 188	T 353	T 248M
T 236	T 314	T 456	T 285	T 271	O
N	C 201	T 392	T 204	N	T 150
T 467	T 252	C 218	T 482	T 178	T 205
O	C 370	T 515	T 411	TA -104M	C 185

T = Correct response to target O = Omission error A = Anticipatory response
 N = Correct nonresponse to nontarget C = Commission error M = Multiple response
 Green = Post-Commission-error correct response U = User interrupt H = Hardware interrupt