Appendix A
Common Test Conditions and Video Sequences

This appendix describes the main characteristics of the video sequences used in the experiments presented throughout this book. Section A.2 shows one frame belonging to each video sequence listed in Sect. A.1.

Video Sequences Characteristics

Besides the 24 video sequences listed in the CTC of JCT-VC [1], 11 supplementary video sequences were used in the experiments in order to allow tests with sequences not used in the training of the decision trees presented in Chap. 6 and in the parameter selection analysis presented in Sect. 7.1. The 11 supplementary sequences were obtained from the CTC of the Joint Collaborative Team on 3D Video Coding (JCT-3V) [2], from the Ultra Video Group at the Tampere University of Technology [3] and from the Multimedia Group at the Poznan University [4].

Table A.1 lists the 35 video sequences used in the experiments described in this book and presents their main characteristics. The rightmost column indicates the source of the video sequences, where CTC 2D stands for the CTC of JCT-VC, CTC 3D stands for the CTC of the JCT-3V, UVG stands for the Ultra Video Group at the Tampere University of Technology and POZ stands for Multimedia Group at the Poznan University. In the case of videos from JCT-3V, only the central views of multiview video sequences are used in the experiments.

Video Sequences

Trying to illustrate the characteristics of the 35 video sequences listed in Table A.1, the frame positioned exactly in the middle of each one is presented in this section. Figures A.1, A.2, A.3, A.4, A.5, A.6, A.7, A.8, A.9, A.10, A.11, A.12, A.13, A.14,

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Table A.1 Video sequence spatial resolutions

Name	Spatial resolution	Frame count	Frame rate (fps)	Bit depth	Source
BaskeballDrillText	832×480	500	50	8	CTC 2D
BasketballDrill	832×480	500	50	8	CTC 2D
BasketballDrive	1920×1080	500	50	8	CTC 2D
BasketballPass	416×240	500	50	8	CTC 2D
Beauty	1920×1080	600	120	8	UVG
BlowingBubbles	416×240	500	50	8	CTC 2D
Bosphorus	1920×1080	600	120	8	UVG
BQMall	832×480	600	60	8	CTC 2D
BQSquare	416×240	600	60	8	CTC 2D
BQTerrace	1920×1080	600	60	8	CTC 2D
Cactus	1920×1080	500	50	8	CTC 2D
ChinaSpeed	1024×768	500	30	8	CTC 2D
FourPeople	1280×720	600	60	8	CTC 2D
HoneyBee	1920×1080	600	120	8	UVG
Jockey	1920×1080	600	120	8	UVG
Johnny	1280×720	600	60	8	CTC 2D
Kimono	1920×1080	240	24	8	CTC 2D
KristenAndSara	1280×720	600	60	8	CTC 2D
NebutaFestival	2560×1600	300	60	10	CTC 2D
ParkScene	1920×1080	240	24	8	CTC 2D
PartyScene	832×480	500	50	8	CTC 2D
PeopleOnStreet	2560×1600	150	30	8	CTC 2D
Poznan_CarPark	1920×1080	600	25	8	POZ
Poznan_Hall1	1920×1080	200	25	8	POZ
Poznan_Street	1920×1080	250	25	8	CTC 3D
RaceHorses1	416×240	300	30	8	CTC 2D
RaceHorses2	832×480	300	30	8	CTC 2D
ShakeNDry	1920×1080	600	120	8	UVG
Shark	1920×1080	300	50	8	CTC 3D
SlideEditing	1280×720	300	30	8	CTC 2D
SlideShow	1280×720	500	20	8	CTC 2D
SteamLocomotive	2560×1600	300	60	10	CTC 2D
Tennis	1920×1080	150	30	8	CTC 2D
Traffic	2560×1600	150	30	8	CTC 2D
YachtRide	1920×1080	600	120	8	UVG

A.15, A.16, A.17, A.18, A.19, A.20, A.21, A.22, A.23, A.24, A.25, A.26, A.27, A.28, A.29, A.30, A.31, A.32, A.33, A.34 and A.35 show each middle frame, which are all pictured here in the same size despite their original resolution.

Fig. A.1 BaskeballDrillText

Fig. A.2 BaskeballDrill

Fig. A.3 BasketballDrive

Fig. A.4 BasketballPass

Fig. A.5 Beauty

Fig. A.6 BlowingBubbles

Fig. A.7 Bosphorus

Fig. A.8 BQMall

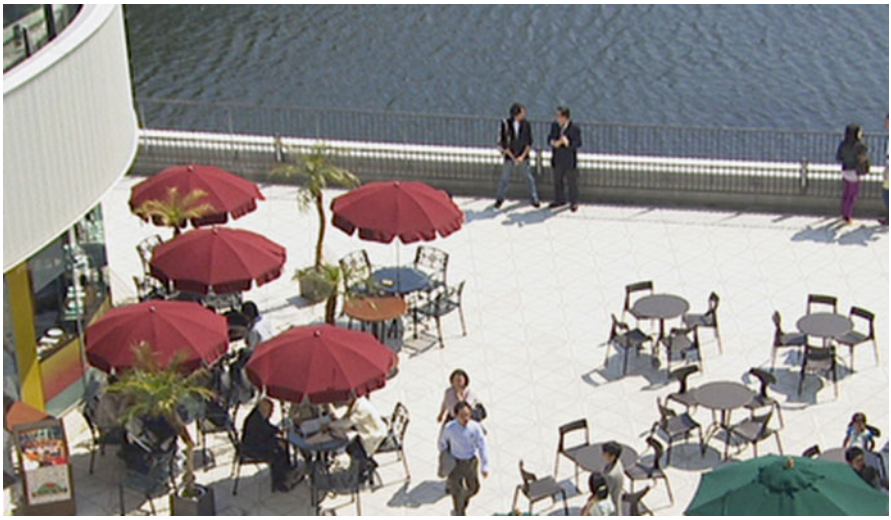

Fig. A.9 BQSquare

Fig. A.10 BQTerrace

Fig. A.11 Cactus

Fig. A.12 ChinaSpeed

Fig. A.13 FourPeople

Fig. A.14 HoneyBee

Fig. A.15 Jockey

Fig. A.16 Johnny

Fig. A.17 Kimono

Fig. A.18 KristenAndSara

Fig. A.19 NebutaFestival

Fig. A.20 ParkScene

Fig. A.21 PartyScene

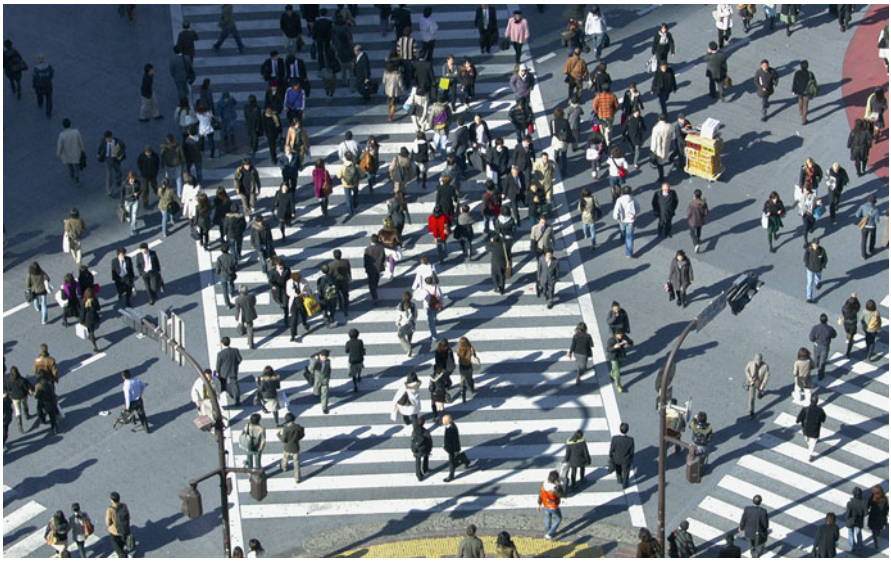

Fig. A.22 PeopleOnStreet

Fig. A.23 Poznan_CarPark

Fig. A.24 Poznan_Hall1

Fig. A.25 PoznanStreet

Fig. A.26 RaceHorses1

Fig. A.27 RaceHorses2

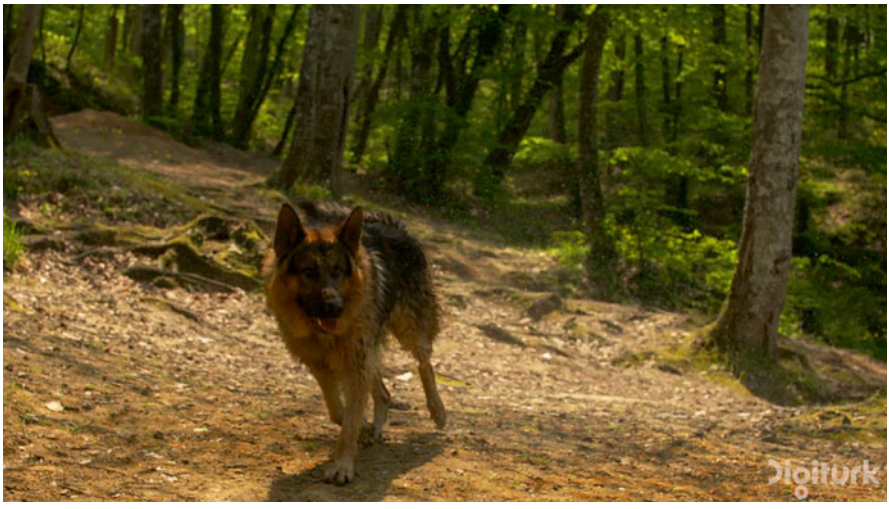

Fig. A.28 ShakeNDry

Fig. A.29 Shark

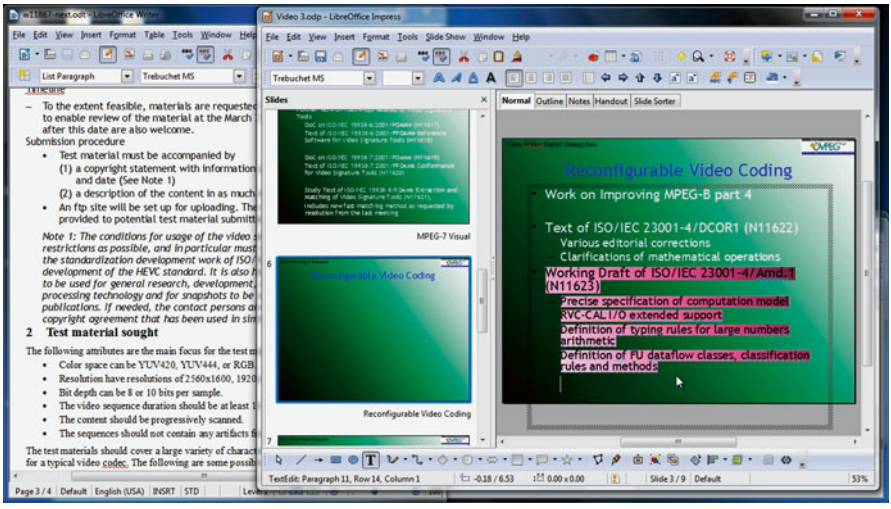

Fig. A.30 SlideEditing

Fig. A.31 SlideShow

Fig. A.32 SteamLocomotive

Fig. A.33 Tennis

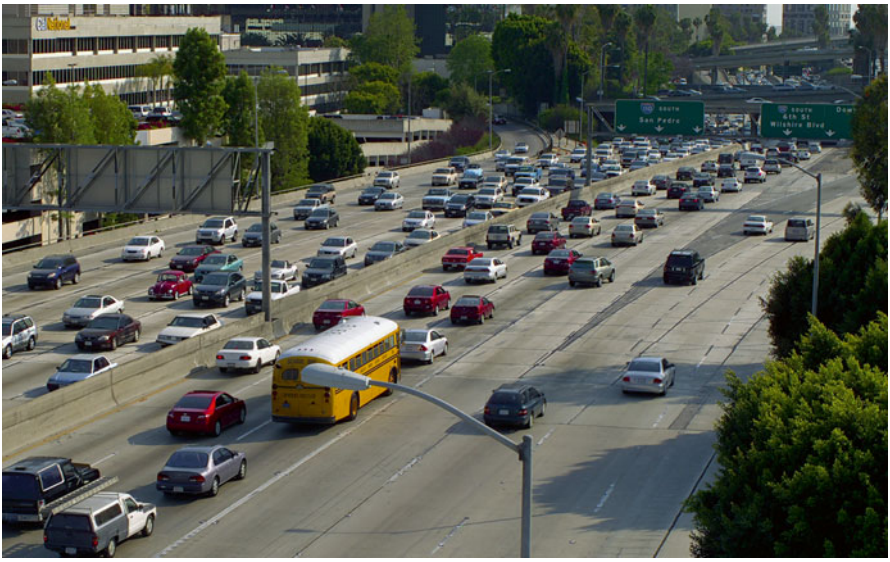

Fig. A.34 Traffic

Fig. A.35 YachtRide

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1. ISO/IEC-JCT1/SC29/WG11, Common Test Conditions and Software Reference Configurations, Geneva, Switzerland, 2012
2. ISO/IEC-JCT1/SC29/WG11, Common Test Conditions of 3DV Core Experiments, San Jose, US, 2014
3. *Tampere University of Technology—Ultra Video Group*. Available: http://ultra-video.cs.tut.fi/
4. *Poznan University of Technology*. Available: http://www3.put.poznan.pl/

Appendix B
Obtained Decision Trees

This appendix presents the decision trees obtained with the methodology described in Chap. 6. The graphic representation of each tree, obtained with the WEKA tool [1], is presented in Sects. B.1, B.2 and B.3 for the coding tree early termination, the PU early termination and the RQT early termination, respectively.

Decision Trees for Coding Tree Early Termination

As explained in Sect. 6.3, three decision trees were trained and implemented for the coding tree early termination, one for each CU size that allows splitting into smaller CUs (i.e. 16×16, 32×32 and 64×64). The three trees are presented in Figs. B.1, B.2, and B.3, where *C* and *T* correspond to the decisions of continuing and terminating the CU splitting process, respectively.

Decision Trees for PU Early Termination

The four decision trees introduced in Sect. 6.4 for the PU early termination are presented in Figs. B.4, B.5, B.6 and B.7, one for each CU size possible (i.e. 8×8, 16×16, 32×32 and 64×64). In the figures, *C* and *T* correspond to the decisions of continuing and terminating the process of choosing the best PU splitting mode, respectively.

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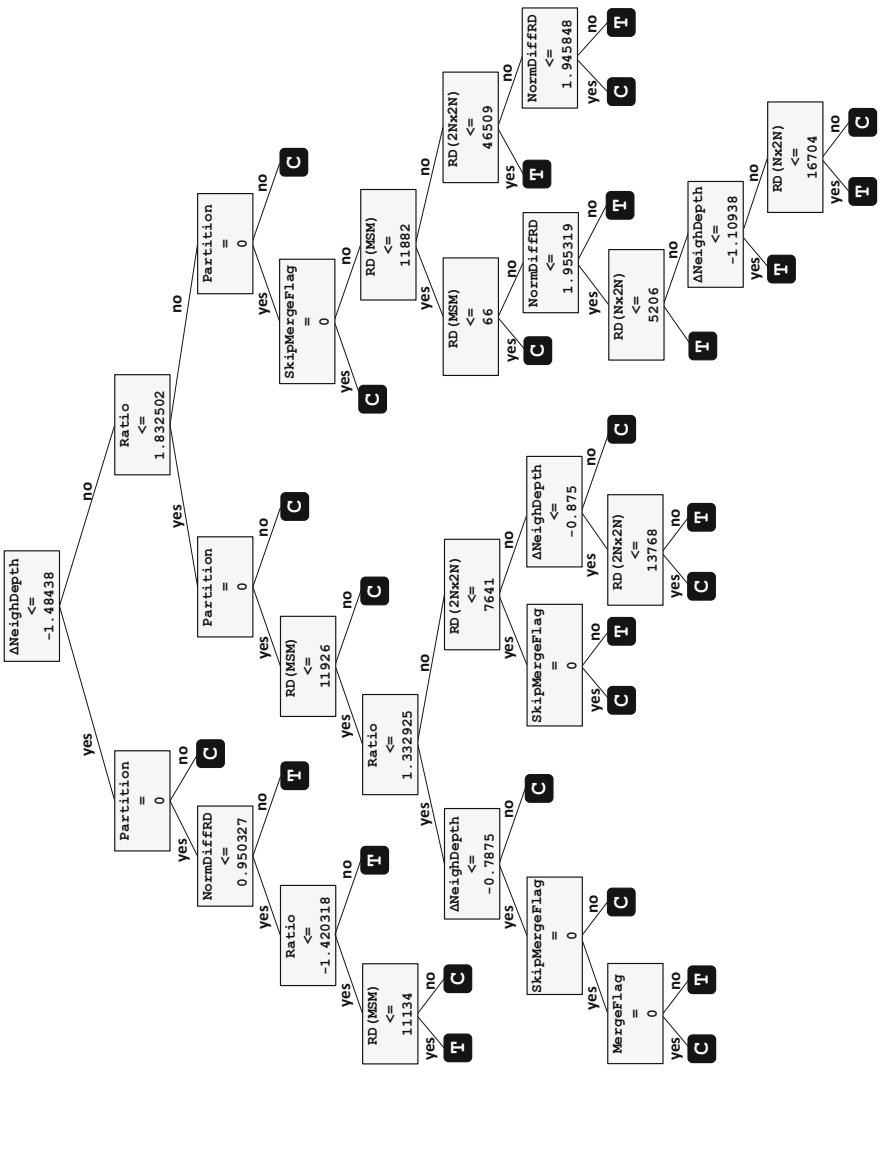

Fig. B.1 Coding tree early termination decision tree for 16×16 CUs

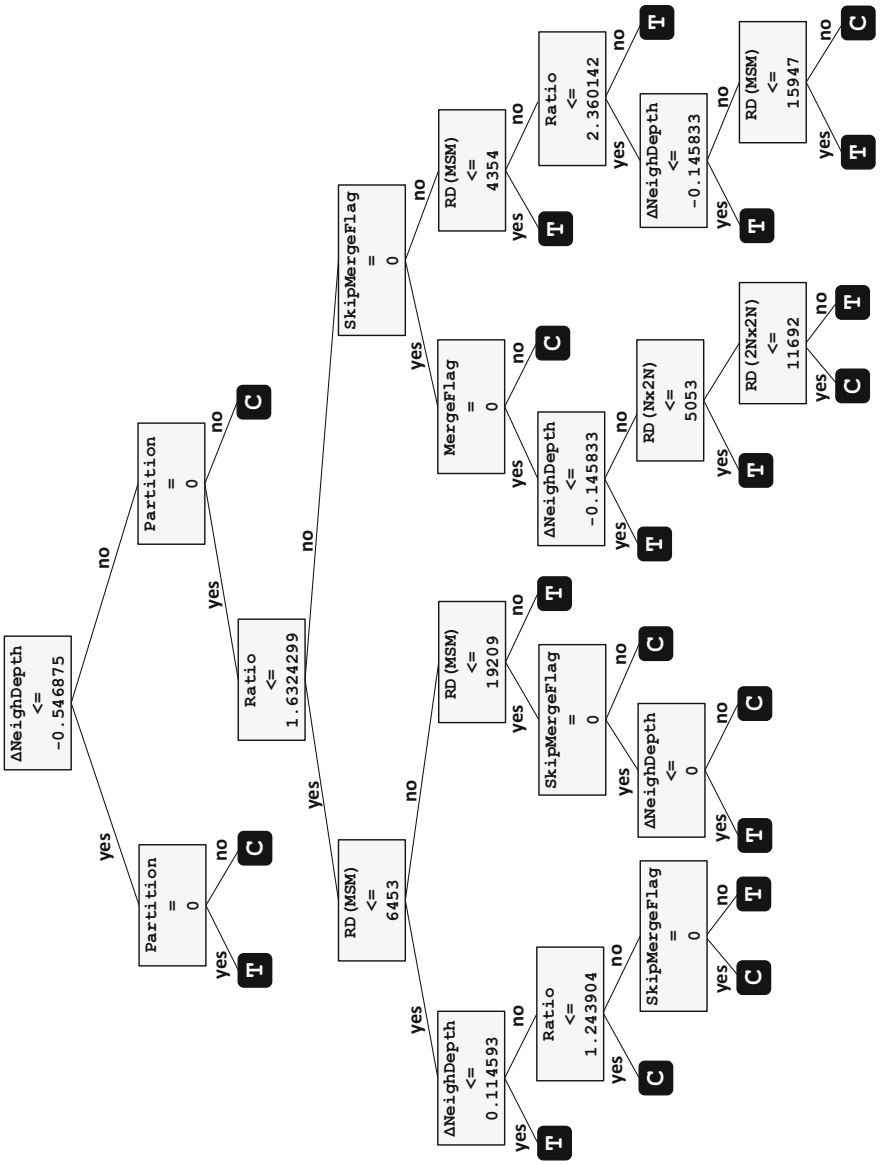

Fig. B.2 Coding tree early termination decision tree for 32×32 CUs

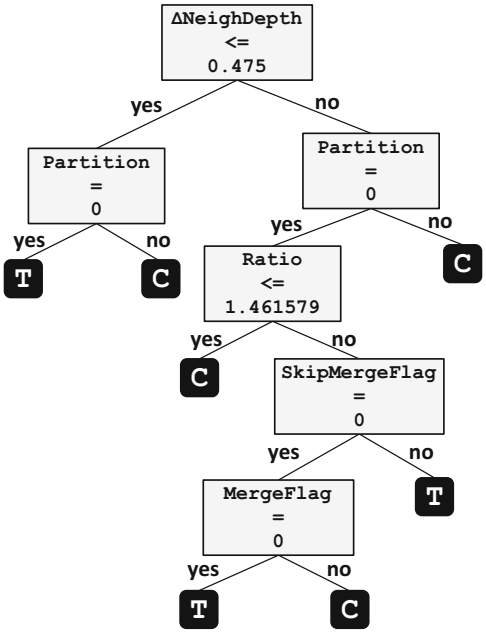

Fig. B.3 Coding tree early termination decision tree for 64×64 CUs

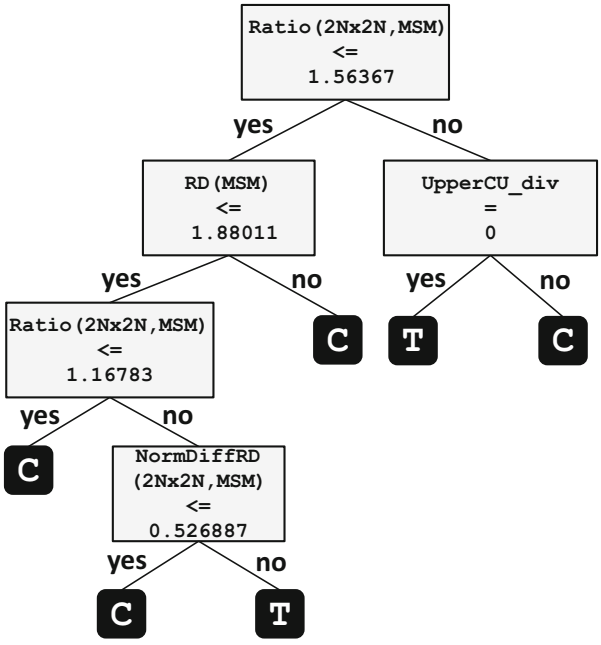

Fig. B.4 PU early termination decision tree for 8×8 CUs

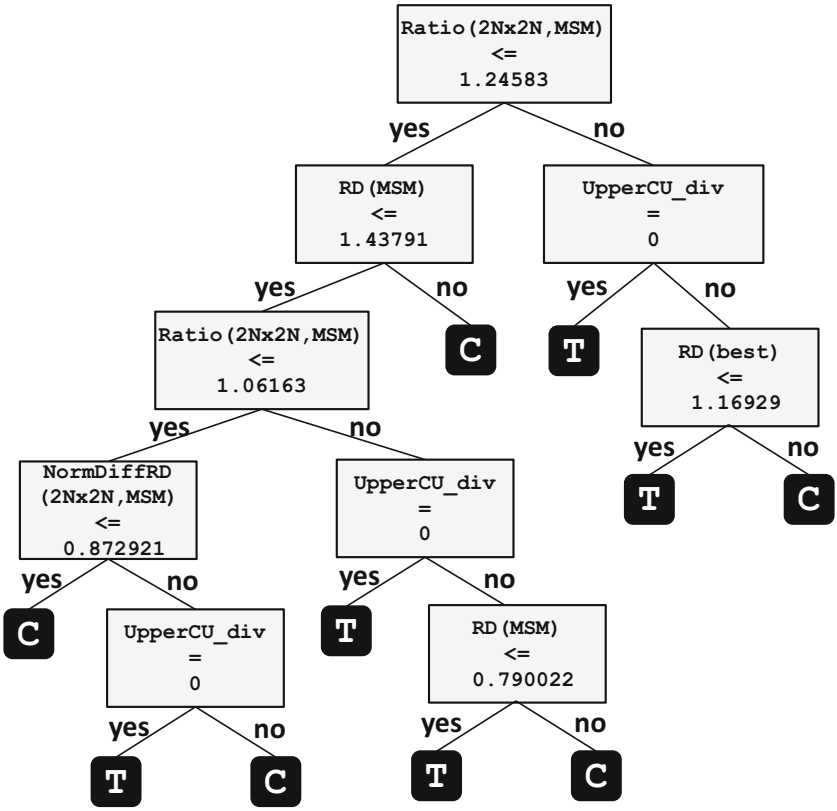

Fig. B.5 PU early termination decision tree for 16×16 CUs

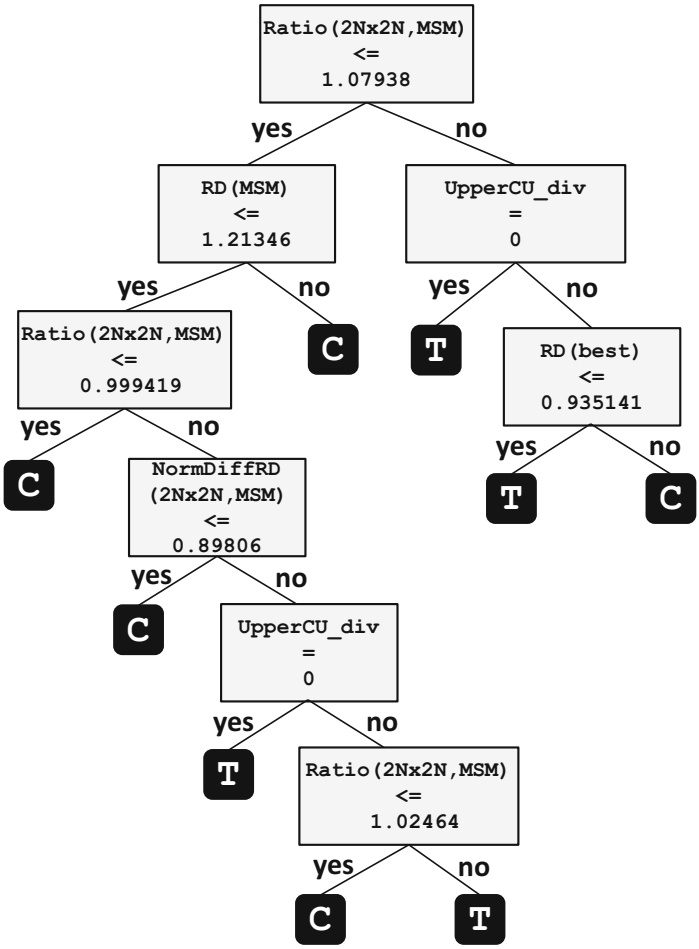

Fig. B.6 PU early termination decision tree for 32×32 CUs

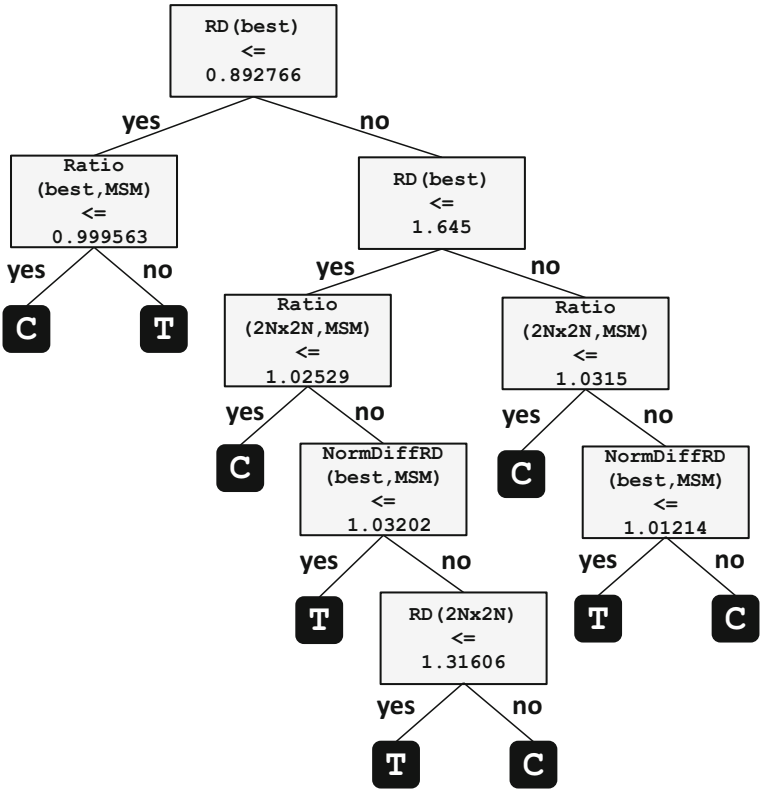

Fig. B.7 PU early termination decision tree for 64×64 CUs

Decision Trees for RQT Early Termination

Two decision trees for the RQT early termination were trained and implemented, as explained in Sect. 6.5. Figure B.8 presents the decision tree obtained for 16×16 TUs and Fig. B.9 shows the decision tree for 32×32 TUs. In both figures, *C* and *T* correspond to the decisions of continuing and terminating the TU splitting process, respectively.

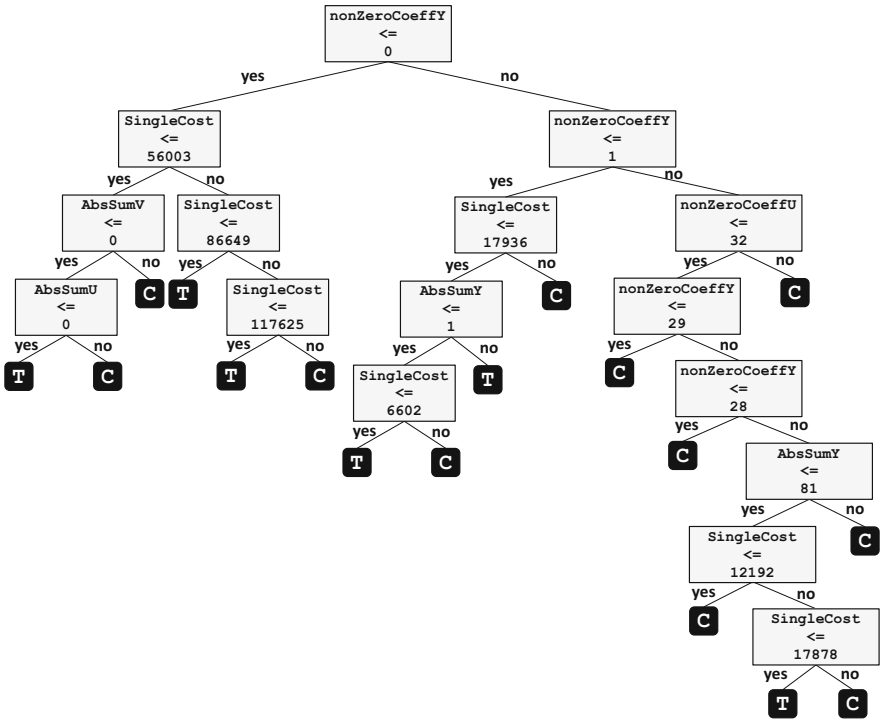

Fig. B.8 RQT early termination decision tree for 16×16 TUs

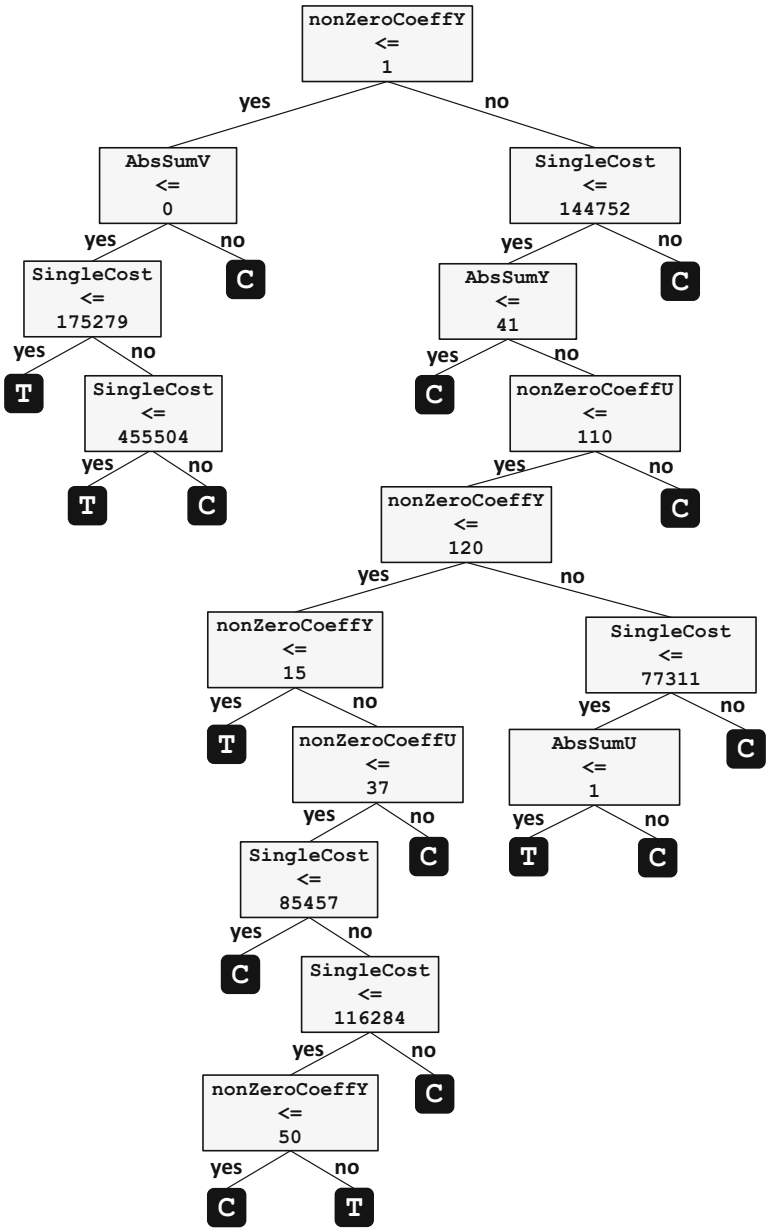

Fig. B.9 RQT early termination decision tree for 32×32 TUs

Reference

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Appendix C
Encoder Configurations Tested in the R-D-C Analysis

In Sect. 7.1 it was explained that the encoding configurations considered in the R-D-C analysis were created by modifying the value of each parameter, one at a time, so that every parameter value could be tested with all possible values of the remaining ones, totalising 240 encoding configurations. As described in that section, the R-D efficiency and the computational complexity associated to each configuration was assessed with 10 high-resolution video sequences; QPs 22, 27, 32 and 37; and the *Random Access* temporal configuration, totalising 9,600 encodings. Average BD-rate, BD-PSNR and computational complexity reduction for each configuration, using the unmodified encoder as reference (configuration 1), were calculated. Each configuration tested and their respective results are presented in this appendix, in Table C.1, since only those corresponding to the points that compose the Pareto frontier were presented in Table 7.2 of Chap. 7.

Table C.2 shows the look-up table (LUT) used to determine the encoding configuration that best suits a given $R_{T(i)}$ ratio between the target time (T_T) and the weighted average encoding time ($T_{W(i)}$) of the last two GOPs, as explained in Sect. 7.2.1 of Chap. 7 (see (Eq. 7.1)). The encoding configuration used in the current GOP is used to select a line in the LUT where the closest value to $R_{T(i)}$ is searched. Once it is found, the index indicated by the column where the found value belongs is chosen as the new encoding configuration to be used in the next GOP.

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Table C.1 Parameters, computational complexity, BD-PSNR and BD-rate for the 240 encoder configurations considered in the R-D-C analysis

Config.	*SR*	*BPR*	*HME*	*CTET*	*PUET*	*RQTET*	Normal. Complex	BD-PSNR (dB)	BD-rate (%)
1	64	4	On	Off	Off	Off	1.000	0.000	0.000
2	32	4	On	Off	Off	Off	0.969	0.000	0.016
3	16	4	On	Off	Off	Off	0.958	–0.014	0.426
4	8	4	On	Off	Off	Off	0.950	–0.043	1.276
5	4	4	On	Off	Off	Off	0.945	–0.082	2.469
6	64	2	On	Off	Off	Off	0.973	–0.001	0.038
7	32	2	On	Off	Off	Off	0.941	–0.004	0.150
8	16	2	On	Off	Off	Off	0.930	–0.015	0.426
9	8	2	On	Off	Off	Off	0.923	–0.049	1.498
10	4	2	On	Off	Off	Off	0.917	–0.096	2.845
11	64	1	On	Off	Off	Off	0.964	–0.002	0.089
12	32	1	On	Off	Off	Off	0.933	–0.006	0.221
13	16	1	On	Off	Off	Off	0.922	–0.019	0.588
14	8	1	On	Off	Off	Off	0.915	–0.048	1.481
15	4	1	On	Off	Off	Off	0.910	–0.104	3.093
16	64	4	Off	Off	Off	Off	0.899	–0.018	0.595
17	32	4	Off	Off	Off	Off	0.868	–0.019	0.637
18	16	4	Off	Off	Off	Off	0.857	–0.029	0.886
19	8	4	Off	Off	Off	Off	0.849	–0.056	1.727
20	4	4	Off	Off	Off	Off	0.845	–0.100	3.045
21	64	2	Off	Off	Off	Off	0.872	–0.019	0.648
22	32	2	Off	Off	Off	Off	0.841	–0.019	0.651
23	16	2	Off	Off	Off	Off	0.829	–0.031	0.990
24	8	2	Off	Off	Off	Off	0.822	–0.059	1.839
25	4	2	Off	Off	Off	Off	0.817	–0.112	3.386
26	64	1	Off	Off	Off	Off	0.863	–0.020	0.697
27	32	1	Off	Off	Off	Off	0.832	–0.021	0.735
28	16	1	Off	Off	Off	Off	0.821	–0.033	1.067
29	8	1	Off	Off	Off	Off	0.814	–0.062	1.956
30	4	1	Off	Off	Off	Off	0.809	–0.120	3.690
31	64	4	On	On	Off	Off	0.723	–0.002	0.086
32	32	4	On	On	Off	Off	0.698	–0.003	0.124
33	16	4	On	On	Off	Off	0.688	–0.017	0.527
34	8	4	On	On	Off	Off	0.683	–0.045	1.337
35	4	4	On	On	Off	Off	0.680	–0.085	2.495
36	64	2	On	On	Off	Off	0.706	–0.004	0.145
37	32	2	On	On	Off	Off	0.680	–0.007	0.239
38	16	2	On	On	Off	Off	0.669	–0.017	0.550
39	8	2	On	On	Off	Off	0.664	–0.047	1.457

(continued)

Table C.1 (continued)

Config.	*SR*	*BPR*	*HME*	*CTET*	*PUET*	*RQTET*	Normal. Complex	BD-PSNR (dB)	BD-rate (%)
40	4	2	On	On	Off	Off	0.662	–0.102	3.051
41	64	1	On	On	Off	Off	0.700	–0.007	0.255
42	32	1	On	On	Off	Off	0.673	–0.006	0.256
43	16	1	On	On	Off	Off	0.666	–0.021	0.692
44	8	1	On	On	Off	Off	0.659	–0.052	1.633
45	4	1	On	On	Off	Off	0.657	–0.108	3.211
46	64	4	Off	On	Off	Off	0.660	–0.020	0.678
47	32	4	Off	On	Off	Off	0.634	–0.019	0.674
48	16	4	Off	On	Off	Off	0.625	–0.032	1.018
49	8	4	Off	On	Off	Off	0.618	–0.059	1.846
50	4	4	Off	On	Off	Off	0.616	–0.104	3.175
51	64	2	Off	On	Off	Off	0.643	–0.021	0.730
52	32	2	Off	On	Off	Off	0.616	–0.020	0.715
53	16	2	Off	On	Off	Off	0.607	–0.034	1.113
54	8	2	Off	On	Off	Off	0.601	–0.063	1.979
55	4	2	Off	On	Off	Off	0.598	–0.112	3.392
56	64	1	Off	On	Off	Off	0.637	–0.022	0.761
57	32	1	Off	On	Off	Off	0.610	–0.022	0.796
58	16	1	Off	On	Off	Off	0.601	–0.035	1.159
59	8	1	Off	On	Off	Off	0.596	–0.065	2.062
60	4	1	Off	On	Off	Off	0.594	–0.122	3.833
61	64	4	On	Off	On	Off	0.586	–0.018	0.572
62	32	4	On	Off	On	Off	0.569	–0.019	0.603
63	16	4	On	Off	On	Off	0.563	–0.029	0.847
64	8	4	On	Off	On	Off	0.559	–0.059	1.782
65	4	4	On	Off	On	Off	0.558	–0.099	2.946
66	64	2	On	Off	On	Off	0.572	–0.019	0.625
67	32	2	On	Off	On	Off	0.554	–0.019	0.620
68	16	2	On	Off	On	Off	0.548	–0.030	0.923
69	8	2	On	Off	On	Off	0.545	–0.061	1.916
70	4	2	On	Off	On	Off	0.545	–0.115	3.470
71	64	1	On	Off	On	Off	0.567	–0.019	0.611
72	32	1	On	Off	On	Off	0.551	–0.018	0.600
73	16	1	On	Off	On	Off	0.544	–0.034	1.044
74	8	1	On	Off	On	Off	0.541	–0.065	1.985
75	4	1	On	Off	On	Off	0.540	–0.118	3.534
76	64	4	Off	Off	On	Off	0.538	–0.032	1.001
77	32	4	Off	Off	On	Off	0.521	–0.033	1.074
78	16	4	Off	Off	On	Off	0.514	–0.044	1.392
79	8	4	Off	Off	On	Off	0.511	–0.071	2.205

(continued)

Table C.1 (continued)

Config.	*SR*	*BPR*	*HME*	*CTET*	*PUET*	*RQTET*	Normal. Complex	BD-PSNR (dB)	BD-rate (%)
80	4	4	Off	Off	On	Off	0.511	–0.115	3.484
81	64	2	Off	Off	On	Off	0.525	–0.035	1.122
82	32	2	Off	Off	On	Off	0.507	–0.034	1.094
83	16	2	Off	Off	On	Off	0.501	–0.048	1.545
84	8	2	Off	Off	On	Off	0.497	–0.075	2.322
85	4	2	Off	Off	On	Off	0.496	–0.124	3.757
86	64	1	Off	Off	On	Off	0.520	–0.035	1.171
87	32	1	Off	Off	On	Off	0.503	–0.037	1.242
88	16	1	Off	Off	On	Off	0.497	–0.047	1.507
89	8	1	Off	Off	On	Off	0.493	–0.077	2.446
90	4	1	Off	Off	On	Off	0.493	–0.134	4.179
91	64	4	On	On	On	Off	0.481	–0.026	0.823
92	32	4	On	On	On	Off	0.465	–0.027	0.865
93	16	4	On	On	On	Off	0.460	–0.039	1.186
94	8	4	On	On	On	Off	0.456	–0.066	2.013
95	4	4	On	On	On	Off	0.455	–0.108	3.305
96	64	2	On	On	On	Off	0.471	–0.026	0.832
97	32	2	On	On	On	Off	0.455	–0.027	0.879
98	16	2	On	On	On	Off	0.449	–0.042	1.291
99	8	2	On	On	On	Off	0.447	–0.071	2.219
100	4	2	On	On	On	Off	0.446	–0.122	3.708
101	64	1	On	On	On	Off	0.468	–0.029	0.958
102	32	1	On	On	On	Off	0.451	–0.029	0.939
103	16	1	On	On	On	Off	0.447	–0.041	1.294
104	8	1	On	On	On	Off	0.443	–0.073	2.305
105	4	1	On	On	On	Off	0.443	–0.128	3.910
106	64	4	Off	On	On	Off	0.445	–0.041	1.330
107	32	4	Off	On	On	Off	0.428	–0.041	1.339
108	16	4	Off	On	On	Off	0.422	–0.054	1.698
109	8	4	Off	On	On	Off	0.419	–0.081	2.553
110	4	4	Off	On	On	Off	0.419	–0.123	3.746
111	64	2	Off	On	On	Off	0.434	–0.043	1.408
112	32	2	Off	On	On	Off	0.419	–0.044	1.422
113	16	2	Off	On	On	Off	0.412	–0.056	1.821
114	8	2	Off	On	On	Off	0.409	–0.087	2.700
115	4	2	Off	On	On	Off	0.409	–0.136	4.217
116	64	1	Off	On	On	Off	0.432	–0.045	1.460
117	32	1	Off	On	On	Off	0.415	–0.044	1.443
118	16	1	Off	On	On	Off	0.409	–0.057	1.828
119	8	1	Off	On	On	Off	0.405	–0.088	2.795

(continued)

Table C.1 (continued)

Config.	*SR*	*BPR*	*HME*	*CTET*	*PUET*	*RQTET*	Normal. Complex	BD-PSNR (dB)	BD-rate (%)
120	4	1	Off	On	On	Off	0.405	–0.142	4.460
121	64	4	On	Off	Off	On	0.925	–0.006	0.187
122	32	4	On	Off	Off	On	0.894	–0.008	0.275
123	16	4	On	Off	Off	On	0.884	–0.018	0.527
124	8	4	On	Off	Off	On	0.877	–0.045	1.307
125	4	4	On	Off	Off	On	0.872	–0.087	2.592
126	64	2	On	Off	Off	On	0.897	–0.008	0.252
127	32	2	On	Off	Off	On	0.867	–0.009	0.312
128	16	2	On	Off	Off	On	0.856	–0.021	0.649
129	8	2	On	Off	Off	On	0.849	–0.050	1.514
130	4	2	On	Off	Off	On	0.844	–0.101	3.052
131	64	1	On	Off	Off	On	0.890	–0.008	0.291
132	32	1	On	Off	Off	On	0.859	–0.009	0.350
133	16	1	On	Off	Off	On	0.848	–0.022	0.690
134	8	1	On	Off	Off	On	0.841	–0.054	1.650
135	4	1	On	Off	Off	On	0.837	–0.109	3.331
136	64	4	Off	Off	Off	On	0.824	–0.022	0.722
137	32	4	Off	Off	Off	On	0.793	–0.023	0.770
138	16	4	Off	Off	Off	On	0.782	–0.037	1.198
139	8	4	Off	Off	Off	On	0.775	–0.064	1.972
140	4	4	Off	Off	Off	On	0.771	–0.107	3.286
141	64	2	Off	Off	Off	On	0.797	–0.023	0.762
142	32	2	Off	Off	Off	On	0.766	–0.024	0.796
143	16	2	Off	Off	Off	On	0.754	–0.037	1.250
144	8	2	Off	Off	Off	On	0.748	–0.067	2.131
145	4	2	Off	Off	Off	On	0.744	–0.118	3.669
146	64	1	Off	Off	Off	On	0.788	–0.025	0.835
147	32	1	Off	Off	Off	On	0.758	–0.026	0.898
148	16	1	Off	Off	Off	On	0.746	–0.040	1.340
149	8	1	Off	Off	Off	On	0.740	–0.069	2.215
150	4	1	Off	Off	Off	On	0.736	–0.123	3.787
151	64	4	On	On	Off	On	0.674	–0.009	0.283
152	32	4	On	On	Off	On	0.648	–0.011	0.369
153	16	4	On	On	Off	On	0.638	–0.022	0.716
154	8	4	On	On	Off	On	0.632	–0.051	1.539
155	4	4	On	On	Off	On	0.631	–0.093	2.747
156	64	2	On	On	Off	On	0.656	–0.010	0.338
157	32	2	On	On	Off	On	0.628	–0.012	0.424
158	16	2	On	On	Off	On	0.620	–0.024	0.745
159	8	2	On	On	Off	On	0.614	–0.058	1.806

(continued)

Table C.1 (continued)

Config.	*SR*	*BPR*	*HME*	*CTET*	*PUET*	*RQTET*	Normal. Complex	BD-PSNR (dB)	BD-rate (%)
160	4	2	On	On	Off	On	0.613	–0.105	3.148
161	64	1	On	On	Off	On	0.650	–0.012	0.415
162	32	1	On	On	Off	On	0.625	–0.014	0.482
163	16	1	On	On	Off	On	0.615	–0.026	0.871
164	8	1	On	On	Off	On	0.609	–0.055	1.747
165	4	1	On	On	Off	On	0.608	–0.115	3.493
166	64	4	Off	On	Off	On	0.610	–0.025	0.849
167	32	4	Off	On	Off	On	0.584	–0.027	0.924
168	16	4	Off	On	Off	On	0.574	–0.036	1.169
169	8	4	Off	On	Off	On	0.568	–0.066	2.062
170	4	4	Off	On	Off	On	0.566	–0.109	3.307
171	64	2	Off	On	Off	On	0.591	–0.026	0.900
172	32	2	Off	On	Off	On	0.565	–0.028	0.954
173	16	2	Off	On	Off	On	0.556	–0.040	1.329
174	8	2	Off	On	Off	On	0.550	–0.068	2.149
175	4	2	Off	On	Off	On	0.550	–0.121	3.662
176	64	1	Off	On	Off	On	0.586	–0.028	0.944
177	32	1	Off	On	Off	On	0.560	–0.027	0.939
178	16	1	Off	On	Off	On	0.551	–0.042	1.402
179	8	1	Off	On	Off	On	0.545	–0.071	2.292
180	4	1	Off	On	Off	On	0.544	–0.129	3.993
181	64	4	On	Off	On	On	0.539	–0.022	0.659
182	32	4	On	Off	On	On	0.522	–0.024	0.737
183	16	4	On	Off	On	On	0.516	–0.036	1.054
184	8	4	On	Off	On	On	0.512	–0.066	1.979
185	4	4	On	Off	On	On	0.512	–0.104	3.174
186	64	2	On	Off	On	On	0.525	–0.024	0.770
187	32	2	On	Off	On	On	0.508	–0.023	0.734
188	16	2	On	Off	On	On	0.502	–0.038	1.142
189	8	2	On	Off	On	On	0.499	–0.070	2.163
190	4	2	On	Off	On	On	0.498	–0.117	3.472
191	64	1	On	Off	On	On	0.521	–0.026	0.857
192	32	1	On	Off	On	On	0.504	–0.026	0.844
193	16	1	On	Off	On	On	0.497	–0.038	1.127
194	8	1	On	Off	On	On	0.494	–0.067	2.082
195	4	1	On	Off	On	On	0.494	–0.125	3.799
196	64	4	Off	Off	On	On	0.491	–0.038	1.256
197	32	4	Off	Off	On	On	0.474	–0.039	1.277
198	16	4	Off	Off	On	On	0.468	–0.052	1.673
199	8	4	Off	Off	On	On	0.465	–0.078	2.451

(continued)

Table C.1 (continued)

Config.	*SR*	*BPR*	*HME*	*CTET*	*PUET*	*RQTET*	Normal. Complex	BD-PSNR (dB)	BD-rate (%)
200	4	4	Off	Off	On	On	0.464	–0.123	3.742
201	64	2	Off	Off	On	On	0.477	–0.040	1.297
202	32	2	Off	Off	On	On	0.460	–0.039	1.278
203	16	2	Off	Off	On	On	0.454	–0.053	1.676
204	8	2	Off	Off	On	On	0.451	–0.082	2.582
205	4	2	Off	Off	On	On	0.450	–0.133	4.072
206	64	1	Off	Off	On	On	0.473	–0.043	1.387
207	32	1	Off	Off	On	On	0.456	–0.041	1.349
208	16	1	Off	Off	On	On	0.450	–0.053	1.711
209	8	1	Off	Off	On	On	0.447	–0.083	2.632
210	4	1	Off	Off	On	On	0.446	–0.141	4.372
211	64	4	On	On	On	On	0.447	–0.031	0.969
212	32	4	On	On	On	On	0.431	–0.032	1.018
213	16	4	On	On	On	On	0.425	–0.045	1.391
214	8	4	On	On	On	On	0.422	–0.072	2.214
215	4	4	On	On	On	On	0.422	–0.112	3.432
216	64	2	On	On	On	On	0.437	–0.034	1.092
217	32	2	On	On	On	On	0.420	–0.034	1.091
218	16	2	On	On	On	On	0.415	–0.045	1.425
219	8	2	On	On	On	On	0.412	–0.076	2.366
220	4	2	On	On	On	On	0.413	–0.125	3.762
221	64	1	On	On	On	On	0.434	–0.036	1.187
222	32	1	On	On	On	On	0.417	–0.034	1.133
223	16	1	On	On	On	On	0.412	–0.047	1.472
224	8	1	On	On	On	On	0.410	–0.078	2.439
225	4	1	On	On	On	On	0.409	–0.135	4.151
226	64	4	Off	On	On	On	0.411	–0.048	1.566
227	32	4	Off	On	On	On	0.394	–0.049	1.612
228	16	4	Off	On	On	On	0.389	–0.059	1.890
229	8	4	Off	On	On	On	0.385	–0.087	2.734
230	4	4	Off	On	On	On	0.385	–0.130	3.998
231	64	2	Off	On	On	On	0.400	–0.048	1.563
232	32	2	Off	On	On	On	0.384	–0.049	1.601
233	16	2	Off	On	On	On	0.379	–0.061	1.956
234	8	2	Off	On	On	On	0.375	–0.091	2.851
235	4	2	Off	On	On	On	0.374	–0.140	4.326
236	64	1	Off	On	On	On	0.397	–0.050	1.654
237	32	1	Off	On	On	On	0.380	–0.049	1.616
238	16	1	Off	On	On	On	0.375	–0.062	2.032
239	8	1	Off	On	On	On	0.372	–0.093	2.923
240	4	1	Off	On	On	On	0.372	–0.148	4.585

Table C.2 *Update table* with ratios between normalised complexities of encoding configurations

		Next configuration index														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Current configuration index	**1**	**1.000**	0.945	0.890	0.852	0.841	0.821	0.649	0.620	0.582	0.516	0.460	0.443	0.435	0.433	0.425
	2	1.058	**1.000**	0.942	0.902	0.890	0.869	0.687	0.656	0.616	0.546	0.486	0.469	0.460	0.458	0.450
	3	1.123	1.061	**1.000**	0.957	0.944	0.922	0.729	0.696	0.654	0.579	0.516	0.498	0.488	0.486	0.477
	4	1.174	1.109	1.045	**1.000**	0.987	0.963	0.761	0.728	0.683	0.606	0.539	0.520	0.510	0.508	0.499
	5	1.189	1.124	1.059	1.013	**1.000**	0.976	0.771	0.737	0.692	0.613	0.547	0.527	0.517	0.515	0.505
	6	1.218	1.151	1.085	1.038	1.024	**1.000**	0.790	0.755	0.709	0.628	0.560	0.540	0.530	0.528	0.518
	7	1.542	1.457	1.373	1.313	1.296	1.265	**1.000**	0.956	0.897	0.795	0.709	0.683	0.670	0.668	0.655
	8	1.613	1.524	1.436	1.374	1.357	1.324	1.046	**1.000**	0.939	0.832	0.741	0.715	0.701	0.699	0.686
	9	1.718	1.623	1.530	1.464	1.445	1.410	1.114	1.065	**1.000**	0.886	0.790	0.761	0.747	0.744	0.730
	10	1.938	1.831	1.726	1.651	1.630	1.591	1.257	1.202	1.128	**1.000**	0.891	0.859	0.843	0.839	0.824
	11	2.176	2.056	1.937	1.854	1.830	1.786	1.411	1.349	1.267	1.123	**1.000**	0.964	0.946	0.942	0.925
	12	2.257	2.133	2.010	1.923	1.898	1.853	1.464	1.399	1.314	1.164	1.037	**1.000**	0.981	0.977	0.959
	13	2.300	2.173	2.048	1.960	1.934	1.888	1.492	1.426	1.339	1.187	1.057	1.019	**1.000**	0.996	0.977
	14	2.309	2.182	2.056	1.967	1.942	1.895	1.498	1.431	1.344	1.191	1.061	1.023	1.004	**1.000**	0.981
	15	2.353	2.223	2.095	2.005	1.979	1.932	1.526	1.459	1.370	1.214	1.081	1.043	1.023	1.019	**1.000**

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