

**JCTVC-T0088**

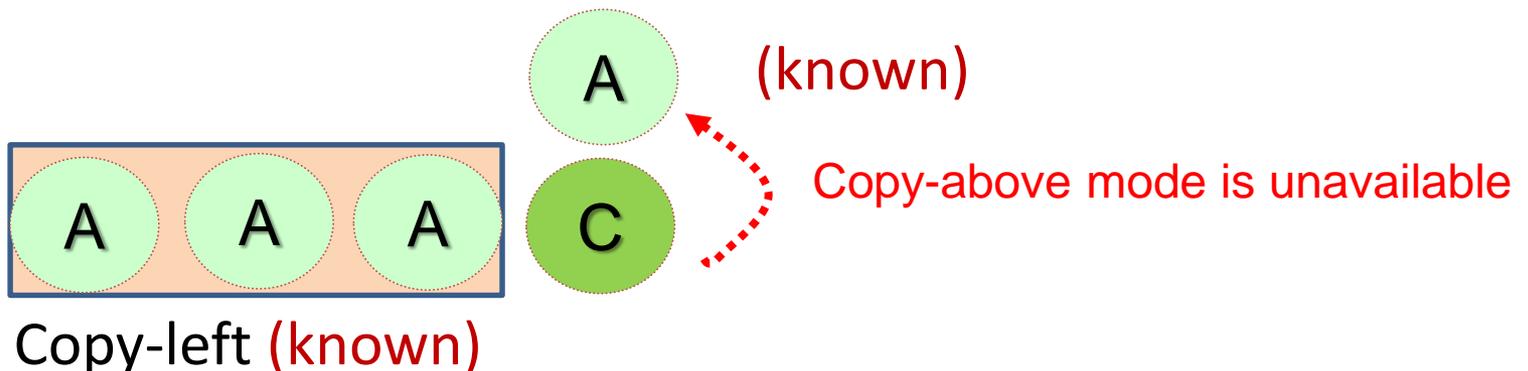
**Non-CE 1: Modifications of copy-  
above mode in index coding**

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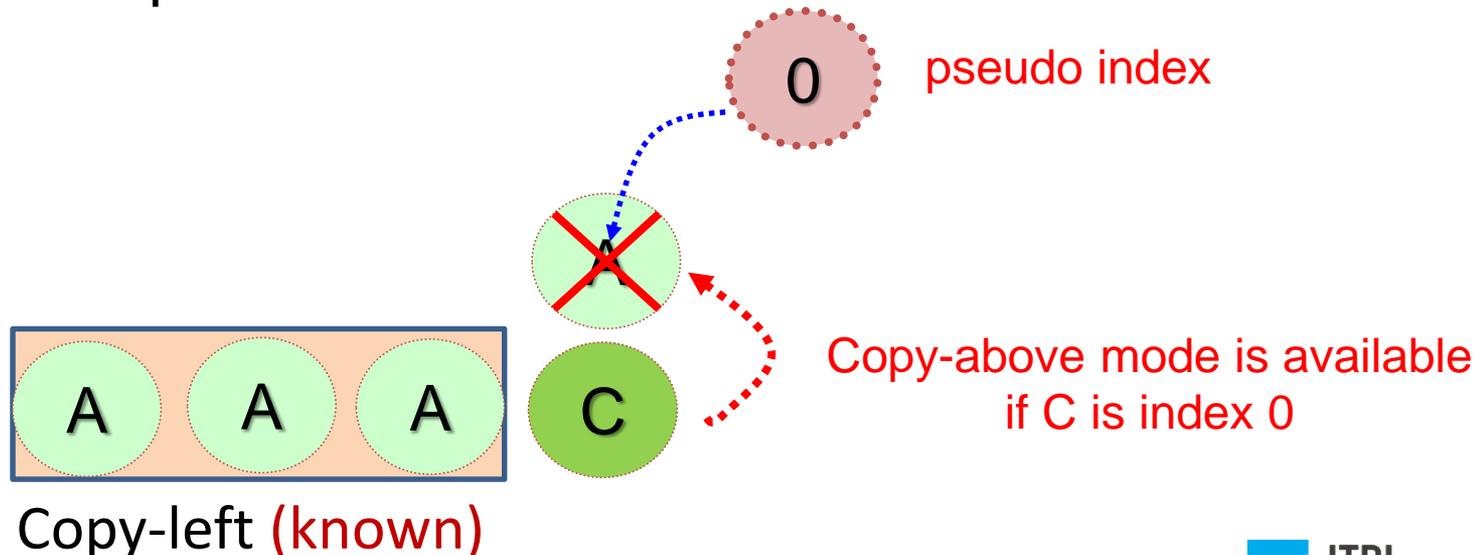
# Problem of copy modes

- In the current design, copy-above mode is unavailable when
  - The current index is in the first line
  - The left index is coded by **copy-left** mode and the above index of the current index is identical to the left index



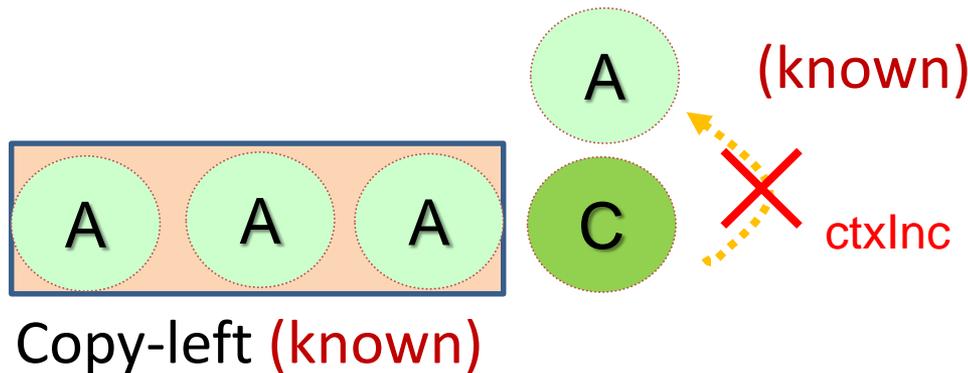
# Proposed method 1

- Enable the “*palette\_run\_type\_flag*” signaling for the first line
- If the above index is identical to the left index
  - Use a predefined value (e.g., **index 0**) as a pseudo index to replace the above index



# Proposed method 2(1/2)

- When coding “*palette\_run\_type\_flag*” :



- If the above index is identical to the left index, the context increment is set to “2”
  - Do not derive the context increment from the above “*palette\_run\_type\_flag*”

# Proposed method 2(2/2)

- Assignment of ctxInc to syntax elements with context coded bins

palette_run_type_flag	0, 1, 2 (subclause 9 .3.4.2.2)	na	Na	na	na	na
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# Combined results of M1 & M2 for All Intra, Lossy

- Common Test Condition:

	All Intra		
	G/Y	B/U	R/V
RGB, text & graphics with motion, 1080p & 720p	-0.23%	-0.20%	-0.20%
RGB, mixed content, 1440p & 1080p	-0.03%	-0.03%	-0.04%
RGB, Animation, 720p	0.00%	0.01%	0.00%
RGB, camera captured, 1080p	-0.01%	-0.01%	0.01%
YUV, text & graphics with motion, 1080p & 720p	-0.23%	-0.26%	-0.23%
YUV, mixed content, 1440p & 1080p	-0.10%	-0.12%	-0.18%
YUV, Animation, 720p	0.02%	0.01%	-0.02%
YUV, camera captured, 1080p	0.00%	-0.01%	0.00%
Enc Time[%]	100%		
Dec Time[%]	100%		

# Combined results of M1 & M2 for All Intra, Lossless

- Common Test Condition:

	All Intra			
	Bit-rate change (Total)	Bit-rate change (Average)	Bit-rate change (Min)	Bit-rate change (Max)
RGB, text & graphics with motion, 1080p & 720p	-0.1%	-0.1%	-0.2%	0.0%
RGB, mixed content, 1440p & 1080p	0.0%	0.0%	0.0%	0.0%
RGB, Animation, 720p	0.0%	0.0%	0.0%	0.0%
RGB, camera captured, 1080p	0.0%	0.0%	0.0%	0.0%
YUV, text & graphics with motion, 1080p & 720p	-0.1%	-0.1%	-0.3%	0.0%
YUV, mixed content, 1440p & 1080p	0.0%	0.0%	0.0%	0.0%
YUV, Animation, 720p	0.0%	0.0%	0.0%	0.0%
YUV, camera captured, 1080p	0.0%	0.0%	0.0%	0.0%
Enc Time[%]	NA			
Dec Time[%]	NA			

# Results of M1 for All Intra, Lossy

- Common Test Condition:

	All Intra		
	G/Y	B/U	R/V
RGB, text & graphics with motion, 1080p & 720p	-0.14%	-0.11%	-0.12%
RGB, mixed content, 1440p & 1080p	0.00%	0.00%	-0.01%
RGB, Animation, 720p	0.00%	0.00%	0.00%
RGB, camera captured, 1080p	0.00%	0.00%	0.00%
YUV, text & graphics with motion, 1080p & 720p	-0.22%	-0.12%	-0.11%
YUV, mixed content, 1440p & 1080p	-0.06%	-0.05%	-0.10%
YUV, Animation, 720p	0.02%	-0.01%	-0.01%
YUV, camera captured, 1080p	0.00%	0.00%	0.04%
Enc Time[%]	NA		
Dec Time[%]	NA		

# Results of M1 for All Intra, Lossless

- Common Test Condition:

	All Intra			
	Bit-rate change (Total)	Bit-rate change (Average)	Bit-rate change (Min)	Bit-rate change (Max)
RGB, text & graphics with motion, 1080p & 720p	0.0%	-0.1%	-0.1%	0.0%
RGB, mixed content, 1440p & 1080p	0.0%	0.0%	0.0%	0.0%
RGB, Animation, 720p	0.0%	0.0%	0.0%	0.0%
RGB, camera captured, 1080p	0.0%	0.0%	0.0%	0.0%
YUV, text & graphics with motion, 1080p & 720p	-0.1%	-0.1%	-0.3%	0.0%
YUV, mixed content, 1440p & 1080p	0.0%	0.0%	0.0%	0.0%
YUV, Animation, 720p	0.0%	0.0%	0.0%	0.0%
YUV, camera captured, 1080p	0.0%	0.0%	0.0%	0.0%
Enc Time[%]	NA			
Dec Time[%]	NA			

# Conclusions

- Modified copy-above mode is proposed to efficiently code the index map.
- The proposed methods achieve 0.23% BD-rate saving for sequences of “text & graphics with motion, 1080p & 720p” under All Intra Lossy conditions.

# Recommendations

- Recommend to further study the proposed methods on next version of the test model.

# Acknowledgement

- Thank Nokia for cross check

# Thank You