

JCTVC-K0174:
AHG9: On PPS

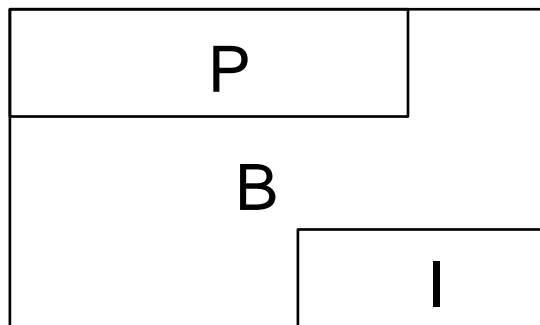
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Agenda

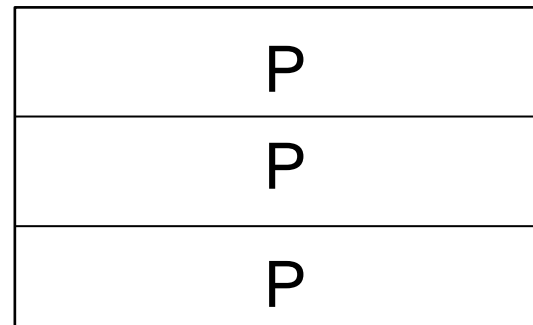
- Problem Statement
- Solution #1: Syntax-based Solution
- Solution #2: Semantics-based Solution
- Conclusion

Problem Statement [1/]

- In HEVC specification It is allowed that one picture contains different slice_types.
- However, typically all slice_types under a certain picture are same.



This can be allowed



Typically like this

Problem Statement [2/]

pic_parameter_set_rbsp() {	Descriptor
▪ pic_parameter_set_id	ue(v)
▪ seq_parameter_set_id	ue(v)
▪ sign_data_hiding_flag	u(1)
▪ cabac_init_present_flag	u(1)
▪ num_ref_idx_l0_default_active_minus1	ue(v)
▪ num_ref_idx_l1_default_active_minus1	ue(v)
▪ pic_init_qp_minus26	se(v)
▪ constrained_intra_pred_flag	u(1)
▪ transform_skip_enabled_flag	u(1)

⋮

Not needed
if a pic contains only I-slices

Not needed
if a pic doesn't contain B-slices

num_ref_idx_l0_default_active_minus1 specifies how **num_ref_idx_l0_active_minus1** is inferred for P and B slices with **num_ref_idx_active_override_flag** equal to 0. The value of **num_ref_idx_l0_default_active_minus1** shall be in the range of 0 to 15, inclusive.

num_ref_idx_l1_default_active_minus1 specifies how **num_ref_idx_l1_active_minus1** is inferred for B slices with **num_ref_idx_active_override_flag** equal to 0. The value of **num_ref_idx_l1_default_active_minus1** shall be in the range of 0 to 15, inclusive.

Solution #1

Syntax-based Approach

▪pic_parameter_set_rbsp() {	Descriptor
▪ pic_parameter_set_id	ue(v)
▪ seq_parameter_set_id	ue(v)
▪ sign_data_hiding_flag	u(1)
▪ cabac_init_present_flag	u(1)
▪ all_I_slice_flag	u(1)
▪ if(!all_I_slice_flag)	
▪ no_B_slice_flag	u(1)
▪ else	
▪ no_B_slice_flag=0	
▪ if(!all_I_slice_flag)	
▪ num_ref_idx_l0_default_active_minus1	ue(v)
▪ if(!no_B_slice_flag)	
▪ num_ref_idx_l1_default_active_minus1	ue(v)

▪
▪
▪

Concern: Additional syntax element and if-condition

Solution #2

Semantics-based Approach

num_ref_idx_l0_default_active_minus1 specifies how **num_ref_idx_l0_active_minus1** is inferred for P and B slices with **num_ref_idx_active_override_flag** equal to 0. The value of **num_ref_idx_l0_default_active_minus1** shall be in the range of 0 to 15, inclusive.

If a picture contains only I-slices its value shall be 0.

num_ref_idx_l1_default_active_minus1 specifies how **num_ref_idx_l1_active_minus1** is inferred for B slices with **num_ref_idx_active_override_flag** equal to 0. The value of **num_ref_idx_l1_default_active_minus1** shall be in the range of 0 to 15, inclusive.

If a picture does not contain B-slices its value shall be 0.

Conclusion

- In HEVC specification It is allowed that one picture contains different slice_types.
- However, typically all slice_types under a certain picture are same.
- num_ref_idx_l0_default_active_minus1 and num_ref_idx_l1_default_active_minus1 is not necessary if a picture contains only I_slices.
- num_ref_idx_l0_default_active_minus1 is not necessary if a picture does not contain B_slices.
- Solution #1: Syntax-based approach
- Solution #2: Semantics-based approach
- The author recommends Solution #2.
- It is recommended this modification be integrated into HEVC text specification.



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