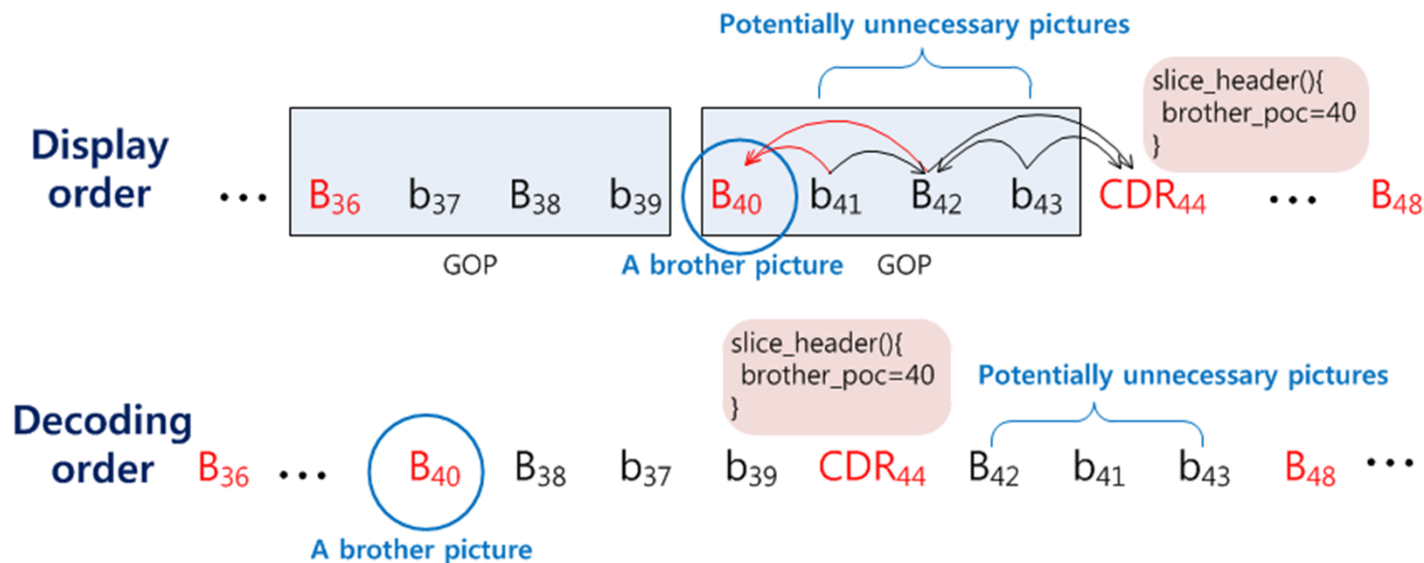


Detection of CDR decoding status (JCTVC-F604)

**Yungo Park
Chanyul Kim
Kwang Pyo Choi
(Samsung)**

Background

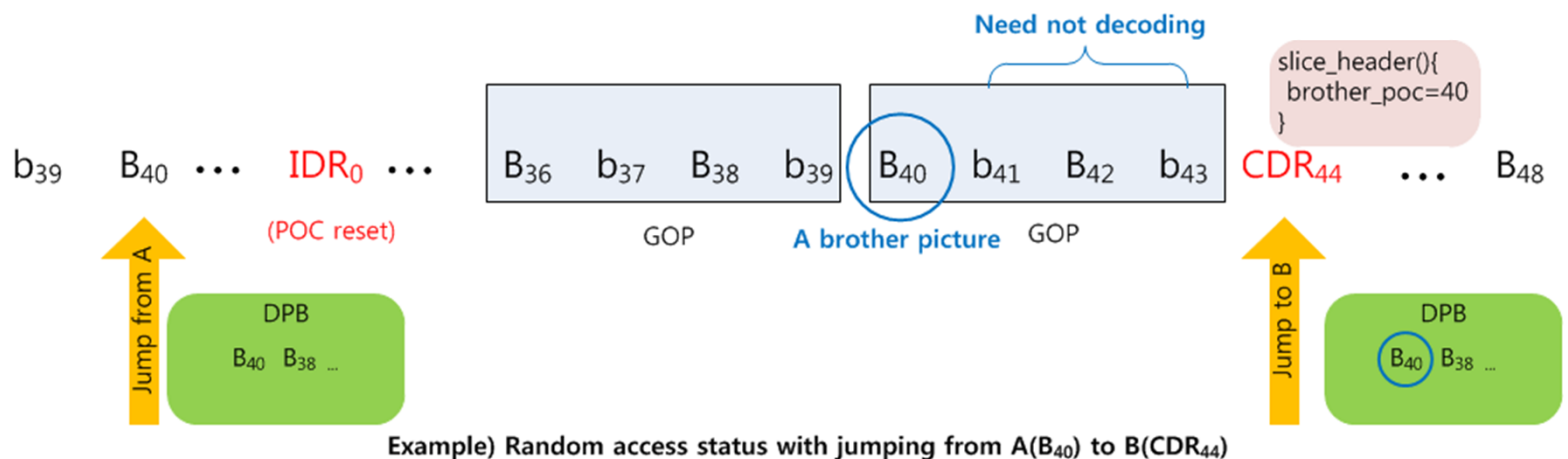
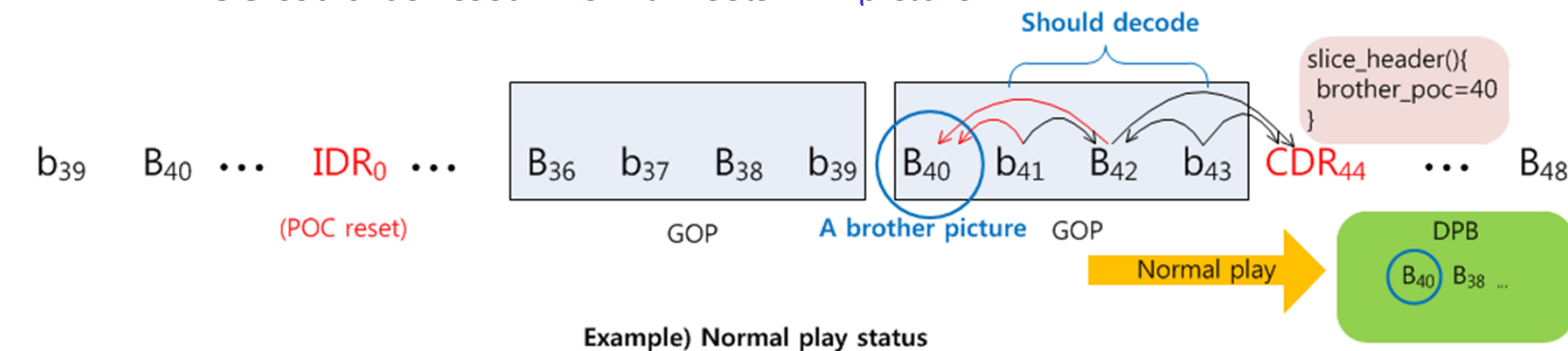
- ❖ The needs for detection of CDR decoding status, i.e., **normal play** or **random access** were proposed in JCTVC-E400
 - To decide whether to decode *the potentially unnecessary pictures* or not
 - Implicit reference picture marking
 - All reference pictures are marked as "unused for reference", when the CDR is used for random access
 - The signaling of *a brother picture* which is the closest picture that precedes the CDR in decoding order and has a temporal level equal to 0 in slice header was proposed



Example) Potentially unnecessary pictures and a brother picture

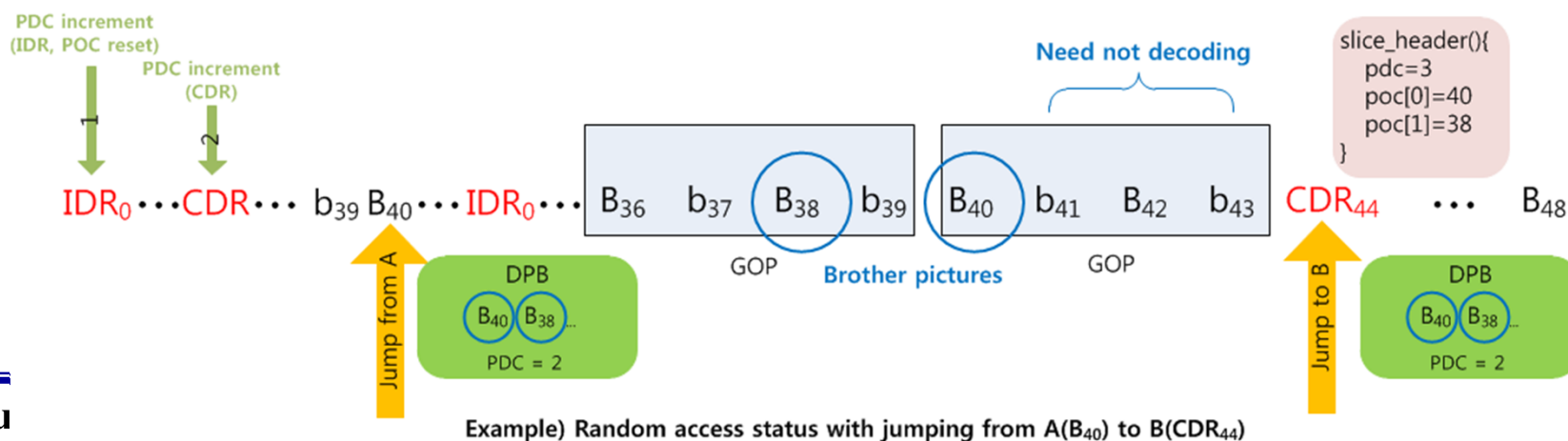
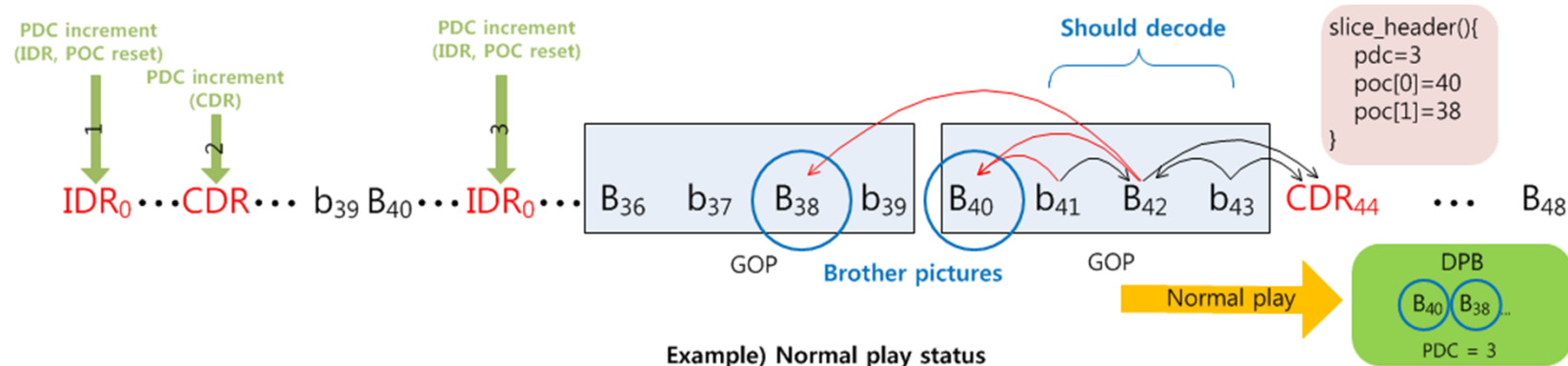
Problems

- ❖ The signaling of just POC or frame_num in the slice_header is not sufficient for the detection of CDR decoding status
 - DPB status **could be same** in both normal play and random access, respectively
 - frame_num could be wrap around in the unit of MaxFrameNum
 - POC could be reset when it meets IDR picture



Proposal

- ❖ The distinct method for detection of CDR decoding status is proposed
 - Redefinition of *brother pictures*, not a brother picture
 - The pictures that precede the CDR in decoding order and are used for referencing of potentially unnecessary pictures
 - New definition of *PDC (POC discontinuity count)*
 - Increased after POC is reset (IDR picture)
 - Increased after CDR



Syntax

▪ seq_parameter_set_rbsp() {	Descriptor
▪ <snip>	
▪ log2_max_pic_discontinuity_cnt_minus1	ue(v)
▪ }	

▪ slice_header() {	Descriptor
▪ <snip>	
▪ if(nal_unit_type == 4) {	
▪ pic_discontinuity_cnt	u(v)
▪ num_brother_frames	ue(v)
▪ if(num_brother_frames > 0) {	
▪ log2_max_brother_pic_order_cnt_minus1	ue(v)
▪ for(i=0; i<num_brother_frames; i++)	
▪ brother_frame_poc[i]	u(v)
▪ }	
▪ }	
▪ }	

Conclusion

- ❖ The distinct method for detection of CDR decoding status, i.e., normal play or random access is proposed
 - Redefinition of brother pictures
 - New definition of PDC (POC discontinuity count)
- ❖ We request that any method for detection of CDR decoding status should be well defined and deeply studied for consideration of the decoder implementation for the industrial world
 - To handle the potentially unnecessary pictures in decoder side during random access
 - To prevent the ambiguous DPB state during random access