

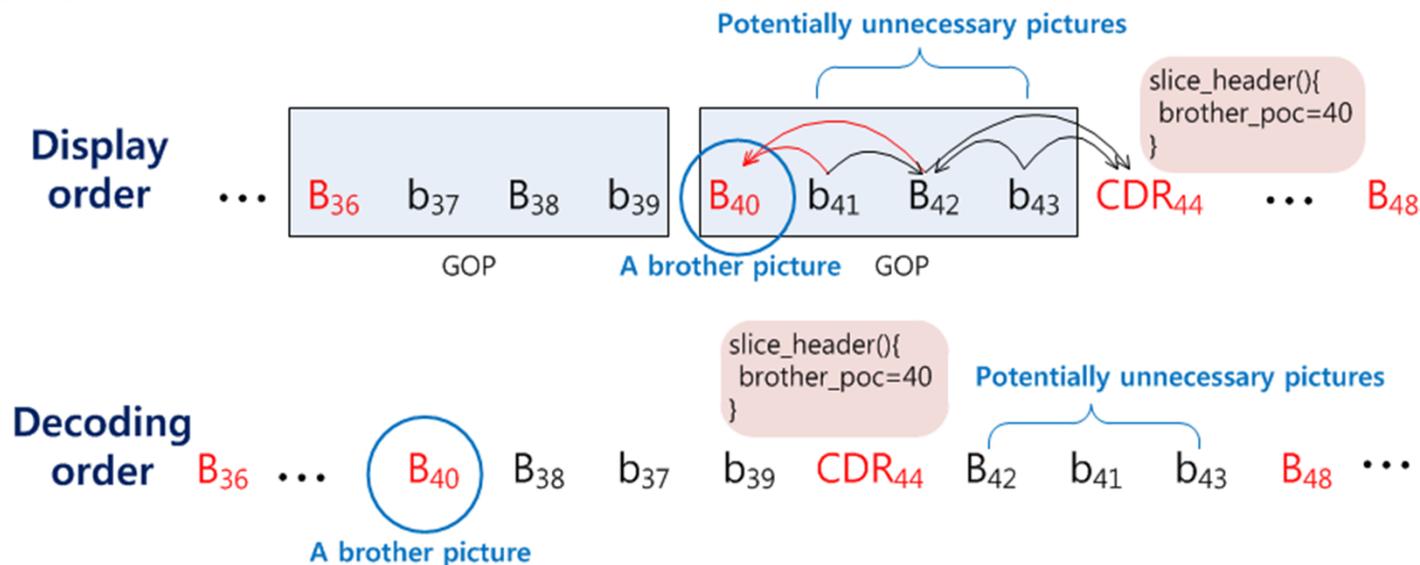
# **Detection of CDR decoding status (JCTVC-F604)**

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# Background

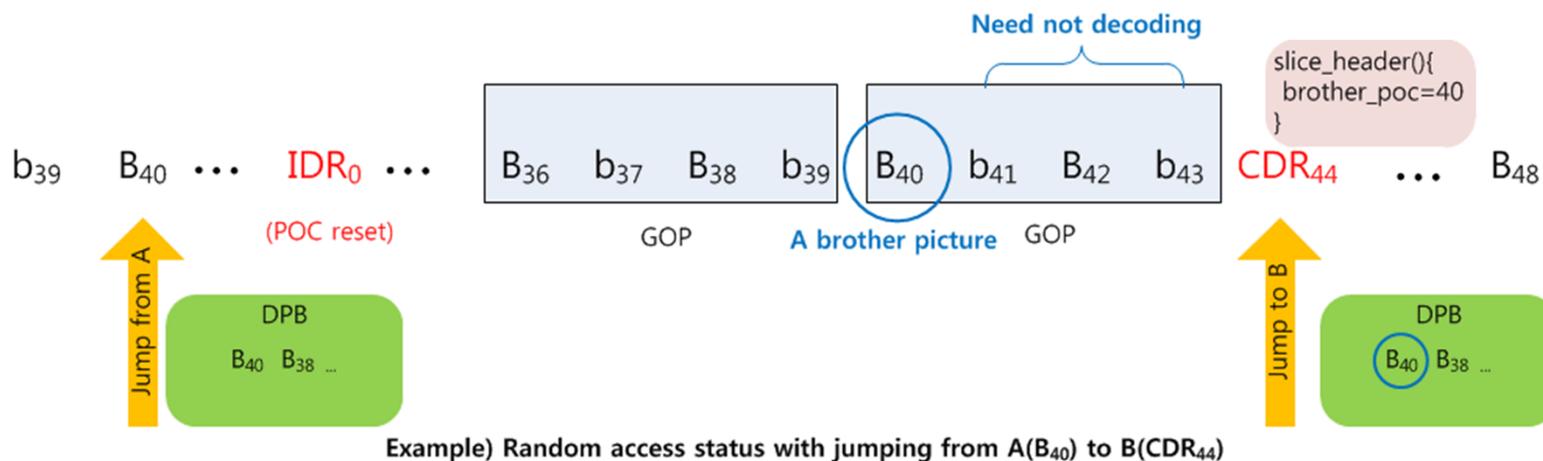
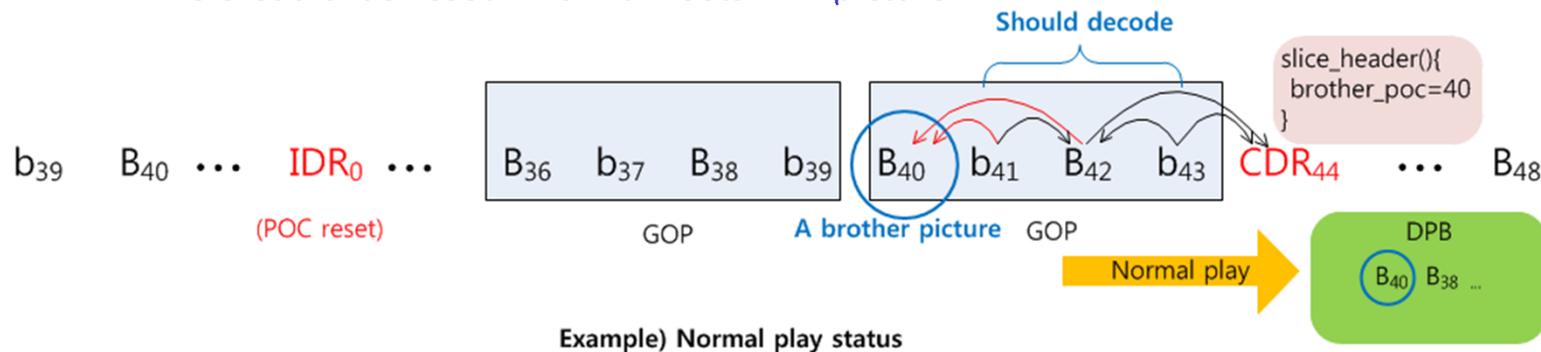
- ❖ The needs for detection of CDR decoding status, i.e., **normal play** or **random access** were proposed in JCTVC-E400
  - To decide whether to decode *the potentially unnecessary pictures* or not
  - Implicit reference picture marking
    - All reference pictures are marked as "unused for reference", 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

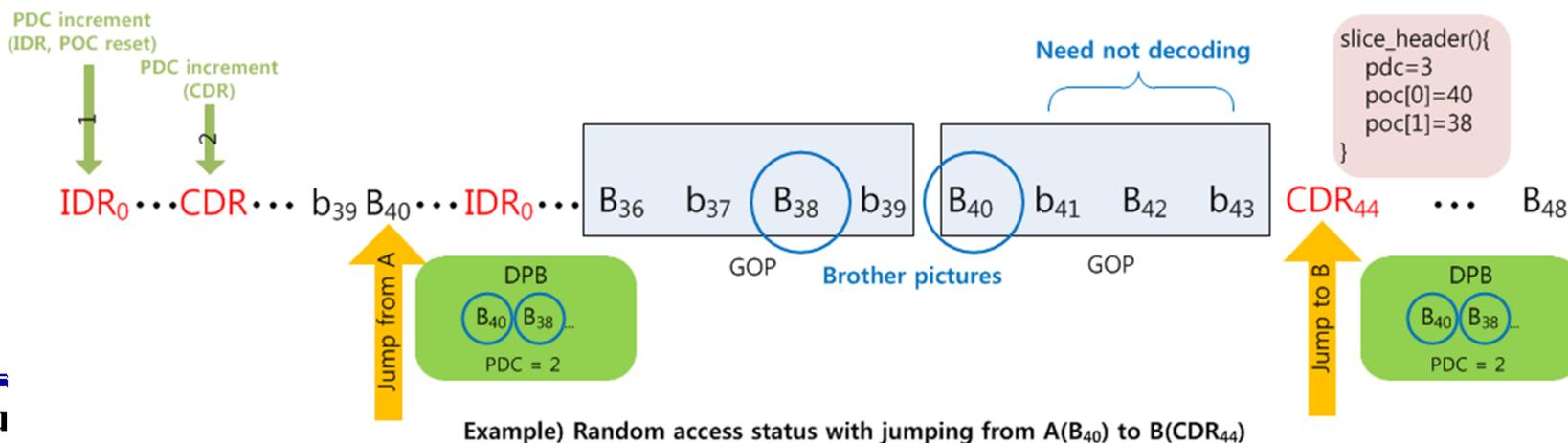
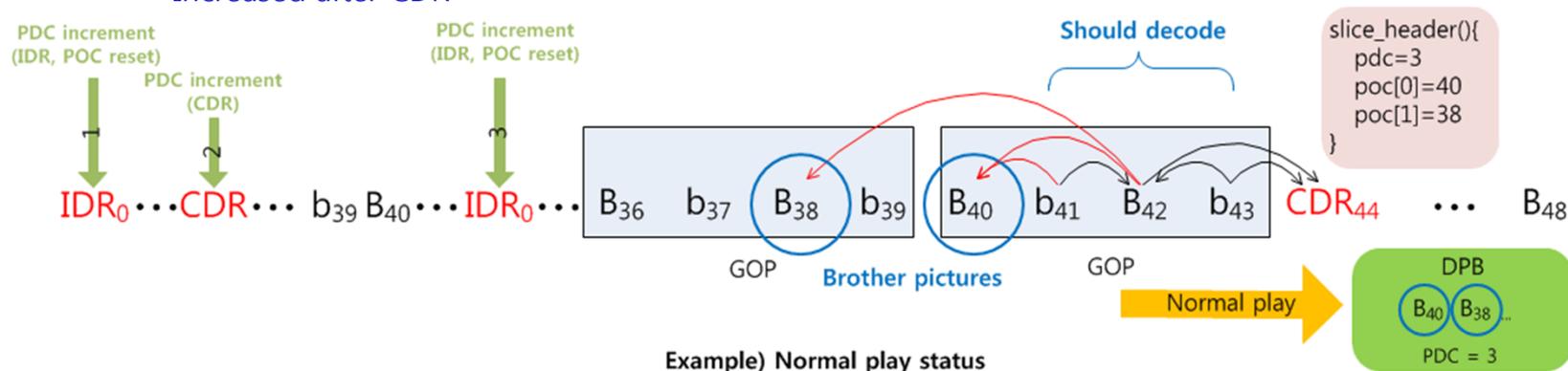
# Problems

- ❖ 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() { <sup>↵</sup>	<b>Descriptor</b> <sup>↵</sup>
▪ <snip> <sup>↵</sup>	<sup>↵</sup>
▪ log2_max_pic_discontinuity_cnt_minus1 <sup>↵</sup>	ue(v) <sup>↵</sup>
▪ } <sup>↵</sup>	<sup>↵</sup>

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

# 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