

From: Detlev Marpe <marpe@hhi.de>
Sent: Friday, November 15, 2002 6:05 PM
To: Elliot Linzer
Cc: jvt-experts@mail.imtc.org
Subject: [jvt-experts] Re: Trying to understand H.264 CABAC

Elliot,

You are right; the MaxCtxIdx value of CtxMbTypeSIPrefix in table 9-23 has to be fixed as well.

Thomas and I are just finishing a revised version of the whole CABAC subclause, which I hope will be soon available. I think this version will provide a clearer presentation of the MaxCtxIdx concept.

- Detlev

Elliot Linzer wrote:

> Detlev,
>
> Thanks. CtxMbTypeSIPrefix has the same problem; there might be
> others (I have not checked them all).
> I have a few other questions about the presentation of MaxCtxIdx:
>
> * Why are the values given in both tables 9-23 and 9-24; this
> redundancy is a bit confusing.
> * Does the statement of the value of MaxCtxIdx for syntax elements
> affect the normative decoding in any way? It is presented as an
> fact ("Since there is always a maximum ..."). It is clear to me
> that in many cases the context variables used for each bin is
> stated elsewhere in the text, in which case MaxCtxIdx contains no
> added information. If in fact for all cases MaxCtxIdx can always
> be deduced from the other parts of the text, there should be some
> statement that the values given in the table are informative.
>
>
> Detlev Marpe wrote:
>
> Elliot,
>
> The text is correct, but the MaxCtxIdx entry for CtxMbTypeI
> in table 9-23 (6) is not correct. It should be 7 as you
> correctly deduced from Table 9-26. This is a bug that went
> into the spec when changes according to the new PCM mode were
> made. I will fix it in my input to the next version of the text.
>

> Thanks for your careful reading.

>

> Best regards,

> Detlev

>

> Elliot Linzer wrote:

>

> > I am having some difficulty understanding the meaning of

> MaxCtxIdx. An

> > indeed the values for CtxMbType1 given in tables 9-23 (6) and

> 9-24 (7)

> > differ.

> >

> > Let me first give a quote from the text (9.3.2; page 134):

> >

> > For each bin number, a context variable is specified by a

> > conditioning term containing prior decoded symbols or parts

> > thereof. The possible numerical values of a context variable

> > specify the different context models associated with a

> specific bin

> > number. Typically, there are several possible values or context

> > labels for each bin number BinNum. However, in some cases the

> > context variable may simply be a constant label, in which

> case there

> > is only one fixed context model.

> > This subclause specifies first a variety of generic types of

> context

> > variables, so-called context templates, for conditional

> coding of

> > syntax elements. Then, for each bin number of a syntax

> element, the

> > specification of the corresponding context variable is given.

> For

> > the different bin numbers associated with the binarization of a

> > given syntax element or parts thereof, a unique context

> identifier

> > ContextId is chosen such that the context variable associated

> to bin

> > number k is given by ContextId[k]. Since there is always a

> maximum

> > bin number N with a context variable ContextId[N] that is

> different

> > from the corresponding context variable ContextId[N-1] for the

> > preceding bin number N-1, it is sufficient to specify a context

> > identifier for each index k with $1 \leq k \leq N$, where $\text{MaxCtxIdx} = N$ is

> > called the maximum index of the context identifier ContextId.

> >

> > I take this to mean that if we have a syntax element with a J-bit

> > binarization and $\text{MaxCtxIdx} \leq J$, that bins 1 ... MaxCtxIdx use

> > different context variables, whereas bins $\text{MaxCtxIdx} + 1$... J all use

> the

> > same context variable. Is that correct?

> >
> > CtxMbType1 has J = 7 bins (table 9-20). Now let us look at table
> 9-24,
> > on the CtxMbType1 row. We see that bins 5 and 6 use the same
> labels (6
> > and 7). But, from table 9-26 we see that the condition term for
> bin 6
> > ((b4 != 0) ? 6 : 7) differs from the condition term for bin 7
> (7). So,
> > they have different context variables. --> MaxCtxIdx = 7, and table
> > 9-23 is in error. Is that correct?
> >
> >
> >
> > ---
> > The use of the jvt-experts list is intended only for the video
> coding
> > standardization work conducted by the Joint Video Team (JVT) of
> ISO/IEC
> > JTC1/SC29/WG11 (MPEG) and ITU-T SG16 Q.6 (VCEG).
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