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Tags tested using Heather voice (fmm.120820.22050_celt.tpd):

1. **<usel variant> tag**

Description:

The Variant Tag option allows the user to request a different version of the synthesis for a highlighted region. This is a very useful tag that can be used to make sections of speech sound more appropriate. The variant number can be increased to produce more and more different versions of the speech. The original version is equivalent to variant 0.

Example sentence:

"The two price cuts will together save UK households an average £132 on their gas and electricity bills."

With markup:

"The two price cuts will together save UK households an average £132 on their gas and <usel variant='1'>electricity</usel> bills."

2. **<usel speed> tag**

Description:

The <usel speed> tag biases the selection of units to lower or higher speeds. For example, <usel speed='2.0'> doubles the duration target of a word or phrase and thus causes longer units to be selected where available.

Example sentence:

There has been a further fall in the number of crimes in Scotland, according to the latest figures.

With markup:

There has been a <usel speed='1.6'>further</usel> fall in the number of crimes in Scotland, according to the latest figures.

3. **<usel pitch> tag**

Description:

The <usel pitch> tag biases the selection of units to lower or higher pitch. For example, <usel pitch='0.5'> lowers the target pitch of a word or phrase and thus causes lower-pitched units to be selected where available.

Example sentence:

The deal will result in a stock market listing for the bank.

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With markup:

The deal <usel pitch='0.5'>will</usel> result in a stock market listing for the bank.

4. <lexicon> tags

4.1 <lexicon entry='full'> tag

Description:

The <lexicon entry='full'> option allows 'function words' such as 'and', 'the', and 'to' to be switched to their 'full form'. For example 'the' in its full form sounds the like 'thee'.

Example sentence:

"In a deal announced on the second day of the Paris Air Show."

With markup:

"In a deal announced on the second day of <lex entry='full'>the</lex> Paris Air Show."

4.2 <lexicon entry='reduced'> tag

Description:

The <lexicon entry='reduced'> tag allows 'function words' such as 'and', 'the', 'than', and 'to' to be switched to their 'reduced form'.

Example sentence:

"The company cut its gas prices, also by 10%, on 19 February this year, benefitting more than seven million households."

With markup:

"The company cut its gas prices, also by 10%, on 19 February this year, benefitting more <lex entry='reduced'>than</lex> seven million households."

4.3 <lex phonemes='phones'> tag

Description:

The <lex phonemes='phones'> tag allows the user to define and modify the phonemes used to render a selected word. Each language and accent has its individual phoneset, so the user should use the correct phoneset for the current voice.

Example sentence:

"Iniesta beat Petr Cech from the edge of the area to send Barcelona into the final on away goals."

With markup:

"<lex phonemes='ii0 n ii0 e1 s t @0'>Iniesta</lex>beat <lex phonemes='p e1 t @0 r'>Petr</lex><lex phonemes='ch e0 x'>Cech</lex> from the edge of the <usel variant='1'>area</usel> to send Barcelona into the final on away goals."

5. Signal processing tags

5.1 <sig f0='num'> tag

Description:

The <sig f0='num'> may be used to raise and lower the pitch of the speech output. The pitch value is converted based on the average realised pitch of the speech within the region of highlighted text. The pitch can be changed in three ways: relative, absolute or multiplier. To change the pitch by an exact amount, for example 50Hz : '+50.0' will increase it by 50, '-50.0' will decrease it by 50; if you want it to be an absolute value, for example 200.0Hz, enter that fixed value preceded by 'a?': 'a200.0'. To multiply the pitch by a fixed amount, simply enter a multiplier, for example to double it enter '2.0', to halve it enter '0.5'.

Example sentence:

"But like British Gas they all raised their gas and electricity prices twice last year."

With markup:

"But like British Gas they all raised their gas and electricity prices <sig f0='+10'>twice</sig> last year."

"But like British Gas they all raised their gas and electricity prices <sig f0='a220'>twice</sig> last year."

"But like British Gas they all raised their gas and electricity prices <sig f0='1.1'>twice</sig> last year."

5.2 <sig rate='num'> tag

Description:

The <sig rate='num'> may be used to increase and decrease the speed of the speech output. The default rate is <sig rate='1.0'> and it may be varied on a range between 0.5 and 2.0 by changing the value between the quotes. The speech rate will then be multiplied by that factor.

Example sentence:

"British Gas are the last of six major energy suppliers to cut their electricity prices this year."

With markup:

"British Gas are the last of six major energy suppliers to cut their electricity prices <sig rate='0.8'>this year</sig>"

"British Gas are the last of six major energy suppliers to cut their electricity prices <sig rate='1.2'>this year</sig>"

5.3 <sig amplitude='num'> tag

Description:

The Amplitude Tag may be used to increase and decrease the amplitude of the speech output. The default amplitude is <sig amplitude='1.0'> and may be varied on a range between 0 and 50. The amplitude will then be

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multiplied by that factor.

Example sentence:

"The cut was made possible by a fall in the cost of wholesale electricity."

With markup:

"The cut was made possible by a fall in the cost of <sig amplitude='2.5'>wholesale electricity.</sig>"

"The cut was made possible by a fall in the cost of <sig amplitude='0.5'>wholesale electricity.</sig>"

6.0 Break tags

The Break Tags allow the user to define and change the length of pauses. There are three types of break that may be inserted:

6.1 Sentence Break tag - <break type='4' time='0.6'/>

Description:

The Sentence Break tag can be used to enforce a sentence break or to insert a long (by default, 0.6s) pause into the text. The duration of the pause can be modified by changing the value time='0.6', where 0.6 is the length of the break in seconds.

Example sentence:

"Some are warning the cuts could be temporary the cost of wholesale electricity is expected to rise again next year."

With markup:

"Some are warning the cuts could be temporary <break type='4' time='0.6'/>the cost of wholesale electricity is expected to rise again next year."

6.2 Phrase Break tag - <break type='3' time='0.3'/>

Description:

The Phrase Break tag can be used to enforce a phrase break, by default, 0.3s. The duration of the pause can be modified by changing the value time='0.3', where 0.3 is the length of the break in seconds.

Example sentence:

"Some are warning the cuts could be temporary the cost of wholesale electricity is expected to rise again next year."

With markup:

"Some are warning the cuts could be temporary <break type='3' time='0.3'/>the cost of wholesale electricity is expected to rise again next year."

6.3 Short Break Tag - `<break type='2' time='0.1'/>`

Description:

The Short Break Tag inserts a short pause into the text, which can often be useful for improving clarity around important items in a sentence.

Example sentence:

"The Bank of England has kept interest rates on hold at 0.5% and announced that it will pump an extra £50bn into the UK economy."

With markup:

"The Bank of England has kept interest rates on hold at 0.5% and announced that it will pump an extra `<break type='2' time='0.1'/>`£50bn`<break type='2' time='0.1'/>` into the UK economy."

7.0 Emotion tags

The Emotion Tags can be applied to word(s) to vary the emotion of the speech as follows:

Note that some applications may remove the `<voice>` tag (i.e. Voice XML browsers, SAPI) - they should use the `<speechstyle>` tag instead.

7.1 Happy Emotion tag - `<voice emotion='happy'>`

Example sentence:

"It's beautiful today."

With markup:

"It's `<voice emotion='happy'>`beautiful`</voice>` today."

7.2 Sad Emotion tag - `<voice emotion='sad'>`

Example sentence:

"The outbreak cast a shadow over the former Victorian holiday resort."

With markup:

"The outbreak`<voice emotion='sad'>`cast a shadow`</voice>` over the former Victorian holiday resort."

7.3 Calm Emotion tag - `<voice emotion='calm'>`

Example sentence:

"The beautiful gardens which have been restored in all their eccentric Victorian splendour."

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With markup:

"The beautiful gardens which have been restored in all their <voice emotion='calm'>eccentric Victorian splendour.</voice>"

5.4 Cross Emotion tag - <voice emotion='cross'>

Example sentence:

"When people leave a tip for staff, in a restaurant or anywhere else, they have a right to know that it will not be used to make up the minimum wage."

With markup:

"When people leave a tip for staff, in a restaurant or anywhere else, they have a right to know that it will<voice emotion='cross'> not be used</voice> to make up the minimum wage."

Underlying Markup for Emotion tags

The *voice* or *speechstyle* XML tags are converted into underlying *sig* and *usel* tags. The underlying tags are appropriate to the Heather voice, but the user may wish to adjust the parameters for other voices (especially male voices).

The <voice emotion="happy"> tag maps to: <usel genre="calm"><sig amplitude="1.2" f0="+8" rate="1.02">

The <voice emotion="sad"> tag maps to: <usel genre="stressed"><sig amplitude="0.8" f0="-10" rate="0.9">

The <voice emotion="calm"> tag maps to: <usel genre="calm"><sig amplitude="0.8" f0="-5" rate="0.95">

The <voice emotion="cross"> tag maps to: <usel genre="stressed"><sig amplitude="1.5" f0="+0" rate="0.95">