Non-linear Speech Synthesis

What are we going to do……?

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Three questions....?

• What research are we carrying out at present?
• What are the key techniques for the future?
• What are the drivers for non-linear speech synthesis?
What are the drivers......

By this I mean since existing (linear) speech synthesisers function adequately, i.e. they are easily understood, why do we need non-linear speech synthesisers?
The raison d’être for non-linear speech synthesiser research

- Concatenative TD speech synthesis methods sound O.K. but they are inflexible.
- Traditional generation algorithms for synthesis (e.g. formant synthesis) do not always model high-frequency range well.
- But…..current non-linear methods still need a lot of work!

Thanks to Eric Keller!
Key Techniques

- HNM models
- Non-linear Oscillators
- Neural Network approaches
- Hybrid solutions
- Locally Linear Embeddings
Who is working in the area?

- Erhard Rank, TU Vienna
- Eric Keller, EPFL Lausanne
- Gernot Kubin, TU Graz
- Steve McLaughlin, Edinburgh
- Peter Murphy, Limerick
- Anyone else……?
What else do we need in the representations?

• Can we connect the symbolic with the signal generation?
• Are there add on components to the state-space?
• What are the physical interpretations we can make to the non-linear phase-space representations?
Co-ordination Questions?

• How do we achieve co-ordination?
• What do we produce?
  – Testbed?
• What do we focus on?
• How we focus?
  – Individually?
  – In sub-groups?
  – As one group?