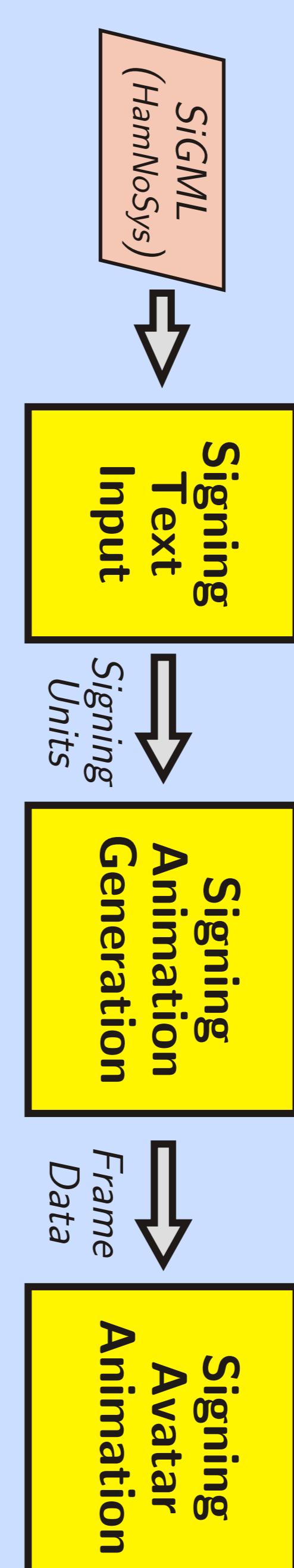


The SIGML Notation

- SiGML stands for *Signing Gesture Markup Language*.
- The SiGML notation has been developed at UEA to support the work of the ViSiCAST and eSIGN projects.
- SiGML allows *sign language sequences* to be defined in a form suitable for performance by a *virtual human*, or *avatar*.
- The signing avatar can be displayed on a computer screen, or on other mobile devices.
- SiGML is a form of *Extensible Markup Lanugage* (XML) – a simple but flexible format for the exchange of structured and semi-structured data.
- XML is represented as plain text – hence it is easily transported over the Internet and World-Wide Web (WWW).
- The most important technical influence on the SiGML definition is *HamNoSys* – a notation for sign language phonetics (example below).



SigML and HamNoSys

- **HamNoSys** – the *Hamburg Notation System* = Is a well-established transcription system for sign languages, developed by our partners at the University of Hamburg.
- Each sign language has its own grammatical structure – it is *not* an alternative form of some spoken language.
- But sign language phonetics are visual, not aural. Sign language is articulated primarily by the *hands*, but also using the head and face.
- Because HamNoSys describes sign language phonetics it can represent signing expressed in *any* sign language.
- Below is the SiGML corresponding to the HamNoSys example on the left:

SIGML Signing Software

- *SiGML* is a flexible software system, developed at UEA for the eSIGN project, to provide animation of signing sequences defined in SiGML.
- SiGMLSigning implements the processing pipeline shown schematically above.
- At the heart of this process is *Aningen* – the “synthetic animation engine”: this converts SiGML to a sequence of animation “frames” (25fps), each corresponding to a configuration of the avatar’s virtual skeleton.
- The SiGMLSigning architecture defines interfaces allowing any suitable avatar to be driven in this way.
- The eSIGN project uses the *VGuido-Mask2* avatar, developed by our partners at Televirtual (below left).



- To support our research into synthetic virtual human animation we have developed our own avatar animation system – the *Avatar Research Platform*, ARP (above right).