

# Examining the process of creating new signs in BSL for science and maths concepts



SSC/Adept Conference  
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# Introduction

- Gary Quinn - Heriot-Watt University
- Dr. Audrey Cameron - Edinburgh University
- Rachel O' Neill - Edinburgh University



# Overview of talk

1. Background of Deaf children in Scotland
2. Developed by a focus group with expertise
3. Importance of setting a 'root' or 'base' sign

# Deaf children in Scotland

- Exam papers in sign and sign their responses
- 11% of deaf pupils use some sort of sign
- Scottish Sensory Centre developing scientific and mathematical terminology in BSL
- Developed over 1,400 new signs
- Definitions in BSL very important.

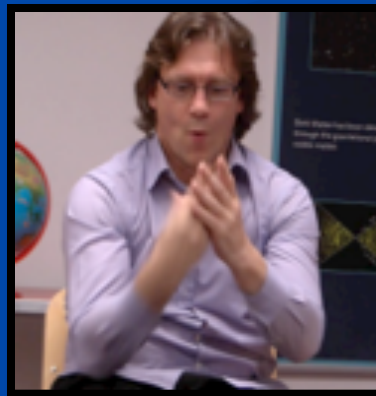
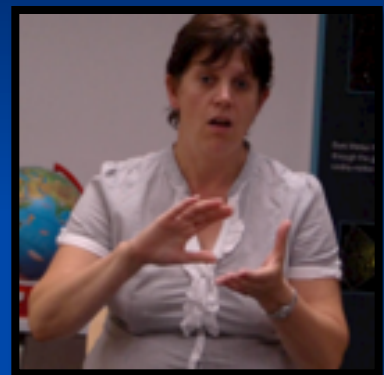
# **BSL vocabulary for specialist areas – different approaches**

- BSL and technical signs
- Deaf people excluded from professional jobs
- Vocabulary develops when Deaf people work together
- E.g. Deaf printers vs Deaf dental technicians

# Scientists, Mathematicians and BSL Linguists

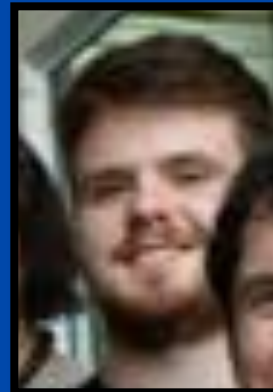


# Scientists, Mathematicians and BSL Linguists





# Scientists, Mathematicians and BSL Linguists





# Mathematics team



# Geography team



# Stem Cell Workshop





# Our principles

- We didn't want to use initialised signs
- E.g. school site:  
EXOTHERMIC      ENDOTHERMIC
- Deaf children's bad experiences with initialised signs across the curriculum

# How do languages develop?

- Majority parts from the communities
- Pass on down from the past
- Borrow lexicons from others
- Languages do change naturally over times

# How to develop signs?

- Arbitrariness and Iconicity
- Cognition, Comprehend & Concept
- Synecdoche (Meronymy)
- Metonymy
- Metaphor
- Parameters (Phonology)
- Morphology

# Arbitrariness-iconicity

Arbitrariness-iconicity continuum





# 3 C's

**c**ognition that allows us to  
**c**omprehend one aspect of a  
**c**oncept in terms of another

# Synecdoche (Meronymy)

- using a part of the tenor as the vehicle
- *Tenor* – Yacht
- *Ground* – Yachts have tall sails
- *Vehicle* – Sail



# Metonymy

- using something linked to the tenor as the vehicle
- *Tenor* – Scotland
- *Ground* – Bagpipes are associated with Scotland
- *Vehicle* – Bagpipes



# Metaphor

- Metaphorical extensions of meaning
  - Flabbergasted
  - Thrilled
  - Rage
- Metaphorical imagery
  - Remember
  - Catch-up
  - Forget

# Phonology

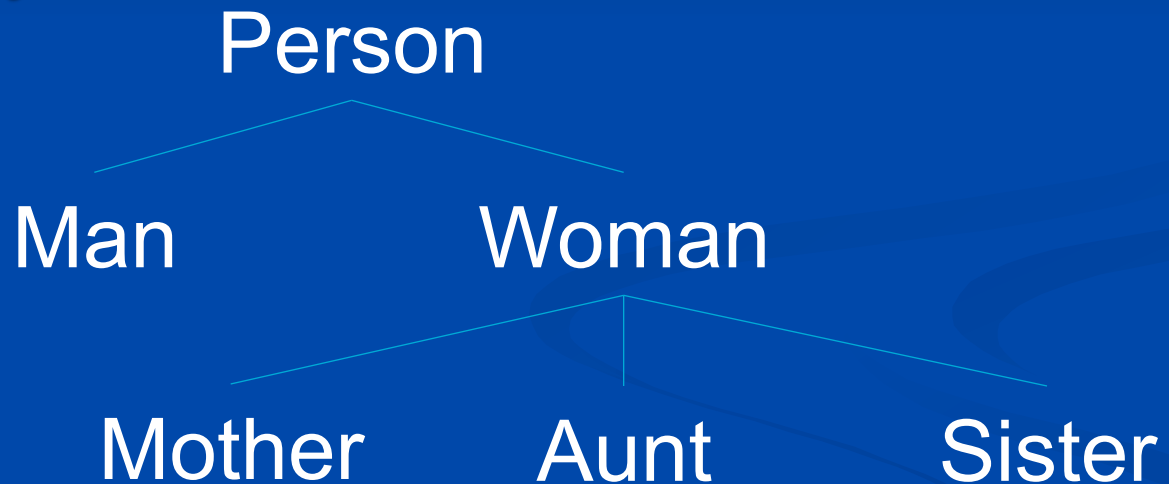
- 5 parameters
  - Handshape
  - Location
  - Movement
  - Orientation
  - Facial expression
    - (Non-Manual Features - NMF)
- Articulator features appropriate

# Productivity in signed languages

- Inflection morphology
- Compounding
- Borrowing
- Completely new

# Previous Principal

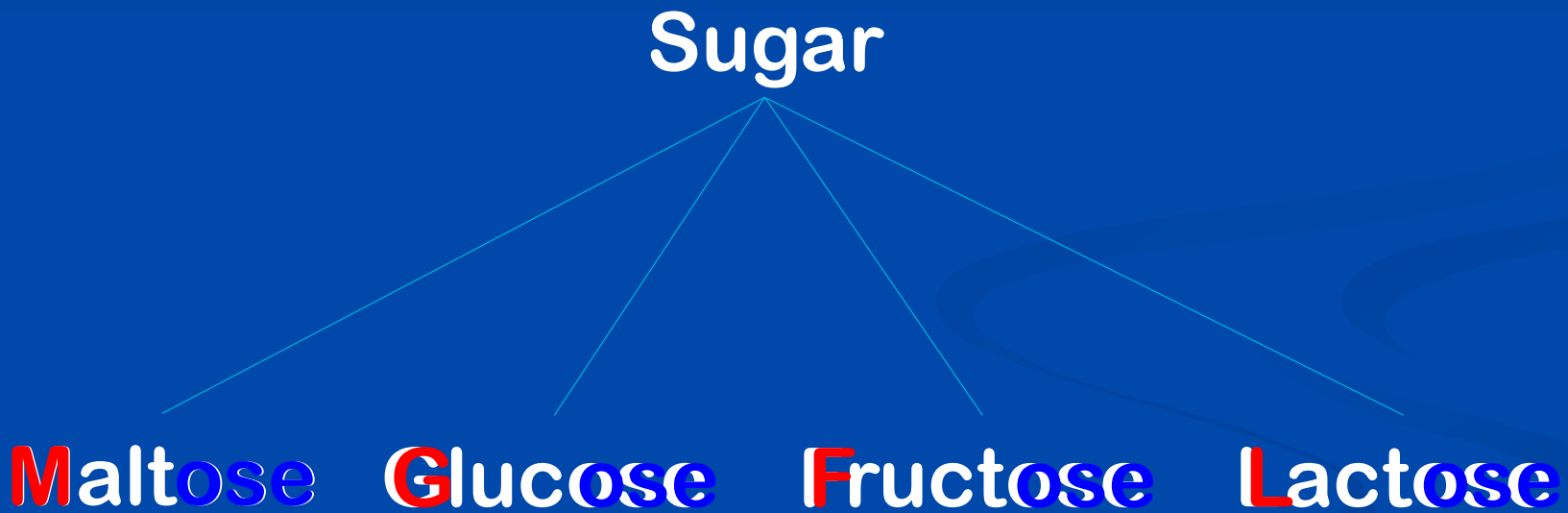
- Don't use initialised signs...
- Hyponymy





# Previous Principal

- Hyponymy



# Previous Principal

## ➤ Physics

- Mass
- Weight
- Density

## ➤ Biology

- Cell
- Membrane
- Nucleus

## ➤ Math

- Mean
- Medium
- Mode

## ➤ Geography

- Volcano
- Crater
- Volcano Rim

# Other considerations

- Borrowing (capitalisation, other sign languages)
- Compounding (mean)
- Simultaneity (prime number)
- Simplification (quadratic equation)
- Iconicity (fraction, denominator, numerator)
- Morphological families (mean, mode, median)

# Respect !

- Different signs in UK

- Due to Schoolisation

Quinn, G. 2010

- We work as a team

**Any questions?**