

ADAPTIVE LEARNING ENVIRONMENTS: More examples

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STANDUP

Supporting Language Play in Children

<http://www.csd.abdn.ac.uk/research/standup/>

Standup: (based on JAPE, Binsted & Ritchie 1994, 1997):

Facilitating language play in non-speaking children through computer-supported joke construction*

- Built support tool that enables children with complex communication needs (CCN) to experience language play (through humour)
- Current AAC tools are primarily functional, focusing on needs-based communication
 - Interactivity and customizability
 - User-centred design

Brings together a number of aspects of AI, Cognitive Science, Human Computer Interaction, Education

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STANDUP



**System
To
Augment
Non-speakers'
Dialogue
Using
Puns**



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UNIVERSITY
OF ABERDEEN

Play through humour

What do you get when you cross a monkey and a peach

An ape-ricot.

What do you call a murderer with fibre?

A cereal killer.

What kind of vegetable can jump?

A spring onion.

What do you get when you cross cars and sandwiches?

Traffic Jam

How does a whale cry?

Blubber blubber.

How is a car like an elephant?

They both have trunks.

*Based on JAPE (Binsted & Ritchie 1994, 1997), developed in Standup
30-Jan-18*

Exercise:

Consider what knowledge is needed to understand such jokes - what different types of knowledge do you have to have?

What might the educational function of playing with such jokes be?

Can we automate this - what would we need to know and represent to do this?

What would be the purpose of this?

Would need a word list = Lexicon

Part-of-speech (POS) tags

Phonetic spelling, for computing:

homophones	time	↔	thyme
rhyme	pub	↔	tub
Spoonerism	bare/spank	↔	spare/bank

Compound nouns and their components

e.g. long time, traffic jam

Distinct senses of a word/phrase,

e.g. match=sporting event, match=ignition stick

Semantic relations:

synonyms	strange	↔	bizarre
hypernyms	thyme	↔	herb
meronyms	traffic	↔	car

e.g. Augmenting Wordnet

Starting point: WordNet (200k senses, synonyms, hypernym hierarchy, meronyms)

Phonetic forms: Unisyn: pronunciation dictionary, phonetic strings assigned to >115k word forms (Edinburgh accent)

Pictures: Wigit “conceptcodes” already linked to two picture libraries; linked to WordNet senses, manually.

Familiarity ratings: data from spelling lists, SemCor, Wigit conceptcode set, MRC psycholinguistic database, BNC

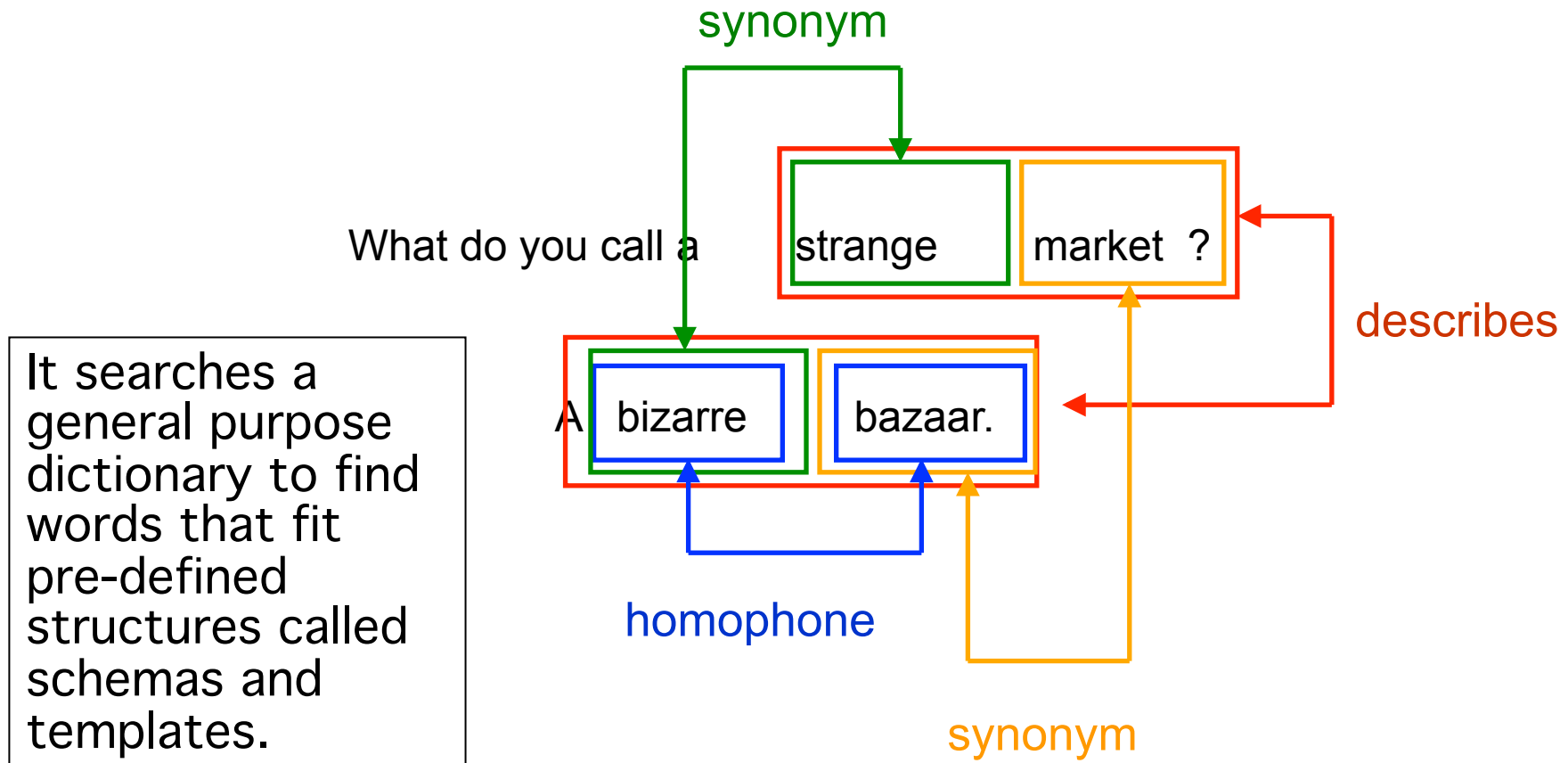
Topics: adopted hierarchy supplied with Wigit coding.

Excluded items: anything in Shorter Oxford “coarse slang” or “racially offensive”, plus a few from personal knowledge.

(Thanks to Wigit Software and Mayer-Johnson for pictures)

How could we automate this?

JAPE: example of structure



Purpose: need for language play

Word play is critical part of language development

- typically-developing (TD) children enjoy jokes and riddles
- provide opportunity to practise language, conversation and social interaction skills.

Jokes

- are a type of conversational narrative
- play an important role in the development of storytelling skills.

Role of punning riddles in language development

- pragmatics => turn taking, initiation etc.
- vocabulary acquisition

Children with speech and/or language disabilities do not always have language play opportunities

- Pre-stored rather than novel jokes
- little opportunity for independent vocabulary acquisition and word play

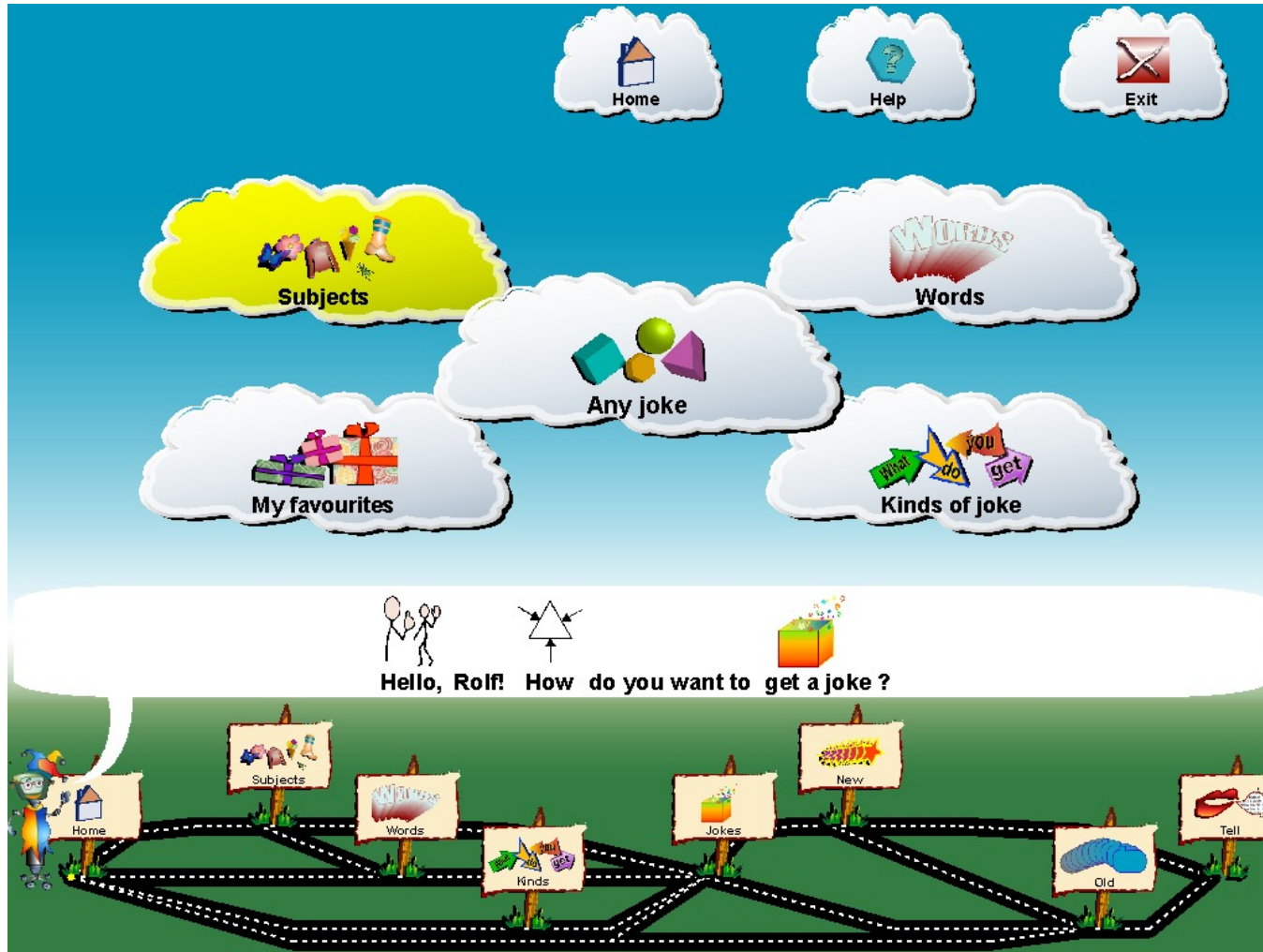
Standup goals

To build a tool that helps children with complex communication needs (CCN) to play with language:

- **generate novel puns** using familiar vocabulary,
- **experiment** with different forms of jokes.
- provide **social interaction** possibilities
- **go beyond** the “needs” and “wants” of **AAC***

*AAC: augmentative or alternative ways to communicate for people with limited or no speech

“Are you ready?” – Using STANDUP



“Are you ready?” – Using STANDUP



30-Jan-18

NI telling a joke



30-Jan-18

ADVENTURE AUTHOR

Computer games in education

Children find computer games motivating and spend a lot of time playing them *

Teachers and parents recognise that children develop collaboration, thinking and discussion skills through computer games *

BUT – there is a mismatch between curriculum and commercial game content which prevents games from being used in the classroom

Purpose made educational games can be developed to fit the curriculum

Pupils can learn from making their own games

* McFarlane, A., Sparrowhawk, A. and Heald Y. (2002)

Adventure Author: storymaking through computer game design

Judy Robertson, Keiron Nicholson and Cathrin Howells.

“Creating a 3D interactive immersive game provides *new opportunities for authors.*”

We see **conventional writing** at work, but also gain insights into ways pupils use the **visual, spatial and interactive elements** of game design to contribute to the storymaking process, ***carrying meaning beyond words.***” (Judy Robertson)

‘Adventure Author’ is a freely available game creation tool for children aged 10-14, a modification of the Neverwinter Nights 2 game-making toolset for designing and building interactive stories.

Adventure Author...

www.adventureauthor.org

Aims to study the creative process learners go through when making their own computer games

Team worked with schools in Edinburgh and Dundee, holiday workshops, to design and refine game making software

Children must consider:

*How do I build a story **spatially**?*

*Under what circumstances should I try to tell the story through **words** and when should I use **visual design**?*

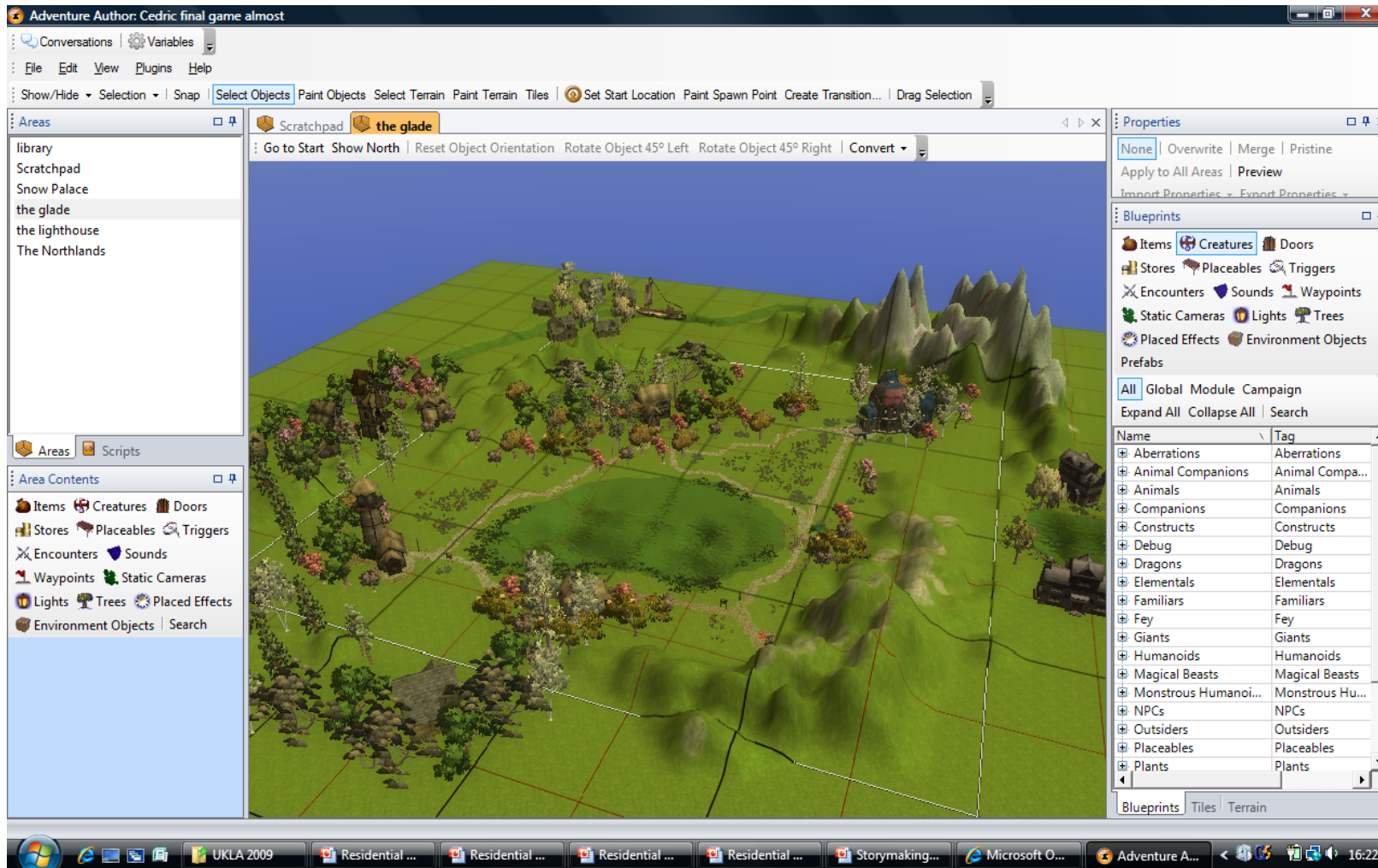
*How can I anticipate what my reader might **do**?*

*What makes a **good** writer-designer???*

Neverwinter Nights 2



Game making toolset



Toolset
comes
free with
Never
winter
Nights 2
game

Dialogue as it appears in the game world

What challenge might that be?



The wise old bear Cedric is losing his sight. We need your help to save his vision - he alone can read the Books of Lore, the spells that keep our land green and beautiful and safe from harm. Without his skill we will be in great danger from the Wizard of the North. Don't worry, you will be rewarded well for your efforts.

Conversation Writer: dialogue

The screenshot displays the 'maiserabbit - Conversation Writer' application window. The main area contains a dialogue script with the following text:

MAISIERABBIT Welcome to Verdant Land. We are hoping you will accept a challenge to help us.

PLAYER What challenge might that be?

MAISIERABBIT The wise old bear Cedric is losing his sight. We need your help to save his vision - he alone can read the Books of Lore, the spells that keep our land green and beautiful and safe from harm. Without his skill we will be in great danger from the Wizard of the North. Don't worry, you will be rewarded well for your efforts.

PLAYER I don't like all this talk of spells and wizards.

PLAYER This sounds serious. Tell me more.

Below the script are two buttons: 'Add Branch' and 'Delete Entire Choice'.

On the right side of the window, there is a vertical toolbar with the following buttons: 'Add a CHOICE', 'Add another speaker', 'Add a PLAYER line', 'Add a MAISIERABBIT line', and 'Add a CEDRICBEAR line'.

At the bottom right, there is a flowchart diagram showing a sequence of dialogue lines. The flow starts with 'Page 1' (a red box) which branches into 'd! Hurrah!' and 'Welcome to Verdant...' (a green box). From 'Welcome to Verdant...', the flow branches into 'I don't like all...' and 'This sound'. From 'This sound', the flow branches into 'I'm not surprised ...'.

At the bottom of the window, there are two buttons: 'Go to Start' and 'View full-screen'.

The Windows taskbar at the bottom shows several open applications: UKLA 2009, Storymaking through..., Microsoft Outlook ..., Adventure Author ..., and maiserabbit - Conv... The system clock shows 16:30.

Dialogue: choices

archerconversation - Conversation Writer

File Options

PLAYER hello who are you?

ARNORARCHER I am an archer of the kingdom of arnor our scout team has been killed and we are the only survivors

PLAYER what who done this?

ARNORARCHER the evil king arthidale there is great evil in this place it has been courrupted by evil will you help us?

PLAYER *ahhhhhhh!!! to scary run away!*

PLAYER *ok i'm in so how bad is this?*

PLAYER *Hmmmm..... sounds dangerous i don't like this*

Add Branch Delete Entire Choice

Add a CHOICE

Add another speaker

Add a PLAYER line

Add an ARNORARCHER line

Start

run away!

ok i'm in so how bad is this?

Go to Start View full-screen

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CRYSTAL ISLAND

(video)

Crystal Island: Outbreak

James Lester, IntelliMedia group, North Carolina State University

[Crystal Island Outbreak - Walkthrough](#)

Crystal Island is an intelligent game-based learning environment

Focus of middle science education (Grade 8) emphasizing microbiology

Students interacting with the Outbreak episode of Crystal Island solve a science mystery that unfolds on a recently discovered island, [e.g. backstory](#)

The project focuses on narrative-centered learning and modeling students' problem-solving activities.

ALELO Serious Games

Alelo: Foreign language and culture training

Using socially intelligent virtual humans to interact with learners, and speech-recognition technology to provide instant, constructive feedback in context.

Alelo – introduction

<https://www.facebook.com/video.php?v=196245707059676&set=vb.129539007396&type=2&theater>

Alelo's Virtual Role Players (VRP) for Bohemia's VBS2 Mission Rehearsal software

<https://www.youtube.com/watch?v=cQ3JRJp2SQU>

<https://www.youtube.com/watch?v=IVVKNTp0If0#t=7.418791>

Danish Simulator is a Speech Recognition based online language and culture learning platform for Danish

<http://www.alelo.com/dansksimulatoren-danish-simulator/>