

Learning noun-phrases through a multiplayer game

Chris Madge

c.j.madge@qmul.ac.uk

A presentation for



 Funded by the Horizon 2020 Framework Programme of the European Union



iGGI



Queen Mary
University of London



University of Essex



TileAttack

- Web based
- 2 player (output agreement game)
- Mobile friendly
- Points awarded based on agreement
- First of the two players in the agreement scores more points
- TileAttack is an LR GWAP
- Teaching is a very key part

TileAttack

https://tileattack.com

Tile Attack

The Game

TileAttack is a two player game whose aim is to identify the parts of a text that refer to objects - e.g., people, places, locations. (These parts of a sentence are generally known as **noun phrases**; we call these parts of text mentions). In the game you are randomly matched with a second player and score points for agreeing on a mention, but even more points for finding that mention first. There are many different types of mentions, both simple ones (e.g., *He*, *Bob*, *the CEO*, *London*) and more complex (*the classical music fan*, *the capital of the UK*). Your aim in the game is to identify as many of them as you can. Keep in mind that markables can be nested: e.g., *the capital of the UK* is a markable, but the *UK* is a markable as well!

the Norwegian army
He the first penguin

TileAttack Tutorial

Tile Attack

Interface

The short video to the left will show you the basic controls and operation of the game.

Please note: the game is in development, so there may be subtle changes between the video and the current state of the game

TileAttack is currently setup for labelling noun-phrases...

We're teaching this by going back from entities

{A Wolf}_[1] had been gorging on {an animal {he}_[1] had killed}_[2]



Entity 1



Entity 2

A Wolf had been gourging on an animal he had killed .



1

remaing
referring to
deer



2

remaing
referring to
wolf

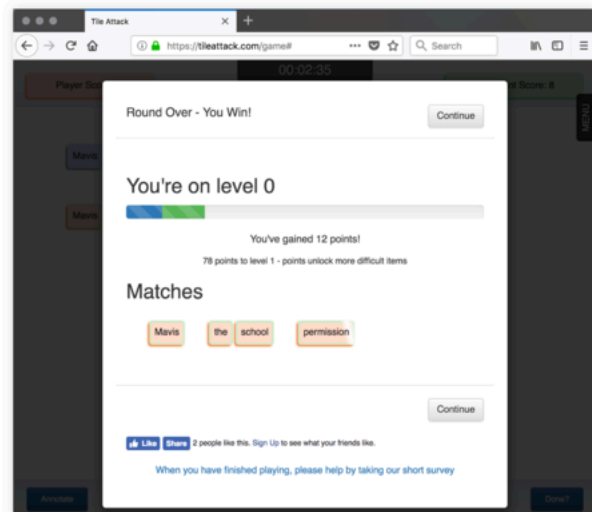
TileAttack is highly adaptable

- any sequence labelling task (nested or not nested)
- any language
- this is just about any language task!

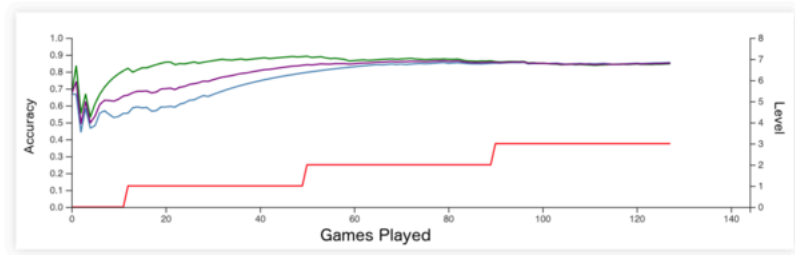
Once they have progressed past the tutorial, players play against:

- each other (a replay of another player)
- a pipeline
- or an aggregation of players

We do not use pictures in game, they learn from each other, by feedback comparing their moves



As they learn, we increase the difficulty of the sentences they are presented with



TileAttack players already do really well, after majority voting:

- Players get 89% F1
- Non-experts get 85% F1 (some of whom English will not be their first language)

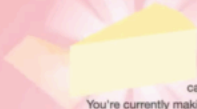
But we can do better!

We're experimenting with a game to train players on some basics before they reach TileAttack...

WordClicker is another web-based mobile-friendly game. But much easier to play, and far more game like...

WordClicker Bakery

\$25



cakes: 1/second

You're currently making: \$1/second

With all ingredients, you could make: \$7/second

Purchased Upgrades

Items can be purchased from the upgrade shop

Pantry - click on an ingredients jar



Find the Nouns...

There is also the Desert Rose (adenium obesium) which looks like a blooming elephant leg .

Upgrade Shop

Available soon...

Sieve - 20 more ingredients from word cost \$25

??? cost \$120

??? cost \$400

??? cost \$1,000

Tutorial - step 3 of 15

In this business you make money by selling cakes. The more ingredients you have on your cakes, the more money you will earn per cake

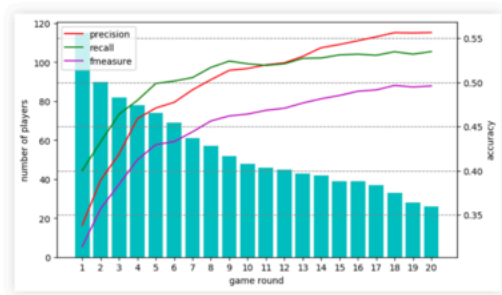


WordClicker gives the opportunity to train players on individual tokens

We're using it for part-of-speech tags (e.g. nouns, verbs, adjectives etc.)

But like TileAttack, it's highly adaptable...

WordClicker is starting to show impressive learning stats



(cumulative moving average)

It also appears gamers like WordClicker. Launched on Kongregate and Newgrounds:

- players spend over 29mins on average per session
- ~37 tokens marked on average for lifetime of play

Key Points

- TileAttack
 - Multiplayer
 - Sequences of tokens (nested & non-nested)
- WordClicker
 - Singleplayer
 - Individual tokens
- Both web-based
- Both highly adaptable
- Both demonstrate good player learning