



In the second of a series
of articles on how science
fiction is influencing research
in linguistics, **Hannah Little**
focusses on zombies...

The talking dead

In 'Babel-on 5' (in Babel No23), I alluded to the many examples of linguistics influencing science fiction. However, most of the obvious examples involve aliens and their weird and wonderful communication systems in fictional worlds. People rarely think about zombies and their droning. The lack of complexity in zombie's speech may make them seem a lot less interesting from a linguistic perspective. However, sometimes it is just as interesting to look at instances where language is not present or vastly restricted as it is to look at fully-fledged, complex systems.

In 2014, neuroscientists Bradley Voytek and Timothy Verstynen, in their book *Do Zombies Dream of Undead Sheep*, considered what zombies might teach us about how our brains work. They argue that the evidence points to zombies being poor at high-level processing due to brain damage. This means that while a zombie may be able to hear you, they won't necessarily be able to focus on what you are saying, especially in a noisy environment where other zombies are moaning loudly. This goes for language production as well. Even if a zombie is able to form a thought that they wish to communicate, they won't necessarily be able

to form that thought into a coherent utterance.

Knowing that zombies struggle to verbalise, in 2005, a game developer called Kevan Davis made a zombie apocalypse game call Urban Dead. This is an html-based massively multiplayer online roleplaying game where players are either 'survivors' who try to kill zombies and stay alive, or 'zombies' who try to kill survivors and eat their brains. Most people start off as a survivor, but if you are killed, you become a zombie. In the game, while alive, players can interact as normal with other living players who are in the same location as them. They do this by using a simple chat box. So, if we're both in the cemetery, I can simply chat in English (or any other language) about our plans. However, this is not so straight forward if you are a zombie: even if a zombie is able to form a thought that they wish to communicate, they won't necessarily be able to form that thought into a coherent utterance.

In Urban Dead, when you become a zombie your ability to use language is vastly restricted. Even if you type a sentence of plain English into the chat box, the game translates the text into 'death rattle'. This is a simple set of rules that include (but aren't limited to) replacing

all vowels except 'a' with r, deleting all characters other than zhrgbmna ..? – and replacing 'a' on its own with hra. As a result of these restrictions, several coded languages have emerged (e.g. Zombish and Zomeso) that simply replace banned characters with combinations of allowed characters. For example, 'a, b, c, d, e...' become A, B, ZZ, GB, HA... However, translating these coded languages takes attention and time and isn't immediately parseable without a lot of practice. As a result, another language, which uses a phonemic orthography, has emerged – Zamgrh. Zamgrh was originally bootstrapped by knowledge of English, but has since developed its own syntax, simple morphology and phonological rules!

The use of artificial languages to investigate how languages come about and evolve is becoming more and more common in linguistics. These experiments get people to learn small artificial languages made up by linguists, which are designed to explore how specific linguistic features in languages come about and change; for example, teaching two people similar but different artificial languages and looking at how they accommodate to each other when they come into a communicative context.

These experiments, for the most part, use very simple languages and short time frames, and are conducted with only two or three participants in the lab. The results from these experiments can tell us a lot but are not easily extrapolatable to large scale language-use at the level of a population. Large online multiplayer games, such as Urban Dead, may provide a new method of investigation that helps to look at language use in bigger populations. In these games, thousands of participants interact with one another, showing how language can spread and change using far more people than we could ever get into a lab. In Urban Dead, the communication channel is restricted, and while it's difficult to imagine what real world phenomenon this might provide a model for, some very interesting patterns have emerged in the language.

Some patterns found in Zamgrh have similarities with those found in pidgin or creole languages. For example, in Zamgrh there is no difference between present and past tense, and negation is employed by using *nah* before a verb. This is similar to how Tok Pisin, an English-based creole spoken in Papua New Guinea, negates verbs by simply adding 'no' beforehand. Also, like Tok Pisin, pronouns in Zamgrh show no case (e.g. *ma zambah* can be used for 'I' or 'me'). These parallels are likely to come from the pressures of a small vocabulary. In pidgin languages, this comes from a limited amount of shared lexical items between two populations. In Zamgrh, this is because of the constrained phonemic limitations, making very few words possible while being recognisable as their English counterparts. Once a

word has been used in the game, and understood, players are then much more likely to use that word and allow context to dictate its meaning, rather than trying to establish a more specific word. For example, players have used *babah* ('baby') to mean 'little', 'son' and 'prince' and *b!rg* ('bird') has been used to mean 'helicopter' and 'aeroplane'. Further, established words can be used in compounds to communicate new meanings. For example, *azz* ('ass') and *bag* ('bag') combine to make *azzbag* ('seat'); *agz* ('axe') and *barn* ('building') combine to make *agzbarn* ('firestation'), and *bra!nz* ('food') and *barn* ('building') combine to make *bra!nzbarn* ('restaurant'). Understanding these words when they haven't been used before becomes easier as there are a limited number of things that it would be relevant to talk about in particular locations or situations in the game.

Previously, it has been hypothesised that small language populations use more context-dependent language, because in tightly-knit communities people have a lot of shared knowledge. Zamgrh may help us shed light on whether relying more on context dependence is not only the result of shared knowledge, but also the result of smaller phoneme inventories allowing for less productivity in the language.

Unfortunately, there is not an extensive corpus of zombie speech available, as Urban Dead was not designed as a data collection method for linguistics. However, there is an online Zamgrh dictionary, as well as a small corpus containing some naturalistic zombie discourse and a small number of translated texts, including the poetry of Robert Burns (*Rabar Barnz*) and Beowulf on the Urban

Dead wiki. The wiki also has a grammar of Zamgrh written by linguistically-minded players. Of course, the metalinguistic discussion on the wiki will have influenced the development of Zamgrh, which would perhaps affect the findings if this was a controlled linguistic experiment, though understanding the role of metalinguistic texts in language change is interesting in its own right. However, despite its shortcomings, this case study shows us how a massively multiplayer online roleplaying game, should it be sufficiently engaging, may be a useful tool for investigating mechanisms of pidginisation, linguistic bootstrapping, context dependency and conventionalisation, possibly providing useful models of how these processes may happen in real world languages.

Should a virus ever evolve that turns us into zombies, it will undoubtedly affect our linguistic abilities. While it will be a shame to lose some of our eloquence with words, and lose some loved ones along the way, I think us linguists can take some comfort in knowing that we can use the zombie apocalypse as an opportunity to help us collect data that is relevant to understanding human language. In the meantime, though, we can focus on what the worlds of fiction and gaming can teach us, especially when the data is already there. ¶

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