

## Language investigation: Language and technology

*'Alexa, suggest a new Language Investigation'*

From Alexa to Siri, Amazon Echo to Google Home, human-computer interaction is increasingly becoming part of our everyday lives. Whether it's asking Alexa to give you the weather forecast or asking Siri to give you some local restaurant recommendations, more and more of us are interacting with so-called 'virtual assistants'.

However, given the relative recency of these devices, there is very little research which documents the types, styles and characteristics of human-computer interaction. Are these interactions comparable to other forms of everyday communication with humans? Or are they more like a separate genre of communication? All of these questions remain largely unanswered, such that examining human-computer interaction presents the perfect opportunity to create a unique and topical Language Investigation of your own!

### Finding a focus

A good place to start is to observe people interacting with their smartphones or smart-home enabled devices. You might want to choose one device and focus on that. For instance, this could be Alexa if you know someone who has a device in their home or it could even be observing how someone in your family interacts with the Satellite Navigation system (i.e., the Sat Nav) in the car. At this stage, you're simply interested in getting a sense of how people use these systems. Eventually, you might want to restrict this focus and start thinking about the type of *language* used in these interactions. The following questions and features might help you get started on this:

- **The use of pronouns:** When reporting what the device said, do people use the gender-neutral third-person pronoun 'it' as is often used in relation to animals and objects (e.g., **it** said go left!)? Or, do people prefer to use the third-person pronoun 'she' or 'he' (e.g., **she** said go left)?
- **The style of requests/questions:** How are the requests and questions aimed at the assistant formulated? Do they seem more or less like requests/questions that are aimed at your friends or family?
- **Responding to conversational issues:** What happens when the personal assistant is unable to recognise the users' request? How do people respond? Are these reactions more or less like how people respond to issues in human-human interaction?

For the rest of the investigation, we will focus on 'responding to conversational issues' as an example to help you think about your own research.

## Gathering data

To examine the unique ways people communicate with personal assistants, you may first want to observe everyday interactions between some of your friends to get a sense of how human-human interaction works. Once you've got your friends' permission and consent to participate in your project, you could observe and record some of their conversations. In the current analysis, we're going to focus on looking at how people respond to 'conversational difficulties'. This could be things like when an individual doesn't understand the reference of what someone else is talking about or when an interlocutor mishears what someone has said. For instance, in the following exchange, Ali mistakenly hands Marie a ratchet rather than the spanner she requested.

Marie: Can you hand me that spanner, please, Ali?  
Ali: [mistakenly hands Marie a ratchet]  
Marie: Uh, no, sorry. That's a ratchet. Can you please fetch me the spanner?

The above example is just one instance of a 'conversational issue'. But, by recording more and more, you'll be able to get a sense of the patterns that emerge. Once you've collected data for the human-human interactions, you should go about recording similar interactions between humans and personal assistants. Here, you might choose to observe how individuals interact with a personal assistant. What happens when the personal assistant is unable to fulfil the request? Do people respond more or like how they do in everyday communication?

**Note:** Make sure you collect a similar amount of data to enable you to compare and contrast accurately!

## Analysis

Great – you've got your data! Now, time for the analysis. Here, you want to be looking for *patterns*. A good way to start is to compare and contrast conversational difficulties in human-human interactions with those in computer-human interactions. Think about the following:

- **Language choice:** What types of words are they using? Are they formal or informal?
- **Style of response:** Do people respond more politely? Do they use words of gratification e.g., 'please' and 'thank you'? Do they use hedging to seem more polite (e.g., "oh, I'm sorry, I meant Tower Bridge)?
- **Repetition:** How many times does the person have to repeat the request before it's successful? How is the repeated request different from the first request? Do they repeat the same utterance but more loudly or in a different tone?
- **Other interlocutor involvement:** Do speakers involve others to help assist in the conversational difficulty? Do other speakers become involved?

You may want to quantify (i.e., count) some of these things if you're interested in doing a *quantitative* (i.e., numerical) analysis. For instance, you could count how many times

politeness devices (e.g., ‘please’ and ‘thank you’ are used in requests across the two contexts of interaction. You could set out your data in a table which provides a clear indication of how the two genres are different or more alike. An example is given below:

Politeness device	Context	
	human-human	human-computer
<i>please</i>	1	3
<i>thank you</i>	6	1
<i>hedging</i>	2	0
TOTAL:	9	4

### Interpreting the data

The next step is interpreting the data – in other words, what does this all mean! For example, in the table above, it shows that there are more ‘polite’ interactions in human-human interaction than in human-computer interaction. This is an observation that is worthy of explanation! What could these patterns mean? What does the use of more politeness devices in human-human interaction vs. computer-human interaction symbolise? Think about the status of computers and technology and interpret these patterns based on the existing literature and your own interpretations.

Finally, since we are comparing and contrasting the two types of interactions, you should start to think about whether these two contexts are similar or dissimilar to one another. What might these patterns tell us about human-computer interaction? Is human-computer interaction more like other interactions or does it look more like a separate genre?