Linking topoi in argumentative dialogue to personae

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In recent years we have seen an increased interest in combining sociolinguistic theory and method with insights and techniques from formal pragmatics and dialogue modelling. This is characteristic of the third wave of sociolinguistics, as discussed in Eckert (2012), where focus is not only on variation in a population, but also on *social meaning*, that is how sociolinguistic variation interacts with individual language users' creation and projection of identity in particular situations. One example of this line of research is Burnett's (fthc) work on social meaning using game theory, which relates personae to sociophonetic variation.

The method proposed by Burnett provides a way to account for choice in non-deterministic dialogue games, as demonstrated in Breitholtz and Cooper (2018) where games are used to predict which type of argument an agent involved in interaction would choose in a particular context.

In this paper we suggest that a persona can be modelled in terms of the *topoi* (Ducrot, 1988) associated with that persona. This enables us to extend the account in Breitholtz and Cooper (2018) so that the use or acceptance of an argument underpinned by a particular topos in argumentative dialogue affects not only the likelihood of similar arguments being employed or accepted in the continuation of the discourse, but also the probability of dialogue participants projecting a particular persona. The perceived persona in turn affects the perceived probability of a language user employing or accepting/rejecting topoi that are not necessarily related to the original discussion. Connecting personae and topoi also allows us to provide an extended account of *dogwhistles* (Henderson and McCready, 2018) that ties in with existing work in formal pragmatics and rhetoric drawing on topoi.

The idea of coordination of linguistic action as a kind of game is well established in the philosophy of language and psycholinguistics (Austin, 1962; Lewis, 1969; Clark, 1996). Burnett (fthc) employs signalling games (Lewis, 1969) to model how use of one of two speech varieties varies over contexts, depending on the persona the speaker wishes to project. On Burnett's account, contextually relevant properties make up personae which may be more or less advantageous for a speaker to project in a particular situation. For example, the use of the variant *-in'* of the verbal -ING morpheme in English is associated with friendliness, but also with incompetence. The allomorph *-ing*, on the other hand, is associated with competence, but also with aloofness. Combinations of these properties make up personae. The speaker chooses a message (in this case a variant of -ING) in order to increase the likelihood that the listener will associate the speaker with a particular persona.

Burnett's model provides a mechanism for deciding which strategy to choose in a number of dialogue situations where several strategies are possible. This technique may be employed in any kind of non-deterministic update of a discourse model. We suggest combining this kind of game with *interaction games* in TTR, a type theory with records (Cooper, 2014; Breitholtz, 2014; Cooper, in prep). Thus, For each non-deterministic transition in a TTR game there is a signalling game in the style of Burnett to help you make the choice. That is, if you have more than one update function defined for the current state of the interaction game, you need a signalling game to choose between them. The probabilities associated with the different options are computed by a game referring to the mental states of the speaker and addressee.

When arguing in relation to some goal, a speaker presents arguments. These arguments are usually *enthymematic*, that is, they rely on the addressee to supply additional information. Enthymemes are underpinned by topoi, commonly accepted ways of reasoning. For example, if a speaker suggests a

restaurant she might also supply a reason for suggesting it that ties in with topoi acknowledged and accepted by the addressee. When choosing what topos to base her argument on, the speaker estimates the attitudes of the addressee. This involves, among other things, estimating prior likelihood of the addressee being convinced by arguments drawing on that topos.

We think of a persona as a collection of topoi intuitively associated with a certain type of person such as a "hippie radical" or an "investment banker". We then calculate the estimated utility of using a particular topos as underpinning for an enthymematic argument on the speaker's perception of the audience's persona (that is, whether it includes the topos or not).

Henderson and McCready (2018) draw on Burnett's account of personae to model *dogwhistles*, words or phrases that carries one meaning available to all participants of the target group, and an additional social meaning which is only available to a subgroup. Dogwhistles are often used in political discourse to communicate a controversial message which is well liked by a part of the audience but which does not appeal to the majority of the target group. For example, if someone is an evangelical Christian, they might associate a word such as *miracle* with christianity, and thus respond positively to it, while a non-religious person might not think of this word as religious and thus not react negatively to it.

On Henderson and McCready's account personae are associated with properties which decide to what degree a dogwhistle will be recognised by someone projecting a particular persona. If we instead think of personae as associated with topoi, we explain directly why different members of the audience of an utterance may draw different conclusions on the basis of that utterance.

Acknowledgements

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