

Multimodal Markers of One's Own and the Other's Vagueness

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Abstract. The paper presents some works on the area of vagueness, including the connected mental states of hesitation, hastiness, word-search, and the properties of knowledge such as precision and specificity, and overviews the reasons to be vague and the verbal and body signals that typically communicate one is being vague. Then a qualitative study is presented on how a Speaker multimodally communicates that he himself or the Interlocutor is being vague. On a corpus of four political debates and a judicial debate, the words, gestures, facial expressions and gaze are analyzed through which the Speaker either acknowledges his own vagueness or accuses the Interlocutor to be vague.

1 Introduction

Communication is a way to socially interact with others and to exchange information. Therefore, as stressed by the Principle of Conversation [1], when people talk they are reciprocally committed to convey each other the required and pertinent quantity and quality of information. Sometimes, though, people may have themselves (or be willing to convey) less information than their interlocutors expect: what they communicate may not be sufficiently specific or precise, but rather be generic or vague. In this case, if the Speaker is aware, at least to some extent, of such vagueness or lack of specificity either in one's own or in the other's talk, s/he may explicitly alert interlocutors on this; in other words, one may metacommunicate that ongoing communication is generic or vague, that is, either to acknowledge one is being so oneself, as if apologizing for one's violation of Griceian norms, or to remark the other's vagueness or unspecificity, stigmatizing that violation. On the other hand, when the Speaker wants to go more in detail or to provide more specific information, s/he may again signal s/he is keeping at a higher level of specificity or precision. Previous works ([2]; [3]; [4]; [5]) have analyzed the verbal and gestural signals that are used by speakers to metacommunicate their own vagueness or unspecificity; others have tackled the signals of precision ([6]; [7]; [8]; [9]).

In this work we analyze the multimodal arrangement of such signals, that is, not only words and gestures, but the expressive or communicative signals of the whole body (gaze, facial expression, head movements, posture) in two cases: when the Speaker acknowledges or anticipates his own vagueness or unspecificity, but also one's

attempts at more specificity or precision, and when the Speaker remarks the Interlocutor's vagueness. Section 2 provides an overview of previous works, section 3 a definition of the phenomena of vagueness, unspecificity, specificity, precision, and other connected mental and communicative states like hesitation and hastiness, and sections 4 and 5 present a qualitative analysis of the multimodal communication of one's and others' vagueness in a corpus of political debates.

2 Works on the Notion of Vagueness

The notion of vagueness has been mainly investigated in philosophy ([10]; [11]) by posing the Sorite Paradox: how many sand grains make a "sorite", a heap of sand? [12] sees it as stemming from the Speakers' knowledge limitation. In Linguistics it is seen as a typical property of language, seen as a lack of clear-cut boundaries between categories ([13]'s continuous transition between cups and bowls), that leaves room for a permanent feasibility to creativity and innovation [14].

In cognitive terms, vagueness is defined by Poggi & Vincze (2012) as a property of knowledge and consequently a property of a Speaker's communication: a lack of detail in what one knows and / or communicates about something. So vagueness differs from uncertainty, since we may have a vague knowledge, a vague idea, a vague memory of something, but still be certain of it; and it is the opposite of precision, defined as having beliefs on each specific aspect of a topic. Again, vagueness is different from approximation, a lack of precision concerning quantitative aspects of the topic, and having to do with measuring quantities or intensities, as opposed to vagueness that concerns qualitative aspects of an object and has to do with describing. In communication, one may be vague – that is convey vague knowledge to others – either because one has a vague knowledge oneself (one really cannot be precise), or because one deliberately chooses to convey what one does know precisely only in a vague way. In this case, vagueness is a tool for reticence and deception. Other mental states in the area of vagueness were defined by Vincze et al. (2012). Hesitation is an action of waiting, of deliberately taking time, before doing something, due to total lack of knowledge on what to do, or to indecision between two or more actions, and it may occur in various phases of the communicative process, due to word search, indecision on whether and how to communicate, and reticence. Hastiness, on the contrary, is the goal of not losing time while doing something, and may induce the goal of being vague not to waste time in lengthy definitions or descriptions.

3 Signals in the Area of Vagueness

Beside characterizing the mental states in the area of vagueness, [3] defined as "vagueness signals" all those words, gestures, postures, facial expressions that convey the meaning "I am being vague", that are used during discourse any time the Speaker wants to convey that s/he is being less detailed or accurate than Grician norms prescribe.

They distinguished the gestures of vagueness from those of word-search, approximation, hastiness, and they singled out their characterizing features. “Vagueness gestures” generally use a basic and easy handshape (*open hand, curve fingers, generally no protruded fingers*), and *curve movement trajectory*; they are generally *repeated*, they have the shape of a *circle* or a *cyclic form*, and involve movements of *outward rotation* (as opposed to the oscillation of approximation gestures), with *low muscular tension* and *high fluidity*. They are sometimes accompanied by *eyes looking upward* or *sideways*, typical of someone who has not yet found the right concept, or by a grimace with *lips lowered* conveying “I don’t know”.

“Approximation gestures” instead generally involve an *oscillation of head and hands*, with *open stretched hands*, sometimes with *spread fingers*.

In general, four categories of gestures were distinguished as to movement trajectory: vagueness (fuzzy-round), approximation (oscillatory), word search (rotating) and hastiness gestures (jerky). Vagueness and word search have the rotating movement in common, but while in vagueness the rotation is loose, in word-search it is more rapid (possibly due to irritation for not finding the right word and/or to time constraints in conversational turn-taking). Sometimes, within the same gestures category uses different gesture parameters: typically when the Speaker has a vague knowledge himself, vagueness gestures tend to be *loose* and *slow* with *averted gaze* (*eyes up* in the sky or *lowered* often with *tight eyelids* possibly conveying effort in focusing), while when s/he deliberately decides to remain vague and allusive, the movement is *rapid* and *tense*, with *direct eye contact* and sometimes *smile*. In non-deliberate vagueness, *loose* and *slow* gestures typically occur either in absence of vocalizations or accompanied by a prolonged *mmmmmm* sound, signaling the ongoing cognitive process while trying to shed light on the vague remembrance, and *sentences* are sometimes left *suspended*. In deliberate vagueness the last preceding vowel is prolonged or a [ə] is produced.

[4] provided a comparative analysis of the words in the area of vagueness in English, Swedish and Italian. They found that the three languages use very similar means to express vagueness related phenomena, and in all three cultures vagueness is a property that can be ascribed to objects, perception, understanding and language. Vagueness related expressions are often found together with word search, hesitation and hastiness; some speakers use them deliberately, while for others, they seem to become more habitual and do not imply reflection: for example, the words *typ* in Swedish or *like* in English, expressing lack of categoricalness and openness to change and consensus.

Relying on the fact that often a Speaker signals one’s vagueness both through words and vagueness signals in other modalities, [5] in their analysis of vagueness in political discourse, used their list of Swedish words of vagueness to detect cases of vague communication and parallel body signals.

4 One's Own and the Other's Vagueness

As mentioned above, according to [2] there are two main reasons why one should deliberately decide to be vague: either one does not know details about the topic (*no power*) or one does have detailed information, but does not want to provide it to the listener (*no goal*). In the former case, the speaker lacks information necessary to be precise, in the latter, the speaker deliberately decides not to provide information relevant to the interlocutor but possibly harmful, either for the Interlocutor himself (take the case of serious diagnoses), or for oneself. If this is the case, the speaker may be guilty of concealment of relevant information, i.e. of deceitful behavior ([15]; [16]).

Whether the omission is purposely deceitful or not, the speaker tries to play details off as something non important for the goals of the present conversation and suggests to move on and address more important issues.

That is why it is sometimes difficult to distinguish between the two cases and the listener may sometimes be in doubt whether to question the speaker's good will or not¹.

Actually, while the works overviewed have mainly analyzed vagueness gestures of a Speaker that metacommunicates one's own vagueness, [2] suggest that sometimes people use gestures to convey that their interlocutor is vague. Of course, this is quite a different case: while the Speaker when acknowledging one's own vagueness is in some sense apologizing with the Interlocutor, on the other hand, when stigmatizing the Interlocutor's vagueness s/he is in a sense accusing him/her of deliberate vagueness and possibly deceptive reticence.

In this work therefore vagueness research is widened with respect to previous studies:

1. by analyzing the overall multimodal arrangement of vagueness communication during discourse, and
2. by focusing not simply on signals communicating the Speaker's own vagueness, but also those remarking the Other's vagueness.

5 Multimodal Signals of One's Own and the Other's Vagueness

To find out vagueness signals concerning the Speaker's and the Interlocutor's vagueness we conducted a qualitative observational study on a corpus of political debates.

5.1 Method

¹ Although deceitful vague communication is a fascinating field, in this paper we let alone the distinction between vagueness *no goal* and vagueness *no power* and we reserve it for a forthcoming publication. This paper focuses on how one's own vagueness is presented versus how is the other's vagueness perceived.

We applied a “body-to-verbal” observational method: without listening to the verbal content, we looked for body signals characterized by morpho-semantic features of vagueness (according to the vagueness parameters found by [2; 3]). After having singled out loose, rotating and fuzzy body signals, we checked the plausibility of their interpretation as vague in the verbal transcription. For each case, we analysed the body signals of vagueness in terms of their physical production, their meaning, and their goal.

5.2 Corpus

We analyzed four political debates from the Swiss Canal 9 SSPNet corpus [17] of forty minutes each approximately (41.11 minutes: Right to file for appeal debate; 20.50 minutes: Free circulation debate; 40.31 minutes: Olympic Games debate; 42.12 minutes: Héliiski debate) and one Italian trial “Mani Pulite” (Clean Hands) where politicians were prosecuted for bribery (20 minutes). The items singled out were analyzed by two independent coders. For gestures we annotated the parameters of handshape, orientation, location, movement, and the expressivity parameters of amplitude, velocity, fluidity, repetition; for gaze, the annotated features were eye direction, eyebrows and eyelids position and movement; for mouth, position and movements of the lip parts. Then each signal, parameter of a signal, or combination of signals, was attributed a meaning, verbally rephrased as “I am being vague” versus “You are being vague”.

5.3. Speaker’s Vagueness

The most frequent reason why a Speaker acknowledges his own vagueness, by words and/or other signals, is that s/he thinks that giving precise details on a certain topic, and hence searching his memory for quantitative data, or one’s lexical memory to find the right word, is not very relevant in ongoing discourse, and it would be a waste of time.

Let us look at the example extracted from the *Right to file an appeal* debate in the Canal 9 corpus where participants argue on the right of environment associations to file an appeal to court. In the video, on the left side the two more radical participants are located, while on the right side we have the green politicians. In the following example, Mr. Carruzzo, the secretary of WWF Valais, begins his speech in defense of environmental associations by saying that only a “minimal minority” (*infime minorité*) of the appeals to court is filed by environmental associations. When the moderator asks him what does “minimal minority” mean to him, Carruzzo states that it is 16%, but he is immediately contradicted by his opponent, Mr. Nantermod, Vice-President of the Young Radicals, who states it is 18.8 %. Carruzzo then replies:

- (1) Debate ‘*Droit de recours*’ (*Right to file an appeal*)
06.53 Carruzzo: *Alors ça, ça dépend à quel niveau on calcule la chose, si c’est au tribunal fédérale, les tribunaux cantonaux, enfin, vous savez qu’il y a plusieurs instances de recours... Donc, disons, moins de vingt pour cent. Voilà, je serai généreux, je dirais moins de vingt pour cent.*

(So it, it depends at what level one calculates the thing, whether it is at the federal court, at cantonal courts, anyway, as you know, there are several instances of appeal. Therefore, let's say, less than twenty per cent. Look, I'll be generous, I would say less than twenty per cent).

While saying: '*Alors ça, ça dépend à quel niveau*' ('Well it, it depends on what level'), he *points downward with his index finger* (an abstract deictic gesture ideally indicating the levels one is considering), then with *thumb and index making open pincers*, he *rotates his wrist twice*, thus making a double deictic gesture that alternatively indicates one level by his thumb and one by his index: he means that one may oscillate between considering either level.

Carruzzo is not able to answer the Moderator's question with a precise number as his opponent just did (eighteen point eight per cent) so he states that numbers might differ according to the level (federal, cantonal) the issue is considered. His intonation is typical of someone who is enumerating several instances of the same type: federal, cantonal. The enumeration is suddenly interrupted by the utterance '*enfin, vous savez qu'il y a plusieurs instances de recours*' ('anyway, as you know, there are several instances of appeal'), concomitant to a rapid eye closing and a head turn, symbolically signaling a turn in discourse as well.

The adverb '*enfin*' signals a speaker's attempt to fast-forward through the issue and evade interlocutors' explicit precision requirements. '*Enfin, vous savez qu'il y a plusieurs instances de recours*' might be translated into English by 'Whatever/anyway, as you know, there are several instances of appeal'.

As mentions [18], the adverb '*enfin*' can have, according to the context, different meanings. A first meaning is one of a logical conclusion, summarizing what it has been said so far. It could be translated into English by 'in a word' or 'to sum up' and in Italian by '*in conclusione, insomma*', like in the following example: '*Il y avait les parents, les frères, les oncles, enfin toute la famille*'²

By extension, '*enfin*' has also been used to mark the end of a long wait, carrying the affective value of relief after moments of anxiety and concern: '*Enfin les voilà!*'³

Since the 20th century, '*enfin*' has also been used to rectify, make precise what has just been said '*Elle est blonde, enfin plutôt rousse*'⁴ [19] or introducing a resigned conclusion: '*Enfin, on verra bien*'⁵ [19].

We see therefore how stating '*enfin*' is the result of a long wait (here, a wait due to trying to remember the precise number of appeals to court), which resulted in impatience, even irritation, and at last, resignation. This sequel of emotions ending up with resignation determined the speaker to adopt the goal of not wasting further time on this matter. He therefore settles with a vague statement to offer to the interlocutor and dumps the issue by a hasty '*enfin*' [3]. By stating '*enfin*', Carruzzo signals that the matter has been, in his opinion, solved (as much as possible) and there's no need to further insist on this topic.

2 (Engl.) There were the parents, the brothers, the uncles, in a word/to sum up, the entire family. (It. C'erano i genitori, i fratelli, gli zii, insomma, la famiglia per intero).

3 (Engl.) Here they are, at last! (It. Eccoli finalmente qua!)

4 (Engl.) She is blonde, I mean, rather ginger. (It. E' bionda, o meglio/anzi, rossa).

5 (Engl.) Anyway / whatever, we'll see. (It. Insomma / Vabbè, vedremo).

Here *enfin* works as a signal of hastiness – I do not want to bother listing all of them – while making reference to the fact that his Interlocutors may know this (*vous savez*) which exonerates him from listing. Carruzzo then concludes: “*Donc, disons, moins de vingt pour cent*” while *rotating his head and his right hand*, both *disons* (= let’s say) and head and hand gestures being signals of approximation.

The following example is extracted from the Canal 9 debate “Heliski”, concerning the detrimental influence of helicopter skiing on the environment and nature-lovers. As in most debates, the protagonists are four: two in favor of and two against helicopter skiing. When the Green politician Darbellay (against) asks the helicopter pilot Pouget (in favor) about the number of flights, Pouget evades the answer, invoking the irrelevance of the issue for the present discussion.

(2) Debate ‘*Heliski*’

Pouget: On peut parler plus tard du nombre des vols que l’on fait en héliski, qui n’est pas si important que ça.

(We might talk later about the flights we made in héliski, which is not that important here).

While stating that the issue is unimportant, he *closes his eyes for longer than a blink*, metaphorically passing over the irrelevant topic. His *eye-closure* conveys: “let me pass over this for now”. As the issue is instead considered very relevant by his opponent, Pouget’s vagueness might be seen as an attempt to evade the question and not to provide information that is relevant for the interlocutor but goes against his personal interests.

The last example in which the Speaker acknowledges his own vagueness is extracted from the Canal 9 debate on the 2006 Olympic Games held in Turin. Sion, the city of Valais (Switzerland) where the debate is held, was one of the candidate host cities of the 2006 Olympic Games. Below, the President of Sion, Mr. Mudry, has to answer the Moderator’s question on the citizens’ fears and worries concerning the organization of such an important sport event in their city.

(3) Debate ‘*Jeux Olympiques*’ (Olympic Games)

06.04 Mudry: *Ecoutez, il y a des craintes qui se sont se sont exprimées un petit peu initialement.*

(Listen, initially there was a little bit of fear).

While stating that there was a little bit of fear (*un petit peu*), he performs a *quick oscillating gesture*, which reminds the windscreen wipers’ quick action when cleaning the windscreen from little unwanted insects or dirt. The gesture starts with the *right hand open oblique*, a variant of the *two open hands* gesture showing bare hands and conveying the meaning of ‘nothing’. The meaning of the concomitant verbal message ‘*un petit peu*’ is corrected by the meaning conveyed by Mudry’s body behaviour – reduced from little to nothing. At an indirect level, reducing something is diminishing the importance of even mentioning it.

The *right hand open shaking* (resembling windscreen wipers) communicates « unimportance », while the rapid movement conveys hastiness.

The adverb '*initialmente*' (initially) comes to support the fact that it is no longer important to address the issue, as the fears were only a few and only at the beginning, so they are completely gone now and not worth being taken into account anymore.

The speaker's entire multimodal behaviour (body and speech) transmits his goal of not wasting any more precious time on these irrelevant issues.

As we saw, all three examples above have in common a speaker presenting the issue as irrelevant and unimportant, which entitles him to fast-forward and move on to other more relevant aspects. Here we do not care whether the issue is actually irrelevant or whether it is presented so only because it is against speaker's interests. Our aim here is only to show that when the speaker answers precise questions in a vague fashion s/he may invoke unimportance and irrelevance as excuses for his hasty behavior at the service of his final goal of not wasting time with irrelevant issues.

5.4. The Other's Vagueness

While the acknowledgment of one's vagueness by the Speaker sounds somewhat like an apology or a self-justification for not going into detail, remarking on the Interlocutor's vagueness has the flavor of an accusation.

This is very clear in the prototypical examples of judicial debates, where remarking the other's vagueness equates to accusing him of deception, and vagueness of the respondent may be seen as a cue to his being reticent or misleading.

In the following example extracted from the Italia trial Clean Hands, The prosecutor Di Pietro (DP) is trying to demonstrate that the accused, the politician Cirino Pomicino (CP), received 5 billions Italian Lire from the company manager Mr. Ferruzzi for the election campaign of his party. CP says that the day after the elections Ferruzzi came to his home at 7.30 in the morning, and that he did so just because seven months before he had promised Mr. Sama he would meet Ferruzzi.

DP, to imply that CP did know he was committing some illicit thing, ironically remarks it is strange that Cirino Pomicino received Mr. Ferruzzi at his home at 7.30 in the morning, and, moreover, that this was only because, 7 months before, he had been committed to meet Ferruzzi, and not because he was to thank him for granting 5 billions for the election campaign!

(4) Trial '*Mani Pulite*' (Clean Hands)

DP says: *Il vero impegno che aveva preso questo signore era di ringraziare, di sdebitarsi di un impegno che aveva preso col dottor Sama a giugno di sette mesi prima.*

(The real commitment of this gentleman was to thank, to pay off his debt of something he had been committed to with Mr. Sama in June of seven months before).

Di Pietro's words say: "*un impegno che aveva preso col dottor Sama a giugno di sette mesi prima*" (a commitment with Mr. Sama he had been committed to in June of seven months before). Prosodically, he stresses the words "*a giugno*" (in June), uttered with a raising, therefore suspensive intonation, and after a pause he utters "*di*

sette mesi prima” (of seven months before) with a *falling, conclusive intonation*. Moreover, “*a giugno*” is pronounced with a voice of high pitch and intensity, as if imitating the voice of the accused in a parodistic way. Imitating another’s voice is a typical cue of reported speech [20] and parody – i.e., imitation that stresses the ridicule features of the imitated thing or person [21] – is a way to communicate one’s ironic intent [22].

In the visual modalities, while uttering “*a giugno*” DP raises both hands in C shape over his head, with fingers touching and then moving apart in a relaxed way: he thus depicts an oblong shape up in the air, an iconic gesture resembling a cloud. But a cloud bears a metaphor of vagueness, so the ultimate meaning of this gesture is “something vague”. At the same time, DP looks up at his hands, as if pointing at something in the sky with his deictic gaze. This also means “cloud”, with its connected metaphor of “vagueness”. By this DP wants to imply that “June of seven months before” is too vague a time, and too contrasting with a strict commitment, to deserve inviting someone at 7.30 a.m; in this case his implying vagueness equates insinuating a suspicion of deceit in CP’s words: he actually implies that the promise to Sama was not CP’s true commitment; the true one was to thank Ferruzzi for the 5 billions granted to his party for the elections.

While in this example the Speaker utterly remarks the Interlocutor’s vagueness as a cue to deception, in the following the Speaker attributes him vagueness to imply that the certainty with which he states something is an exaggeration.

The following example is extracted from a debate between two politicians: Mr. Bender and Mr. Freysinger, the former in favor and the latter against immigration of Polish citizens to the Swiss canton of Valais. Mr. Freysinger has just referred to Polish’s arrival as an invasion and his opponent, Mr. Bender replies:

(5) Debate ‘*Libre circulation*’ (Free circulation)

Bender: *Est-ce que vous pouvez me dire, parce qu’on parle d’invasion...*

(Bender: Can you tell me, given that you speak of invasion...)

While saying ‘*on parle d’invasion*’ (you speak of invasion), the Speaker Bender ridicules the Interlocutor’s exaggerated fear, by *drawing rapid and imprecise circles in the air with both hands, with gaze up as if looking at clouds* (a metaphor of blurred shape). By his body behavior (Fig. 1 and 2), the Speaker communicates that his Interlocutor’s argumentation in support of his thesis of invasion is vague. By demonstrating the Interlocutor’s vague argumentation, the Speaker communicates at a second level that his Interlocutor is exaggerated in calling invasion the Polish’s arrival to the canton of Valais and dismisses his irrational fears.



Fig. 1. Mr. Bender drawing rapid circles in the air, with gaze up as if looking at clouds.

Accusing the Interlocutor of digressing, getting off the point, is also an instance of vagueness accusation. The Italian terms *vaghezza* (vagueness) and *divagare* (to digress) have the same root, therefore we can say that digressing is distancing oneself from the point of the talk, while being precise is getting to the point.

In the debate ‘Right to file an appeal to court’, the young Radical Nantermod accuses one of his opponents of mixing all issues, trying (intentionally or not) to lead the argument off track.

(6) Debate ‘*Droit de recours*’ (Right to file an appeal to court)

28.50 Nantermod : *Parce qu’on mélange le droit de recours qui est un point particulier sur la législation sur l’environnement et d’autres choses comme parlez-moi de la taxe CO2 qui n’a strictement rien à voir avec le droit de recours.*

(Because you mix up the right to file an appeal to court, that is a particular point concerning the law about the environment, with other things like – like tell me what – the CO2 tax, that has strictly nothing to do with the right to file an appeal).

While saying: “*comme parlez-moi de la taxe CO2* », the Speaker’s *hands rapidly go from right, left and upward*, meaning that the Interlocutor is floating between things that are not at all connected : therefore, accusing him of digression and non-pertinence.

6 Conclusion

We have described six cases in which the Speaker mentions his own or the other’s vagueness: three cases in which a Speaker acknowledges his own vagueness and three in which he accuses the Interlocutor to be vague. Some peculiarities can be listed that distinguish the former from the latter cases. In acknowledging one’s vagueness, the speaker averts his gaze from the interlocutor, as if to recollect one’s thoughts by looking elsewhere, or rapidly closes his eyes, and utters words of minimization, resignation or hastiness like Fr. *enfin*, Eng. *anyway, let’s say*, It. *vabbè, comunque*. In accusing the other of vagueness, instead, the Speaker’s gaze is fixed on the interlocutor – an accusation gaze – speech rate is high, hands move in the air fast and jerkily. Vagueness accusation gestures often exploit the metaphor of something

floating, difficult to grasp or to catch, immaterial, like air or clouds: something not in the realm of reality, but in a fluctuating, imaginary realm. They are gestures opposite to those of precision, that on the contrary convey the idea of picking something minuscule, metaphorically speaking, a detail; but also to gestures representing a channel, a metaphor for strict borders and precise direction.

We tend to be more tolerant with our own vagueness, while we stigmatize and parody the other's.

Vagueness and hastiness are recurrent phenomena in communication and they can sometimes be a cue for deception. Paradoxically enough, according to how 'trained' a deceiver is, he can both be agitated and hasty in his telling of the story, or he can keep cold blood and evade certain important details. Therefore, detecting hastiness or vagueness in the interlocutor's speech is an essential goal of any agent. Creating a conversational agent capable of singling out, one the one side, rotatory and fuzzy body signals (such as rotatory loose hand gestures) accompanied by the prolongation of the last vowel, or on the other side, 'screen wiper' rapid gestures accompanied by fast-forwarding adverbs such as 'anyway' or 'whatever' and an increase in speech rate, can be a valuable tool in detecting possibly deceitful behavior.

Acknowledgments. The research presented is supported by SSPNet Seventh Framework Program, European Network of Excellence SSPNet (Social Signal Processing Network), Grant Agreement N.231287. We are indebted with Jens Allwood, Elizabeth Ahlsén and Francesca D'Errico for intriguing discussions on the notion of vagueness and its function in discourse.

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