# I am definitely certain of this!
# Towards a multimodal repertoire of signals communicating a high degree of certainty

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## Abstract

When talking to other people, speakers do not only communicate their beliefs but also their degree of commitment towards such beliefs, their "epistemic stance", and they do so by means of both verbal and body markers.
The paper presents an analysis of the body markers that speakers use to convey high certainty and obviousness of the beliefs communicated while exposing detailed knowledge falling into their professional expertise to an audience of peer hearers. In a corpus of 42 video abstracts where doctors and medical researchers orally illustrate their scientific findings, two signals of high certainty (*headshake* and *eye-closure*) and two of obviousness (*Palm Up Open Hand* and *shoulder shrug*) are analysed from a semantic and cognitive point of view. The differences and relationships among these body markers and their verbal concomitant markers, along with their semantic nuances, are illustrated in depth.

## 1. Introduction

In everyday interaction speakers are invited, often even compelled, to display their knowledge on a different range of topics. Yet, given the important function of communication as exchange of beliefs, one does not only have to provide the information one knows, as required by the cooperative principle (Grice 1957), but also to make it clear how confident one is in stating something. Such meta-information concerning the beliefs conveyed has been studied in various research domains, and called "degree of certainty" in cognitive models of communication (Castelfranchi & Poggi, 1998; Poggi, 2007), and "epistemic stance" in Linguistics (Dendale and Tasmowski 2001; De Haan 2001; Kärkkäinen 2003; Cornillie 2010; Marín Arrese 2011; Zuczkowski et al., 2017).

Epistemic stance has been defined as the degree of commitment (or confidence) of the speaker towards the validity of the communicated information. If the speaker's commitment towards the truth of the information to be communicated is medium or low, the speaker adopts an uncertain epistemic stance; if such commitment is high, the speaker's epistemic stance is certain. Epistemic stance hence concerns the ways speakers comment on the possible accuracy or credibility of a claim, the extent they want to commit themselves to it (Hyland 1998). As Hyland (1998) notes, speakers must calculate what weight to attribute to an assertion, perhaps claiming protection in the event of its eventual overthrow.

Speakers and writers can hence decide to withhold complete commitment to a proposition, allowing information to be presented as an opinion rather than an accredited fact. A low degree of commitment can be communicated by means of morphosyntactic or lexical resources: for instance by "hedges" like *possible*, *might* and *perhaps*. Hedges, therefore, imply that a statement is based on plausible reasoning rather than certain knowledge, indicating the degree of confidence it is prudent to credit to it (Hyland & Tse 2004).

On the opposite pole stand "boosters", i.e. lexical markers of the speaker's absolute certainty, communicating a speaker's high level of certainty and commitment towards the communicated belief. Boosters allow writers to express their certainty in what they say and to mark involvement with the topic and solidarity with their audience (Hyland 2005). They underline the writer's conviction in his argument, or stress shared information and group membership.

The role of hedging and boosting is well documented in academic writing as communicative strategies for conveying reliability and strategically manipulating the strength of commitment in order to achieve interpersonal goals (Hyland 2005).

Along with *verbally* expressing their high commitment towards the communicated belief, speakers deploy a variety of *body* and *voice signals* to convey their level of certainty and possibly boost their social image as knowledgeable and authoritative speakers.

Although the encoding of epistemic stance has constituted a widely debated topic in linguistics, traditional studies in this field have focused predominantly on how speakers use *lexical* and *morphosyntactic features* to convey their commitment towards the communicated belief (Dendale and Tasmowski 2001; De Haan 2001; Kärkkäinen 2003; Conrad & Biber 2000; Hoye 2008; Cornillie 2010; Marín Arrese 2011; Zuczkowski et al., 2017, among others). Far fewer studies have adopted a multimodal perspective where verbal resources are integrated with *voice, facial and body signals* for a *multimodal* analysis of a speaker's overall commitment (Dijkstra et al. 2006; Debras & Cienki 2012; Mondada 2013; Roseano et al. 2014; Ricci-Bitti et al. 2014; Jehoul et al. 2017).

The present study aims to widen the traditional perspective adopted by works in the field of epistemicity by investigating speakers' *multimodal communication of epistemic stance*. Namely, our particular concern here is with the multimodal communication of speakers' *certainty*. More precisely, the goal of our work is to analyse the signals of certainty performed through body behaviours, namely hands, face and shoulders.

## 2. Boosting one's certainty by means of words and gestures

So far research in linguistics has mainly focused on the communication of *uncertainty*, and gave less attention to the communication of the *certain* epistemic stance. The reason for this must be the fact that the certain stance is typically conveyed by unmarked declarative sentences (Simon-Vandenbergen & Aijmer 2007; DeLancey 2001). Studies on Italian speakers demonstrated that unmarked declaratives suffice to convey information considered certain (Bongelli & Zuczkowski 2008), while certainty adverbs are generally used not only to convey the speaker's degree of commitment to his beliefs, but have to do with the ways speakers want to position themselves in current discourse, for instance as engaged and expert speakers (White 2003; Simon-Vandenbergen & Aijmer 2007).

For example it is shared knowledge that the politicians' role is to persuade their audience, and since to express knowledgeability and certainty is part of their roles as persuaders, the expression of knowledgeability and certainty can indirectly be a cue to social identity or authoritativeness (Simon-Vandenbergen 1996). A speaker may emphasize his certainty and authoritativeness by using high certainty markers (boosters) like *clearly*, *obviously*, *demonstrate*, but also multimodal markers, whose role is to underline the speaker's conviction in his argument and boost speaker's reliability.

The communication of epistemic stance (both certain and uncertain) in health context has so far been mostly focused on *written texts* (Salager-Meyer 1994; del Olmo 2014). *Oral communication* was generally investigated in *asymmetric* contexts like doctor-patient interactions (Peräkylä 1997; Douglas & Heritage 2005; Landmark et al. 2015). To our knowledge, so far no study has approached doctors' multimodal communication in a *symmetric* context. The present paper analyses doctors' and medical researchers' multimodal communication of certainty and authoritativeness while orally illustrating their findings to a public of *peers*.

## 3. Corpus and Method

To investigate body signals of certainty, in a corpus of 100 video-abstracts where medical researchers orally illustrate their findings published in the British Medical Journal[1], with the aim of a more rapid dissemination of their research to peers, we selected 40 videos (for a total of 186 minutes) in which authors speak freely in front of the camera, without reading from a script. The speakers are gender-balanced (62 speakers, 28 females and 34 males) and, with the exception of 3 males and 3 females, all native English Speakers.

Our aim was to find out to what extent upper body movements, hand and facial gestures (i.e. *shoulder shrugs*, *palm up open hands*, *headshakes* and *eyelid closure*) play a communicative role in conveying speaker's high commitment towards the communicated beliefs. Body signals informing on the speaker's

1 The British Medical Journal invites authors of research papers to record a short video abstract (4-5 min in average) for publication alongside their papers. Video abstracts enable authors to explain their research findings in person, increasing the reach and understanding of their work. The videos are published on bmj.com with their articles and on multimedia (www.bmj.com/multimedia) and YouTube (www.youtube.com/user/BMJmedia) channels.

certainty towards the communicated beliefs were hence singled out and analysed. The video corpus was annotated for each participant's *shoulder shrugs*, *palm up open hands*, *headshakes*, and *eyelid closures* lasting longer than a *blink*; this was done with sound off to avoid possible biases based on the content of co-occurring speech. The videos were then viewed with audio on, to check whether the selected body signals actually bear those meanings, with the help of co-occurrent speech and interactional context. Each signal was described as to its parameters of shape and movement, its verbal context and co-occurring body communication was annotated, taking note of the combination between two or more concomitant signals; then the meaning assumed in that context was considered. Finally, the signals were grouped in terms of their meaning: certainty and obviousness.

## 4. High certainty vs. Obviousness

Within the signals by which the Speaker displays high certainty, we may distinguish two classes:

1. signals of high certainty, by which the Speaker claims higher epistemic status than the Hearer, since the information presented falls more in his territory of information (Kamio 1994) – i.e. the speaker is more certain than the hearer about the truth validity of such information
2. signals of obviousness: the information presented presumably falls at the same degree into both Speaker's and Hearer's territory of information, and the Speaker in some sense makes appeal to the Hearer's acknowledgement.

In the following we list the body markers of high certainty and obviousness.

## 5. High certainty markers

Speakers tend to communicate their high certainty concerning the delivered information by means of verbal or body signals that we call *high certainty* markers. They employ such markers when they assume that their statements may raise surprise or doubt in the hearer, and they have the goal of persuading the hearer of the truthfulness of their statements, as well as of their own reliability and trustworthiness as sources of information.

Since a different epistemic status between speaker and hearer is presupposed in this case, here the emphasis is on the speaker's commitment to the stated information, on his epistemic status and, in general, on the speaker as an authoritative source whom the hearer is invited to trust.

### 5.1 The "intensity headshake"

A first signal communicating a speaker's high degree of certainty is the *headshake*, defined as *rotating one's head horizontally*, either *to the left or the right, and back again, one or more times*, the head always returning finally to the position it was in at the start of the movement (Kendon 2002).

So far *headshakes* have not been seen in terms of epistemic markers but as signals conveying negation (Ekman & Friesen 1969; Kendon 2002; Robinson & Heritage 2015) or alternatively as indexing intensification and inclusivity (Goodwin 1980; McClave 2000).

*Headshakes* assume a function of **intensification** when used in association with positive evaluative statements (such as *'what a marvellous sunset'* – to use Kendon's 2002 example). This association between head shakes and "intensified" positive assessments has been previously noted by Schegloff (1987), Goodwin (1980), and McClave (2000), the last two scholars suggesting that an intensification headshake should be treated differently from "negation" headshakes and rather be regarded as an "assessment marker". Kendon (2002) instead claims that even the intensity headshake gives expression to a negative: if one says *"what a marvellous sunset!"*, the implied negative is: "No sunset is more marvellous".

While we totally agree with Kendon's view, we argue that this type of "intensity headshake" can be seen as an intensifier of the speaker's degree of commitment to the asserted belief. In other words, shaking one's head while stating *"What a marvellous sunset"*, does not only imply that "no sunset is more marvellous", but in our opinion also conveys the speaker's total commitment to this belief.

The "intensity" *headshake* that displays high certainty can have two different meanings, of *quantity* and of *intensification*, revealed by the concomitant words. Throughout our corpus of videoabstracts, we found a total of 15 instances of *headshakes* co-occurring with both **quantifiers** (such as *many; a lot of; dozens; several; over 80%; a wide range of*) and **intensifiers** (such as *very, particularly, by far, best*).

Let us see some examples of *headshakes* accompanied by quantifiers:

*(1) There is **many many**[2] clinical trials done on medications so people should stick to their medications but not think that that's enough 'cause what we have found is you can do so much more […].*

(2) *[…] and I think that it has **a lot of** ehm applicability.*

All the co-occurent quantifiers communicate a large quantity of something and the speaker's belief that "it is a lot". In fact, according to Johnson (1987) the likely basis for the *headshake* co-occurring with quantifiers is the speaker's referring to a collection of things taking up more than one point in space. This is why, as proposed by Birdwhistell (1966), such *headshakes* may work as a *pluralization marker*: a high quantity of something can be conceptualized as taking up more space, and such ampler space translates into an ample lateral rotation of the head.

Yet, in our corpus *headshakes* also co-occur with **intensifiers** such as *very*, *particularly*, *by far* or *best*. *Very* and *particularly* add the modified adverb or adjective a meaning of "stronger" or "more intense"; *best* is a superlative, while *by far* makes a superlative adjective even stronger.

*(3) Age is **by far** the most important risk factor for zoster.*

We argue that the very fact of intensifying the adjectives in one's sentence may work as a signal of a speaker's high commitment towards the truth value of the stated belief, probably because the high intensity of some phenomenon does not leave room for any doubt about its existence. For instance, i n example (3), along with the message that age is the most important risk factor for zoster, the speaker also conveys her total commitment to this belief. Both the *headshake* and the lexical item *by far* (a synonym of *undoubtedly*) are indicators of epistemic strenght. As Kendon (2002) would put it, in saying *"Age is by far the most important risk factor for zoster"*, the implied negative here is: "There is no risk factor that is more important". Like in the sunset example, the *head shake* makes reference to that implied negation, but also conveys the speaker's high certainty in saying so.

According to McClave (2000), the broader concept of **inclusivity** is needed to account for the lateral sweeps co-occurring with lexical items such as *whole* (or *any* and *every* which we encountered in our corpus in addition to *whole*). As McClave puts it, "to intensify is to add more of something, thus increasing it in energy, volume, or number. More of something is conceptualized as taking up more space, at least metaphorically, so in this way the concept of intensification is related to the concept of inclusivity" (McClave 2000:7).

These forms of intensification and absolute inclusivity communicate a speaker's high certainty in the communicated belief, possibly aiming at persuasive goals through inducing increasing certainty in the listener as well. As shown, for instance, in the overuse of superlatives and intensification in charismatic leaders (Poggi & D'Errico, 2016), this might depend on the fact that stating a high level of something may contribute, in many cases, to communicate a high commitment towards the stated belief.

Our point is that starting from the original meaning of the *headshake* as an intensifier of events in the world, there is a shift in meaning towards intensifying a belief on the Speaker's mind (Poggi 2007). More precisely, from meaning "it is a lot", the *headshake* starts to work as an epistemic indicator of the speaker's high degree of certainty, finally meaning "it is very much so". By *shaking his head*, the sender communicates that he is highly committed to the stated belief, and possibly does so to persuade the addressee of the truth validity of such belief.

### 5.2. Eye-closure

The same meanings conveyed by *headshakes* (**quantitative intensifier** and **epistemic indicator of speaker's high degree of certainty**), can be conveyed by another body signal: *eye-closure*. The two body signals, *headshake* and *eye-closure*, can occur either concomitantly or independently.

Vincze & Poggi (2011) proved that some closings of the eyes (*winks* and *eyeclosure*) during speech are communicative, i.e. carry meaning. The *eye-closure* is a closing of both upper and lower eyelid, lasting longer than a physiological *blink* (defined as a *rapid closing of the eyelids and return to eyes open*, simply aimed at keeping the standard humidity of the eye); a *wink* is a unilateral closing of eyelids.

*Blinks* and *eye-closures* differ in duration and tension: *blinks* are brief, *eye-closures* are longer. *Eye closures* are often characterized by tension (or pressure) in the eyelids.

2 In all the cited examples, the words concomitant to the body signal under analysis are highlighted in bold.

These gaze signals may occur both in the speaker and in the listener: by means of an *eye closure* the speaker conveys the strenght of his commitment to his own belief, while the listener, producing a *headnod* accompanied by *closed eyelids*, conveys his strong agreement with the speaker's beliefs. Accompanying one's *nodding* or *headshaking* (as a signal of either negation or intensification), by an *eye-closure* conveys a higher degree of commitment with respect to the *nodding* or *headshaking* alone (Vincze & Poggi 2011). Such eyelid signal may be paraphrased as "Absolutely, I am very certain of this". The *eye-closure* hence adds to the meaning of "yes" for the nod (or "no" for the negation *headshake*) an element of "categoricity", i.e., a high level of certainty and commitment to one's beliefs.

Same as *headshakes*, *eye closures* occur with both quantifiers (in our corpus, with *many, three million, widely)* and intensifiers (*even more*).

In the examples below *eye-closures* co-occur with quantifiers.

> *(4) Electronic health records are linked by **many** countries for medical research.*

> *(5) We used a research data set from the Calibre programme which links four sources of health information on over **three million people** in England.*

In both cases, the speakers *close their eyes* for longer than a *blink* while referring to big quantities (*many countries* and *over three million people*). While the *sweeping of the head* in *shakes* might iconically represent the speaker's referring to a collection of things taking up more than one point in space (from where the necessity of turning one's head to visualize them all in a row), the *eye-closure* while mentioning numerically challenging groups, might evoke the speaker's closing his eyes in order to mentally picture such high quantities (large quantities need more time to be visualized).

Same as *headshakes*, *eye closures* can also work as epistemic indicators of speaker commitment, like in the following example where the speaker signals her strong commitment to the belief that linking records with other data sources is highly valuable for research by means of a long *eye-closure*.

> *(6) […] the recent linkage in general practice records with other data sources means that they are **even more** valuable for research.*

To sum up, quite in a parallel fashion, *headshakes* and *eye-closures* co-occurring with quantifiers convey the **meaning** of **high quantities** ("it is a lot"**)**, while *headshakes* and *eye-closures* co-occurring with **intensifiers** function as epistemic indicators of the **speaker's high degree of certainty** ("it is very much so", "it is absolutely so"). Throughout our corpus of videoabstracts, we found a total of 5 instances of eyeclosures, 2 co-occuring with intensifiers such as *even* and *very* and 3 with quantifiers such as *many*, *widely* and *three millions*.

## 6. Obviousness markers

Sometimes a speaker communicates to the listener that the information he is delivering is not only certain, but in a sense, over-certain, definitely obvious. In other words, not only is the speaker himself certain of that belief, but he is also certain that the listener too is already in possession of that information. While a piece of information presented as highly certain falls more into the speaker's territory of information than into the listener's (i.e. the speaker is entitled to be more certain than the listener about the truth validity of such information), information presented as obvious presumably falls at the same degree into both speaker's and listener's territory of information: speaker and listener have equal epistemic status.

As pointed out by Goodwin (1979), Sacks (1992), Stivers et al. (2011), interactants generally have good command over who can be expected to know what. Although the BMJ videos are addressed to a large audience of hearers that speakers are not personally acquainted to, the fact that hearers are peers (hence assumed to hold similar epistemic status as the speakers), allows speakers to safely assume what listeners are expected to know. As a matter of fact, in our corpus speakers often present their statements as being **obvious**, undebatable, unquestionable, hence already known to both speaker and hearer. Interestingly enough, acknowledging the hearer already knows about some issue is useful to the speaker in backing his own point of view (I acknowledge you because you must undoubtedly think the same as me).

### 6.1. The Shoulder shrug: "it is obviously so"

The *shoulder shrug* is a bodily booster communicating obviousness – hence implicitly speaker's high degree of commitment towards his own statements. This signal – *shoulders first raised and then going back down to their initial position* – is a polysemous item that may assume, in different contexts, quite diverse meanings, such as: obviousness; ignorance (lack of knowledge); and non intervention (either because of carelessness or powerlessness) (Jokinen and Allwood, 2010; Debras and Cienki, 2012; Debras, 2015).

For the purpose of our study we will only look at the first type of *shoulder shrug*, the one conveying the obviousness of a state of affairs. In line with Debras and Cienki (2012), we believe epistemic shrugs can work both as an *individual epistemic stance marker* (boosting speaker's own degree of commitment towards the stated belief – corresponding to our **high certainty markers**) and as an *intersubjective epistemic marker* (marking the shared knowledge between speaker and listener, or between speaker, listener and the rest of the world – both corresponding to our ' **obviousness markers**). Here are some examples extracted from our BMJ corpus.

### *6.1.1. The shoulder shrug as an individual epistemic marker* of *high certainty*

We encountered cases of shoulder shrugs that convey speaker's high certainty when the speaker talks about the results of her/his studies. Here we have a speaker who conducted six pooled studies with over 3500 women and found that screening in healthcare settings doubled identification of partner violence, particularly in antenatal settings.
The speaker goes on saying that:

> (7) *Overall, this represents* ***an absolute benefit*** *of forty-three per thousand screened women.*

Her *shoulder shrug* can be interpreted as a booster of speaker's high certainty that such result is beneficial.

### *6.1.2. The shoulder shrug as an intersubjective epistemic marker*

Shoulder shrugs are usually intersubjective markers indicating shared knowledge either between the speaker and the listener, or between speaker, listener and rest of the world. The latter type of shrug refers to a doxic knowledge (common belief, popular opinion), and might be paraphrased as "everybody knows it". Like in the following example, where a doctor talks about safe criteria to diagnose miscarriage.

> (8) *What our data shows is that if you do that [bring people back for a scan], you are possibly going to have a false positive diagnosis, in a small number of cases, we are talking about a small number or cases. But remember, you know,* ***there should be no errors*** *over something as important as this.*

What the doctor says is that when scanning women twice for miscarriage, it is possible, in a small number of cases, to have a false positive diagnosis, i.e. to diagnose a miscarriage when there has actually not been one. While sending the warning *"but remember,* ***there should be no errors*** *over something as important as this"*, the speaker *shrugs his shoulders* and *smiles*. The *shoulder shrug* conveys the obviousness of his statement, while the *smile* can be attributed to having realized that his warning was so obvious, predictable and expected that it was unnecessary to even mention it: it works as a self-ridiculization, meaning something like "I feel stupid even mentioning it".

In other cases, the information occurring concomitantly with a *shoulder shrug* falls in the territory of information of speaker-and-listener working in the same field (professional expertise). In the following example, the speaker *shrugs her shoulders* while stating that old patients are more at risk of harmful effects of breast cancer treatment, hence implying that such information is also shared by her peer listeners.

> (9) *Breast cancer screening has been under debate for many years because despite the fact that it may save lives due to early detection, it may also result in a proportion of over diagnosis and over treatment and this is especially so in older patients because it has been shown that old patients are at increased risk of* ***harmful effects of treatment****.*

The meaning of the *shoulder shrug* (whether of obviousness, ignorance or carelesness) can be disambiguated either by the parameters of the *shrug* itself (e.g. an *asymmetric shrug* – one shoulder only – generally conveys speaker's carelessness and non implication on the issue talked about), or by other

concomitant signals such as the *Palm Up Open Hand* gesture (*PUOH*), (Müller 2004; Kendon 2004; Streeck 2009). According to Streeck (2009), who considers *shrugs* as "compound enactments" with *PUOH* as a component part, a prototypical *shrug* involves several body parts: raised eyebrows, the hands turned so that the palms face up; the forearms generally lifted, and raised shoulders.

Whether we consider the *PUOH* as a gesture on its own, as Müller (2004) and Müller & Cienki (2008) do, or a component of the *shoulder shrug*, as Streeck (2009) does, the *Palm Up Open Hand* often accompanies the shrug in communicating obviousness. Throughout our corpus of videoabstracts, we found a total of 14 instances of shoulder shrugs, of which 1 accompanied by a PUOH gesture.

### 6.2. Palm Up Open Hand (PUOH[3])

The *PUOH* gesture, which has a configuration of *palm open*, *fingers extended* more or less *loosely*, *palm turned upwards*, often used with a *downward movement or turn of the wrist and a hold* in the end, can have two different meanings. Speakers from different cultures use *PUOH* to communicate either obviousness or lack of knowledge. According to Müller (2004), such opposite meanings derive from two domains of action: (1) giving, showing or offering an object by presenting it on the open hand and (2) displaying an empty hand, where the empty hand indicates the fact of not having something and openness to the reception of an object. A core difference between the two domains of actions is that in the first one the hand is full, i.e. a metaphoric object (like a fact or a speaker's thought) is lying there on the open hand, whereas in the second one the displayed hand is empty.

We will focus on the first meaning conveyed by the *PUOH* gesture, which thanks to the metaphor of a hand whose palm is open and visible to everyone, typically conveys that what the Speaker is saying is so evident as to be obvious.

> *(10) Breast cancer screening in general has been under debate for many years because despite the fact that* ***it may save lives*** *due to early detection, it may also result in a proportion of over diagnosis and over treatment.*

While saying *it may save lives* (due to early detection), the Speaker performs a *Palm Up Open Hand* gesture (*PUOH*), communicating that she considers such information as given and highly certain for both herself and the audience of peers.

The *PUOH* can occur either independently (as in ex. 10), or simultaneously with another body marker conveying obviousness: the *shoulder shrug*. In ex. (11), the same speaker from example (10) explains what a successful breast cancer screening programme implies, namely that the detection of early stage tumour increases, while as a consequence of that, the incidence rate of advanced tumours decreases. She performs a *PUOH* gesture concomitant to a *shoulder shrug* while saying:

> (11) *So* ***this is actually a key condition*** *for a successful screening programme.*

The two body signals convey the obviousness of her statement: what a successful screening programme should do is detecting tumours while still at an early stage.

## 7. Conclusion

This paper has presented some work aimed at outlining a repertoire of signals which, in verbal and body modalities, convey information on how certain the speaker is of the beliefs s/he is delivering. Two main classes of signals have been overviewed: signals of **high certainty** proper, that is, epistemic boosters, when the beliefs at issue fall in the ***speaker's*** territory of information; and signals of **obviousness**, when they fall in both interactants' territory, and the speaker in a sense makes appeal to knowledge shared with the listener and hence taken for granted. In our opinion, both types of signals – of *high certainty* and *obviousness* – convey similar degrees of speaker certainty, what differs is *how speakers envisage the hearer's stance*. Namely, high certainty markers are used when speakers tend to expect hearer's

3 Unfortunately, in most cases the videorecording focused on speakers' upper part of the trunk, leaving out the hands. This limitation of our corpus is the reason why we found only 2 occurrences of the PUOH gesture.

*disagreement*, *surprise* or *doubt* and they want to persuade him/her of the correctness or truthfulness of their point of view; while obviousness markers are used when speakers tend to expect *hearer agreement* upon the statement at issue.

Moreover, as already mentioned, in some cases the very act of presenting something as obvious may have a rhetorical value, in that it may be used by the speaker in a fallacious or manipulatory way: s/he pretends something to be obvious to avoid the burden of proof and to skip more accurate investigation on the part of the listener, as well as and to exhibit a high (fake) self-confidence. If this is the case, our hypothesis is that the same signals of obviousness might be used both in this last, manipulatory case, and in the sincere case, i.e., when the speaker really believes the topic or argument at hand is obvious. Yet, further study is needed to test this hypothesis.

The signals we have overviewed, namely uses of *headshakes* and *eye-closure* to signal high certainty and uses of *Palm Up Open Hand* and *shoulder shrug* to signal obviousness, as already mentioned, do not convey only the meanings illustrated here, but they are polysemous signals, often bearing different, sometimes even opposite meanings. Subsequent work will analyse the whole polysemy of such signals, to set out their semantic differences and the common cores of meaning, or their cognitive links. In the same vein, future work will examine the multimodal combinations of signals that Speakers use to convey their confidence in the information they are communicating.

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