

# Communicative strategies in online video tutorials

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## Abstract

*This paper attempts to describe the emerging genre of online video tutorials as a type of social media genre, exploring the communicative strategies used by tutors. In order to establish to what extent the asynchronicity of speaker-audience interaction influences the means of interaction used, a comparative analysis was performed focusing on recorded lectures on differential and integral calculus (delivered to a present audience) and video tutorials on the same subject (intended for a mediated audience). The corpus consists of two subcorpora: one comprises full-length video tutorials available on YouTube, and the other contains excerpts of recorded lectures given at MIT. Having taken into consideration the importance of personal pronouns for the interactivity of a communicative act, the analysis examines personal perspectives both quantitatively and qualitatively. A modified version of Round's (1987) discourse-defined semantic mappings of *we* is employed; in order to organize the semantic categories, a person marking system used in cross-linguistic studies is applied. The actual referents behind personal pronouns are identified, and questionable examples are shown and discussed.*

*Keywords: video tutorial, social media, communicative strategy, personal perspective, actual referents, remote tutoring*

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## 1. Introduction

In recent years, remote tutoring has spread thanks to the availability of varied means of computer technology; a large number of educational videos can be found on video-sharing

websites. Since this relatively new educational tool is gaining popularity because of its convenience, it could be beneficial to analyse its success from the viewpoint of language.

English is being used as a lingua franca in the field of education; online tutorials are used globally, therefore their producers should expect a mixed audience, i.e. an audience including a considerable number of non-native speakers. In order to propose the features which might facilitate comprehensibility in video tutorials, two related genres will be compared: recorded lectures presented online and online video tutorials. Unlike video tutorials, college lectures are primarily conducted offline, and thus should show local features, which makes them a suitable referential group.

## **2. Video tutorials as a type of social media genre**

As stated by McFarland and Ployhart (2015), social media are digital Web 2.0 platforms that facilitate information sharing, user-created content, and collaboration among people (p.1654). The information posted to social media platforms may include anything that can be represented digitally – such as written texts, pictures, photographs, videos, memes, etc. A platform based on Web 2.0 technology is typical of all types of social media; this internet structure allows large numbers of users to share in the creation, manipulation, and distribution of content (*ibid.*). This particular feature distinguishes Web 2.0 platforms from Web 1.0 platforms and makes Web 2.0 more open and interactive; examples of Web 2.0 applications are YouTube, Facebook, Wikipedia or LinkedIn.

Video tutorials are available on YouTube, which is one of the largest user-generated content video sharing sites on the internet. YouTube allows users to upload videos and to create channels where viewers can choose from a playlist of the uploaded videos; then viewers can like or dislike the videos and they can also comment on them (as most videos enable this kind of response). As Saurabh and Sairam (2013) suggest, allowing individuals to interact through subscribing, posting comments and video responses, and sharing videos have made YouTube a very famous portal for user-generated content (p.3).

### **2.1 Social media context**

McFarland and Ployhart (2015) point out that “social media have radically changed the way people interact and communicate”; they further elaborate on this statement by arguing that “social media are not simply a technology but actually represent a context that differs in important ways from traditional (e.g. face-to-face) and other digital (e.g. email) ways of interacting and communicating” (p. 1653). Having conducted an extensive review of scholarly research on social media, McFarland and Ployhart focus on developing a theoretical understanding of social media features; they propose “a contextual framework that identifies the discrete and ambient stimuli that distinguish social media contexts from digital communication media (e.g. email) and physical (e.g. face-to-face) contexts” (*ibid.*). They describe a contextual continuum that ranges from physical to digital. While the digital end of the contextual continuum is occupied by social media that are human-constructed and immaterial, the non-digital end of the context continuum exists in the material world, a typical example being face-to-face interaction. Between these two poles are digital communication media, i.e. platforms based on Web 1.0 technology; examples

include email, text messaging or Skype. These are closer to social media, as they are human-constructed and digital. Because they are based on Web 1.0 technology, they do not enable members to manipulate content easily, and therefore they are considered to be more linear than social media. Figure 1 provides an overview of the contextual framework as set out by McFarland and Ployhart.

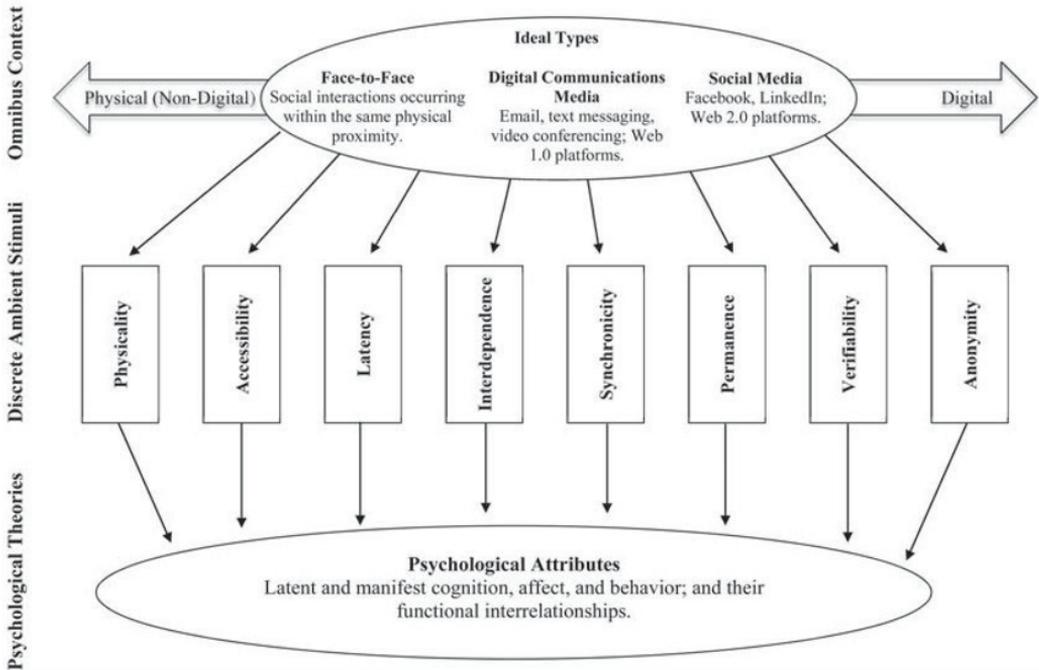


Figure 1: Theoretical framework of social media context (McFarland and Ployhart, 2015, p.1656)

## 2.2 Video tutorials described by the McFarland-Ployhart contextual framework

McFarland and Ployhart identify “eight discrete ambient stimuli that distinguish social media contexts from non-digital contexts and, to varying degrees, other digital media communication contexts: physicality, accessibility, latency, interdependence, synchronicity, permanence, verifiability, and anonymity”. In the following paragraphs, their classification will be briefly introduced and applied to the genre of video tutorials.

### 2.2.1 Physicality

The first stimulus distinguishing social media from physical contexts is *physicality*; McFarland and Ployhart note that geographic location and distance are irrelevant in social media contexts, as “the barriers of time and space are minimized, possibly even eliminated”. Physicality ranges on the contextual continuum from “tangible to all of the senses” to “digital”. As regards this stimulus, video tutorials can be considered to be digital “in

the sense that information is captured and presented in terms of bits or types of information that can be assembled into complex strings of information” (McFarland and Ployhart, 2015, p.1656). While face-to-face communication is potentially tangible to all of the senses, video tutorials provide only aural and visual perceptions to the receiver, so the genre is certainly closer to the digital end of the contextual continuum. Although the impression of the “realness” of the event is quite convincing, the digital nature of video tutorials is obvious when one realizes that the object is immaterial, i.e. it exists only within an artificial environment that is totally dependent on a source of energy.

### 2.2.2 Accessibility

Regarding *accessibility*, McFarland and Ployhart claim that “there is more open access to social media than other relationship or communication platforms” (1658, Table 1). In the case of video tutorials, the access is open to anybody (moreover, both for receivers and for producers of video tutorials), as the opportunity to join the network is not limited by any restrictions (provided there are no technical constraints). However, in some cases censorship has occurred, and YouTube has been banned in several countries.

### 2.2.3 Latency

Another factor specified while discussing the discrete context of social media is *latency*. This term refers to how long it takes to share content on a network; while in non-digital contexts the process might be rather slow, content shared by using social media platforms is available immediately. As regards video tutorials, sharing of content is nearly instant, as after being posted the video is immediately accessible to anyone using the platform.

### 2.2.4 Interdependence

*Interdependence* concerns the extent of sharing information; in social media, there are more opportunities to share information across a wider range of people than in physical contexts. This certainly applies to video tutorials, since the possibility of sharing content is virtually limitless. Interdependence, described by McFarland and Ployhart as “the manner in which member interactions are interrelated with each other” (1658), may range from *autonomous* to *intensive*, passing through stages of *sequential* and *reciprocal*. From this point of view, video tutorials consist of two parts, which despite influencing each other are very different. The major part of a video tutorial, i.e. the video itself, is *autonomous*, as its content can be changed only by the author. Nevertheless, most authors are interested in the comments of the receivers, and if they are informed about a mistake they can (and they often do) react by placing a correction notice in the video.

Regarding member interdependence, comments posted below the video part of a video tutorial might be placed somewhere close to the *reciprocal* point of the scale, as “a person’s output can be sent back to the prior individual for revision” (1658). However, since any interaction is visible and hence available to any other participant, its interdependence may be nearing the *intensive* degree. The interaction is two-way, and can be established between any members at any time; despite having this potential, video tutorials do not fulfil

it, as this feature of the video tutorial concept is not of primary importance to the genre.

### 2.2.5 Synchronicity

When it comes to *synchronicity*, it is obvious that video tutorials are asynchronous: all participants enter the interaction independently of one another as they are not temporally synchronized. This feature contributes to the convenience and consequent popularity of video tutorials as a learning tool.

### 2.2.6 Permanence

*Permanence* refers to how long the content posted on the social media system exists (McFarland and Ployhart, 2015, p. 1659). Video tutorials might be classified as permanent; theoretically, they should be able to exist indefinitely or even forever. Nevertheless, this feature is dependent on technical circumstances, as the data is stored on backup servers which might be damaged or destroyed.

### 2.2.7 Verifiability

The term *verifiability* is used by the authors to mean “the extent to which content or information can be checked or reviewed”. It does not mean evaluating the accuracy or truthfulness of the posted data; it only refers to the possibility “to determine what content was posted, by whom, when, and where” (McFarland and Ployhart, 2015, p. 1659). On the scale from “harder to verify” to “easier to verify”, video tutorials might be placed next to the latter end of the continuum as all the above mentioned questions can be easily answered (in the case of “who” at least, as a set of tutorials can be matched with a particular person).

### 2.2.8 Anonymity

The question “by whom was it posted?” leads to another concept, which is *anonymity*. When it comes to this factor, tutors either give their name or they choose to be semi-anonymous by using nicknames. However, even those using nicknames are easily traceable, and consequently identifiable, as they often use different networking services providing other clues regarding their identity – or the more popular of them give interviews and reveal further information regarding their personal life. By contrast, the receivers are mostly anonymous; those who choose to respond by adding a post can do so under their name or a nickname. Generally, there is greater anonymity than in physical contexts.

It seems that the notion of *synchronicity* deserves particular attention, as it may be the key factor influencing the communicative strategies employed in video tutorials. Therefore, the next section proposes two ways of approaching this issue; both are linked to the usage of personal pronouns, since the importance of personal pronouns as indicators of speaker-audience interaction has been emphasized by many scholars, e.g. Mühlhäusler and Harré (1990) and Fortanet (2004). Both quantitative and qualitative analyses are suggested and conducted in order to deal with the matter from various standpoints.

### 3. Communicative strategies discussed

In all video tutorials the audience is physically absent; therefore, all producers of video tutorials must somehow cope with the lack of feedback. In comparison with a lecture given for a class, where the participants share the same physical context of time and place, senders and receivers of the message in video tutorials are separated both temporally and locally, as they enter the interaction independently of the other participant(s). Hence, video tutorials share one significant feature: asynchronicity.

On the other hand, depending on tutors' choices, video tutorials differ in their non-verbal features, as the degree of visibility of the tutors varies considerably. While some tutors can make use of gestures and facial expressions, others can be seen just partially, so they resort to using their hands and support their verbal explanations by pointing; in some cases tutors can only be heard, so their performance is deprived of kinesics and they have to rely mainly on prosodic features such as rhythm, intonation, and stress. Based on the varying choices made regarding the tutorial setting, a question arises: Is there a correlation between the visual presence or absence of the speaker and the use of certain linguistic means? Moreover, going back to the asynchronicity, another question needs answering: Is there a difference in the use of interactional skills while addressing present and absent audiences?

#### 3.1 Material

The investigation draws on data taken from transcriptions of recordings available on YouTube. The corpus consists of two subcorpora: the first one includes four standard lectures given by lecturers at Massachusetts Institute of Technology (total length of the excerpts investigated in the present study: 40 minutes), while the second one 41 includes tutorials made by both professional and amateur mathematicians (total length: 5 hours 30 minutes). 21 speakers are involved in the entirety of the data, 16 male and 5 female; their age ranges from mid-twenties to mid-seventies. While each lecture features a different speaker, in the subcorpus of tutorials several samples can share one producer. Regarding the content of recordings, the corpus includes four sets of samples; each set deals with a different topic related to differential and integral calculus (e.g. implicit differentiation, u-substitution). However, the topics are similar enough to ensure homogeneity in the data.

All samples are divided into 5 groups (A, B, C, D, and E) in accordance with two criteria:

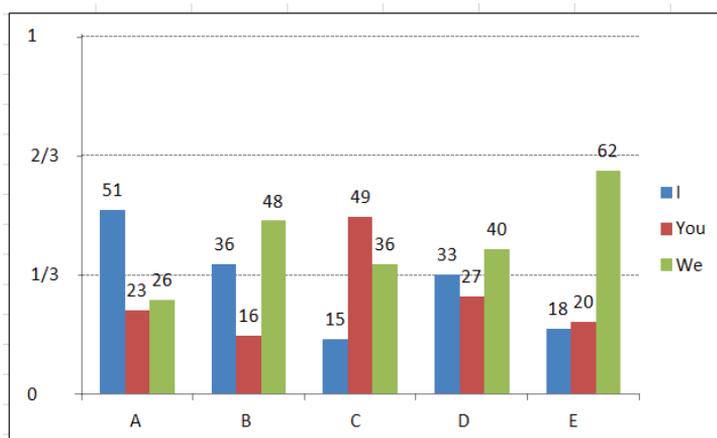
- 1) The first criterion was used to distinguish between the two subcorpora: in the first subcorpus the audience is present (group A), while in the second subcorpus (groups B, C, D, E) the audience is absent. Therefore, the asynchronicity of video tutorials is the main distinguishing factor here.

- 2) The second criterion is based on the degree of similarity to a standard lecture. The setting of tutorials in Group B resembles a lecture; Group C is characterised by an unusual setting, for example two windows, one with an emerging text and the other showing only the speaker's head, or the speaker is standing behind a glass board and maintaining eye contact while writing on the glass; in Group D only the speaker's hand is visible; in Group E there is no part of the speaker's body visible.

### 3.2 The quantitative analysis: method and results

To answer the questions posed at the beginning of this section, a comparative analysis of standard lectures and video tutorials was carried out; one of the means of interaction investigated was the direct speaker-audience interaction, namely the use of personal perspective (i.e. 1<sup>st</sup> and 2<sup>nd</sup> person pronouns sg/pl, the corresponding possessive pronouns, and commands). The method chosen is dependent neither on the number of words nor on the time. Obviously, speakers' choice of the perspective depends on their personal preferences. If just the active voice is taken into consideration, speakers can choose from three personal perspectives: *I*, *you*, and *we*. Theoretically, all of them can be employed evenly, which would assign one third to each perspective; in an extreme case (there is one sample of this kind to be found in the corpus) the speaker could use only one perspective. The numbers of occurrences concerning all the three perspectives are totalled, and the individual figures are expressed as a percentage of the total and rounded to integers. To facilitate the assessment, two border lines (i.e. one-third and two-thirds) are used, as this one-third approach has been set as an "ideal" distribution of personal perspective usage.

In Graph 1 the distribution of the personal perspective in all groups is shown. In Group A (comprising standard lectures), the *I*-perspective is preferred (51%), while the *we*-perspective prevails quite convincingly by nearing the two-thirds line (62%) in Group E (featuring an invisible speaker). Despite the diverse distribution of the personal perspective, in tutorials (groups B-E) the *we*-perspective is always used more often than the *I*-perspective. If the average of all the tutorials is taken, then the *we*-perspective is the most frequent, with 47%, and the *you*-perspective is used more often than the *I*-perspective – but the difference is not substantial (only 2%). The graph suggests a tendency towards the increasing use of the *we*-perspective while moving on the scale from the standard lecture setting with the audience present (26%) to the extreme form of the tutorial, in which the tutor's voice is the only human element present (62%). It seems that this increase has come at the expense of the *I*-perspective usage, as the use of the *you*-perspective stays almost the same (i.e. the change is just 3%).



Graph 1: Distribution of the personal perspective (figures above the columns show the average results found in each group)

### 3.3 Qualitative analysis: method and results

#### 3.3.1 Theoretical background and method

The quantitative analysis has shown certain trends in using personal perspective; nevertheless, there are other aspects that should be taken into consideration as well. Using the terminology suggested by Huddleston and Pullum (2002), not only the primary uses of personal pronouns (p. 1465) but also the secondary ones (p. 1467) should be investigated, and that means shifting the focus from the form to the meaning of the personal pronouns.

The considerably frequent occurrence of the *we*-perspective mentioned in the previous section is in accordance with Wales's assessment of *we* "as a useful linguistic mediator between speaker and addressee" (1996, p. 68). Wales also states that "the actual referents for *we* are seemingly limitless" (1996, p. 63) and stresses the dependency of its precise interpretation on the particular context of use (*ibid.*). Hence, the interpretation based on the context was pursued in the qualitative part of the analysis of speaker-audience interaction.

In the mid-1980s, Rounds conducted an empirical study of the language produced by teachers in American university mathematics classrooms. She claimed that teachers avoid 3<sup>rd</sup> person pronouns by redefining or remapping the semantic domains of 1<sup>st</sup> and 2<sup>nd</sup> person pronouns to include 3<sup>rd</sup> person and indefinite reference (1987, p. 14). She also proposed five sets of discourse-defined semantic mappings for the pronoun *we*. Two of them are the categories of *inclusive we* and *exclusive we*, which had already been widely accepted. Rounds added three more categories that show the actual referent behind the pronoun *we*: *we* used instead of *I*, *we* instead of *you*, and *we* instead of *one* (marked in this text as *we/I*, *we/you* and *we/one*, respectively).

Since the corpus consists of tutorials on differential and integral calculus and the tutorial is an educational genre, I decided to apply Rounds' classification to the samples. Nevertheless, it was necessary to modify Rounds' semantic categories in order to produce a clearer classification. Several systems of person marking have been proposed that could potentially be used, e.g. Cysouw's system shown in Table 1 (Cysouw, 2003, p. 74) or its modified version (Cysouw, 2010, p. 23), in which the author employs the notion of *extendibility*. Another suitable person-marking system was designed by Sokolovskaya in 1980, when she aimed to describe pronominal systems in terms relevant for all languages (in Filimonova 2005, p. 419) and elaborated a special meta-language for that purpose. Sokolovskaya differentiates between seven basic meanings (meta-persons, in her terms) that can be encoded in the pronominal systems: 'speaker', 'addressee', 'non-participant', 'speaker + addressee(s)', 'speaker + non-participant(s)', 'addressee(s) + non-participant(s)', 'speaker + addressee(s) + non-participant(s)'. For the purpose of modifying the semantic categories suggested by Rounds, Sokolovskaya's seven meta-persons seem to be applicable, as she identifies contrasts in persons independently of number; this might be a more viable way of classifying tutorials as the number of addressees is not known (and is also not important).

Moreover, the choice of a system which is not based on number can further be supported by the reasoning given by Cysouw (2003), who argues that the concept of 'plural' in personal pronouns is not clear and states that this term should be avoided. Cysouw redefines 'plural' marking as 'group' marking, as he claims that it is not so much the num-

ber of participants but the kinds of participants involved that define different elements in the ‘plural’ paradigm. His qualitative approach to non-singular marking is based on three singular participants; consequently, there are seven logical possibilities to form groups (see Table 1). Four of the seven possible groups include the speaker; they are all subsumed under the meaning of English *we*. As Mühlhäusler and Harré (1990, p. 201) state, a ‘true 1<sup>st</sup> person plural’ (1+1) can be found in the phenomenon of *mass speaking* (e.g. football chanting, the reactions of a concert audience). However, Cysouw disregards this category as he argues that despite being semantically feasible, it is not linguistically salient (2003, p. 74).

Logically possible category	Linguistically salient category	
1	1	Speaker
2	2	Addressee
3	3	Other
1+1 choral ‘we’	- (not linguistically salient)	-
1+2	1+2	minimal inclusive
1+3	1+3	Exclusive
2+2 only present audience	- (not linguistically salient)	-
2+3	2+3	second person plural
3+3	3+3	third person plural
1+2+3	1+2+3	augmented inclusive

Table 1: Person marking proposed by Cysouw (2003)

Table 2 shows the seven meta-persons proposed by Sokolovskaya using the notation suggested by Bobaljik (2008); the traditional numerical symbols (i.e. 1 for speaker, 2 for addressee, and 3 for other) are used. However, Bobaljik (2008, p. 3) states that despite the logical possibility of a seven-way contrast, certain distinctions are never morphologized; consequently, the maximal attested contrast is the four-way contrast. Many languages show even less: in languages lacking an inclusive/exclusive opposition (such as English), the first four meta-persons are subsumed under the ‘1<sup>st</sup> person plural’ pronoun *we*. A possible way of classifying actual-referent categories is shown in 3.3.2 by presenting instances that exemplify a particular type of discourse-defined *we*.

Sokolovskaya → Bobaljic		Rounds		
possible	attested	actual referents		
1+2	inclusive	prototypical inclusive-we		
1+2+3		I / one	you / one	we /one
1	exclusive	prototypical I	we / I	
1+3		we / they + I (I=spokesperson)	prototypical exclusive-we	
2	2 <sup>nd</sup> person	prototypical you	we / you	
2+3				
3	3 <sup>rd</sup> person	mathematicians		

Table 2: Actual referents classified by meta-persons (in the categories containing a slash, the first item means the word used, the second one the actual referents behind it)

### 3.3.2 Classification of actual referents

In this subsection, five tutorials, made by three tutors, will be commented on from the qualitative point of view; attention will be paid to the *we*-perspective usage in order to present a possible way of identifying the actual-referent categories and to exemplify and discuss several problematic cases.

#### **Tutorial 1** (2B3, McKeague)

This tutor employs the *I*-perspective to a great extent (69%). The pronoun *I* is used by him prototypically: *he* is doing the particular task. He does not seem to consider himself to be a spokesperson for mathematicians, as suggested by Rounds (1987, p. 17), *he is* a mathematician who is employing his knowledge and applying it to this task.

*We* is never *exclusive* in this tutorial; if he uses *we*, he does it for several reasons, which are identified and exemplified in the following text. Firstly, he wants to refer to common knowledge shared by him and his audience:

- (1) “but before I start let’s just take a look at our picture of the circle over here and see that **we** already know what this derivative’s gonna turn out to be and then we can check our work when we do the implicit differentiation”
- (2) “I think you can see that what’s happening is going to be exactly what **we** thought would happen”
- (3) “and in fact that’s exactly what **we** predicted that would be by just doing it geometrically over here on the circle”

According to Rounds’ classification, these cases of *we* should be classified as *we/I*; however, I believe that the tutor expects the audience to share the same knowledge at least to a certain extent and to understand the process in the same way as he does. Therefore I

would classify these instances as *inclusive we*.

Secondly, the tutor invites the addressee to participate in solving the task by using clauses such as “now **let’s** do **our** implicit differentiation”, “**let’s** try another problem” and “**let’s** try the product rule”. In some cases, the invitation might include an attempt to motivate the addressees:

- (4) “**we** want to extend **our** work with derivatives to include a process called implicit differentiation”
- (5) “alright one last problem here what **we** have is **we** wanna find the equation of the line tangent to this graph at the point one negative one”

Thirdly, he summarizes what has been done by him, and supposedly by his audience as well:

- (6) “so **we** did it one way over here **we** did it with the implicit differentiation **we** got the exact same answer”

The *you*-perspective is used the least: several times as a direct address (e.g. “**you** see”; “I think **you** can see”); in one sequence (example 7) the directness can be extended to a more general statement – it might apply to anybody who does it (i.e. *you/one*).

- (7) “so when **you** do this implicit differentiation a lot of times **your** answer will end up with both x and y in it and that’s OK”

## Tutorial 2 (2E6, Sal)

The *I*-perspective and the *you*-perspective are used evenly in 2E6 (both 16.5%). *I* is used only in its prototypical sense, which can be exemplified by the following examples:

- (8) “but what **I** wanna do in this video is “
- (9) “what **I** want you to keep in the back of your mind the entire time is”
- (10) “this is just the chain rule **I** wanna say it over and over again”

Many cases of *you* could be classified as *you/one*, as can be seen in the examples below; however, *you* is used here in a direct connection with the particular task, so it might have the meaning of direct address (i.e. 2) rather than *you/one* (1+2+3)0

- (11) “and what immediately might be jumping out in **your** brain is”
- (12) “so **you** might be tempted to maybe split this up into two separate functions of x”
- (13) “it might be a little bit clearer if **you** kind of thought of it as the derivative with respect to x  $\partial$  of of y as a function of x”

The *we*-perspective prevails in this tutorial (67%); there is no instance of *exclusive we* and no instance of *we/you* either. Rounds’ categories of *we/I* and *we/one* are taken into

consideration in the following examples. Example (14) includes *we* that seems to belong to the category *we/one*, since it is true potentially for anyone who would do the task. Example (15) features three instances of pronouns that can be discussed; the first instance of *we* would be classified by Rounds as an *exclusive we*, in which *I* is the teacher and *they* is mathematicians, since Rounds claims that “the teacher cannot perform the functions of naming and defining on their own recognizance” (1987, p. 18). However, I would classify this *we* as a *we/one* category because the act of defining could be considered as not linked strictly to its original pronouncement (i.e. not reserved only for mathematicians as experts) but instead available to be repeated by the whole community of practice. This matter will be discussed more closely in example (39) – *we*<sup>4</sup>.

In the second part of example (15), there is a shift from *they* to *we*, which might illustrate Rounds’ statement on the tendency to avoid the third person plural (mentioned above in 3.3.1). Nevertheless, it is questionable what the speaker means by *they*. He might have wanted to avoid using the passive structure “it is called” by saying “they call this”, where *they* is vague and therefore does not substitute for mathematicians. This passive structure is used by McKeague in 2B3, where he says “so what I’m gonna do is called implicit differentiation” which might suggest that the “calling” is perceived more as a shared knowledge than “a property” of a closed circle of mathematicians.

- (14) “and the way **we** do that is literally just apply the derivative operator to both sides of this equation and then apply what **we** know about the chain rule”  
 (15) “because **we** are not explicitly defining  $y$  as a function of  $x$  and explicitly getting  $y$  is equal to  $f$  prime of  $x$  **they** call this which is really just an application of the chain rule **we** call it implicit differentiation”

The instances of *we* shown in (16) can be classified both as *inclusive we* and as *we/one*.

- (16) “and if **we** were to graph all of the points  $x$  and  $y$  that satisfy this relationship **we** get a unit circle like this and what I’m curious about in this video is how **we** can figure out the slope of the tangent line at any point of this unit circle”

However, there are three clear examples of *we/I* in 2E6 (see examples 17, 18, 19).

- (17) “so **let’s** just write this down over here”  
 (18) “so **we** can do this whole thing on the same page so we can see where we started”  
 (19) “**let’s** scroll down a little bit”

All the other instances can be understood as activities that can be performed by the addressees at least mentally; therefore they fit the *inclusive we* category:

- (20) “**let’s** subtract two  $x$  from both sides so we’re left with two  $y$  times the derivative of  $y$  with respect to  $x$  is equal to”  
 (21) “well **we** figured it out”

### Tutorial 3 (1E7, Sal)

In this sample, all the instances of *I* are prototypical. There are only several instances of *you* in the tutorial (6%); all of them are rather difficult to classify as they can be both examples of direct address and *you/one* (see examples 22 and 23).

- (22) “and so **you** can imagine the chain rule might be applicable here”
- (23) “and **you** could simplify that or combine it since **you**’re multiplying two things with the same base but I’ll just leave it like that”

According to Rounds, they should belong to the category of the remapped *you*, as “what the teacher says is true not just for himself (the *I*) or for the students he is addressing (the *you*), but, potentially, for anyone who does calculus – hence the teacher could employ a more indexical sign, such as the indefinite *one*” (Rounds 1987, p. 17).

All the instances of *we* in 1E7 can be classified as the *inclusive we*. Nevertheless, after applying Rounds’ way of reasoning, several instances of *we* (such as examples 24, 25 and 26) do not fit the usual categories of semantic mapping. Rounds argues that “the teacher does the actual writing thus he could have used *I*” (1987, p. 18); she comments on this choice by suggesting two explanations: the speaker chose “*we* because it is a form that could denote an expanded ‘authorial *we*’ or even a ‘royal *we*’ but that could also potentially be interpreted by the addressee as an inclusive sign” (ibid.).

- (24) “and so **we** figured out this first derivative”
- (25) “and **we** just took the product of the two”
- (26) “so **we** can write it as negative e to the cosine x”; ...

On the other hand, there are parts of the tutorial in which the tutor speaks about his actual writing (see the following four examples) and in such cases he always uses *I*.

- (27) “let **me** copy and paste this so **I** don’t have to rewrite it”
- (28) “let **me** do that in a new colour let **me** do it in magenta”
- (29) “OK **I** will write it this way”
- (30) “but **I**’ll just leave it like that”

Hence it can be concluded that the instances of *we* shown in examples 24, 25 and 26 are the *inclusive we*; the speaker supposes that the addressees at least mentally share his activities and (despite not being present) they participate in the process.

### Tutorial 4 (3E6, Krista King)

Most instances of *I*-perspective found in this tutorial can be classified as prototypical. The pronoun *I* refers to the speaker: there are two personal remarks (“**I** like to think about it this way”, “**I** hope you found that video helpful”), two instances of “**I**’ll show you”, and the speaker uses the *I* when she speaks about the preceding steps she has taken without the presence of the audience (example 31).

- (31) “now as a reminder **I**’ve written the standard form of the linear differential equation which is  $y' + p(x)y = q(x)$  **I** also have the formula here for the integrating factor”

The pronoun *you* means direct address, as can be seen in the clause “**you** can check that for yourself if **you** want”. Only the instances from the following excerpt could be considered *you/one* examples, as they have a more general meaning.

- (32) “if **you** have a negative sign here in front of **your**  $p(x)$  function **you** have to include it as part of  $p(x)$ ”.

The majority of the *we* instances present in this sample can be classified as the *inclusive we*. Only four cases might be seen as examples of Rounds’ semantic remappings of *we*. In two cases *we* is used when the actual referent is *I* and it is obvious that the speaking is done by the tutor not by all the participants (examples 33 and 34).

- (33) “Today **we**’re gonna be talking about how to solve the linear differential equation initial value problem”  
(34) “and remember **we** just said”

In two cases *we* is used in a broader way (*we/one*); it seems to encompass not only the speaker and the addressee but also the others, i.e. anyone who is involved in solving a differential equation (example 35).

- (35) “now with any linear differential equation the first thing that **we** wanna do is try to change **our** differential equation into standard form”

### **Tutorial 5** (2E7, Krista King)

In this tutorial there is no instance of the *I*-perspective; there could have been one – she could have said “in this video I am talking” – but instead she opted for *we*. The frequency of instances of the *you*-perspective is not high (11%); *you* is not used as directly as in tutorials created by the other tutors. The direct address can be observed either in commands (e.g. “remember”) or when she refers to common experience (e.g. “or sometimes **you** just see it written  $y'$ ”); the latter example might border on *you/one*. The use of *you* with the actual referent *one* is quite frequent in this sample (see examples 36, 37 and 38).

- (36) “so when that’s the case when **you** can’t solve for  $y$  when **you** have all your  $x$  and  $y$  variables mixed together but **you** wanna find the derivative of the equation what do **you** do well **you** use implicit differentiation **you** differentiate the function implicitly”  
(37) “when **you** use implicit differentiation **you** differentiate both sides of the equation in the same way that **you** would with explicit differentiation so with explicit differentiation”  
(38) “that’s how **you** use implicit differentiation to find the derivative”

The *we*-perspective prevails in this tutorial (89%); *we/one* amounts to 15%, *inclusive*

*we* roughly to 85%. The range of the actual referents can be illustrated with examples from the following excerpt:

- (39) “In this video **we**<sup>1</sup>’re talking about how to use implicit differentiation to find the derivative and in this particular problem **we**<sup>2</sup>’ve been given this equation  $x$  times sine of  $y$  plus  $y$  times sine of  $x$  is equal to one and **we**<sup>3</sup>’ve been asked to find the derivative of this equation the reason that **we**<sup>4</sup> call it implicit differentiation is because this is an implicitly defined function versus an explicitly defined function which is what **we**<sup>5</sup>’ve been used to dealing with in the past so an explicitly defined function is a function  $y$  equals  $f$  of  $x$  where **we**<sup>6</sup> have  $y$  on the left hand side and it’s a function  $y$  defined in terms of  $x$ ”

Actual referents identified in the excerpt are as follows:  $we^1 \approx 1$ ;  $we^2$ ,  $we^3 \approx 1+2$ ;  $we^4 \approx 1+2+3$  (Rounds:  $1+3$ );  $we^5 \approx 1+2$ ;  $we^6 \approx 1+2+3$ .

Behind  $we^1$  there is just the person of the speaker: she is talking, so here *we* is used instead of *I*. Moreover, the expression “in this video” clearly specifies this speech act, **she** is in the video, not the addressees.  $We^2$  and  $we^3$  are related to the verbs *give* and *ask*; unlike the verb *talk*, these verbs enable a certain involvement on the part of the addressee. Since the speaker supposes that her addressees participate in carrying out the task (at least mentally, by following her instructions),  $we^2$  and  $we^3$  refer to *inclusive we*, which is called the *minimal inclusive* (see Table 1).

When it comes to classifying  $we^4$ , the assessment is not as straightforward as in the previous cases. In my opinion,  $we^4$  is an example of the *augmented inclusive* as it relates to a bigger group: *we/one*. Nevertheless, Rounds would probably identify this *we* as a covert *exclusive we* with the speaker being only a spokesperson for mathematicians. She argues that teachers have “no control over the naming and defining process, only mathematicians can ‘define’” (1987, p. 17) and so teachers and students “must make use of the ‘authorized’ terminology” (1987, p. 18). Rounds concludes that this kind of *we* “must necessarily be an exclusive-*we* in which *I* is the teacher, and *they* is mathematicians.” (ibid.). However, I do not agree with Rounds here, and the following three points should clarify my standpoint.

Firstly, this question must be posed: who can call it implicit differentiation? Rounds assigns the right to name and define to mathematicians, but those who really did this in the case of calculus were just individual persons (such as Isaac Newton and Gottfried Wilhelm Leibnitz); present-day mathematicians might work in different areas, and they might invent other terms. Who, then, are the mathematicians who could rightly use “I name, I define”?

The second point worth considering concerns the distinction Rounds makes between groups of participants. Although she stresses the inclusive role of *we* in this type of learning environment, she describes students and mathematicians as counterpoles and places teachers at the intersection of these two distinct groups (1987, p. 23). Yet, is there really in teachers’ minds such a line that separates students and teachers from mathematicians? Moreover, the borderline between mathematicians and mathematics educators does not seem to be clear either, since mathematics teachers at universities can also be active mathematicians. Anyway, the suggested divisions seem not to be present in tutorials, as tutors act as members of a community of practice (Lave & Wenger, 1991) helping the newcom-

ers to become practitioners.

Finally, I believe that teachers take use of terminology in mathematics in the same way as they do in other areas of their life. In my opinion, there is not much difference between calling a computer a computer and using mathematics terms such as *implicit differentiation* without thinking who is the originator of the term.

What actual referents are behind *we*<sup>5</sup> is questionable; supposing the speaker assumes certain common knowledge or experience on the part of the addressees and she refers to that, this *we* should be classified as *inclusive we*. It might also be considered as 1+2+3; nevertheless, it seems to be more personal and focused only on the addressee, thus 1+2 might fit better. The last instance of *we* in this sample, *we*<sup>6</sup>, might refer to the more general group, i.e. *augmented inclusive* (1+2+3), as the clause is summarizing the method presented.

### 3.3.3 Results

Rounds illustrated the ambiguity of the pronoun *we* by identifying the actual referents which were in her corpus: 1, 2, 1+2, 1+3, 1+2+3, and even 3 in cases where she assigns the right to define or name only to mathematicians. Regarding the present research, 41 tutorials created by 17 tutors have been investigated, in which 7 out of 10 categories set out by Rounds were identified. I have added an 11<sup>th</sup> category, which is not mentioned as a category by Rounds, as I believe it fits in with the system as set by Sokolovskaya. The categories observed in the investigated tutorials are highlighted in Table 3. The three categories which are not found in my corpus are *we/you*, *exclusive-we* and the 3+1 category.

The category *we/you* is not used in tutorials because it is typical of classroom discourse. This type of *we* has the students as the actual sole referents; it is used when a teacher speaks for example about homework which “we had for today” and it is obvious that the homework was not assigned to the teacher but to the students (Rounds, 1987, p. 19). Prototypical *exclusive we* is not used in the samples either; so far I have not observed a single instance of this kind of *we*. I have already mentioned my objections concerning the category “I as a spokesperson for a group of mathematicians” (i.e. 3+1), which led to me not finding any instance of this category in the samples investigated.

Speakers in the referential group, i.e. the group of lectures, employ the same interactional means as the authors of video tutorials. All eight categories found in tutorials have been observed in the samples of Group A. However, one difference which concerns category 3 (mathematicians) is worth mentioning. In the present sample of 41 tutorials and four extracts taken from lectures, nine instances of *animate they* were found: four of them could be a substitute for “mathematicians”, three instances might refer to mathematics educators, and two instances of *they* are used anaphorically for the nouns “colleagues” and “people”. In the subcorpus of lectures, only one instance of *they* is present: it is the anaphor referring back to the antecedent “colleagues”. It replaces a certain subset of mathematicians, namely the colleagues of the speaker who do not approve of the usage of the method the lecturer recommends. Concerning the categories not observed in tutorials (i.e. in groups B-E), there was no instance of *we/you*, and neither prototypical *exclusive we* nor *we/they + I* (3+1) was used in Group A samples.

Metapersons	Actual referents		
1+2	prototypical inclusive-we		
1+2+3	I / one	you / one	we / one
1	prototypical I	we / I	
1+3	we / they + I (spokesperson)	prototypical exclusive-we	
2	prototypical you	we / you	
2+3			
3	they=mathematicians		

Table 3: The actual-referent categories investigated and observed in the samples

#### 4. Concluding remarks

The findings presented suggest that personal pronouns are strategic devices that can develop an atmosphere of communality. Especially *we*, thanks to its ambiguous nature, can be employed as a powerful device. By using this semantically ambiguous sign, speakers can evoke the interpersonal dimension and a feeling of cooperation, since the pronoun *we* enables speakers to shift between various referential positions without distancing themselves from the audience.

Both participating sides of the communicative act, i.e. speaker and receiver, were examined from the point of view of their presence and absence. Speakers are present in all the investigated situations; however, the degree of their presence is not the same – it is graded according to their visual presence (this scale feature is addressed by categorizing the tutorials into groups B to E). By contrast, receivers are either physically present or absent, which means that there is no scale: the feature is dichotomic. Concerning the communicative strategies employed by the speakers, significant differences in using interactional skills under different circumstances were found. Most importantly, it was shown that the absence of an audience is associated with a different manner of expression: it is linked to an increased number of *we*-perspective instances. Regarding the factor of visual presence, it seems that the lesser the visual presence of the participants on both sides of the communicative act, the higher the employment of the *we*-perspective.

Finally, the comprehensibility of the investigated video tutorials seems to be enhanced by the frequent and varied use of first- and second-person pronouns, which makes the text interactive and brings it closer to face-to-face interaction. The substantial employment of these devices of interpersonal interaction might help “dilute” the rather high informational density of the text and make it more digestible to addressees. Furthermore, this dialogic conduct of a monologue might contribute to attracting and maintaining the attention of

addressees and overcoming the obstacles caused by the asynchronicity of the communicative act.

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