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# Simple and Complex Extralinguistic Communicative Acts

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## Abstract

The present research aims to investigate the distinction between simple and complex communicative acts in the context of extralinguistic communication. We propose that, within the same pragmatic phenomena studied - which are standard communicative acts, deceit and irony - a simple communicative act is easier to comprehend than a complex one. Our proposal is based on the different complexity of inferential processes involved in comprehending communicative acts. We provide empirical evidence in support to our hypothesis with an experiment on children aged 5;5 to 8;6 years. We consider our results as favoring a unitary model of communication, where 'linguistic' and 'extralinguistic' are similar expressive channels underlying the same cognitive faculty.

## Introduction

Philosopher John Searle (1975) introduced the classical distinction between direct and indirect speech acts. A direct speech act consists of a sentence where a speaker means exactly and literally what she is saying, for instance [1] 'Please pass me the salt', proffered by the speaker to obtain the salt, located on the table, from her table-companion. On the contrary, an indirect speech act consists of a sentence by which the speaker communicates to the hearer more than what she is actually saying. For instance [2] 'Do you mind passing me the salt?' or [3] 'My soup is lacking in salt', proffered by a speaker in order to obtain the same goal as in the previous example.

Searle claims that the primary illocutionary force of an indirect speech act is derived from the literal meaning *via* a series of inferential steps. The hearer's inferential process is triggered by the assumption that the speaker is following the Principle of Cooperation (Grice, 1975), together with the evidence of an inconsistency between the utterance and the context of enunciation. According to Searle, the hearer tries first to interpret the utterance literally, and only after the failure of this attempt, due to the irrelevance of the literal meaning, does he look for a different one, which conveys the primary illocutionary force. In this view, an indirect speech act is intrinsically harder to comprehend than a

direct one. Indeed, understanding a direct speech act such as [1] is straightforward, that is, it does not require inferences, while understanding indirect speech acts, such as [2] and [3] relies on some kind of common knowledge. However, the length of the inferential path is not the same for each indirect speech act. For instance [3], an example of non-conventional indirect speech act, requires a greater number of inferences than [2], an example of conventional direct speech act.

Some authors have criticized this position for different reasons (Clark, 1979; Sperber & Wilson, 1986; Recanati, 1995). In particular, Gibbs (1986; 1994) shows that a speaker can use an indirect act when she thinks that there might be obstacles against the request she intends to formulate: for example, when the speaker does not know whether the hearer owns the object she desires, he can use a conventional indirect request. The context specifies the necessity of using a conventional indirect and thus helps the hearer to understand the intended meaning more quickly. Gibbs suggests that, in such a circumstance, the partner infers the meaning of a conventional indirect speech act *via* an habitual shortcut that facilitates its comprehension.

In addition, Bara and Bucciarelli (1998) point out that for 2;6-3 year old children conventional indirects, such as 'Would you like to sit down?', compared to direct speech acts, such as 'What is your name?', are equally easy to comprehend. On the contrary, the same children have difficulties with non-conventional indirects: for instance they find it hard to understand that the answer 'It's raining' to the proposal 'Let's go out and play' corresponds to a refusal.

On the basis of the Cognitive Pragmatics theory, by Airenti, Bara and Colombetti (1993a), Bara, Bosco and Bucciarelli (1999) advanced an alternative explanation that constitutes the theoretical basis for the present research. The authors propose to abandon the distinction between direct and indirect speech acts and to adopt a new one between simple and complex speech acts, based on the increasing complexity of the inferential processes underlying their comprehension. This distinction has the distinct advantage of applying not only to standard speech acts, but also to non-standard ones, like irony and deceit.

The aim of the present research is to extend the distinction between simple and complex speech acts to extralinguistic communication, and to provide empirical evidence in support of our hypothesis.

### Cognitive Pragmatics theory

Airenti et al. (1993a) have presented the bases for a theory of the cognitive processes underlying human communication that holds for both linguistic and extralinguistic communication. A major assumption of Cognitive Pragmatics is that intentional communication requires behavioral cooperation between two agents; this means that when two agents communicate they are acting on the basis of a plan that is at least partially shared. The authors call this plan a *behavior game*. The behavior game is a social structure mutually shared by the participants of the dialogue. Each communicative action performed by the agents realizes the moves of the behavior game they are playing. The meaning of a communicative act (either linguistic or extralinguistic or a mix of the two) is fully understood only when it is clear what move of what behavior game it realizes. Consider for example the following communicative exchange:

[4] Susan: "Do you have 10 dollars?"

Mark: "Oh, I forgot my wallet"

Mark understands that Susan is asking him to lend her some money on the basis of the behavior game they are mutually sharing:

[5] [LEND-MONEY]:

- A gives money to B;
- B returns money to A.

A game provides a context for the assignment of meaning to a communicative action (Bosco, Bucciarelli & Bara, 2004). It is the sharedness of these knowledge structures that allows them to maintain conversational cooperation in spite of Mark's refusal to cooperate on the behavior level.

### Simple and complex standard speech acts

The comprehension of any kind of speech act depends on the comprehension of the behavioral game bid by the actor<sup>1</sup>. Unless a communicative failure occurs, each participant in a dialogue interprets the utterances of the interlocutor on the ground she gives as shared between them. According to such a perspective, the difficulty in comprehension of different types of speech acts depends on the chain of inferences required to pass from the utterance to the game it refers to. Direct and conventional indirect speech acts do immediately make reference to the game, and thus they are defined as *simple speech acts*. On the contrary, non conventional indirect speech acts can be referred to as *complex speech acts* in that they require a chain of inferential steps, since the specific behavior game of which they are a move is not immediately identifiable (Bara &

<sup>1</sup> Since the theory holds both for linguistic and extralinguistic communication, we prefer to use the terms actor and partner instead the classical speaker and hearer.

Bucciarelli, 1998). For example, to understand [1] and [2] it is sufficient for the partner to refer to the game [ASK-FOR-OBJECT]. In order to understand [3], a more complex inferential process is necessary: the partner needs to share with the speaker the belief that if the soup is lacking salt it is not good to eat and that if there is some salt on the table and somebody proffers [3] she probably wants it. Only then, can the partner attribute to the utterance the value of a move of the game [ASK-FOR-OBJECT].

In other words, if the problem is how to access the game, the distinction between direct and indirect speech acts is irrelevant. The comprehension of a speech act requires the comprehension of the game of which it is part: in order to understand the actor's communicative intentions, the partner has to find a meaningful connection between the actor's utterance and the behavioral game they are playing. In the case of simple speech acts there is an immediate correspondence between the utterance and the game, that is the utterance straightforwardly refers to the game. On the contrary, in the case of complex speech acts the comprehension of the link between the speech act and the game requires the partner to make longer inferential processes. The bigger the distance between the utterance and the communicative context shared by actor and partner, the more difficult the comprehension of the utterance itself. In sum, the difference in the difficulty of comprehension between simple and complex acts depends on the steps needed to refer the utterance to the game bid by the actor or already shared by the participants.

We find the notion of simple and complex speech act more useful rather than the one of direct and indirect speech act because, as Bara et al. (1999) propose, it can be extended to other non standard pragmatic phenomena, in particular irony and deceit.

### Simple and complex deceptions and ironies

A deception occurs when the mental states that the actor entertains are covertly different from those she communicates. Bara et al. (1999) propose that the difficulty in its comprehension can vary depending on the complexity of the inferential chain necessary to refer the utterance to the behavioral game. Consider the following example:

[6] *Andrew is eating some biscuits from a plate in front of him. He hears Julia arriving, and then he pushes away the empty plate in front of him. Julia sees the empty plate and asks: "Who has finished my biscuits?" Andrew answers...*

(a) Simple: "I don't have the slightest idea"

(b) Complex: "I'm on a diet"

In our example, the deceitful speech act [6a] is simple because it consists in an utterance which denies the actor's private (and true) belief (*not-p*), that would allow the partner to immediately refer to the game [BISCUIT-STEALING] that the actor wishes to conceal from the partner. Instead, a complex deceitful speech act, such as [6b], consists in an utterance which leads to the inference: if he is on a diet, he cannot eat biscuits, that is inconsistent with the game [BISCUIT-STEALING] that the actor wishes to deny. Thus,

to comprehend a complex deceit, an agent needs a longer inferential chain.

Cognitive Pragmatics theory claims that irony can be understood when compared with the belief provided by the behavior game shared between actor and partner (Airenti, Bara & Colombetti, 1993b; Bara, in press). According to Bara et al. (1999), bearing in mind the complexity of the inferential chain necessary to refer the utterance to the game bid by the interlocutors, it is possible to distinguish two kinds of irony, simple and complex. Consider the following example:

[7] *Alex takes out from a toaster two completely burned pieces of toast. Mary arrives and Alex asks with a puzzled expression: "Am I a good cook?" Mary answers...*

(a) **Simple** : "The best cook in the world!"

(b) **Complex**: "I'll hire you in my restaurant"

A simple ironic speech act, such as [7a], corresponds to the antiphrastic theory of irony (Grice, 1989): an actor expresses  $p$  to mean  $not-p$ . Thus, a simple irony immediately contrasts with a belief shared between the agents, in our example that Alex is not a good cook. On the contrary, a complex ironic speech act requires a series of inferences in order to detect its contrast with the belief shared by the agents. Consider our example, by producing the complex irony [7b], an actor proffers an utterance which implies the belief  $p$  (to employ someone in a restaurant, s/he has to be a good cook), contrasting with the belief  $not-p$  (the guy is not a good cook), shared between the two agents. Thus, a person needs a longer inferential chain to comprehend a complex deceit rather than a simple one.

Bosco and Bucciarelli (submitted) empirically supported the distinction between simple and complex speech acts: children aged from 6;7 to 10 years, find it easier to comprehend simple speech acts, rather than complex ones, within the same pragmatic phenomena investigated, i.e. standard speech acts, deceits and ironies.

The present research focuses on the difference of the inferential processes between communicative acts pertaining to the same pragmatic category and it did not analyze the difference among inferential processes existent among various kind of pragmatic phenomena. Details about how different types of mental representations underlie the comprehension of standard communicative acts, deceits and ironies can be found elsewhere, e.g. Bucciarelli, Colle and Bara (2003): such a work focuses on the *type of inference* underlying specific kinds of pragmatic phenomena; for instance, understanding an ironic act requires the detection of a contrast between the speech act and the background knowledge shared by the interlocutors. The present research deals instead with the *length of the inferential* processes underlying the comprehension of communicative acts within the same pragmatic phenomenon, i.e. simple vs. complex standard acts, simple vs. complex deceits, simple vs. complex ironies.

## Experiment: simple vs. complex extralinguistic communication

As we have shown in the previous paragraphs, the difference between simple and complex acts has been demonstrated in the context of linguistic communication. Let us now focus on extralinguistic communication. By extralinguistic communication we refer to actions such as facial expressions, hand gestures and body movements when they are intentionally performed to share a communicative meaning. These means of expression are of special importance in that communication, in the first phases of life, heavily relies on such kinds of actions. Also, persons who have lost the ability to communicate through language, e.g. patients with aphasia, have to resort to extralinguistic means. Not to mention the various kinds of situations in which normal adults need to communicate but are forced not to use speech. For all these sort of reasons, we conducted a study in the context of extralinguistic communication. In particular, our aim is to analyze whether the distinction between simple and complex acts holds also in such a context: if language and gestures are comparable ways of communication, we should expect that the distinctions made in linguistic contexts holds also for extralinguistic communication.

According to Cognitive Pragmatics theory, communication is indeed a unitary cognitive faculty aimed at modifying and sharing mental states, while 'linguistic' and 'extralinguistic' are means of expression that an agent may use indifferently in order manifest to and share her communicative intentions. For instance, waving a hand or saying 'Hello' are two ways of greeting that are only superficially different; at a deeper level, they can be seen as two different realizations of a greeting act. Thus, as Bara and Tirassa (1999; 2000) propose, the difference between 'linguistic' and 'extralinguistic' communicative acts turns out to be a matter of cognitive processing rather than of intrinsic nature. Within such a perspective Bucciarelli et al. (2003) assume that the construction of the meaning of a communicative act is independent of the input modalities<sup>2</sup>. Empirically, they tested the prediction that a communicative act has in principle the same difficulty of comprehension, whether performed through speech or gestures. Their results show that children of different age groups comprehend each pragmatic phenomenon (simple and complex standard communicative acts, simple deceits and simple ironies) equally well in the two modalities.

The present experiment investigates the comprehension of different extralinguistic communicative acts. It consists of two experimental conditions: simple and complex. In both conditions, participants have to attribute communicative

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<sup>2</sup> Note that on the bases of other theoretical approaches (Burling, 1993; Chomsky, 1987), nonverbal and verbal communication do have separate roots in phylogenies; on such basis, the prediction that what holds for linguistic communication holds also for extralinguistic communication would be false.

intentions to actors in videotaped stories. Our analysis focuses on a perspective of a third person who observes an actor and a partner in a communicative interaction. We now report one example for each of the investigated pragmatic phenomena. They are all extracted from our experimental protocol.

#### *Standard extralinguistic communication*

[8] *Ann has just finished preparing dinner and walks out of the kitchen holding a dish of pasta. In order to call Bob, who is listening to loud music, Ann moves her head as if to say 'Come on! Dinner's ready'.*

In the simple version of the task, Bob [8a] nods to show that he is coming. In the complex version of the task, Bob [8b] places his hand on his stomach as if to say 'I'm hungry'. The request of coming for dinner is part of the behavior game [FAMILY-DINNER], in which Ann prepares dinner, calls Bob when dinner is ready, and B answers. Bob's [8a] nodding is a simple standard communicative act because it is a straightforward answer to Ann's question and, thus, immediately relies on the game shared between the two agents. On the contrary, to understand that the complex standard gesture [8b] for 'I'm hungry' implies an acceptance, a person has to assume that if one is hungry then he wants to eat and that if one wants to eat then he has the intention of coming to dinner.

#### *Extralinguistic deceit*

[9] *Bill and his brother are playing with cushions in their room, when a lamp falls down and breaks into pieces. Mum comes into the room and, standing with her hands on her hips, she assumes a severe and questioning look as if to ask 'Who broke the lamp?'.*

In the simple version of the task, Bill [9a] opens his arms in order to state his innocence. In the complex version of the task, Bill [9b] takes a book and shows it to Mum in order to convince her he was reading. Bill's [9a] gesture is a simple deceit because it immediately denies the actor's private belief, allowing the partner to refer to the game [DOMESTIC-MISDEED]. On the contrary, [9b] is a complex deceit because it implies a belief (if one is reading a book he is not moving, then he cannot cause any damage) that is inconsistent with the game [DOMESTIC-MISDEED]. Thus, in order to understand this sort of deceit one needs to make a more complex inferential chain.

#### *Extralinguistic irony*

[10] *Alice pours some soup into her and Ben's plates and both assume a disgusted look. Alice looks at Ben as if she is waiting for a comment.*

In the simple version of the task, Ben, with an ironic expression [10a] licks his lips as if to say 'It's delicious!'. In the complex version of the task, Ben with an ironic expression, [10b] gives his plate to Alice as to ask to have some more soup. Ben's [10a] gesture is a simple irony because it immediately contrasts with the belief (the soup is not good) which is part of the game [HOME-COOKING] shared between Alice and Ben. On the contrary, the

complex irony [10b] implies a belief (if one asks for more food, it is because the food is good) that contrasts with the belief 'the soup is not good' shared between the two agents.

In conclusion, within the same pragmatic category, comprehending a simple communicative act requires an easier inferential chain than that required for a complex act. Indeed, simple acts immediately refer to the behavior game shared by actor and partner, while complex acts do not. Thus, for each of the investigated pragmatic phenomena, we predict that simple communicative acts are easier to comprehend than complex communicative acts.

Our study was conducted on children of different age groups. Indeed, adult subjects possess a fully developed cognitive system and communicative competence, and thus should not show any interesting errors in comprehending the different kinds of pragmatic tasks. On the contrary, within a developmental perspective, we expect that the ability to comprehend each kind of communicative act improves with children's age.

## **Material and Procedures**

The experimental material comprised 12 videotaped scenes, each lasting 20-25 seconds and showing two characters engaged in a communicative interaction. All communicative acts were completely extralinguistic, performed only through gestures. Of these 12 scenes, 4 represented standard communicative acts, 4 deceiving acts and 4 ironic acts. Each scene has been recorded in two versions, one simple and one complex (see the examples described in the previous paragraph). Thus we devised two experimental protocols, A and B. Each protocol contains only one version for each scene. In each protocol the scenes are represented in a different random order. Half of the participants dealt with protocol A, while the other half dealt with protocol B. Each child was randomly assigned to protocol A or B. Every child saw 4 scenes representing a standard communicative act (2 simple + 2 complex), 4 scenes representing a deceiving communicative act (2 simple + 2 complex) and 4 scenes representing an ironic act (2 simple + 2 complex).

At the end of each scene, children had to show that they had understood the communicative interaction by explaining to the examiner what had happened and what the actor's communicative intention was. Participants' responses were rated by 2 independent judges. For each item, judges assigned a score of 0 (completely wrong answer), 1 (only partially correct answer) or 2 (correct answer).

## **Participants**

The protocol was administered individually to 300 children, divided into three age groups: 100 children ranging from 5 to 5;6 (mean age = 5;3 years), 100 children ranging from 6;6 to 7 (mean age = 6;9 years), and 100 children ranging from 8 to 8;6 (mean age = 8;2). Within each age group, there were 50 males and 50 females. Children came from nursery and primary schools of Turin.



## Results

Our hypotheses were globally confirmed. Figure 1 shows the mean percentages of the correct responses over all children to the simple and complex items: in every type of investigated phenomena (standards, deceits and ironies), subjects understand the simple communicative acts better than the complex ones. More in detail, overall children understand simple standard communicative acts more easily than the complex ones (T Test:  $t = 5.55$ ;  $p < .0001$ ).

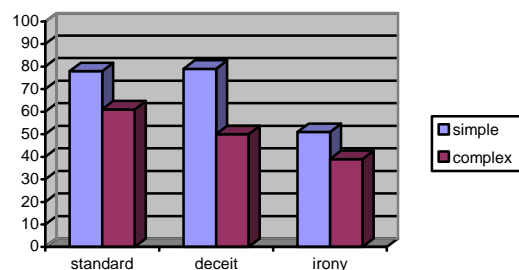


Figure 1: Histogram of the mean percentages of correct responses over all children.

As shown in Table 1, the same result holds for 5-year-olds (T Test:  $t = 3.20$ ;  $p < .002$ ), for 6-year-olds (T Test:  $t = 2.67$ ;  $p < .009$ ) and for 8-year-olds (T Test:  $t = 3.76$ ;  $p < .0001$ ). The same pattern of results holds also for simple and complex deceits. Simple deceits are easier, both overall subjects (T Test:  $t = 10.19$ ;  $p < .0001$ ), and within the various groups: for 5-year-olds (T Test:  $t = 5.63$ ;  $p < .0001$ ), for 6-year-olds (T Test:  $t = 5.98$ ;  $p < .0001$ ) and for 8-year-olds (T Test:  $t = 6.15$ ;  $p < .0001$ ). Finally, for ironic acts, simple ones are easier than complex ones over all subjects (T Test:  $t = 3.26$ ;  $p < .001$ ), for 6-year-olds (T Test:  $t = 2.24$ ;  $p < .03$ ) and for 8-year-olds (T Test:  $t = 3.11$ ;  $p < .003$ ), whereas there is no significant difference for 5-year-olds (T Test:  $t = 0.65$ ;  $p < .52$ ).

Table 1: Mean percentages of correct responses over all children and for single age groups.

Age groups	Standard		Deceit		Irony	
	Simple	Complex	Simple	Complex	Simple	Complex
5-5;6	67	50	70	42	37	34
6;6-7	79	65	83	53	56	39
8-8;6	86	68	83	56	64	46
Global	78	61	79	50	51	39

We also found significant data concerning children's performance improvement, in understanding every kind of task, in accordance with the increase of their age. Differences in performance among the three groups have resulted in both simple and complex standard speech acts

(Anova: F ranging from 6.53 to 10.36; p ranging from .002 to .0001). Also the performances in comprehension of deceit improve as the age of the subjects increase, both for simple and complex deceits (Anova: F ranging from 3.32 to 6.44; p ranging from .002 to .03). The same result holds for simple ironies (Anova:  $F = 13.23$ ;  $p < .0001$ ) and for complex ironies (Anova:  $F = 3.1$ ;  $p < 0.05$ ).

## Conclusions

In the present study we aimed to extend the analysis on simple vs. complex communicative acts to the domain of extralinguistic communication. The results globally confirm our predictions. Simple communicative acts are easier to comprehend than complex ones in all pragmatic phenomena investigated. This is true of all subjects, even within age groups. We explain such data considering the cognitive processes underlying the comprehension of the investigated tasks: in order to be understood complex communicative acts involve a higher inferential load than simple ones. Furthermore, as predicted, children's improve their performance in all investigated tasks, in accordance with the increase of their age.

Only in one case our data are not in line with our expectations: we did not detect significant differences in the comprehension of simple vs. complex ironies in the youngest group of 5-year-olds. A possible explanation is that irony is a too difficult pragmatic phenomenon to be fully understood by children of that age. For this reason irony comprehension results difficult in both cases (simple and complex): children gave such a few correct answers, that no significant difference emerged. This interpretation is consistent with results in literature which showed that only 6 year-old-children seem to fully grasp the intentions of ironic exchanges (Lucariello & Mindolovich, 1995). In line with such data Bucciarelli et al. (2003) found that irony – expressed both by linguistic speech acts and by gestures – is the most difficult pragmatic phenomena to comprehend, in comparison to standard communicative acts and deceits, for children aged 2;6 to 7 years. In addition, though still in line with our results, the authors found that only a small percentage (38%) of the 4;6-5;6 children in their study understood ironic gestures in an experimental setting.

Our results on children's ability to interpret extralinguistic gesture with a deceitful intent are in line with other experimental studies. For example Shulz and Cloghesy (1981) showed that only from 5 years of age children start to interpret pointing gestures with a deceitful intent, and that such an ability improves with the age. A related task has been studied by Call and Tomasello (1999). The authors investigated children's ability to deal with deceits - with the classic false belief task - in an extralinguistic form. The results are consistent with the verbal version of the task: only a few 4 year olds are able to complete the task, whereas most 5 year olds succeed.

Let us now consider our results in a wider perspective. Our main prediction was to detect an increasing difficulty in comprehension between simple and complex extra-

linguistic communicative acts in different pragmatic tasks. Such a prediction was grounded on the assumption that comprehension of simple and complex communicative acts can be explained by the complexity of the inferential chain involved in each of them, despite the communicative channel used to express them, i.e. linguistic or extralinguistic. Our results confirm such a perspective: we find the same trend of difficulty between simple and complex communicative acts that other studies underlined in linguistic comprehension (see Bucciarelli et al., 2003; Bosco & Bucciarelli, submitted). These similarities between linguistic and extralinguistic comprehension, which we found in each of the investigated pragmatic phenomenon, confirm that speech acts and extralinguistic communicative acts share the most relevant mental processes. Opposing viewpoints (e.g. Chomsky, 1987; Burling, 1993) consider linguistic and extralinguistic communication as two distinct phenomena, different in their intrinsic nature, and having separate roots in phylogenies. According to such a view, language is a complex module, independently evolved due to a non-finalized, genetic mutation. Our data seem to falsify the hypothesis of a separated line of development of language and communication, in favor of a unified theoretical framework in which linguistic and extralinguistic communication develop in parallel as different aspects of a unique communicative competence (Bara, in press).

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