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On the inferential structure of indirect reports

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Abstract

The aim of the paper is to reveal the inferential structure, the functions and the felicity conditions of indirect reports from a novel perspective by the application of a model of plausible argumentation (Kertész and Rákosi 2012). The central idea is that indirect reports can be reconstructed as plausible inferences. As regards the inferential structure of indirect reports, the p-model interprets the relation between the original utterance and the processed report in terms of two consecutive plausible inferences. Then, indirect reports are assumed to function as effective tools of problem solving in cases in which the original speaker's authority is greater than that of the reporter, or if the reporter does not want to take responsibility for the truth of the original utterance. The paper also discusses a series of felicity conditions of indirect reports. Among others, it focuses on those ones that are related to the reliability of information sources made use of in their production and processing.

1 Introduction

As Wieland (2013: 389) puts it, “an indirect report typically takes the form of a speaker using the locution ‘said that’ to report on an earlier utterance”.³ Consider the following example:

- (1) (a) Professor Gardner: I didn't meet any top models at the airport.
- (b) Reporter: Professor Gardner said that he didn't meet Katie at the airport.
- (c) Professor Gardner didn't meet Katie at the airport.

We make a simple terminological distinction between the original utterance, the indirect report, and the processed report. In the above example (1)(a) is the *original utterance*, (1)(b) is the *indirect report*, and the complement of the report, i.e. the statement in (1)(c), is the *processed report*.

The classical literature on indirect reports following Davidson's (1968) seminal essay (see e.g. Kaplan 1989, Soames 1989, Platts 1979, Burge 1986, Rumfitt 1993, Segal 1989 etc.) handled them as phenomena with systematic and generalizable properties raising problems to be solved by semantic theories. This view can be summarized, in a very simplified manner, as (A1):

- (A1) (a) Indirect reports are basically semantic in nature.
- (b) Indirect reports have semantic properties that are *systematic* and *generalizable*.

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³ See also Capone (2013), Davis (this volume) and Holt (this volume).

- (c) There is a samesay-relation between the original utterance and the indirect report in the sense that they have the same semantic content.⁴

However, today there is wide agreement on the assumption that indirect reports cannot be analysed properly without a substantial consideration of pragmatic factors. A second position acknowledges that, though indirect reports undoubtedly have important semantic properties, they are shaped by the peculiarities of particular communicative situations that are neither systematic nor generalizable. We subsume this standpoint under (A2) which has been put forward in Cappelen and Lepore (1997b: 289):

- (A2) (a) Indirect reports are basically *pragmatic* in that the reporters convey information about a particular act in a particular context to a particular audience situated in a different context.
(b) Indirect reports share some stable, not context-sensitive semantic features but they also have pragmatic properties that are *neither systematic nor generalizable*.
(c) There is a samesay-relation between the original utterance and the indirect report whose characteristics, however, can be revealed only partially by making use of semantic analyses.⁵

According to the third view, although indirect reports are basically pragmatic, their constitutive properties are systematic and generalizable (see, e.g., Wieland 2013: 390f.). This stance is shared by, among others, Wieland (2013) and Capone (2010). Its essence can be summarised as follows:

- (A3) (a) Indirect reports are basically *pragmatic* in that the reporters convey information about a particular act in a particular context to a particular audience situated in a different context.
(b) Indirect reports have properties that are *systematic* and *generalizable*.
(c) There is a pragmatic equivalence relation between the original utterance and the indirect report. This relationship results from a kind of metarepresentation which is analysable with the help of the combination of some pragmatic framework such as the theory of pragmemes and Relevance Theory.

Against this background, the linguistic analysis of reports in which there is no semantic equivalence between the original utterance and the report but there is some kind of inferential relation, is especially challenging. For example, let's consider two examples put forward in the literature (Cappelen and Lepore 1997b: 285; Wieland 2013: 396):

- (2) A: I didn't fail any students.
B: Professor A said Maryanne passed her exam.
- (3) A: It's awfully stuffy in here.
B [to C]: A said that she would like for you to open the window.

⁴ For the characterisation of the samesay relation, see Cappelen and Lepore (1997b: 280ff.).

⁵ Cf. "But unlike what others conclude, we believe our data establishes that the perfectly viable practice of indirect speech requires the samesay relation to be broader than MA [= the assumption that an adequate semantic theory T for a language L should assign p as the semantic content of a sentence S in L iff in uttering S a speaker says that p – AK & CsR] permits; it's no role for semantic theory to place a priori constraints on what can samesay what. Whether two utterances samesay each other often depends on non-semantic considerations." (Cappelen and Lepore 1997b: 291)

Wieland calls (2) an “inferential indirect report” and contrasts it with (3), which is an indirect report based on implicature. For Wieland and Cappelen and Lepore, (2) is an appropriate report in contexts in which *B* knows that *A* is one of Maryanne’s professors. In contrast, Wieland believes that (3) has a natural felicitous reading and an equally natural infelicitous reading, because, although the implicature that *A* would like for you to open the window is natural, it is not clear whether it is felicitous to say that *A* said that he/she would like for you to open the window.

In both cases, it is the linguists’ own linguistic (pragmatic) intuition on the basis of which the acceptability of the reports has been evaluated. Nevertheless, it may be the case that other native speakers of English are of the opinion that these are inferences by *B* rather than loose but correct reports of *A*’s words, and that in (2) *B* should have used, for example, the formulation “Professor *A* said that he didn’t fail any students” so that the listener could draw the conclusion, or perhaps “From Professor *A*’s words I conclude that Maryanne passed her exam”, etc.

One might raise the objection that Wieland (2013: 397) provides a theoretical criterion which allows us to distinguish between (under appropriate conditions) felicitous and (under normal circumstances) clearly infelicitous indirect reports. According to her, if there is a logical consequence relation between the original utterance, the report, and knowledge of the context, then the report will be totally acceptable. With implicatures such as those in (3), however, this is not the case.

The problem is, however, that this criterion does not seem to be viable because it is in both cases possible to add “other facts known in context” to the original utterance so that the report “logically follows from them” (Wieland 2013: 397). Compare (4) and (5):

- (4) *A* didn’t fail any students.
 [Maryanne is one of *A*’s students.]
 [For every *x*, if *x* is not failed in an exam, then *x* passed it.]

 Maryanne passed her exam.
- (5) It’s awfully stuffy in here.
 [If it’s awfully stuffy in the office, *B* would always like for the youngest colleague to open the window.]
 [*C* is the youngest colleague in the office.]

B would like for *C* to open the window.

Consequently, a point of departure differing from Wieland’s as mentioned above is needed.

Capone (2010) touches upon an aspect of indirect reports that we consider to be of utmost importance but which has, as far as we know, not received as much attention in the literature as it deserves:

“The way an indirect speech report can bear on a certain decision to be made by the hearer is that it proposes what another person said (asserted) *as a source of knowledge*. If the original speaker qualifies as a *reliable informer*, then what he said can be counted on for the formation of appropriate beliefs that have a bearing on the formation of current decisions relating to the current complex of cognitive states, goals, desires.” (Capone 2010: 383f.; emphasis added)

The quotation puts forward the idea that indirect reports *transmit the authority* from the original utterance to the report. That is, the reporter indicates with the help of the phrase “said that” that the source of the statement at issue is not herself but the original speaker, and the latter is made responsible for its information content. Thus, the acceptability of the report depends crucially not only on the accuracy of the reporter’s interpretation of the original utterance but also on the reliability of the original speaker as an information source.

These considerations imply that *reliability* is one of the factors which are relevant for the creation and usage of indirect reports. Against this background, we will raise the following problem:

- (P) (a) What is the inferential structure of indirect reports?
(b) What is the function of indirect reports?
(c) How can indirect reports be evaluated?

In Section 2, we will introduce our approach to indirect reports insofar as we propose that certain aspects of the relationship between original utterances, indirect reports and processed reports could be grasped with the help of a model of plausible inferences. In Section 3, we will show how the function of indirect reports can be described with the help of the p-model. Section 4 will provide some criteria which seem to be relevant in the evaluation of indirect reports. Section 5 will summarise our results.

2 On the structure of indirect reports

2.1 First approximation

We will assume that indirect reports come into being as a result of *two successive inferential processes*. The *first inferential process* is conducted by the *reporter* and establishes a connection between the original utterance and the indirect report. As a first approximation, we present it as (6):⁶

- (6) Professor Gardner said, *as far as I can recall it*, “I didn’t meet any top models at the airport”.
[Katie is a top model.]

Professor Gardner said that he didn’t meet Katie at the airport.

The reporter’s starting point is not the original utterance itself but a direct report, or its reconstruction on the basis of the reporter’s memories. It may be more or less reliable depending on whether the reporter heard Professor Gardner’s words directly or knows them only from hearsay; whether he can recall the latter’s words exactly, or merely remembers an earlier event. It may also happen that the reporter read the reported words and summarizes their essence. Thus, its reliability depends on a series of factors and may range along a relatively wide spectrum, from “somewhat plausible” to “totally certain”. In contrast, the credibility of the original utterance is not relevant: the reporter may report it even in cases when he/she casts doubt on it or knows that it is false:

“Making an indirect report is a language game that is more specific than making an assertion. In asserting P, a speaker merely offers his own voice [...]; by contrast in reporting that P, the speaker offers two voices: the speaker’s own and that of the speaker in the original speech event [...]. *The reporter does not take responsibility for the embedded voice* (except in so far as it is being attributed to one speaker or another.” (Capone 2010: 381; emphasis added)

Of course, it might happen that the reporter does not recall perfectly the speaker’s words. We will suppose that the transformations made by the reporter when trying to recall the original utterance are basically identical to the transformations used to convert the recalled version of the original utterance into the indirect report.⁷

⁶ For a more elaborated reconstruction, see Section 2.3.

⁷ Thus, for example, instead of (6) we might have two inferences as in (6’):

Clearly, (6) is sketchy and does not intend to capture the cognitive processes themselves; rather, it tries to grasp those features of the inferential process which are related to the *reliability* of information involved. In many cases, the recalled original utterance is complemented with further statements about which it is reasonable to suppose that they are accepted by the reporter, such as, in our case, “Katie is a top model”. Such statements will be called *latent background assumptions*. Nevertheless, this is not the only possibility. It is often the case that the identification of the latent background assumptions is uncertain and remains incomplete (see e.g., Walton et al. 2008: 189). Thus, (6) should also be extended with further latent background assumptions pertaining to the transformation of Professor Gardner’s words into its reported version.

The *second inference* is an inference conducted by the *listener*, as roughly reconstructed in (7):

(7)

Reporter: “Professor Gardner said that he didn’t meet Katie at the airport.”

Professor Gardner didn’t meet Katie at the airport.

The second inference has only one premise and, similarly to the first inference, also relies on latent background assumptions (not yet indicated in (7)). From a broader perspective, we may interpret this inferential process in such a way that it shows that the listener accepts a statement of the original speaker on the basis of the reporter’s trustworthiness and transforms it from an indirect report into a statement whose source is compound. Namely, the information content of the conclusion is ascribed to the reporter and the person whose words have been reported. The latter’s roles are not symmetrical but both seem to contribute to the *reliability of the conclusion*. It may also happen that the listener does not accept the report but calls the original speaker’s trustworthiness into question, while he/she does not doubt the correctness of the reporting process. Thus, the acceptability of the report depends on both the reporter’s and the original speaker’s reliability; the listener may ask either “Are you sure that he [the original speaker] said this?” or react with “Oh no, he is completely wrong about this!”

In the next sections, our task will be

- (i) to find theoretical tools that allow us to interpret the wording “as far as I can recall it” in (6),
- (ii) to capture the difference between assertion and indirect reporting,
- (iii) to describe the compound source of the conclusion of (7),
- (iv) to grasp the uncertainty of the latent background assumptions along these lines, and
- (v) to characterize the strength of the certainty/uncertainty of the premises and the conclusions.

2.2 Motivating the application of the p-model

In order to solve (P), we will attempt to reveal systematic and generalizable structural properties of indirect reports, but the scope of our considerations will be restricted to their

(6’) Professor Gardner: “I didn’t see any mannequins at the airport.”

[Mannequin means top model.]

Professor Gardner said, *as far as I can recall it*, “I didn’t see any top models at the airport”.

Professor Gardner said, *as far as I can recall it*, “I didn’t see any top models at the airport”.

[Katie is a top model.]

Professor Gardner said that he didn’t meet Katie at the airport.

inferential structure. Thereby, Kertész and Rákosi's (2012, 2014a) p-model will be chosen as a research framework.⁸ The p-model is a metatheoretical approach to linguistic inquiry focusing on the data/evidence problem widely discussed in linguistics. Its central notions are partly motivated by Rescher's (1976) seminal work on plausible inferences. Nevertheless, the literature assumes that scientific and everyday reasoning may rest on the same patterns of plausible inference, therefore it is not excluded at the outset that the p-model might capture the inferential structure of particular pragmatic phenomena even if originally it has been a metatheoretical enterprise (see Kertész and Rákosi 2005).⁹

Thus, the solution to (P) by the application of the p-model will have some important corollaries: it might yield novel solutions to a series of further problems discussed in the literature on indirect reports e.g. in Capone (2010), Cappelen and Lepore (1997a,b) and Wieland (2013).

We do not claim that communication is a plausibilistic system. Nevertheless, we assume that certain features of communication can be modelled by plausible inferences.

In the next subsections, we will introduce some central notions of the p-model and their applicability to the analysis of indirect reports in a simplified, informal manner. For the precise definitions of the notions to be introduced see Kertész and Rákosi (2012, 2014a).

2.3 Sources, reliability, and plausibility

Let us first turn to the premise of (6). In order to capture its inherent uncertainty, the p-model proposes to assign statements a structure consisting of an *information content* and a *plausibility value*. The plausibility value shows to what extent a statement is *supported by a source*; that is, to what extent one is *willing to accept* it on the basis of the source at issue. We distinguish between two kinds of sources. A source is *direct* with respect to a statement if the statement is assigned a plausibility value based on the *reliability* of the given – intellectual or physical – source. In this sense, for example, perception, memory, particular persons, conjectures (as intellectual sources), the linguistic intuition of native speakers, books, videotapes, corpora, experiments, the Internet etc. are direct sources. Thus, for example, the direct source of the plausibility of the premise of (6) is the reporter's memory, which may be more or less reliable. Or one may deem a hypothesis somewhat plausible if it is solely a conjecture but to a greater extent plausible if its source is an experiment or a well-founded theory. If the plausibility value of a statement is assigned on the basis of the (already known) *plausibility* of other *statements*, that is, if it is determined with the help of an inference, then we speak of an *indirect source*.

The plausibility value of a statement is not absolute, but source-dependent, gradual and comparative. A particular statement may be plausible with respect to a given source and less plausible relative to another. Nevertheless, even low plausibility values indicate that on the basis of the given source, the statement is acceptable to a certain extent.¹⁰ It may also happen

⁸ For first applications of the p-model to pragmatics see Kertész and Kiefer (2013), and Kertész and Rákosi (2014b).

⁹ Psychological investigations into the nature of plausible inferences point to the same direction:

“*Plausible reasoning is pervasive in daily life as well as in scientific activity*. While inductive reasoning and probabilistic thinking have been the object of much interest among psychologists for a long time, the frequent case where people process *uncertain premises and draw an uncertain conclusion* [...] has remained relatively neglected. This is so despite the recognition of its importance by logicians and mathematicians [...] (Rescher, 1976) and by philosophers [...] and the development of non-monotonic reasoning formalisms in Artificial Intelligence.” (Politzer and Bourmaud 2002: 346; emphasis added)

¹⁰ For instance, conjectures may receive a low plausibility value on the basis of an intellectual source, because certain careful considerations provide some support to them.

that a statement is plausible according to a source but another reliable source supports its negation, that is, it makes the statement at issue *implausible*.¹¹

We introduce the notational convention according to which plausible statements will be set within ‘|’ and sources will be indicated by subscripts. Thus, ‘ $|p|_S$ ’ should be read as ‘the plausibility value of statement p on the basis of the source S ’. Then, the plausibility value of a statement p with respect to the source S can be characterized as follows:

- (8) $|p|_S = 1$, if p is true with certainty on the basis of S ;
 $0 < |p|_S < 1$, if p is plausible on the basis of S ;
 $0 < |\sim p|_S < 1$, if p is implausible on the basis of S , that is, if the negation of p is plausible;
 $|p|_S = 0$, if p is of neutral plausibility on the basis of S , i.e., if it is neither plausible nor implausible on the basis of this source.

Now let’s turn to the reconstruction of (6) with the help of the p-model’s plausibility indexing techniques as summarized in (8). (9) shows the *first step* of our reconstruction of the first inference process:

- (9) (a) $0 < |\text{Professor Gardner said “I didn’t meet any top models at the airport.”}|_{R_1} < 1$
 (b) $[0 < |\text{Katie is a top model.}|_{R_2} < 1]$

 (c) $|\text{Professor Gardner said that he didn’t meet Katie at the airport.}|_{(9)} = ?$

The index R_1 means the direct source of the premise, which may be the memory of the reporter and his/her hearing, or an ear-witness who heard Professor Gardner’s utterance. It is not a completely reliable source but it is capable of providing support for the premise. Thus, the statement in (9)(a) can be deemed plausible on the basis of R_1 . The latent background assumption in (9)(b) receives its plausibility value from the direct source R_2 which is the reporter’s background knowledge.

The question is, of course, whether on the basis of this plausible premise and latent background assumption, one is entitled to claim that the conclusion in (9)(c) can be judged to be plausible, too. That is, we need criteria for deciding whether (9) is an indirect source that makes its conclusion plausible.

2.4 From the original utterance to the indirect report

Inferences capable of providing partial support to their conclusions and making them plausible are called *plausible inferences*.

If we accept that there is some kind of inferential relation between (9)(a)-(b) and (9)(c), and realise that the plausibility value of the conclusion is directly proportional to the plausibility of the premises, then it seems to be reasonable to say that the plausibility of (9)(c) stems from this inference as *an indirect source*. That is, with plausible inferences, if the plausibility of the premises changes, then the conclusion’s plausibility increases or decreases with them. In our case, for instance, if the reporter has a defective memory, then the premise in (9)(a) will have a low plausibility value, and, as a consequence, the conclusion has to be assigned a relatively low plausibility value, too. If, however, the reporter has overheard

¹¹ For example, it may happen that the statement “Structure X is grammatical in English’ is plausible on the basis of the linguist’s linguistic intuition, but implausible on the basis of corpus data, because no utterances can be found in a given corpus with this structure. Thus, on the basis of the corpus as a direct source, the statement “Structure X is not grammatical” should be accepted.

Professor Gardner’s words in a conversation just now, then (9)(a) should receive a high plausibility value, and (9)(c) will be more plausible as well. From this it follows that the plausibility of the premises is necessary but not enough to ensure the plausibility of the conclusion. There has to be some *semantic relation* between the premises and the conclusion as well, such as causality, analogy, necessary or sufficient condition, part-whole relation, whole-part relation etc. that secures a linkage among the premises, latent background assumptions and the conclusion so that changes in the plausibility of the premises and background assumptions can influence the plausibility of the conclusion.

Deductive validity, in contrast, is not a necessary criterion. It is often the case that the inferences we make use of are *enthymematic*.¹² This means that one can *draw* plausible inferences without completing the set of the premises with latent background assumptions in such a way that there is a logical consequence relation between this extended set of statements and the conclusion. Nevertheless, regarding the *evaluation* of plausible inferences, we may stipulate the requirement that the premises should be completed with latent background assumptions that are at least of neutral plausibility in the given context in the sense of (8) and make the inference, together with the premises, deductively valid. This means that the latent background assumptions must not be known to be implausible or false in the given context. Even so, plausible inferences are *fallible*. That is, it may happen that the premises of a plausible inference are plausible but one of the latent background assumptions which was deemed plausible or of neutral plausibility turns out to be implausible or false. In such cases, the conclusion loses the plausibility it gained from this inference, too.

On the basis of the above criteria, (9) is a plausible inference in contexts in which the premise is plausible or true with certainty and the latent background assumption can be assigned a plausibility value (that is, it is true with certainty, plausible or at least of neutral plausibility):

$$(10) \frac{0 < |\text{Professor Gardner said “I didn’t meet any top models at the airport.”}|_{R_1} < 1}{[0 \leq |\text{Katie is a top model.}|_{R_2} \leq 1]}{0 < |\text{Professor Gardner said that he didn’t meet Katie at the airport.}|_{(10)} < 1}$$

Nevertheless, indirect reports seem to require stricter stipulations against latent background assumptions. It is clearly unsatisfactory, for example, if (10)(b) is merely a conjecture raised by the reporter; he/she must have strong evidence for this claim. If the plausibility of the latent background assumptions is low, then the indirect report has to face the objection that it is solely a speculation, and the reporter falsely ascribes the report to the reported person. The indirect report as a speech act can be felicitous only if *all background assumptions are assigned a very high plausibility value so that the conclusion’s plausibility value approximates the premise’s plausibility value*. Similarly, the premise should have a reasonably high plausibility value, too.

One might raise two objections at this point.

(a) The first objection is that (10) is still enthymematic. It is not deductively valid but contains unidentified latent background assumptions. Basically, this problem can be handled in three different ways.

The first solution is a rather formal and trivial one. Namely, a further latent background assumption may be added to this inference that transforms (10) into a deductively valid inference:

¹² See e.g. Rapp (2010) for the history of this notion. See Rescher (1976: 60ff.), Polya (1948: 221ff.) for enthymematic plausible inferences. For an overview of the problems they raise and the argumentation schemes in which they participate see Walton et al. (2008).

- (11) $0 < |\text{Professor Gardner said "I didn't meet any top models at the airport.}|_{R_1} < 1$
 $[0 < |\text{Katie is a top model.}|_{R_2} < 1]$
 $[|\text{If Katie is a top model, and Professor Gardner said "I didn't meet any top models at the airport, then one can say that Professor Gardner said that he didn't meet Katie at the airport.}|_{\text{?}} = ?]$

 $|\text{Professor Gardner said that he didn't meet Katie at the airport.}|_{(11)} = ?$

The question is, of course, whether and how a plausibility value can be assigned to the second latent background assumption. It requires us to judge how plausible it is that the reporter's interpretation of Professor Gardner's words in the given situation is correct. This, however, would mean that we as linguists make a decision about the acceptability of (10) solely on the basis of our *linguistic intuition*, without taking into consideration the *situation* in which the indirect report was produced.

A second possibility is that we leave (10) incomplete and assign the plausibility value 0 to the missing and unidentified latent background assumptions. As a consequence, the conclusion would obtain a low plausibility value. This method might be viable insofar as it often happens that we make use of enthymematic inferences and it is not always necessary or possible to reveal all background assumptions. From a theoretical point of view, however, this solution would not be satisfactory, either. While a reporter may draw enthymematic inferences without consciously identifying all the details and steps of his reasoning, the modelling of linguistic behaviour cannot dispense with revealing the things *reporters should know or believe* when uttering a given indirect report in a given situation.

Thus, the third possibility is to complement (10) with latent background assumptions identified not through formal logical considerations but by trying to *elaborate on the situations* in which the original utterance was put forward and in which the indirect report has been created, respectively. Consider the following example:

- (12) $0 < |\text{Professor Gardner said "I didn't meet any top models at the airport.}|_{R_1} < 1$
 $[0 < |\text{Katie is a top model.}|_{R_2} < 1]$
 $[0 < |\text{Katie usually does not look like a top model because she wears square clothing and ugly old trainers and does not wear any make-up.}|_{R_2} < 1]$
 $[0 < |\text{Professor Gardner does not know Katie.}|_{R_2} < 1]$

 $|\text{Professor Gardner said that he didn't meet Katie at the airport.}|_{(12)} = ?$

(12) seems to be odd: one does not want to call its conclusion plausible on the basis of its premise and latent background assumptions. That is, if the reporter knows or believes that Katie does not look like a top-model and that Professor Gardner does not know her, then he/she should not interpret the original utterance as "Professor Gardner said that he didn't meet Katie at the airport". This motivates the following extension of (10):

- (13) $0 < |\text{Professor Gardner said "I didn't meet any top models at the airport.}|_{R_1} < 1$
 $[0 < |\text{Katie is a top model.}|_{R_2} < 1]$
 $[0 < |\text{Katie always looks like a top model.}|_{R_2} < 1]$

 $0 < |\text{Professor Gardner said that he didn't meet Katie at the airport.}|_{(13)} < 1$

At this point one might raise the objection that (13) is still enthymematic and further latent background assumptions should be revealed and evaluated. Thus, it is not clear how latent background assumptions can be identified and whether, and if so, where the process of their identification terminates. This is, however, not a deficiency of the application of the p-model

but one of the essential features of indirect reports. Neither the reporter nor the listener is in possession of all relevant information and they may disregard factors which are capable of influencing the conclusion's plausibility. The possibility that new latent background assumptions may be revealed is one of the reasons why the acceptability of indirect reports is often controversial among speakers (and linguists, of course).

(b) The second objection against (10) is that one cannot rule out that the reporter relied on some other background assumption such as:

$$(14) \frac{0 < |\text{Professor Gardner said "I didn't meet any top models at the airport."}|_{R_1} < 1}{[0 < |\text{Katie is not a top model but she looks like a top model and everybody thinks that she is one.}|_{R_2} < 1]}{0 < |\text{Professor Gardner said that he didn't meet Katie at the airport.}|_{(14)} < 1}$$

As we have seen, in each indirect report there is only one explicit premise – namely, a statement related to the original utterance – and all further information needed to infer the conclusion is provided by latent background assumptions. Thus, it is both the relatively great number of latent background assumptions joining the premise and the relatively great variety of possible selections of the latent background assumptions that may yield a possible explanation of the great number of correct indirect reports of a reported utterance.¹³

Thus, the analysis of (9) should cover *a series of variants*, making use of different extensions of the premise and the conclusion with latent background assumptions, creating and examining as many situations as possible in which this indirect report could have emerged. The moral of these considerations is that the linguist should try to *identify as many latent background assumptions* and *create as many contexts as possible* in order to find out which factors are relevant in principle for the production of an indirect report.

2.5 From the indirect report to the processed report

Let us now turn to the reconstruction of (7), that is, the second inference process, conducted by the listener of the indirect report. With the help of the p-model's plausibility indexing tools, a possible reconstruction is (15):

$$(15) \frac{0 < |\text{Professor Gardner said that he didn't meet Katie at the airport.}|_R < 1}{0 < |\text{Professor Gardner didn't meet Katie at the airport.}|_{(15)} < 1}$$

The premise of (15) corresponds to the conclusion of (10) but they are not completely identical. Namely, the listener cannot reconstruct the inference drawn by the reporter. Therefore, the listener cannot adopt the plausibility value of the conclusion of (10), either, although he/she may know its rough structure. What does this mean? We may suppose that on the basis of generalizations gained from situations in which indirect reports were used by other speakers, as well as from his/her own experience, the listener will assume that the reporter's starting point was an utterance of Professor Gardner and that the reporter might have modified the original utterance to some extent. If this is so, then we can identify several factors which influence the reliability of the premise of (15).

¹³ “[...] indirect reports are sensitive to innumerable non-semantic features of reported utterances and even of the context of the report itself. As a result, typically there will be indefinitely many correct indirect reports of any particular utterance.” (Cappelen and Lepore 1997b: 291)

First, the trustworthiness of the reporter's memory and background knowledge influences the reliability of (15) because it is one of the subsources that determine the plausibility of its premise. Therefore, the listener has to evaluate the reliability of these subsources (and eventually re-evaluate their reliability). For example, if the listener knows that the reporter's power of recall is very weak or if the reporter is known for misunderstanding everything he/she hears then he/she may be less ready, or even not ready at all, to accept the report.

Second, the range of alternative formulations and their usage is one of the factors that might have been taken into consideration by the listener. It should be relevant information for the listener that the reporter has chosen the utterance "Professor Gardner said that he didn't meet Katie at the airport" and not, for example,

Professor Gardner believes/thinks/seems to think that he didn't meet Katie at the airport.

Professor Gardner cannot remember having met Katie at the airport.

To the best of my knowledge, Professor Gardner didn't meet Katie at the airport.

Professor Gardner didn't meet Katie at the airport.

On the basis of our personal communication I can say that Professor Gardner didn't meet Katie at the airport.

Professor Gardner said: "I didn't meet Katie at the airport." etc.

These considerations suggest that the conclusion of the inference drawn by the reporter and the premise of the inference produced by the listener are not identical. The difference between them is that their plausibility value is evaluated on the basis of different sources; or, to put it another way, the listener *re-evaluates* the plausibility of the indirect report.

(15) suggests that there is only one relevant source in this case: the reporter (R). Nevertheless, for instance, Professor Gardner's visual perception and his knowledge of what top models should look like are relevant factors in determining the plausibility of the conclusion as well. Therefore, in an implicit way, with the help of a latent background assumption, our reconstruction should also introduce the original speaker into the set of sources. This motivates raising the following improvement of (15):

$$(16) \quad \frac{0 < |\text{Professor Gardner said that he didn't meet Katie at the airport.}|_R < 1}{[0 < |\text{Professor Gardner informed } R \text{ about the events at the airport correctly.}|_L < 1]} \\ 0 < |\text{Professor Gardner didn't meet Katie at the airport.}|_{(16)} < 1$$

If the listener knows that Professor Gardner is extremely short-sighted, then the latent background assumption in (16), and, as a consequence, its conclusion will have a low plausibility value. Or, alternatively, Professor Gardner may be one of the most eagle-eyed linguists who have ever shown up at an airport, but if he is also known for being very absent-minded and thus often not realizing what he actually sees, then the plausibility value of the statements mentioned is again low. However, if Professor Gardner is neither short-sighted nor absent-minded and is famous for his precise observations, then the latent background assumption has to be assigned a high plausibility value; but even in this case, it is not true with certainty, for humans may err and human perception is, as the history of science has shown during the past centuries, not absolutely reliable.

Clearly, this latent background assumption is at a meta-level: it does not pertain to a statement relating to the situation but to the description of a situation by the original speaker. That is, the listener cannot judge the plausibility of the original utterance because he/she knows it only indirectly, from the indirect report. Thus, he/she can only assess the reliability of the original speaker as a source in relation to the situation at issue.

On the basis of the above considerations, we might also say that (7)/(16) can also be described as a kind of transformation:

(17) $0 < |\text{Professor Gardner said that he didn't meet Katie at the airport.}|_R < 1$



$0 < |\text{Professor Gardner didn't meet Katie at the airport.}|_{R \& O} < 1,$

where R is the reporter and O is the original speaker, that is, Professor Gardner. (17) displays transparently that the indirect report is assigned a plausibility value on the basis of two sources: the reporter and the original speaker. It does not indicate, however, the role of the latter. (16) is more informative in this respect because it mirrors the asymmetrical role of the reporter and the original speaker, and shows why the listener may react in two different ways, as we have seen in Section 2.1. Namely, he/she may bring into question the reliability of the original speaker as a source and that of the reporter. In the first case, the listener may not be casting doubt on the accuracy of the reporter's interpretation but on the correctness of the original speaker's statement. In the second case, in contrast, the listener will regard the reporter's reformulation with suspicion.

2.6 The p-context-dependence of indirect reports

2.6.1 The concept of the 'p-context'

In the light of the recent literature underlying (A2) and (A3), the context-dependence of indirect reports goes without saying. In order to capture this, we introduce the notion of *p-context*. The p-context differs from the notion of 'context' as normally used in pragmatics. The prefix 'p' serves to restrict the contextual information merely to those factors that may influence the plausibility value of statements. The *p-context* includes, among other things, the available reliable sources in terms of which the plausibility value of statements can be judged. It also covers a set of statements together with their plausibility values with respect to the sources in the p-context.

Indirect reports involve three different p-contexts corresponding to the three speech acts involved: that of the production of the original speaker's utterance, that of the reporter's production of the indirect report and that of the listener's processing of the report. These three p-contexts usually cover different statements and different sources, and statements may be assigned different plausibility values within them. It may also happen that, for example, a statement is plausible in the original speaker's p-context but it is implausible in the listener's p-context. The different evaluation of the plausibility of premises and latent background assumptions leads inevitably to differences in the evaluation of the conclusion of plausible inferences as well. Since indirect reports come into being as two successive plausible inferences, variance in the plausibility of the premises or latent background assumptions may result in variance in the judgement of the felicitousness of the report and/or cause failures in the communication process.

Let us examine this in detail.

2.6.2 The p-context of the original speech act

The original speech act includes Professor Gardner's utterance "I didn't meet any top models at the airport". The plausibility of the related statement depends, among other things, on how Professor Gardner arrived at this statement. For example, if he asked every woman at the airport without exception whether she was a top model and each time he got the answer 'no', then this investigation is a very reliable source that can make the statement at issue highly

plausible; or, if we have no reason to doubt the women's answers and can be sure that nobody tried to keep her occupation secret by giving a false answer, it may be deemed true with certainty. If, in contrast, Professor Gardner should have visited his optician because his eyesight has deteriorated recently, then only a rather low plausibility value seems to be appropriate. Nevertheless, this plausibility value does not percolate to the recalled version of the original utterance or to the indirect report. That is, the plausibility value of the statement "Professor Gardner said that he did not meet Katie at the airport" or the statement "Professor Gardner said 'I did not meet any top models at the airport'" may be very high even though the statement "I did not meet any top models at the airport" has low plausibility or is implausible or even false with certainty.¹⁴

2.6.3 The p-context of the reporting speech act

The inference process producing the indirect report does not make use of the original utterance itself as a premise, as we have seen with (10)/(13) in Section 2.4 as well as in Section 2.1. Neither does the reporter treat it as a statement whose plausibility value he/she should re-evaluate, either. Its judgement is put aside. The reason for this step lies in the circumstance that the information content and its source are equally important and have to be referred to. For instance, it may be the case that the reporter deems an utterance of the original speaker relevant in the given situation but he/she is reluctant to accept its content, does not want to take responsibility for it, or agrees with it but thinks that the original speaker is considered to be a more reliable or more accepted source than him/herself, etc. For example, suppose that the listener asked the reporter whether Katie was at the airport. In the p-model's terminology this means that the initial state of the p-context of the reporting speech act is burdened with informational underdetermination. In order to resolve this, the reporter seeks relevant pieces of evidence. He/she was not present at the airport, but knows that Professor Gardner was there, thus he can be a reliable source of information. Therefore, he/she extends the p-context by a direct source (Professor Gardner) and a statement he makes that seems to be relevant.

In such cases, the reporter focuses first on the locution by recalling the original utterance (at least ideally) as accurately as possible. Then, he/she makes the source of the plausibility of the statement at issue explicit and raises it into the information content of the related statement, producing the recalled version of the original utterance:

(18) Professor Gardner: "I didn't meet any top models at the airport."



Professor Gardner said [as far as I can recall it] "I didn't meet any top models at the airport."

As we have seen in Section 2.1, the recalled version of the original utterance receives a plausibility value depending on the accuracy of the original utterance's recall. For example, if the reporter is a person who herself heard Professor Gardner saying what he said, then this plausibility value is higher than if it were reported by someone who heard it from another person. Nevertheless, it must have an appropriate plausibility value, although this may differ from situation to situation.

¹⁴ Of course, the former utterance belongs to the p-context of the reporting speech act.

As a next step, the recalled version of the original utterance is transformed into the indirect report with the help of a plausible inference which we reconstruct here as a kind of transformation, too:

(19) Professor Gardner said [as far as I can recall it] “I didn’t meet any top models at the airport.”



Professor Gardner said that he didn’t meet Katie at the airport.

There are situations in which the reporter merely changes the indexicals and demonstratives. In other cases, this might be (felt) insufficient. Namely, it may be the case that the reporter utters the recalled version of the original utterance “Professor Gardner said that he didn’t meet any top models at the airport” without any change and leaves the task of elaborating the relationship between this information and the answer to the question of “Was Katie at the airport?” to the listener. This is, however, a viable alternative if the listener can be reasonably supposed to share the latent background assumptions of (13) and be capable of elaborating the conclusion (for example, the implication). If this is not the case, then either the latent background assumptions have to be made explicit, or there should be a bigger gap between the recalled version of the original utterance and the indirect report – that is, it is the reporter who draws the inference and presents only the resulting conclusion.

Thus, if the reporter infers the indirect report from the original utterance, then the latent background assumptions applied also belong to the p-context of the indirect report. There are p-contexts in which the plausibility value of the premise as well as that of the conclusion has to be near to 1, and there are situations in which a greater distance between the original utterance and the report is allowed. But in certain situations, the original utterance and the indirect report have to be practically identical. Moreover, under certain circumstances, the choice of other linguistic means may be more appropriate. For example, if the reporter accepts Professor Gardner’s utterance and is inclined to take on the responsibility for its truth or plausibility, he/she may simply say “Professor Gardner didn’t meet Katie at the airport.” In other cases, exact quotation may be required.

2.6.4 The p-context of the report processing

The original utterance and its recalled version by the reporter, as well as the latent background assumptions made use of by the reporter usually do not belong to the listener’s p-context; or there may be considerable differences between their plausibility. However, if we assume that the general structure of indirect reports belongs to one’s linguistic knowledge, then we may risk the hypothesis that the listener may have guesses about the contribution of the original speaker and the reporter to the report, and, if there are useable clues, he/she may be capable of separating their role to a greater extent. Capone puts this as follows:

“The practice of indirect reports involves being able to separate out what is attributable to the original sayer and what is attributable to the current speaker, even if both appear in a that-clause. So a useful principle is the following:

Do not take everything that appears in the that-clause of an indirect report as belonging to the voice of the original speaker whose speech act is being reported.

A complementary principle is the following:

Separate the elements of the that-clause that contribute to the voice of the original speaker from those that embody the voice of the reporter; do this by exploiting the contextual clues that are available for this purpose.” (Capone 2010: 388)

For instance, if the listener knows both the original speaker and the reporter, then he/she might identify correctly whom a given wording belongs to, that is, whether the original speaker chose a phrase, or it results from the reporter’s interpretation. In other cases, however, this is not possible. In general, our reconstruction in (16) and (17) is based on the idea that the listener’s p-context contains the indirect report in such a way that its plausibility value is re-evaluated by the listener. The resulting indirect report is a plausible statement if the reporter is deemed to be a reliable source insofar as he/she remembered and interpreted the original utterance correctly. The latent background assumption stating that the original speaker is a reliable source in relation to the information content of the report also belongs to this p-context. The exact amount of their contribution to the report, however, in most cases cannot be indisputably determined.

2.7 The solution to (P)(a)

To sum up our considerations in Section 2, the following solution to the subproblem (P)(a) presents itself:

- (S) (a) The relationship between the original utterance and the processed report can be described as two consecutive plausible inferences as in Figure 1:

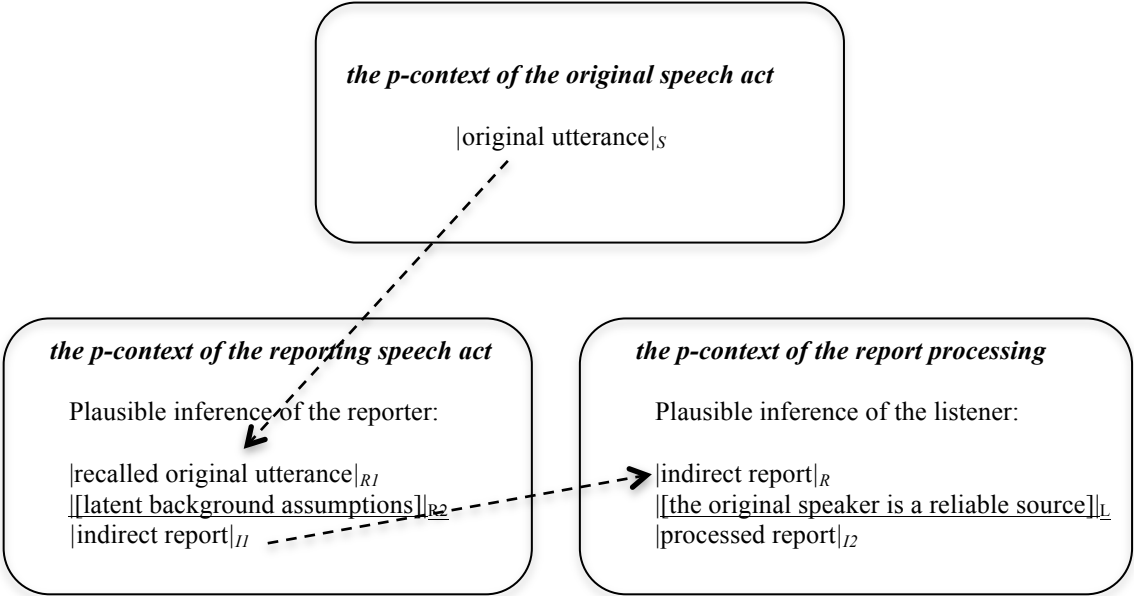


Figure 1

The first plausible inference starts from the recall of an utterance of the original speaker. Both the information content and the source of this utterance seem to be relevant in the given situation. The plausibility value of this statement is determined by the peculiarities of how the reporter became acquainted with the original utterance, as well as by the reliability of the reporter’s memory. The reporter may rely on latent background assumptions as well, whose plausibility value has to be appropriately high. The conclusion of this first inference is the indirect report that also makes the source of the original utterance explicit with the help of the phrase “said that”.

The second inference starts from the indirect report but its plausibility value is re-evaluated by the listener, crucially on the basis of the reliability of the reporter as a direct source. If both the reporter and the original speaker are regarded as reliable sources, then the listener will

arrive at the processed report as a plausible conclusion on the basis of a compound source covering both the original speaker and the reporter.

3 The function of indirect reports

3.1 First approximation

In Section 2, we have tried to reveal several aspects of the structure of indirect reports but have not systematically touched upon the question of why and how indirect reports are used. In this section we will argue that the creation and interpretation of indirect reports is at least partially guided by a strive for the elimination or reduction of informational over- or underdetermination. In the next subsection, we will briefly present the tools the p-model offers for the description of informational under/overdetermination and how these concepts can be applied to the use of indirect reports.

3.2 P-problems: p-inconsistency, p-incompleteness

The p-context may be informationally *overdetermined*. This means that the sources in the p-context yield too much information in the sense that there is a statement which is made plausible by some source while its negation is made plausible by another. In such cases, the set of the plausible statements in the p-context is *p-inconsistent*. Look at the following example from Wieland (2013: 394):

- (20) *A*: This morning I had pancakes, toast, and coffee.
B: *A* said that she had breakfast this morning.

Let us suppose that *C* wants to invite *A* to breakfast but the p-context consisting of his/her knowledge is p-inconsistent because it is both plausible and implausible that *A* has already had breakfast. Namely, it is 9 a.m., and in the hotel *A* is staying at, breakfast is served between 6 and 8. This piece of information makes the conjecture that *A* has already had breakfast that morning plausible. On the other hand, *C* might know that *A* usually does not get up earlier than 8 a.m. From this he/she may conclude with reason that *A* did not eat that morning because she arrived late in the dining room.

Nevertheless, the p-context may be informationally *underdetermined* as well. Specifically, a p-context is *p-incomplete* if it contains statements which are neither plausible (in the extreme case: true with certainty) nor implausible (in the extreme case: false with certainty) with respect to any source given.

Let us suppose that in the above example, *C* does not know whether *A* has already had breakfast and does not possess information about her hotel and habits.

In both cases, *B* may remember a relevant utterance of *A* and interpret *A*'s words in such a way that she uses a shorter co-referential phrase instead of the exact listing of the breakfast menu:

- (21) $0 < |A \text{ said "This morning I had pancakes, toast, and coffee."}|_{B1} < 1$
 $[0 < | \text{If one has pancakes, toast, and coffee in the morning then this means that one has breakfast.} |_{B2} < 1]$

 $0 < |A \text{ said that she had breakfast this morning.}|_{(21)} < 1$

With the help of (21), *the reporter makes it possible for C to resolve the p-inconsistency or p-incompleteness* by making the statement ‘*A* said that she had breakfast this morning’

plausible. Namely, starting from B 's indirect report, C may draw the following plausible inference:

$$(22) \frac{0 < |A \text{ said that she had breakfast this morning.}|_B < 1}{[0 < |A \text{ informed } B \text{ about her morning correctly.}|_C < 1]} \\ 0 < |A \text{ had breakfast this morning.}|_{(22)} < 1$$

If B has recalled A 's words genuinely (but not necessarily exactly), and her background knowledge includes the above latent background assumption which can be assigned a high plausibility value and, furthermore, C deems both A and B trustworthy, then this will be a felicitous indirect report. Since (22) increases the plausibility of the statement 'A had breakfast this morning' considerably, the p-inconsistency can be resolved in such a way that this statement is kept while its negation is rejected.

Nevertheless, there are situations in which (20) would be infelicitous. For instance, if C required detailed information about A 's breakfast because he has to supervise her diet, then B 's report will be infelicitous because the report cannot resolve the informational underdetermination of the listener's p-context, although the original utterance could have done this. This means that under these circumstances, the information loss between the information content of the original utterance and the report is severe. The context-dependence of indirect reports (see Subsection 2.6) also means that relevant information must not vanish. 'Relevant' means that *if the original utterance is suitable for resolving the starting p-problem, then the processed report has to be capable of doing this, too.*

3.3 The problem solving efficacy of indirect reports

At this point the question emerges of why speakers use indirect reports instead of producing "normal" utterances. Thus, instead of putting forward an indirect report as in (20), B might have simply said that 'A had breakfast this morning'. This statement seems to be identical with the processed report. This is, however, not the case because they obtain their plausibility values from different sources. To wit, C would assign a plausibility value to B 's statement 'A had breakfast this morning' on the basis of B 's supposed well-informedness. If, in contrast, B makes use of the indirect report as in (20), then C will reckon the plausibility of the statement at issue is very high, because its information content originates partly from A , and B is regarded rather as the mediator of this information.

As a consequence, the use of an indirect report may lead to a higher plausibility value, which makes the problem solving process more effective. Therefore, indirect reports may be *effective tools of problem solving* if the reporter knows that a statement is relevant for the decision but the original speaker's authority is greater than his/her own authority with respect to this statement, or he/she cannot judge the plausibility of the statement at issue, or thinks that it is implausible or false and wants to shift the responsibility for its acceptance to the original speaker.

3.4 The solution to (P)(b)

On the basis of the above considerations we propose the following solution to (P)(b):

- (S) (b) The expression "said that" is the *indicator* of the shared responsibility for the information content and formulation of the indirect report. It highlights one of the direct sources of the report, and evinces that the statement at issue stems from

multiple sources: from the original speaker and the reporter. Therefore, indirect reports may be effective tools of problem solving in cases in which the original speaker’s authority is greater than that of the reporter, or if the reporter does not want to take responsibility for its truth. See Figure 2.

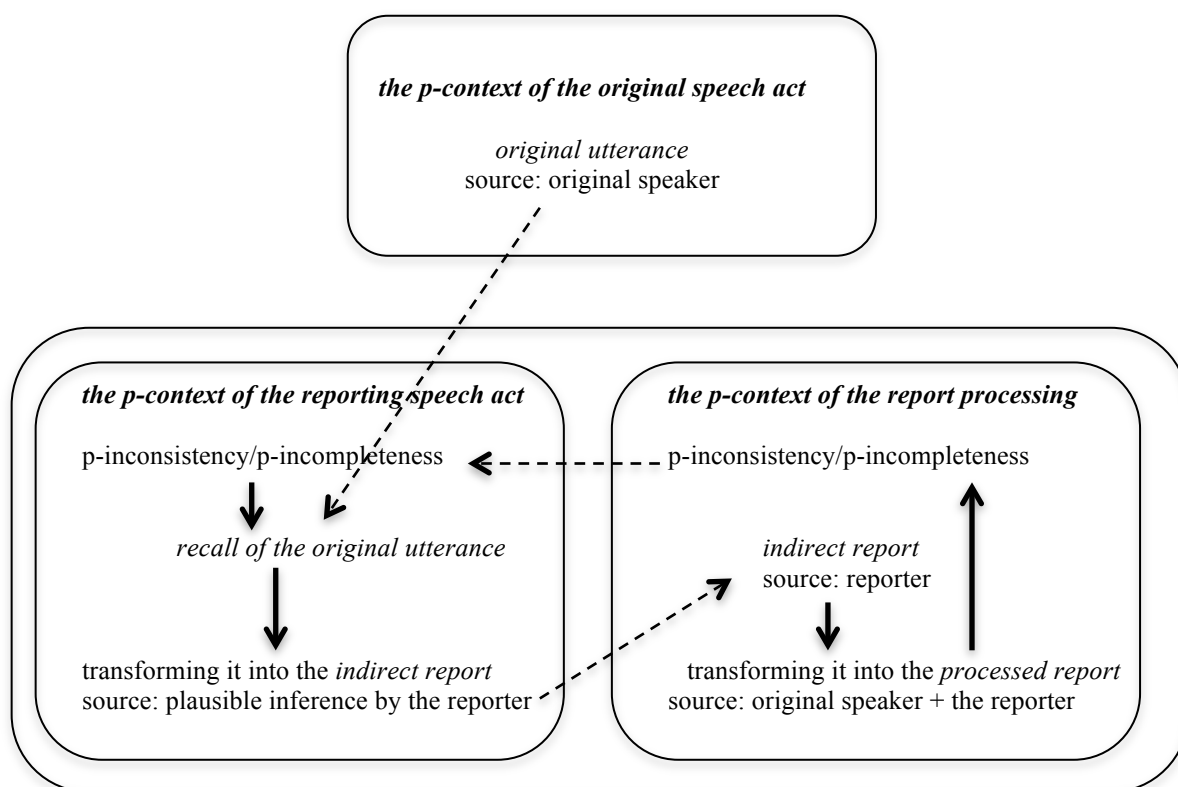


Figure 2

4 Criteria for the evaluation of indirect reports

4.1 First approximation

In the literature, there is general consensus within pragmatic accounts of indirect reports that the original utterance and the processed report need not have the same semantic content. Thus, several cases have been discussed in which the relationship between the processed report and the original utterance is characterised by *inter-substitutability of expressions*, *co-reference generated in the reporting context*, *partial semantic overlap* (elimination or addition), or *inferential relationship*, while the report is felicitous (cf. Cappelen and Lepore 1997b, Capone 2010, Wieland 2013). It is less clear, however, how to distinguish between felicitous and infelicitous cases:

“What has not been accounted for in this paper [...] is the way in which reporting is an act that has standards of evaluation. [...] I have used the broad term ‘felicitous’ to describe a successful report. Context may vary with respect to the required strength of fidelity between the original utterance and the report of this utterance. In some, but not all, cases it is appropriate to assess whether the report is *true*. In some, but not all, cases it is appropriate for there to be *identity* between the original utterance and the report. In other cases, the two utterances, whether in content, form or something else entirely paralinguistic, need to resemble each other in some other way altogether.” (Wieland 2013: 410; emphasis as in the original)

Therefore, our next task will be to propose some criteria which seem to be relevant in judging indirect reports.

4.2 The role of background knowledge

The first criterion of the efficacy of indirect reports has been put forward in Section 3.2 in relation to (20):

- I. *If the original utterance is suitable for resolving the starting p-problem, then the processed report has to be capable of doing this, too.*

Let us see what happens if we change *A*'s and *B*'s words in (20):

- (23) *A*: This morning I had breakfast.
B: *A* said that she had pancakes, toast, and coffee this morning.

The reason why (23) may fail is that in this case the reporter's inference when creating the indirect report presumably relies on the latent background assumption (24):

- (24) If *A* had breakfast this means that she had pancakes, toast, and coffee this morning.

Under normal circumstances, this is a statement with a very low plausibility value. Nevertheless, it may be the case that *A* usually does not have breakfast but if she has then she always eats pancakes, toast, and coffee. Or *B* may be informed about the breakfast menu of the hotel. In these cases, (24) belongs to the p-context of the reporting speech act and, on the basis of his background knowledge pertaining to *A*'s habits or the hotel's menu, *B* is a highly reliable source with respect to this statement. From this it follows that (24) has a high plausibility value. Thus, the indirect report will be correct:

- (25) $0 < |A \text{ said "I had breakfast this morning."}|_{B1} < 1$
 $[0 < | \text{If } A \text{ had breakfast this means that she had pancakes, toast, and coffee this morning.}|_{B2} < 1]$

 $0 < |A \text{ said that she had pancakes, toast, and coffee this morning.}|_{(25)} < 1$
- (26) $0 < |A \text{ said that she had pancakes, toast, and coffee this morning.}|_B < 1$
 $[0 < |A \text{ informed } B \text{ about her morning correctly.}|_L < 1]$

 $0 < |A \text{ had pancakes, toast, and coffee this morning.}|_{(26)} < 1$

This does not mean that (25) is felicitous in every context. If, for example, *A* does not want to specify her menu because she is on a diet and does not want to reveal that she did not follow it, then the information growth of the processed report in comparison to the original utterance is not tolerable. That is, adding the latent background assumption (24) was not licenced by the original speaker; it contradicts her intentions. To put it differently, while the original utterance does not make it possible to assign a plausibility value to the statement "*A* strictly follows her diet", the report in (26) can be used as a premise of a plausible inference that makes this statement implausible.

From this two criteria arise:

- II. *The latent background assumptions used by the reporter must have a high plausibility value.*
 III. *The reporter must not add information to the original utterance which was intentionally omitted by the original speaker.*

4.3 Adding contextual information

Wieland (2013: 395) exemplifies with (27) cases in which the reporter extends the original utterance with information pertaining specifically to the context of the reporting speech act:

- (27) *A*: My favorite tapa is patatas bravas.
B: *A* said that her favorite tapa is the third item on your menu.

The inference drawn by the reporter can be reconstructed as (28),

$$(28) \frac{0 < |A \text{ said "My favorite tapa is patatas bravas."}|_{B1} < 1}{[0 < |Patatas bravas is the third item on C's menu.|_{B2} < 1]} \\ 0 < |A \text{ said that her favorite tapa is the third item on your menu.}|_{(28)} < 1$$

while the listener's reasoning is reconstructed in (29):

$$(29) \frac{0 < |A \text{ said that her favorite tapa is the third item on my menu.}|_B < 1}{[0 < |A \text{ informed } B \text{ about her favourite meal correctly.}|_C < 1]} \\ 0 < |A's \text{ favorite tapa is the third item on my menu.}|_{(29)} < 1$$

Here, the listener's reaction to the report crucially depends on his/her linguistic knowledge that the source of plausibility of the premise of (29) is a compound of *B*'s memories of the original utterance and the way he interprets and reformulates this utterance. Thus, it should be clear for the listener that the situation-bounded part of the report stems from the reporter and it functions as a kind of pointing gesture. In this way, the reporter merges two statements into one: instead of the original speaker's words giving the name of the meal, and a second utterance that it can be found on the menu, he uses only one sentence. Thus, the listener realises that the reporter's voice interferes with the original speaker's voice but the proportions and aim of this intervention are clear for him.

This strategy may fail or be found odd or funny in other cases, such as in the following example by Higginbotham, cited by Capone (2010: 384):

- (30) (a) Galileo: "The earth moves."
 (b) Galileo said that the planet in which Arnold Schwarzenegger is a governor moves.

The original utterance in (30)(a) is well-known and is probably part of the listener's p-context, too. Thus, one might raise the objection that since the original speaker could not have uttered this, because it refers to a person who lives about 500 years later than he, it is an easy task to distinguish between the original speaker's and the reporter's voices. Despite this, the original utterance is a scientific claim, and in the context of science, exact citation is a strict requirement. Moreover, it is not clear what motivates the reformulation of the original utterance in this way. A possible explanation is gained if we interpret (30)(b) as a kind of joke.

From this the following criteria present themselves:

- IV. *The reporter may add situation-dependent elements to the original utterance.*
 V. *In scientific contexts, almost any change to the original utterance counts as intolerable.*

4.4 Elimination of parts of the original utterance

Parts of the original utterance are often *eliminated* in the indirect report. Wieland (2013: 395ff.) argues that the felicity of such reports cannot be judged by semantic analysis but that contextual, i.e. pragmatic, factors have to be accounted for. With the help of the analysis of (31) we will show how the p-model handles this problem:

- (31) *A*: I went to the taco stand and bought a soda.
B: *A* said that she went to the taco stand.

Eliminations can lead to a statement with a high plausibility value, since the latent background assumption the reporter makes use of is true with certainty:

- (32) $0 < |A \text{ said "I went to the taco stand and bought a soda."}|_{B1} < 1$
 $\frac{[|If A went to the taco stand and bought a soda, then she went to the taco stand.|_{B2=1}]}{0 < |A \text{ said that she went to the taco stand.}|_{(32)} < 1}$

Despite this, the decisive factor with eliminations is the p-problematicness of the p-context of the report processing. Namely, if the report is not capable of resolving its p-incompleteness or p-inconsistency because the reporter has eliminated the information that would be relevant, then the report will be infelicitous. Thus, if the listener needs information about *A*'s whereabouts, then (31) will function properly. In contrast, if he wants to be informed about all *A*'s actions, then this will be an infelicitous report.

Another example by Wieland (2013: 396) leads to an unsuccessful report because the original utterance and the processed report lead to contradictory consequences due to the elimination of a crucial piece of information:

- (33) *A*: I had some low-fat nachos for lunch.
B: Did *A* have anything healthy to eat today?
 **C*: *A* said that she had nachos for lunch.

It does not really seem natural that the inference drawn by *C* was as in (34), even though it relies on a latent background assumption with a maximal plausibility value:

- (34) $0 < |A \text{ said "I had some low-fat nachos for lunch."}|_{C1} < 1$
 $\frac{[|If A had some low-fat nachos for lunch, then she had nachos for lunch.|_{C2=1}]}{0 < |A \text{ said that she had nachos for lunch.}|_{(34)} < 1}$

Rather, the premise *C* relied on might have been (35):

- (35) *A* said, as far as I can remember, "I had some nachos for lunch."

C might think (of course, wrongly) that he remembers *A*'s words correctly and deem (35) plausible. This information loss, however, leads to an infelicitous report because *B* will come, as (36)-(38) show, to a conclusion that is in conflict with *A*'s original utterance:

- (36) $0 < |A \text{ said that he had nachos for lunch.}|_C < 1$
 $\frac{[0 < |A \text{ informed } C \text{ about her lunch correctly.}|_B < 1]}{0 < |A \text{ had nachos for lunch.}|_{(36)} < 1}$

$$(37) \frac{0 < |A \text{ had an nachos lunch.}|_{(36)} < 1}{[0 < |Nachos are unhealthy.}|_B < 1]}{0 < |A \text{ had an unhealthy lunch.}|_{(37)} < 1}$$

The conclusion of (37) is p-inconsistent with the conclusion of (38) which is built on *A*'s original utterance:

$$(38) \frac{0 < |A \text{ had an low-fat nachos lunch.}|_A < 1}{[0 < |Low-fat nachos are healthy.}|_B < 1]}{0 < |A \text{ had a healthy lunch.}|_{(38)} < 1}$$

From this it follows that the p-incompleteness (that is, informational underdetermination) of the listener's p-context as indicated by her question is resolved by the report in the opposite way than it would be with the help of the original utterance.

Yet this is not the only possibility. If both *B*'s and *C*'s background knowledge contain (39), then (33) will be felicitous:¹⁵

(39) All kinds of nachos are unhealthy.

To sum up what we can learn from these considerations, we obtain the following criterion:

*VI. Parts of the original utterance may be eliminated from the indirect report if the resulting information loss does not prevent the latter from solving the starting p-problem in the same way.*¹⁶

4.5 Adding parts to the original utterance

We agree with Wieland (2013: 396) that *modifier introductions* may be felicitous under appropriate circumstances, too. For example, (40) may also be, under appropriate circumstances, a correct indirect report:

(40) *A*: I met a woman at the party.
B: *A* said that he met a beautiful woman at the party.

A's words are clearly incorrect if we take them literally, since he must have met many women (and men) at the party, some of them unknown to him. Therefore, *B* might conclude that *A*'s utterance is fragmentary. If *A* does not provide further information then this means that he empowers *B* to interpret his words on the basis of his non-verbal communication and *B*'s knowledge about him. Therefore, if *B*'s background knowledge includes the information that *A* always produces a pleased smile when he speaks about beautiful women, then *B* is entitled to assign a high plausibility value to the latent background assumptions of (40) and draw the following plausible inference:¹⁷

(41) $0 < |A \text{ said "I met a woman at the party"}.|_{B1} < 1$

¹⁵ That is, they reject *A*'s opinion that low-fat nachos are healthy.

¹⁶ Of course, this is a special case of Criterion I.

¹⁷ Nonetheless, if *A* is a woman, as in Wieland's original example, and/or *B* is in no possession of clues that make it possible to draw highly reliable plausible inferences from the original utterance (such as *A* is extremely envious of every woman who is more beautiful than she is, and she made an angry face when uttering her words), then the report in (40) will not be felicitous.

$$\frac{[0 < |A \text{ produced a pleased smile when uttering these words.}|_{B2} < 1] \quad [0 < |A \text{ always produces a pleased smile when he speaks about beautiful women.}|_{B2} < 1]}{0 < |A \text{ said that he met a beautiful woman at the party.}|_{(41)} < 1}$$

Nonetheless, even if *B* interpreted *A*'s utterance correctly, *A* may make the objection that he hasn't uttered these words. This situation seems to be similar to cases in which someone refuses to acknowledge the implicatures of his words.

If, in contrast, *B* has no firm clues about how to interpret *A*'s fragmentary utterance and behavior, then he won't be able to complete this inference with latent background assumptions with an appropriately high plausibility value.

It may also be the case that the reporter adds a modifier to the original utterance that is in conflict with the original speaker's views. For instance, Capone (2010: 388) refers to the following example by Potts:

- (42) Edna is at her friend Chuck's house. Chuck tells her that he thinks all his red vases are ugly. He approves only of his blue ones. He tells Edna that she can take one of his red vases. Edna thinks the red vases are lovely, selects one and returns home to tell her housemate:
'Chuck said I could have one of his lovely vases!'

The inference drawn by Edna can be reconstructed as (43):

$$\frac{(43) \quad [0 < |Chuck \text{ said "You can have one of my red vases."}|_{Edna1} < 1] \quad [0 < |Chuck's \text{ red vases are lovely.}|_{Edna2} < 1]}{0 < |Chuck \text{ said that I could have one of his lovely vases.}|_{(43)} < 1}$$

while her housemate's reasoning is reconstructed in (44):

$$\frac{(44) \quad [0 < |Chuck \text{ said that Edna could have one of his lovely vases.}|_{Edna} < 1] \quad [0 < |Chuck \text{ informed Edna about his vases correctly.}|_{housemate} < 1]}{0 < |Edna \text{ can have one of Chuck's lovely vases.}|_{(44)} < 1}$$

Clearly, the report contradicts one element of the original speech act's p-context, namely, Chuck's claim that his red vases were ugly. If this statement were contained by the p-context of the production of the indirect report, it would be p-inconsistent, and the statement "Chuck said that I could have one of his ugly vases" could have been inferred, too. This is, however, not the case, because Edna has not accepted Chuck's evaluation and rejects his opinion that his red vases were ugly. If this statement does not belong to the p-context of the report processing, that is, if Edna's housemate is not familiar with Chuck's stance regarding his vases, no p-inconsistency will arise in the p-context of the report processing, either, and the report will be accepted without further ado by the listener.

One might raise the objection that this is incompatible with Capone's Paraphrasis Principle:

"Should Y hear what X said he (Y) had said, he would not take issue with it, as to content, but would approve of it as a *fair paraphrasis* of his original utterance." (Capone 2012: 599; emphasis as in the original)

The problem is that Chuck may accept Edna's report because he may find that her words are kind and he may interpret them in such a way that her re-formulation simply shows her admiration, which is something he should not reproach her for. Similarly, positive modifier introductions may be interpreted as gestures of politeness (but despite this, such modifications

will not always be accepted as correct reports). A further problem with the Paraphrasis Principle is that it may happen that the original speaker changed his/her mind and regrets his/her reported utterance, or simply can no longer recall his/her words exactly. Thus, under particular circumstances, factual approval of one's earlier words might be not a criterion that is reliable enough, unless the reporter has evidence relating to the original utterance. A modified version of the principle saying "he should not take issue with [the indirect report]" does not solve the problem, either.

Therefore, it seems to be more appropriate to say that if it is not the judgment of the beauty of Chuck's red vases that is in focus but that what is important is whether he gave one of his red vases to Edna, then the indirect report at issue can be regarded as felicitous. In such cases, Criterion 1 is not infringed. Despite this, the original speaker may reproach the report and cancel the added information content, although if it is clear for the listener that the added content is related to the reporter's voice, then this will be rather pointless. In contrast, if the extension influences the resolution of the starting p-problem, then the report has to be regarded as infelicitous.

Thus, if we change Chuck's and Edna's judgments of the vases (that is, if it is Chuck who thinks that his red vases are beautiful and Edna speaks of them as being ugly), then the report can still be felicitous if it is obvious that Edna has re-evaluated Chuck's opinion and if the aesthetic judgment is irrelevant in the given situation. The evaluation of the indirect report, however, is not straightforward if the listener cannot differentiate between Edna's and Chuck's voices. The situation is even less clear in cases in which it is the original utterance itself that contains the opposed evaluation – that is, if the report contradicts the original utterance.

To put it more generally:

VII. *The original utterance may be extended by new elements felicitously if the added information does not influence the resolution of the starting p-problem (i.e., if the extension is irrelevant in the given situation).*

VIII. *Additions to the original utterance are, similarly to implicatures, cancellable by the original speaker.*

4.6 Inferential indirect reports

It is often the case that there is a larger gap between the semantic content of the original utterance and the processed report; Wieland (2013: 396) calls such instances "*inferential indirect reports*". (2) from Section 1 also belongs to this group:

- (2) *A*: I didn't fail any students.
B: Professor *A* said Maryanne passed her exam.

In this case, the latent background assumptions used by the reporter may not be deemed plausible by the original speaker. That is, (2) may be judged to be felicitous even if Professor *A* does not remember Maryanne because 120 students attended his courses and there were only written exams:

$$(45) \frac{0 < |A \text{ said "I didn't fail any students."}|_{B1} < 1}{\begin{array}{l} [0 < |Maryanne \text{ is one of } A\text{'s students.}|_{B2} < 1] \\ [0 < |\text{For every } x, \text{ if } x \text{ is not failed in an exam, then } x \text{ passed it.}|_{B2} < 1] \end{array}}{0 < |A \text{ said that Maryanne passed her exam.}|_{(45)} < 1}$$

Nevertheless, there are circumstances under which (2) will be an infelicitous report. For example, it may be the case that Maryanne did not try to take part at the exam at all, or she may have dropped out of the university without informing her parents. This suggests that (45) has to be extended by a further latent background assumption:

$$(46) \frac{0 < |\text{Professor } A \text{ said "I didn't fail any students."}|_{B1} < 1 \\ [0 < |\text{Maryanne is one of Professor } A \text{'s students.}|_{B2} < 1] \\ [0 < |\text{For every } x, \text{ if } x \text{ is not failed in an exam, then } x \text{ passed it.}|_{B2} < 1] \\ [0 < |\text{Maryanne took part in Professor } A \text{'s exam.}|_{B2} < 1]}{0 < |A \text{ said that Maryanne passed her exam.}|_{(46)} < 1}$$

If the third latent background assumption were implausible or false, then (46) would not be capable of making its conclusion plausible. Of course, the first latent background assumption might turn out to be false, too: *B* may be mistaken about the identity of Maryanne's professor. All background assumptions must have a high plausibility value in the reporting speech act, that is, on the basis of the reporter's background knowledge. Moreover, if they are relevant for the resolution of the starting *p*-problem, they have to be at least of neutral plausibility according to the original speaker's background knowledge. That is, if the reporter's additions lead to an opposite resolution of the starting *p*-problem, then the report is clearly an incorrect interpretation of the original speaker's words.

From this the following criterion is obtained:

IX. The reporter's latent background assumptions have to be plausible or of neutral plausibility in the original utterance's p-context, whenever the information content of the statements at issue contributes to the solution of the starting p-problem.

4.7 Indirect reports and conflicting information

Cappelen and Lepore (1997b: 284) mention an example whose evaluation is especially difficult. Suppose that *A* was looking fixedly at Stanley when he uttered his words, and both *B*, the reporter and Mathilda, the listener are convinced that Stanley is not Smith's murderer. The question is how to evaluate the following report under these circumstances:

- (47) *A*: Smith's murderer didn't comb his hair today.
B: *A* said that Stanley didn't comb his hair today.

According to Cappelen and Lepore, (47) is a felicitous report. This is, however, not necessarily so. The pitfall with this example is that from the reporter's point of view, there is a conflict between the original speaker's gestures and utterance on the one hand, and on the other, his own background knowledge. Thus, *B* may keep his background knowledge that Stanley is not Smith's murderer and suppress a *presupposition* of *A*'s statement according to which Stanley is Smith's murderer in such a way that he/she ascribes it to *A* without accepting it. This results in (48) and (49), respectively:

$$(48) \frac{0 < |A \text{ said "Smith's murderer didn't comb his hair today."}|_{B1} < 1 \\ [0 < |A \text{ looked at Stanley when he uttered these words.}|_{B2} < 1] \\ [0 < |A \text{ looked at Stanley when he uttered these words, because he thinks that Stanley is Smith's murderer.}|_{B2} < 1] \\ [0 < |If } A \text{ thinks that Stanley is Smith's murderer, then by 'Smith's murderer', he meant Stanley.}|_{B2} < 1]}{0 < |A \text{ said that Stanley didn't comb his hair today.}|_{(48)} < 1}$$

$[0 < | \text{If by 'Smith's murderer', } A \text{ meant Stanley, then he wanted to say that it is Stanley who didn't comb his hair today.} |_{B2} < 1]$

$0 < | A \text{ said that Stanley did not comb his hair today.} |_{(48)} < 1$

(49) $0 < | A \text{ said that Stanley did not comb his hair today.} |_B < 1$

$[0 < | A \text{ informed } B \text{ about the person at issue correctly.} |_M < 1]$

$0 < | \text{Stanley did not comb his hair today.} |_{(49)} < 1$

The indirect report successfully transmits the information that Stanley's hair was uncombed on that day but cancels a presupposition of *A*'s utterance and leads to information loss. Thus, if *A*'s aim consists solely in pointing out that there was an untidy person present, then the report can be deemed felicitous. Nevertheless, *A* might have wanted to alert *B* that there is a murderer in the room or that Stanley is a murderer. In this case, the report does not allow Mathilda to draw the conclusion that there is a murderer in the room, neither does it preserve the speech act type because it is – in contrast to the original utterance – not a warning, which infringes the principle of speech act type maintenance.¹⁸

Another possible constellation is this:

(50) $0 < | A \text{ said "Smith's murderer didn't comb his hair today"} |_{B1} < 1$

$[0 < | A \text{ looked at Stanley when he uttered these words.} |_{B2} < 1]$

$[0 < | A \text{ looked at Stanley when he uttered these words, because he thinks that Stanley is Smith's murderer.} |_{B2} < 1]$

$[0 < | \text{If } A \text{ thinks that Stanley is Smith's murderer, then by 'Smith's murderer' he meant Stanley.} |_{B2} < 1]$

$[0 < | \text{If by 'Smith's murderer', } A \text{ meant Stanley, then he wanted to say that it is Stanley who is Smith's murderer.} |_{B2} < 1]$

$0 < | A \text{ said that Stanley is Smith's murderer.} |_{(50)} < 1$

Thus, Mathilda may draw (51), and arrive at, a different conclusion than in the previous case:

(51) $0 < | A \text{ said that Stanley is Smith's murderer.} |_B < 1$

$[0 < | A \text{ informed } B \text{ about the person at issue correctly.} |_M < 1]$

$0 < | \text{Stanley is Smith's murderer.} |_{(51)} < 1$

That is, she will be informed about *A*'s suspicion that Stanley killed Smith but she will obtain no information about Stanley's untidiness.

We might also examine what happens when *B* reports *A*'s words without any change:

(52)

A: Smith's murderer didn't comb his hair today.

B: *A* said that Smith's murderer didn't comb his hair today.

This indirect report will not be felicitous in every situation. For example, this will be the case if Mathilda does not meet Stanley today and *A*'s utterance was a warning that Stanley is a murderer, or if she sees another person with uncombed hair and misidentifies the killer. This can be avoided if the reporter extends his utterance with the information that *A* looked at Stanley when uttering these words.

¹⁸ Cf. "A reasonable constraint on the practice of reporting is that consistency of speech act type be maintained." (Wieland 2013: 401)

4.8 The solution to (P)(c)

Our considerations yield the following solution to (P)(c):

- (S) (c) Among the criteria pertaining to indirect reports, there are ones that are related to the *reliability of information sources* made use of in the production and processing of indirect reports. These criteria concern
- the plausibility of the latent background assumptions on which the reporter or the listener rely (Criteria II, IX);
 - the problem solving efficacy of the report in comparison to that of the original utterance (Criteria I, VI, VII);
 - changes in the information content of the indirect report in comparison to the original utterance (Criteria III, IV, V, VIII).

Nevertheless, there are some caveats which concern the applicability of this list. First, our analyses can be regarded solely as the first steps towards the elaboration of a system of criteria pertaining to the inferential structure, the reliability of information sources, and the efficiency of indirect reports. Second, there are several other types of criteria for the evaluation of the felicitousness of indirect reports related to other aspects of indirect reporting. Thus, our list is by no means exhaustive. Third, we have not touched upon the question of the relation between the criteria. We have not raised the question of whether these criteria are of the same rank or there is a hierarchy among them. Fourth, we have not examined whether these criteria are hard rules which have to be followed in every case, or soft rules which can be infringed in order to satisfy other (eventually higher-ranked) criteria.

5 Concluding remarks

In this paper, we have tried to reveal the inferential structure, the functions and the felicity conditions of indirect reports by the application of the p-model as drawn up by Kertész and Rákosi (2012, 2014a). We have attempted to show how this approach can shed light on certain pragmatic aspects of the relationship between the original utterance, the indirect report and the processed report.

Our results are in accord with the pragmatic turn in the analysis of indirect reports. In particular, there are at least two reasons why indirect reports reconstructed as plausible inferences should not be analysed in terms of truth conditional semantics. First, since they are uncertain and the report is not true but plausible, per definitionem analysing them via truth conditions does not seem to be well-motivated. Second, due to the role of the p-context in shaping both the inferential structure and the plausibility value of the report, indirect reports are basically pragmatic in nature.

Nevertheless, we emphasised that our investigations have been narrowed down to certain aspects of indirect reports, namely, to the issues of reliability, plausibility, informational states, and problem solving. Therefore, our approach neither provides a comprehensive model of indirect reports nor can be broadened towards a general pragmatic theory. Although it could partially touch on several of the problems discussed in the literature, basically it approaches indirect reports from a novel perspective, thus raising and partially solving problems that have not been reflected upon in the literature so far. Accordingly, it serves to introduce a possible problem shift into the discussion.

However, we have not raised *methodological issues* related to the reconstruction and evaluation of indirect reports. We think that future investigations on this topic should not and

could not dispense with the question of the *data handling techniques* of semantic and pragmatic research into indirect reports.¹⁹

The data base of research into indirect reports consists predominantly of two data types: *introspective data* and *data resulting from thought experiments*. Semantic approaches make use solely of the first type; their starting point is acceptability judgements, as is typical in the field of formal semantics. These acceptability judgements are produced by the linguist and pertain to the isolated, context-free evaluation of sentences. Pragmatic approaches, in contrast, typically make use of results of simple thought experiments insofar as they do not investigate isolated sentence pairs but utterances within their imaginary context. These thought experiments are, however, poorly designed and also rely heavily and crucially on the linguist's own linguistic intuition. The reliability of these data types has, however, been seriously questioned in the last two decades in linguistics.²⁰

Our analyses relied heavily on thought experiments, too. Thus, although we have elaborated on more sophisticated thought experiments by trying to reveal as many factors as possible that may influence an indirect report's felicitousness, the final arbiter of the acceptability of the report was our own semantic and pragmatic intuition. From this it might follow that we should reject our results because they do not meet our own methodological standards. This would, however, be a premature decision. As we have shown in other publications, such as Kertész and Kiefer (2013) and Kertész and Rákosi (2014), thought experiments are, and still remain, unavoidable tools of linguistic theorising in pragmatics. Nevertheless, the above diagnosis motivates the *extension* of the data base by new data types stemming from sources such as real experiments or corpora. Both the collection and the treatment of such data and their integration, however, raise serious methodological problems whose clarification is by no means straightforward and requires further research.

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¹⁹ For a comprehensive overview of the problem of data and evidence in linguistics see Kertész and Rákosi (2012, 2014a).

²⁰ Thus, for example, people may have conflicting opinions about the correctness of linguistic items. Moreover, in many cases their judgements do not result in a firm and clear 'yes' or 'no' but seem to be gradual and uncertain, ranging from 'perfectly acceptable' through 'rather acceptable' towards 'dubious' or even 'totally unacceptable'.

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