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THE PROBLEM WITH TOKEN-REFLEXIVITY

ABSTRACT. This essay presents an argument against the token-reflexive approach to the semantics for indexical languages. After some preliminary remarks in section one, sections two and three explain why some traditional arguments against token-reflexivity are ultimately ineffective. Section four puts forth a more persuasive argument, to the effect that token-reflexive views overgenerate with respect to results of analyticity. However, as section five explains, defenders of the alternative, type-oriented view have all too often wasted the advantage offered by their approach: the unmotivated, independent restriction of semantic evaluation to so-called 'proper' indexes is responsible for undesirable conclusions, similar to those to which token- reflexive theorists are committed.

According to an approach initiated by Hans Reichenbach, the semantic analysis of indexical languages ought to involve token-reflexive rules such as

for any token t of 'now', t refers to the time when t was spoken,

that is, rules that apparently assign semantic properties to particular tokens, rather than to the expression-types they instantiate (see Reichenbach 1947). In his classic essay 'Demonstratives' (Kaplan 1977), David Kaplan has argued against the Reichenbachian perspective, and has insisted that the object of semantic inquiry be understood as what he calls 'sentences-in-context'. Recently, a number of semanticists, such as John Perry, Mark Crimmins, and especially Manuel Garcia-Carpintero, have challenged Kaplan's critique of token-reflexivity, and have defended a token-oriented approach to semantics (see Perry 1997 and 2001; Crimmins 1995; Garcia-Carpintero 1998 and 2000).[1] This paper aims at supporting Kaplan's skepticism towards token-reflexive accounts of indexicality. In what follows I argue that, although the considerations Kaplan presents against token- reflexivity are not ultimately effective, other hints he provides may be developed into persuasive counter-arguments. However, my criticism of token-reflexive treatments of indexicality also reveals an important shortcoming in traditional versions of the type-oriented approach: ironically, a Kaplan-style semantics for indexical languages is typically conjoined

with independent additional assumptions, thereby entailing undesirable conclusions parallel to those to which token-reflexive views are committed.

In section one, I begin with a general presentation of the token-reflexive and the type-oriented approaches to indexical languages; in sections two and three, I focus on issues pertaining to the validity of certain arguments and the analyticity of certain sentences. In these sections, I argue on the token-reflexive theorist's behalf against certain only initially persuasive arguments favoring the type-oriented approach, and I develop the conceptual apparatus needed for the study of the interface between token-reflexivity and matters of logic. On the basis of this background, in section four I present my argument against token-reflexivity, to the effect that views of this kind *overgenerate* with respect to analyticity: on a token-reflexive treatment, certain non-analytic sentences turn out to be analytically true. In section five I explain how traditional analyses of indexical languages fail to take advantage of the resources offered by their commitment to a type-oriented semantics: the arbitrary restriction of semantic analysis to so-called 'proper' indexes yields undesirable results with respect to analyticity similar to those entailed by token-reflexive treatments.

1. PRELIMINARIES

When it comes to the debate discussed in this essay, the topic of contention is often presented in terms of a contrast between semanticists who take concrete tokens as centrally involved in the process of semantic evaluation, and those who favor an account focused on abstract expression-types. It should however be stressed at the outset that the debate in question is *not* primarily concerned with ontological issues pertaining to the existence or make-up of types or, more generally, of abstract entities. As for the sheer admissibility of expression-types, token-reflexive theorists are not only willing to *concede* the existence of repeatable types: they are also typically committed to the existence of objects of this kind, since, as we shall see, the rules they identify as steering the semantic behavior of particular tokens appeal, among other things, to the expression-types they exemplify. On the other hand, the decision regarding the tenability of one view or another pertaining to the ontological make-up of types plays no role in the semantic issues I shall address: neither token-reflexive theorists nor their critics are committed to particular accounts of what types are, and of what kind of metaphysical realm they inhabit. A telling example of such an independence of ontological and semantic issues is provided by David Kaplan, one of the most outspoken critics of a token-reflexive treatment of indexicality, yet equally vocal against an understanding of the

metaphysics of words as instantiable items, exemplified by their tokens in virtue of properties of shape or sound (see Kaplan 1990).[2]

It is not surprising that defenders of token-reflexive accounts have no interest in denying the admissibility and theoretical usefulness of repeatable types. A semantic theory couched solely in terms of particular occurrences inevitably misses obvious and undeniably important semantic regularities: my utterance of 'I am running now' uncontroversially displays a particular semantic profile in virtue of (among other things) the fact that it exemplifies a certain expression-type, one regulated by the conventions pertaining to the words I used. For this reason, one among the foremost defenders of the token-oriented approach to semantics, Manuel Garcia-Carpintero, explicitly declares his allegiance to what he correctly labels 'a platitude for everybody', namely the notion that 'linguistic meanings are conventional, and therefore attach to repeatables – abstract expression types' (Garcia-Carpintero 2000, 37; see also Garcia-Carpintero 1998, 534).

On the other hand, equally unchallenged is the recognition that types do not suffice as objects of semantic evaluation: uncontroversially, whether an utterance of, say, 'I am running now' is true or false depends on a variety of aspects other than the type it exemplifies. Since what is needed, together with indications pertaining to the structure and composition of the sentence-type in question, is information regarding what is commonly called the context of utterance, type-theorists inevitably end up invoking structures consisting not of types alone, but of types paired with items appropriately related to contexts. A typical example of the relativization of the interpretation of expression-types to contextual parameters is provided by Kaplan's approach to indexical languages in 'Demonstratives'.

In his essay, Kaplan also introduces certain devices which are of interest for the discussion of the relationship between token-reflexive views and type-oriented treatments. Central in the theory of 'Demonstratives' is a formal language LD, involving lexical items intended to mimic the behavior of indexical English expressions, such as 'I' or 'now'. At least for the scope of the simple fragment with which Kaplan and the present essay are concerned, the parameters with respect to which expressions of this kind are evaluated may be understood as quadruples, containing an individual, a time, a location, and a possible world. When Kaplan's apparatus is employed in the analysis of English examples, in the manner discussed below, such parameters are supposed to represent the semantically significant aspects of the appropriate contexts. For this reason, Kaplan calls the quadruples themselves *contexts*. Yet, as obvious as this observation may be, it should be stressed that contexts, in the non-formal sense of 'context',

are concrete, multifarious situations, by no means identifiable with the austere quadruples employed in the systematic evaluation of expressions in LD or English. Referring for clearness' sake to such quadruples as *indexes*, it is clear that indexes are not contexts, in the customary sense of the term, but that they may be used to *represent* contexts, at least for the purpose of the semantic analysis of the expressions in question.[3] In Kaplan's type-oriented approach, given an understanding of an index i as a quadruple $\langle i_a, i_t, i_l, i_w \rangle$, the compositional evaluation of expression-types *vis à vis* indexes proceeds on the basis of rules such as, for instance,

> the expression-type 'I' refers, with respect to an index i, to i_a.

Rules of this kind eventually yield results such as the following:

> the sentence-type 'I am running now' is true with respect to an index i iff i_a is running at i_t in the possible world i_w.

These results may subsequently be applied to the evaluation of particular utterances, on the basis of appropriate hypotheses of representation. For instance, in a typical scenario in which I am speaking on October 15th, my utterance of 'I am running now' is arguably representable by means of the sentence-type I employed, and an index including myself, October 15th, and the actual world as its co-ordinates. My utterance is thus indirectly evaluated as true as long as I am actually running at that time, on the basis of the results reached by the systematic evaluation of the sentence-index pair in question.

As the foregoing paragraph indicates, Kaplan's commitment to an analysis focused on expression-types is compatible with the platitudes that lone sentence-types are not the bearers of semantic properties such as truth, and that any empirically adequate semantic apparatus ought to yield conclusions applicable to particular utterances. Token-reflexive theories do not initially appear to involve importantly different resources in this respect. Token-oriented views are not only committed to an appeal to expression-types within the rules steering the semantic behavior of particular tokens: the additional elements they identify as relevant in this respect pertain, unsurprisingly enough, to contextual aspects parallel to those identified by their antagonists. For instance, Garcia-Carpintero cites the following as a rule for 'I':

> for any token t of 'I', the referent of t is the speaker who has produced t

(Garcia-Carpintero 2000, 38–39). Abstracting from the identification of the appropriate parameter as the person who is speaking (discussed in greater detail later in this paper), and rephrasing the rule in terms of

formally tractable n-tuples, Garcia-Carpintero's proposal amounts to the notion that

> for any token t of 'I', the referent of t is i_a, where i is the index representing the context in which t takes place.

Similarly, once one reaches the stage relevant for the evaluation of entire sentences, token-reflexive accounts of indexicality may obtain conclusions presentable along the following lines:

> for any token t of 'I am running now', t is true iff i_a is running at time i_t in possible world i_w, where i is the index representing the context in which t takes place.

Given my utterance of 'I am running now', and given that myself and October 15th are apparently appropriate *vis à vis* the context of utterance, it follows from the foregoing hypotheses that, in harmony with the conclusions reached by the type-oriented approach, my utterance is true iff I am indeed running on October 15th.

As I pointed out in this section, it is not only the case that the debate under analysis is independent of metaphysical issues pertaining to the nature of types or the admissibility of abstract entities. It is also true that, on either side of the dispute, (i) utterances are eventually associated with a certain semantic profile, (ii) such an association is driven, among other things, by the semantic rules steering the conventional behavior of the uttered expression-types, and (iii) the semantic interpretation of an utterance must also involve hypotheses pertaining to the identification of the contextually appropriate parameters, such as an agent or a time. However, these parallelisms notwithstanding, there seem to be significant differences between a token-reflexive approach to indexicality, and more customary, type-oriented views. In the next two sections, I focus on some *prima facie* plausible, but ultimately inadequate suggestions in this respect. In section four, I explain what I take to be a more important point of disagreement, pertaining to the role and structure played by what I called 'indexes' within token-reflexive theories, and, consequently, pertaining to the analysis of the logical profile of certain arguments and sentences.

2. VALIDITY AND MEANING

Semantic theories, be they of a traditional kind or of a token-reflexive orientation, yield semantic conclusions by taking into consideration sentence-types with respect to particular indexes. Given such assignment of truth-values, certain results inevitably follow pertaining to the semantic

relationships between different sentences, and hence to the validity of certain argumentative structures. These results are then amenable to intuitive scrutiny, at least as far as certain simple cases go: it is a constraint for any empirically adequate semantic theory that intuitively valid arguments are indeed recognized as such. One- premise arguments such as the following appear to be prime candidates in this respect:

(1)   I am running now. Therefore, I am running now.

Yet, so it has occasionally been pointed out, token-reflexive accounts of 'now' are incompatible with our intuitive assessment of (1) as valid. At least in typical cases, it is the time of utterance (speaking, writing, etc.) that determines the contextually salient time, and, at least in some situations, it is perfectly possible that the utterer stopped running right before the second token of 'now'. Thus, so this objection alleges, it follows from a token-reflexive account of 'now' that the temporal indexicals in (1) may be interpreted as making reference to two distinct times and that, when so interpreted, (1) may end up with a true premise and a false conclusion. Perhaps voicing a worry along these lines, Kaplan complains that

[u]tterances take time, and utterances of distinct sentences cannot be simultaneous (i.e., in the same context). But to develop a logic of demonstratives it seems most natural to be able to evaluate several premises and a conclusion all in the same context. (Kaplan 1977, 546)

The objection returns in 'Afterthoughts':

Utterances take time, and are produced one at a time; this will not do for the analysis of validity. . . . even the most trivial of inferences, *P* therefore *P*, may appear invalid. (Kaplan 1989, 584)

On closer scrutiny, however, an objection of this kind is not persuasive. What it indicates is that, on the token-reflexive account, *utterances* of (1) may involve a true utterance of its premise and a false utterance of its conclusion. Yet, this conclusion is irrelevant with respect to the logical validity of (1), and is furthermore a result perfectly compatible with *either* of the views under discussion: a type-oriented approach is by no means prevented from evaluating utterances of the premise and conclusion in (1) with distinct truth-values, as long as distinct times are at issue, that is, as long as the contexts for these utterances are represented by means of distinct indexes. However, as I explain in the next paragraphs, when it comes to the relevant relationship between the truth-values of premise and conclusion in (1), token-reflexive approaches are by no means prevented from yielding results parallel to those obtainable on the basis of type-oriented assumptions.

On anybody's version of a compositional, systematic semantic analysis, truth-values are assigned with respect to particular points of evaluation,

for instance, with respect to particular possible worlds and/or times. Given a sentence-type and an index, a result of unrelativized truth may be obtained by taking into consideration the point of evaluation determined as privileged by the index – equivalently, a result of singly relativized truth-at-an-index may be derived for sentence-types alone (see in particular Kaplan 1977, 547). Informally, this idea reflects our intuition that, say, my October 15th utterance of 'I am running now' is false *simpliciter*, given that, on that day, I was not actually running. On the basis of results of this type, semantically interesting relationships between sentence-types may investigated, such as the notion that, given sentences $S_1, \ldots S_n, S_{n+1}$, it is not possible that $S_1 \ldots S_n$ be mapped to the truth-value *true* with respect to an index i, but S_{n+1} be assigned falsehood with respect to i. Given our intuitions pertaining to the relationships between premise and conclusion in (1), what is required is thus that, in a terminology biased in favor of a type-oriented approach,

> for all indexes i, if the premise is true with respect to an index i, then the conclusion is true with respect to i.

When a requirement of this kind is rephrased in the jargon of token-reflexivity, what is desired is that, as a first approximation,

> for all indexes i, given any true token t of the premise taking place in a context represented by i, any token t' of the conclusion taking place in that context is also true.

Trivially, any token of (a sentence-type of the form) 'I am running now' in a context turns out to be true exactly as long as any token of 'I am running now' in that context is true. Hence, the intuitively desired results regarding (1), and, more generally, pertaining to intuitively valid arguments involving multiple occurrences of indexicals, are derivable from token-reflexive treatments in as direct a manner as in more traditional views.

   The issue of the validity of an argument such as (1) is closely related to questions pertaining to the peculiar status of certain sentence-types, such as

(2)   I am running now iff I am running now.

Sentences such as this have an apparently interesting semantic property, one often referred to by means of connotations such as 'analytically true', 'logically true', or 'true solely in virtue of meaning'. Such a notion of 'analyticity' is of immediate relevance for the main aim of this paper, because it plays a central role in the argument presented in sections three and four. It is thus advisable that I devote the following paragraphs to a general,

preliminary discussion of this idea, before I focus on the status of particular instances *vis à vis* token-reflexive theories. I then conclude this section with an explanation of why, given a development of the resources invoked in the analysis of (1), an explanation of the apparent analyticity of (2) is *not* problematic from the token-reflexive point of view. In sections three and four, I proceed to the presentation of a different, less easily avoidable difficulty for token-reflexive approaches to analyticity.

As we have seen, on either token-reflexive or type-oriented views, conventional meaning (or, at least, that part of an expression's meaning that is of semantic significance, roughly what in 'Demonstratives' Kaplan calls its *character*) 'attaches to repeatables', that is, is a property of types. At least focusing on the portion of meaning relevant for the establishment of reference or truth-value, the meaning for, say, 'now' may be presented within the terminology favored by type-theorists, as the rule that

> the expression-type 'now' refers, with respect to any index i, to i_t.

In the token-reflexive jargon, this amounts to the claim that

> for any token t of the expression-type 'now', t refers to i_t, where i is the index representing the context in which t takes place.

Such rules yield results pertaining to 'truth in virtue of meaning' or 'analyticity', that is, results pertaining to the special status of certain sentence-types: it is in virtue of the meaning of the expressions they involve that certain types turn out to be true at all indexes. For this reason, a semantic theory's results of analyticity, in the sense of the term relevant here, may be compared with our intuitive assessment of the meaning of the expressions in question. For instance, a theory according to which, say, 'it is raining now' turns out to be true at all indexes must be unacceptable, at least with respect to our intuitive understanding of expressions such as 'now' or 'it is raining'. For if the characters it assigns to these expressions are such that the aforementioned sentence-type turns out to be analytically true, it apparently must be the case that, at least for some of the expressions in question, that theory's choice does not appropriately reflect their intuitive meaning. Similarly, it seems reasonable to suppose that, given what 'now', 'iff', etc. mean, a sentence-type such as (2) should indeed be evaluated as true with respect to any index whatsoever, and that analyses unable to yield such a conclusion must involve hypotheses regarding these expressions' conventional profile that are empirically incorrect. What is required, in other words, is that (2) be interpreted as analytic,

given an understanding of analyticity which, within the vocabulary of the type-oriented approach, may be presented in the following terms:

> a sentence-type s is analytically true iff it is true with respect to any index i.

Obviously, a result of this kind may easily be obtained when traditional type-oriented approaches are applied to (2), on the basis of the usual reasonable theses pertaining to the meaning of the expressions in question.

How about token-reflexive views? Given what initially appears to be an obvious rephrasing of the foregoing requirement within its vocabulary, it would seem that what is desired in the case of (2) is a result of analyticity in the following sense of the term:

> a sentence-type s is analytically true iff all tokens t of s are true.

Yet, so one may object, this is clearly not the case: sufficiently slow spoken utterances of (2), for instance, provide instances of tokens of (2) which are false. The strategy invoked above for the intuitive validity of (1), namely the imperative that different sentences be evaluated with respect to the same contextual parameters, seems idle in this case, where only one sentence is at issue.

However, an objection of this kind may easily be rebutted by means of an obvious extension of the strategy employed with respect to (1). If it is granted that commitment to tokens as bearers of semantic values does not prevent a semanticist from bracketing certain irrelevant features of the tokening process, such as the fact that spoken utterances of distinct sentences may not be simultaneous, there should be no reason why certain other accidental regularities, such as the fact that utterances often take considerable time, may not deliberately be ignored when assessing questions such as those under discussion here. Regardless of whether the utterances of the expressions in a sentence inevitably take place at distinct times, it must surely be possible to envision the semantic behavior of hypothetical tokens of those expressions, given one and the same temporal instant (or, more generally, given one and the same set of parameters for the interpretation of the indexicals). If results of analyticity are obtainable within a type-oriented approach only on the basis of a definition which *guarantees* that various expressions be evaluated at one fixed index, regardless of whether they indeed are utterable in the context corresponding to that index, such a guarantee need also be reflected within the presentation of the requirement for analyticity within the token-reflexive framework. In general, take a sentence-type s consisting of expression-types $e_1 \ldots e_n$ (in that order), and let v_j^i be the semantic value of a token t_j of e_j ($1 \leq j \leq n$) taking

place in the context corresponding to an index i. Let V_s^i be the truth-value obtained by evaluating the expressions in s, namely $e_1 \ldots e_n$, in terms of respectively $v_1^i \ldots v_n^i$, and by taking into consideration the compositional rules appropriate for the structure of s; then

> s is analytically true iff V_s^i = truth, for any index i representing a context in which a token t_1 of e_1 takes place.

Given *this* definition, the reply to the question pertaining to the analyticity of (2) is no less trivially affirmative in a token- reflexive account than it turned out to be within a type-oriented analysis.

The impression that nothing of substance divides the token-reflexive approach from more traditional takes, which already emerged at the end of section one, seems now to be reinforced. Type-oriented semantics, of the kind developed in 'Demonstratives', may smoothly obtain the presumably desired results about (1) or (2) by virtue of focusing on abstract type-index pairs. Once arbitrary indexes are fixed, premise and conclusion in (1) inevitably share their semantic profile, and, given any index i, (2) turns out to be true with respect to i. Of course, guarantees of this type may well be lost in the *application* of the type-theorist's apparatus to particular tokens: for instance, my slow, spoken utterance of (2) may well turn out to be false, given that distinct temporal parameters may correspond to the contexts appropriate for each token of 'now'. On the other hand, token-reflexive semanticists, who develop regularities directly applicable to particular tokens, are not prevented from *abstracting* from these tokens' peculiarities, in order to discuss aspects of the conventional meaning associated to expression-types. Once this possibility is recognized, arguments that turned out to be valid in the traditional approach may also be evaluated as valid by a token-theorist, and sentences that were sanctioned as analytically true in the type-oriented analysis may also be so classified from a token-reflexive standpoint, for parallel reasons.

The main aim of this paper is that of presenting an argument *against* the token-reflexive approach. Yet, the force of the argument I develop in the next two sections is most perspicuously brought to light against the background of the undeniable strengths of that approach: with certain unconvincing considerations pertaining to validity and analyticity out of the picture, the reason why token-reflexivity ultimately fails may emerge with greater clarity. I section four, I finally explain why, notwithstanding the impression generated by these first two sections, there *are* important differences between the two approaches, which count in favor of the traditional, type- oriented view. Some preliminary remarks are however

in order, pertaining to an argumentative strategy possibly suggested by Kaplan in 'Demonstratives'; I turn to its analysis in the next section.

3. THE VAGARIES OF ACTION

In section two, I rebutted on the token-reflexive theorist's behalf arguments to the effect that token-reflexivity *undergenerates* with respect to validity or analyticity, i.e., that it does not recognize as valid or analytic arguments and sentences which should be thus classified. In the reminder of this paper, I argue that the problematic aspect in the relationships between token-reflexivity and analyticity is in fact one of *overgeneration*: on a token-reflexive account, certain non-analytic sentences turn out to be analytic.

The point is most perspicuously introduced by focusing on the comment which, in 'Afterthoughts', Kaplan appends to the aforementioned remarks about the time it takes to produce an utterance. He writes:

> . . . there are sentences which express a truth in certain contexts, but not if uttered. For example, "I say nothing." Logic and semantics are concerned not with the vagaries of actions, but with the verities of meanings. (Kaplan 1989, 584–585).

Correctly perceiving that the objection is directed, perhaps among other things, against a token-reflexive approach, Garcia-Carpintero responds to what he calls a 'subsidiary, minor argument' for type-oriented views along the following lines:

> What exactly is the argument? It cannot be that we, as ordinary speakers, have the intuition, which any correct theory should honor, that the "sentence-in-context" at stake is true: for there is no such intuition . . . Where are the pressing linguistic data to be accounted by this? (Garcia-Carpintero 1998, 547).

Kaplan's commentary is brief, and the scholarly question whether Garcia-Carpintero's reply addresses the point Kaplan had in mind is not immediately relevant for my purpose here. What is important is that, at least on a certain reading of Kaplan's objection, the question at issue is not one directly pertaining to the intuitively correct truth-values of certain sentences with respect to (the indexes representing) particular contexts – or, if you prefer, pertaining to the truth-values of certain sentence-index pairs. The point Kaplan is apparently raising does not consist in the tenet that, given a particular context c, sentences such as 'I say nothing' ought to be evaluated as true with respect to (the index representing) c because, given that very context and that sentence, we intuitively require a verdict of this kind. The point is rather the existentially generalized claim that

there is at least an index with respect to which 'I say nothing' should come out true – a claim that is not grounded on presumed intuitions regarding the truth-value of one particular sentence-context pair or another. Kaplan's brief remark does not spell out the reason for subscribing to such an existential generalization, but the position of the passage I just cited provides important indications in this respect: Kaplan's comment on 'I say nothing' occurs immediately after the complaint discussed in section two, regarding the token-reflexive theorist's presumed inability to deal with the validity of arguments such as (1) or the analyticity of certain sentences. As I explained in section two, when it comes to cases such as (1), token-reflexive approaches do not appear to be in the uncomfortable position depicted by Kaplan. What is important at this stage, however, are not Kaplan's views about cases involving multiple tokenings of 'now'; what matters is rather the indirect indication that what may be at issue with respect to, for instance, 'I say nothing' are considerations of analyticity, that is, issues pertaining to the intuitive *meaning* of the expressions involved in such examples.

Given this argumentative line, Garcia-Carpintero's objection that we lack firm intuitions regarding the truth of 'I say nothing' with respect to certain particular contexts appears irrelevant. What is relevant, on the other hand, is whether the argumentative strategy that may emerge from the foregoing reading of Kaplan's remark is indeed convincing against token-reflexive views. In this section, I present the argument in question by focusing on Kaplan-inspired examples, I explain why it is compelling against traditional versions of token-reflexivity, but I conclude that it is *not* a conclusive reasoning against token-reflexivity *per se*, especially in the light of the considerations from section two. In section four, I argue that a more suitable development of the strategy in question may indeed provide a convincing argument against token-reflexivity.

For simplicity's sake, I focus here on the positive counterpart of Kaplan's suggestion, namely the question whether 'I say something' should turn out false at some index. I also substitute 'say' with 'utter', remaining neutral with respect to the non immediately relevant distinction between events involving speaking, writing, flashing on a screen, etc. Consider then

(3)   I am uttering something now,

together with the closely related case of

(4)   a token exists now.[4]

When spelled out in some detail, the argument under discussion involves two premises:

(a) given competent speakers' intuitions regarding the meaning of the expressions in (3) and (4), these sentences should not turn out to be analytically true; and

(b) it is a consequence of token-reflexive approaches that they are analytically true.

The conclusion, of course, is that token-reflexive views yield inadequate results of analyticity. In the following paragraphs, I begin with a defense of (a); I then turn to an explanation of why premise (b), though correct with respect to typical versions of token-reflexivity, is not true *in general*.

Only a few, easily eliminable confusions are responsible for doubts regarding (a), when it comes to cases such as (3) or (4). Clearly, what matters for our understanding of 'I' or 'now', that is, what is encoded in the meaning conventionally associated with these expressions, is the notion that the former refers to a certain individual, and that the latter refers to a certain time, independently of the existence of acts of utterance. It is true that, informally, the rule for, say, 'now', is often presented with the aid of descriptions such as 'the time of utterance'. But informal statements of this type are nothing more than useful rules of thumb, which conjoin two importantly different regularities: on the one hand, the conventional rule steering the behavior of 'now', namely the rule that it refers to the contextually salient time, and on the other hand the relatively reliable suggestion that, in typical scenarios, a certain time is rendered appropriately salient by virtue of the occurrence of an utterance. Similar considerations hold *mutatis mutandis* for 'I', and, of course, for non indexical expressions such as 'something' or 'utter': there are no more reasons for supposing that, once 'utter' is being evaluated at an index i, there exist utterances in i_w, than for supposing that, say, for any index i at which 'tiger' is interpreted, large striped cats must populate its possible world. It follows that nothing in the meaning of the expressions occurring in (3) or (4) *guarantees* that, given any index i, they are to be evaluated as true with respect to i: for nothing in these expression's meaning requires that, at the possible world i_w, i_a is indeed uttering something at time i_t, and that a token is indeed present at that time, in that world.

In other words: suppose that, as alleged by the aforementioned rule of thumb, all uses of 'now' refer to the time of speaking, so that, given any utterance of a sentence containing 'now', the index representing the context of utterance includes a possible world i_w in which an act of tokening takes place. Suppose then that all utterances of, say, (4) turn out true, that is, that (4) is true with respect to all indexes representing contexts in which its utterances take place. Still, a presumed regularity of this kind

is irrelevant with respect to issues of analyticity, that is, truth in virtue of meaning, as long as it is not encoded in the very meaning of the expressions in question. What the meaning of, for instance, 'now' guarantees is that a certain contextually salient time is being selected; whether such time is, more or less inevitably, a time of speaking is at best an inescapable feature of how temporal instants are raised to salience. This independently plausible conclusion may be reinforced by considerations to the effect that expressions such as 'now' or 'I' may actually be *used* so as to refer to a time at which no tokening takes place, or to an individual who is not performing the utterance in question. For if this is indeed the case, the 'rule of thumb' in question is not only irrelevant for the establishment of analyticity, but also straightforwardly false: that at i_t, the time selected by 'now', someone is uttering something in i_w turns out to be not even an inevitable effect of the mechanisms affecting contextual salience, let alone a consequence of any expression's meaning. I turn to a brief discussion of this possibility, before I proceed to the discussion of the other premise in the Kaplan-inspired argument against token reflexivity, namely premise (b).

Arguably, there exist uses of, say, 'now' that do not refer to the time of speaking, so that there exist false utterances of, for instance, (4), that is, more generally, utterances representable by indexes i, such that no token is being uttered at i_w. For instance, speakers competent in their use of 'now' may correctly interpret my utterance of

(5)   the allied troops are now ready to strike

during a vivid historical narration of the last episodes in World War II as referring to some period in 1945, the time salient for my comment, notwithstanding the fact that my utterance takes place in 2002. It is doubtful that the English expression 'now' is lexically ambiguous between its customary indexical use and the semantic profile it displays when occurring in my utterance of (5): sufficiently intelligent speakers who have previously been exposed only to uses of 'now' as referring to the time of utterance are typically able to interpret my utterance in the intuitively desirable manner. It thus follows that 'now' may be employed so as to refer to a time distinct from the time of tokening, and hence, *a fortiori*, that the meaning of 'now' may not be reproduced by means of a rule that makes reference to it. Similar considerations may arguably be proposed for 'I': a philosophy teacher momentarily putting herself in Frege's shoes may for instance question her audience by remarking

> I have insisted that singular terms have a *Sinn*; can anyone explain the reasons for my claim?

In this case, it is at least plausible to suppose that what the speaker puts forth, by virtue of the content semantically encoded in her utterance, is that Frege insisted that singular terms have a *Sinn* – a content obtainable by interpreting the first person pronoun with respect to an agent distinct from the person who is speaking.

Let us take stock. When it comes to cases such as (3) or (4) I explained why, even if it where the case that all utterances of these sentences turn out true, such a result should not be interpreted as evidence of analyticity: their presumed truth would be the outcome of regularities that are not encoded within the meaning of the expressions in question. To this explanation, I added certain additional considerations in favor of the conclusion that there may even exist false utterances of (3) or (4), that is, utterances representable by means of indexes i such that i_a is not uttering anything at i_t, and such that no token exists at i_w. In order to support this *additional* argumentative strategy, I provided certain independent considerations supporting the notion that 'now' of 'I' may actually be used in order to refer to items other than the time of utterance or the speaker. I hasten to stress that these considerations are by no means *necessary* for this section's main argument, as presented above: even those who wish to insist that cases such as (5) are somewhat 'deviant' or unworthy of semantic dignity ought to concede the initial plausibility of premise (a), according to which the parameters of utterance are not inevitably addressed by virtue of the *meaning* of the indexicals in question.[5] In other words: even if, contrary to the evidence provided by cases such as (5), 'now' and 'I' were always employed so as to refer to the time of utterance and the utterer, such a conclusion would by no means suffice for the surprising conclusion that the conventional meaning of, say, 'now' includes reference to an act of tokening. Even more importantly, my hypotheses regarding the particular examples (3) and (4), be they grounded on the appeal to cases such as (5) or on independent considerations, are not ultimately essential for the main argument presented in the next section, and are only intended as important preliminaries for the central case against token-reflexivity. For, as I explained a few paragraphs ago, the Kaplan inspired argument grounded on (3) or (4) is ultimately insufficient, and needs to be revised; yet, when it comes to the more satisfactory version presented in section four, the claim parallel to premise (a) turns out to be even less objectionable than the already plausible hypothesis that (3) and (4) should not turn out to be analytically true.

What remains to be assessed in the Kaplan inspired argument discussed in this section is premise (b), namely the claim that token-reflexive accounts inevitably render (3) or (4) analytic. In the next paragraphs I explain

why token-reflexive theorists may resist a conclusion of this type; in section four, I present a different version of the argument, one that may not as easily be rebutted by defenders of the token-reflexive approach.

Consider traditional presentation of token-reflexive rules for, say, 'now' or 'I', as in

> for any token t of 'now', t refers to the time when t was spoken,

or

> for any token t of 'I', the referent of t is the speaker who has uttered t.

According to this approach, reference to an act of utterance is part and parcel of the conventional rules steering the semantic behavior of indexical expressions. When such rules are expressed within the vocabulary I suggested in this paper, they amount to the conjunction of the claims that

> for any token t of 'now', t refers to i_t, where i is the index representing the context in which t takes place,

or

> for any token t of 'I', t refers to i_a, where i is the index representing the context in which t takes place,

together with the further tenet that

(*)   for any index i appropriate for the representation of a context of tokening, i is such that i_a is uttering something at i_t in i_w.

It follows from this view that, given any index i of the type appropriate for the semantic evaluation of an indexical language (that is, according to the foregoing rules, any index representing a context in which a token takes place), the referent i_a of 'I' is uttering something at the time i_t referred to by 'now', and hence *a fortiori* that an act of utterance does indeed exist at that time in the index's possible world i_w. Hence, it is a consequence of this stance that, for any semantically relevant index, (3) or (4) are true, i.e., that they are analytical truths.

Premise (b) is thus undoubtedly correct with respect to the rules most frequently proposed by token-reflexive theorists, and a convincing argument can thus be mounted against such a presentation of token-reflexivity. What is important for the purpose of this paper is however not this weaker conclusion, but rather the stronger claim that token-reflexivity *per se* yields such undesirable results. This stronger thesis is however by no means as straightforwardly obtainable as the foregoing criticism of particular versions of token-reflexive treatments of indexicality, especially if one takes

into account the remarks proposed on the token-reflexive behalf in section two. There, I developed a neutral version of the token-reflexive approach, one that deliberately avoided endorsing the identification of the contextually appropriate agent or time as the speaker or the time of utterance – that is, I refrained from burdening the token- reflexive approach with additional assumptions along the lines of (*). Given a statement such as, for instance,

> for any token t of 'now', the referent of t is i_t, where i is the index representing the context in which t takes place,

it seems perfectly consistent with a token-reflexive approach to insist that, although it may *perhaps* be the case that i_t is inevitably a time of speaking, such additional information may not be recognized as a restriction on the class of semantically relevant indexes, but at best only as an unavoidable regularity affecting the situations in which certain expressions are used. Token-reflexive theorists willing to accept my analysis of (5) above may in fact go as far as denying the inevitability of such presumed regularity altogether. For instance, they may agree that, in the context for some tokens of 'now', what is salient is not the time at which those tokens take place, but rather, say, a time intended as relevant by the speaker, or something along these lines. It follows from this view not only that there are semantically relevant indexes such that i_a is not uttering anything at i_t in i_w, but also that indexes of this type may indeed be involved in the representation of actual instances of language use. Once indexes of this kind are admitted as relevant for the assessment of analyticity, sentences such as (3) or (4) are correctly expelled from the realm of analytical truths.

Thus, although (3) or (4) may well be problematic for traditional versions of token-reflexivity, in that they are incorrectly evaluated as analytically true, such undesirable results are obtainable only on the basis of additional assumptions such as (*), which are strictly speaking independent from the token-reflexive standpoint. This conclusion does nevertheless not suffice as a conclusive defense of token-reflexivity: as I explain in the next section, the argumentative structure developed thus far may be reformulated by focusing on other, more appropriate examples, thereby providing important considerations in favor of type-oriented treatments of indexicality.

4. REFINING THE CASE AGAINST TOKEN-REFLEXIVITY

Although Kaplan's example 'I say nothing' and the related cases of (3) and (4) do not provide the evidence needed for a convincing counter-

argument against token-reflexivity, the following sentences suggest a more persuasive version of the reasoning from section three:

(6)   either a token exists now, or it has existed in the past, or will exist in the future

and

(7)   something either exists now, has existed, or will exist.

The defense of premise (a) with respect to these examples is straight-forward, given the foregoing considerations regarding 'now' and other expressions: on pretty much nobody's view, for instance, do expressions such as 'something' or 'exist' require, in virtue of their very meaning, that tokens of 'something', of 'exist', or for that matter of any other expression do indeed take place. However, the case of (7) deserves a brief paren-thetical comment, before I continue with the presentation of the argument against token-reflexivity. The customary counterpart of a sentence such as (7) (or at least of its presentation by means of a tenseless predicate 'there exist something') within the standard, indexical-free language of first order logic with identity, namely something along the lines of $\exists x \exists y (x = y)$, is classically interpreted as logically true, in virtue of the explicit prohibition of semantic evaluation *visà vis* an empty universe: since by stipulation no model is associated with the empty set, it follows that a sentence to the effect that something exists is inevitably evaluated as true. The discussion of the function and legitimacy of such an important stipulation in the model theoretic treatment of formal languages is not of immediate relevance for my topic in this essay. What matters is rather the analysis of the status of (7) with respect to the logical treatment of indexical languages, *independently* from issues pertaining to the correctness of the stipulation in question. At least under the assumption of what Kaplan calls 'the neotraditional logic that countenances empty worlds' (Kaplan 1977, 549), if the foregoing remarks about meaning are on the right track, (7) should *not* turn out to be analytically true: nothing in the *meaning* of 'something' or 'exists' is such that it guarantees the existence of something, in the manner required for a conclusion of analyticity. That is to say, nothing (at most with the exception of stipulations *additional* to the information encoded at the level of meaning) ensures that, given any index i for the evaluation of (7), i_w is non-empty, and hence that (7) should turn out true with respect to i.

What remains to be discussed is a version of premise (b) above focused on cases such as (6) or (7), namely the tenet that token-reflexive theo-ries inevitably yield incorrect results of analyticity for such sentences. As explained in the previous sections, a version of token-reflexivity may be

developed, which is able to provide an analysis of meaning in abstraction from the presumed features of the tokening process, such as the accidental facts that, at least more often than not, the context's agent is speaking, and that the utterance of an argument requires a non insignificant temporal interval. It is however also the case that, when it comes to statements of semantic value, such as the assignment of reference or truth-value, token-reflexivity is inevitably committed to an account in terms of tokens: it is expression-tokens that refer, and it is sentence-tokens that are evaluated for truth or falsity. Such an appeal to tokens is inevitably reflected within the theory's statement of semantic regularities, such as, in particular, its assignment of reference to simple indexicals. For instance, what the meaning of 'now' allegedly tells us, according to the token-reflexive semanticist's understanding of that expression's character, is that, given any index *representing a context involving a token t* of 'now', t refers to a certain item with respect to that index.

If the regularities encoded in an expression's meaning sanction its semantic behavior only with respect to indexes of this type, what is required by a definition of 'truth in virtue of meaning alone' is a verdict of truth not at all indexes whatsoever, but only at all indexes *representing a context of tokening*. Indeed, as emerged from the discussion in section two, analyticity is defined within the token-reflexive vocabulary along the following lines (leaving now aside, for simplicity's sake, the complications related to instances involving multiple occurrences of an indexical, as discussed in section two):

> a sentence-type *s* is analytically true iff *s* is true under an interpretation of the expressions in *s* with respect to an index *i*, for any index *i* representing a context in which a token *t* of *s* takes place.

In other words: if the very meaning of, say, 'now' is encoded by means of a rule that addresses its semantic behavior only at those indexes that correspond to contexts of tokening, the notion of 'truth in virtue of meaning', that is, analyticity, is inevitably cashed out in terms of truth at all indexes *of that kind*. Yet, the class of such indexes is a proper subclass of the class of all indexes: in the possible world i_w determined by an index representing a context of tokening, a token has taken place, either at i_t or at some other time. This restriction is obviously less dramatic than that proposed by (*) in section three: for instance, as we have seen, it is consistent with a token-oriented approach that certain contexts be represented by means of indexes i, such that i_t, the contextually salient time, is not the time of utterance. To put it otherwise: it is consistent with, say, the token-reflexive rule of

meaning for 'now' that the class of semantically relevant indexes includes n-tuples i such that in i_w the individual i_a is not uttering anything at i_t, and such that no token is at all present at that time. Still, one important restriction remains in place: n-tuples $\langle i_a, i_l, i_t, i_w \rangle$ may not qualify as indexes, i.e., as collections of the parameters relevant for semantic evaluation, if no token has ever occurred in i_w.

The restriction of the class of parameters relevant for the assessment of analyticity inevitably yields results that are not obtainable with respect to an unrestricted definition. (6) and (7) are indeed among the central examples of sentences true with respect to any index corresponding to a context of tokening, but not true with respect to all indexes whatsoever. Once this result is conjoined with premise (a), namely the claim that (6) and (7) do not deserve the status of analytic truth, it follows that the token-reflexive approach overgenerates with respect to analyticity. By virtue of presenting the rules steering the semantic profile of the expressions in the language in terms of the behavior of tokens of those expressions, token-reflexivity is inevitably committed to an analysis restricted to a particular subclass of the parameters required for the interpretation of indexicals. This class is a proper subclass of the set of all indexes because contexts of tokening are inevitably structured affairs: the very metaphysics of the act of tokening, such as the facts that a token does indeed take place or that no tokening may occur in an empty world, illegitimately constrains semantic evaluation on the basis of the (more or less ontologically inevitable, yet unquestionably semantically accidental) 'vagaries of action'.

5. CONCLUSION: THE VAGARIES STRIKE BACK

In section four, I proposed an argument against token-reflexivity alternative to certain considerations often put forth by the defenders of the type-oriented approach. In attempting at identifying the most appropriate premises involved in a persuasive attack against token-reflexive accounts of indexicality, I distinguished between the essential traits of token-reflexivity, and some widespread, but independent assumption with which it is often conjoined. This distinction is of interest independently from the assessment of token-reflexivity: if certain undesirable claims regarding the structure and make-up of contexts may be taken for granted regardless of one's stance with respect to the type-token dispute, it is at least in theory possible that they also vitiate semantic approaches of a more traditional, type-oriented type.

In fact, this turns out to be more than a mere conceptual possibility: traditional versions of the type-oriented orthodoxy, not unlike their

token-reflexive alternatives, more or less explicitly entangle the semantic evaluation of indexical languages with independent, extraneous claims pertaining to the structure of semantically relevant indexes. Ironically, a prominent example of such phenomenon is provided by the formal apparatus developed by Kaplan in 'Demonstratives', an essay whose more philosophical sections vehemently warn against the intrusion of the 'vagaries of action' within matters of semantics. As his choice of 'I say nothing' as a counter-example to token- reflexivity indirectly indicates, Kaplan (correctly) denies semantic relevance to *some* presumed regularities affecting the process of utterance, in particular the notion that the referent for 'I' must be uttering something at the time selected by 'now'. More formally, the semantic apparatus of 'Demonstratives' is devised so as to take into consideration indexes i, such that i_a is *not* uttering anything at i_t in i_w. However, the class of admissible indexes is explicitly restricted to a proper subclass of indexes along alternative lines, that is, in terms of what is customarily called a 'proper' index. An index $i = \langle i_a, i_t, i_l, i_w \rangle$ is proper only if the agent i_a exists at time i_t in the possible world i_w, and is in the location i_l at that time in that world (see Kaplan 1977). Not unlike the notion that i_a be uttering something at i_t, or that a token exists at i_w, the denial of semantic relevance to improper indexes may not be derived a consequence of any rule establishing the semantic profile of indexical expressions, but must be presupposed by *fiat*, within the clauses defining the structure of the model-theoretic apparatus employed in the analysis of the language LD:

> 2. C is a nonempty set (the set of contexts, see 10 below) . . .
> 10. If $c \in C$, then $\langle c_a, c_p \rangle \in I_{Located}(c_t, c_w)$
> 11. If $\langle i, p \rangle \in I_{Located}(t, w)$, then $\langle i \rangle \in I_{Exist}(t, w)$
> (Kaplan 1977, 543–544)

Given that the class of proper indexes is a proper subclass of the class of all indexes, sentences whose conventional profile does not guarantee results of analyticity are nevertheless evaluated as analytic. The list of undesirable inclusions notoriously includes 'I am here now' and 'I exist' (Kaplan 1977, 547–549).

Kaplan's label of *contexts* for what I call 'indexes' may well be at the root of such infelicitous restrictions: the very definition of the sequence of parameters relevant for the interpretation of indexicals, that is, the definition of 'context' in the technical sense of the term, is marred by connotations typical of the everyday employment of 'context', roughly as the (alleged) type of situation in which an utterance takes place. An equivocation of this type becomes explicit in Kaplan's later commentary

on logical truth, in which the notion of 'context' is blatantly analyzed in terms of context *of use*:

Any feature of a possible world which flows from the fact that it contains the context of use may yield validity without necessity. ... not every possible circumstance of evaluation is associated with an (appropriate) possible context of use, in other words, not every possible-world is a possible actual-world. Though there may be circumstances in which no one exists, no possible context of use can occur in such circumstances. (Kaplan 1989, 596–597).[6]

Given that some of my considerations regarding the meaning of indexical expressions end up affecting the classic framework provided by Kaplan's 'Demonstratives', it may be objected that my attack against token-reflexivity also ends up affecting type-oriented approaches: what my argument achieves is in this view a hollow victory, given that both parties in the token-type dispute end up being in the wrong.[7] However, the particular features peculiar to certain versions of the token-reflexive and the type-oriented views are not the primary target of the present essay. For instance, regarding token-reflexivity, I explained in section three why customary presentations of this standpoint err in presenting the meaning of indexicals by appealing to instances of speaking (or, more generally, uttering). But I also explicitly stressed that this additional feature is not essential to the token-reflexive stance *per se*, and that the problematic consequences it entails are not by themselves sufficient as counter-arguments against token- reflexivity. Similarly, Kaplan's take on 'I am here now' and his accompanying views on the structure of contexts, though affected by some of the considerations I employed against token-reflexivity, are by no means essential to the structure of the traditional type-oriented view. That they are not essential is independently testified by the not uncommon criticism of the inclusion of 'I am here now' among the truths of logic, from a variety of different theoretical standpoints entirely independent from the type-token dispute.[8] What is important from the point of view of this essay is not the decision pertaining to particular versions of one approach or another, but rather the extent to which either treatment of indexicality may be developed in a manner consistent with the correct assessment of logical truth, i.e., truth in virtue of meaning. In this sense, regardless of the idiosyncrasies of famous versions of either approach, the type-oriented view is clearly preferable: token-reflexivity is *committed* to incorrect logical results, type-oriented analyses are not.

Still, as the comments in this concluding section indicate, the considerations in this essay are also of interest for semanticists independently unsympathetic to the token-reflexive take on indexicality: the mistake inevitably entangled with token-reflexivity may independently vitiate more

traditional approaches, in the form of additional, but often not explicitly recognized assumptions. In the case of 'Demonstratives', for instance, the correct insistence that appeal to instances of speaking does not belong to the meaning of indexicals, is accompanied by the equally incorrect assumption that semantic analysis be restricted to proper contexts. Although either assumption turns out to be strictly speaking independent from either the token-reflexive or the type-oriented standpoints, only the latter may be developed into an account able to avoid the incorrect results of logical truth presented in section four.

Kaplan's commitment to proper indexes is independent from the token-reflexive theorists' widespread understanding of indexicality as connected to phenomena of speaking: proper indexes do reflect certain aspects of everyday contexts of utterance, but explicitly abstract from others, such as the fact that the context's agent is uttering something. From the point of view of the type-token debate, assumptions of either kind are in principle unimportant: both token-reflexive and type-oriented approaches may be developed by abstracting from certain presumed aspects of contexts of utterance, such as the presumed facts that the agent is at the context's location at the contextually salient time, or that she is uttering something at that time. What is important in this respect is that, as I explained in section four, only type-oriented treatments are at least in principle compatible with the project of a semantic apparatus able to give due semantic relevance to all indexes: regardless of their neutrality with respect to extraneous claims about the structure of contexts of utterance, token-reflexive theories inevitably overgenerate with respect to analyticity. Still, the morale of the argument against token-reflexivity presented in this essay is also of relevance for traditional type-oriented semanticists: no matter how conceptually well equipped their approach may in principle be, the widespread fascination with the 'vagaries of action' always risks to mar the analysis of the 'verities of meaning'.

NOTES

[1] Kaplan's direct criticism of Reichenbach in Kaplan 1977, 519, that is, his argument against the thesis that 'I' is *synonymous* with 'the person who utters this token' is of course

widely accepted as uncontroversial, and is not relevant for the debate under discussion here.

[2] One ontological question that has a bearing on semantic issues is that pertaining to the understanding of tokens as events, rather than objects: the token of 'I am hungry now' written on a piece of paper may be employed by different speakers at different times in order to achieve contrasting semantic effects (see Perry 1997 and Garcia-Carpintero 1998).

[3] A terminological *caveat*: the label of 'index' for the collections of parameters relevant for the interpretation of the indexicals should not be confused with the notion of an 'index' as the term is used, for instance, in Lewis 1980. There, David Lewis contrasts indexes with contexts, and employs 'index' roughly as synonymous with what Kaplan calls 'circumstance', and with what is sometimes referred to as a 'point of evaluation'.

[4] More appropriately, 'a tokening event occurs now' and 'a token-object is being tokened now'; the distinction between the occurrence of an event and the existence of an object, though important in its own right, does not play a crucial role in the arguments in this paper.

[5] In fact, even the notion that the examples in question are 'deviant' or peculiar does not entail that they may not be interpreted as evidence that 'now' or 'I' may fail to refer to the actual parameters of utterance. Even if the speaker were correctly describable as 'pretending to make an utterance in a different context', the fact would remain that her use of certain indexicals is intuitively evaluable in relation to that context, rather than the context in which she happens to be located. I thank an anonymous reviewer for this journal for calling my attention to these considerations.

[6] Note that validity without necessity may be obtained independently from any presumed 'feature of a possible world which flows from the fact that it contains the context of use', that is, independently from the restriction to proper indexes. It follows that my antipathy for some of the most famous among the alleged truths of the logic of indexicals, such as 'I am here now', does not entail the denial of one of the most interesting aspects of that logic, namely the invalidity of necessitation: 'Actually-$\varphi \leftrightarrow \varphi$', for instance, is a truth of logic, but 'Nec(Actually-$\varphi \leftrightarrow \varphi$)' is not.

[7] I thank an anonymous reviewer for calling my attention to this objection.

[8] To cite two very differently motivated considerations in favour of improper contexts, both independent of the type-token debate, see Vision 1985 and Schlenker 2003, footnote 43. It should also be pointed out that the notion that, for instance 'I am gere now' is not a logical truth does not entail that there are no truths peculiar to the logic of indexicals. For instance, 'actually *P* iff *P*' *is* a logical truth, and the most important logical conclusions in Kaplan's 'Demonstratives', such as the failure of the rule of necessitation, are not challenged by my approach.

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