

# Three Forms of Contextual Dependence

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**Abstract.** The paper emphasizes the inadequacy of formal semantics, the classical paradigm in semantics, in treating contextual dependence. Some phenomena of contextual dependence threaten one central assumption of the classical paradigm, namely the idea that linguistic expressions have a fixed meaning, and utterances have truth conditions well defined. It is possible to individuate three forms of contextual dependence: the one affecting pure indexicals, the one affecting demonstratives and "contextual expressions", and the one affecting all linguistic expressions. The third type of dependence is top-down: context, and not only linguistic material, shows which variables must be instantiated, relying on context itself. The generalization of underdetermination to all linguistic expressions is in fact a kind of meta-dependence: the mode of dependence itself depends on context.

## Introduction

The main purpose of my paper is to emphasize the inadequacy of formal semantics - the classical paradigm (CP) in semantics - in treating contextual dependence. Some phenomena of contextual dependence threaten one central assumption of CP - namely the idea that linguistic expressions have a fixed meaning and utterances have truth conditions well defined. It is possible to individuate three forms of contextual dependence, to which correspond three categories of linguistic expressions.

1. Pure indexicals show a form of dependence that CP can handle without modifying its general structure. Determination of the truth conditions of an utterance containing an indexical expression, although indirect, is mechanical, functional, hence semantic.
2. Demonstratives and "contextual expressions" show a form of dependence more threatening for CP: the functional solution at work for pure indexicals cannot be applied to those kinds of expressions. A pragmatic processor is brought into play to identify the proposition expressed, i.e. the semantic level. Therefore, linguistic meaning *underdetermines* truth conditions of an utterance containing a demonstrative or a contextual expression.

3. Authors like John Searle or Charles Travis point out a form of contextual dependence affecting all linguistic expressions, even after disambiguation and saturation of the variables corresponding to pure indexicals, demonstratives and contextual expressions. This kind of underdetermination is top-down: context, and not only linguistic material, shows which variables must be instantiated, relying on context itself.

Top-down dependence generalizes the underdetermination - which becomes a *property* of linguistic meaning in general: linguistic meaning underdetermines truth conditions of any utterance. In the last section of my paper I show that the generalization of underdetermination to all linguistic expressions is in fact a kind of *meta-dependence*: the idea is that the mode of dependence itself depends on context.

## 1 The First Form of Contextual Dependence

Pure indexicals<sup>1</sup> show a form of dependence that CP can handle without modifying its general structure. CP identifies meaning and truth conditions: the existence of expressions as *I* or *today* in natural language obliges CP to rectify this identification. The *linguistic meaning* of an indexical expression (kaplanian *character*) determines its semantic value (kaplanian *content*): it is a function from contextual factors to semantic values. Determination of the truth conditions of an utterance containing an indexical expression, although indirect, is mechanical, functional, hence semantic. The truth conditions of an indexical sentence as

*I am tired*

are determined indirectly, by the linguistic meaning of the sentence and a local and precise aspect of the context – fixed by the character of *I*. The *mode of dependence* itself is determined by the conventions of the language: the character of *I* specifies *how* the content of the expression is determined by the context – in other words, character specifies which particular feature of the context fixes the referent.

## 2 The Second Form of Contextual Dependence

Demonstratives show a form of dependence more threatening for CP: the functional solution at work for pure indexicals cannot be applied to demonstratives.

The truth conditions of a demonstrative sentence like

*She is tired*

depend on a contextual factor (the referent of *she*) which is part of the truth-conditional content of the sentence.<sup>2</sup> The linguistic meaning of *she* does not specify this aspect of the content – which the addressee must determine independently,

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<sup>1</sup> On the distinction between pure indexicals and demonstratives the canonical reference is [12].

<sup>2</sup> Cf. [22], p.5.

reconstructing the speaker's communicative intentions.<sup>3</sup> Therefore semantic reference is determined through the determination of pragmatic reference: a pragmatic processor is brought into play to identify "what is said" - the proposition expressed, i.e. the semantic level.

"Contextual expressions"<sup>4</sup> (possessive constructions as *John's book*, name-name constructions as *apple-juice chair*, some adjectives like *fast*, or *easy*) are in many respects similar to demonstratives: they can take an indefinite number of senses depending on the context of use. For example, the possessive construction *John's book* indicate the existence of a relation between John and the book, but this relation must be contextually determined for each occurrence of the construction. So *John's book* could refer to the book written by John, or read by John, or bought, burnt, lost, imagined, etc., by John. There is neither a rule, nor an automatic linguistic procedure that could identify the nature of the relation independently of any context.

Demonstratives and contextual expressions have neither a pre-assigned value (as the non contextual expression) nor a mechanical rule of saturation (as the indexical expressions): their semantic value is fixed by the speakers intentions. The linguistic meaning of those kinds of expressions *locate* the underdetermination, pointing out the presence of a variable which must be instantiated: but linguistic meaning does not state *how* the variable must be instantiated.

Therefore, the linguistic meaning of a sentence containing a demonstrative or a contextual expression underdetermines the truth conditions of the sentence.

Against this refutation, CP can follow two types of strategies:

- a. the first one concerning the *extension* of underdetermination: the phenomenon is real, but restricted to only a few categories of expressions, fully specifiable;
- b. the second one concerning the *form* of underdetermination: for those categories there is still a bottom-up determination, i. e. a determination constrained by linguistic meaning for all tokens of the expression type; therefore a mandatory determination.

### 3 The Third Form of Contextual Dependence

Authors like John Searle<sup>5</sup> and Charles Travis<sup>6</sup> point out a form of contextual dependence affecting *all* linguistic expressions. This kind of underdetermination is *top-down*: context, and not only linguistic material, determines which variables must be instantiated relying on context itself.

For Searle and Travis the existence of this generalized form of contextual dependence is an empirical hypothesis, rather than a conclusion following from a genuine argument. Their examples *show* the underdetermination affecting sentences

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<sup>3</sup> See [13], [3] and [4].

<sup>4</sup> I borrow the term from [7].

<sup>5</sup> Cf. [23], [24] and [25].

<sup>6</sup> Cf. [27], [28] and [29].

apparently without any possibility of variation in truth conditions. In their well known thought experiments for sentences like

*The cat is on the mat*

*Bob cut the grass*

*Bill opened the door,*

Searle and Travis set up anomalous or strange contexts: the cat and the mat travelling in interstellar space, people cutting grass as a cake, people opening doors with a scalpel. The examples show that every sentence has a literal meaning only against a Background of contextual assumptions fixing its truth conditions: the Background states, for example, that gravitation is, or is not, effective, or the way people “normally” cut things, and grass in particular, or open doors. And the examples show easily that the Background is not unique, constant, fixed once and for ever.<sup>7</sup>

To understand which kind of contextual dependence Searle and Travis are pointing out, let us examine some of Searle's examples containing the verb *cut*:<sup>8</sup>

(1) *Bill cut the grass*

(2) *The barber cut Tom's hair*

(3) *Sally cut the cake*

(4) *I just cut my skin*

(5) *The tailor cut the cloth.*

In (1) – (5) the linguistic meaning of *cut* does not change, but its interpretation is different in each utterance: so one could ask oneself if the sentence (3) is true, if Sally starts mowing Mary's cake. What constitutes satisfying the truth conditions of *cut* is different in each case: the linguistic meaning of the verb determines a different contribution to the truth conditions of each sentence.

### 3.1 The Indexical Conception

The indexical conception (the First Form of Contextual Dependence) applied to examples (1) – (5) generalizes the idea of linguistic meaning as a function, and allows CP to maintain the idea of a conventional meaning which is fixed: the function associated to *cut* is always the same, and its different values depend on the different arguments it can take (grass, hair, cake...).

Searle rejects the indexical conception: one can always obtain for (1) the interpretation of *cut* which is normally obtained for (3). It is easy to build up an appropriate context: just imagine that (1) is uttered in a firm selling strips of grass turf to people who want an instant lawn, where *cutting grass* means "slicing" it into strips, as with a cake.<sup>9</sup>

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<sup>7</sup> See [23].

<sup>8</sup> [24], p.221.

<sup>9</sup> See [25], pp.24-25.

### 3.2 The Demonstrative Conception

Let us see if the Second Form of Contextual Dependence would do for *cut*. Searle defends the idea that the linguistic meaning of (1) specifies a set of truth conditions which is different in different contexts. Let us examine two possible contexts for (1): in  $C_1$ , ("Gardening") the appropriate set of truth conditions will be something like: "Bob cut the grass with a lawnmower". In  $C_2$  ("Selling instant lawns") the appropriate set of truth conditions will be something like: "Bob cut the grass with a knife". Let us assume that the element differentiating the two sets of truth conditions is the "way of cutting" grass – a contextual feature responsible for the variation in truth conditions. The feature "way of cutting" has to be specified in order for (1) to have determined truth conditions – as it was for contextual expressions. It looks like the verb contains a *variable* (here the "way of cutting") which must be instantiated for *every* occurrence of the verb, in *every* context.

### 3.3 Top-down Dependence

Searle's argument (and Travis's) is still more radical. As a matter of fact, one can imagine contexts where the feature "way of cutting" has no relevance at all in determining the truth conditions of (1). Hence the "way of cutting" is not a feature of the context that the addressee *must necessarily* specify in every context – as it happens for a contextual expression or a possessive construction, where saturation is mandatory, forced by linguistic material, therefore necessary for the expression in order to have a determined semantic value. Imagine a group of botanists studying a new variety of transgenetic grass, extremely resistant ( $C_3$ ): Bob has tried for months to cut just a blade of grass, or even to stab the lawn once. In this context the relevant contextual feature is the *variety* of grass that Bob has, or has not, cut – it doesn't matter if with a lawnmower, or a knife, or scissors or a scalpel. This sort of examples is different from the examples of underdetermination of demonstratives and contextual expressions – where the feature that had to be specified *was always the same*. The context specifies which variable must be instantiated - "way of cutting", or "variety" or "quantity". On the one hand, the linguistic meaning of *cut* doesn't impose a particular instantiation of the feature "way of cutting": it is the context which impose it. On the other hand, even when this particular feature is specified, it is still possible to modify the truth conditions of (1), modifying other features of the context: those features will then be responsible for the underdetermination of (1).

### 3.4 Unarticulated Constituents

The analysis of contextual dependence, as I have exposed it, is in many ways comparable to the one held by John Perry in many papers in the 80's and in the 90's. "Thought Without Representation", in particular, can be viewed as an attack to CP,

and its central thesis of *homomorphic representation*<sup>10</sup> – namely isomorphism between constituents of the proposition expressed by a statement and articulated components of the statement. Statements like

(6) *It rains,*

lacking a component designating the *place* where it is raining, are a counterexample to such a thesis. In this case the place is an *unarticulated component* of the statement, a component which is not designated by any part of the statement, but determined by the context.

Now, at what type of contextual dependence do unarticulated constituents correspond? It looks to me that they are examples of the second type of contextual dependence. Perry says that, as far as

(7) *It rains here,*

is concerned, because the addressee knows the meaning of *here*, he "knows exactly what fact is relevant" for the determination of the truth conditions of (7).<sup>11</sup> As far as (6) is concerned, on the other hand, the semantics of the words does not provide a guide: the interpretation is a pragmatic work, just as for demonstratives.

In fact the type of contextual dependence that I have underlined in § 3.3 goes further. In Perry's example, it is the linguistic meaning that indicates the existence of a free variable (the existence of an unarticulated constituent); it is the use of the predicate *Rain* that indicate the existence of two arguments - place and time - that the addressee must identify: here saturation is mandatory.

Of course if we consider Z-land and Z-landish practices or linguistic games, saturation *is not* a mandatory process; still, even in this case, context has the only function of modifying the relevance for the truth conditions of an utterance, of *always the same* variable – the place for *rain*, or for reports of time, the world for a contingent relation, etc.<sup>12</sup> In the third form of contextual dependence, on the other hand, context (being a Z-lander, for example) can, not only *neutralize* the relevance of those variables for the determination of the truth conditions of the utterances (neutralize the relevance of the variable "place" for (6)), but also *activate* other variables, which become relevant to the truth conditions of the same utterances in different contexts.

## 4 Contextual meta-dependence

### 4.1 Distal Context and Proximal Context

In analyzing Searle's examples, I have used the distinction between a notion of context (e. g. C<sub>1</sub>, C<sub>2</sub>, or C<sub>3</sub>), basically corresponding to Searle's Background – and

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<sup>10</sup> [17], p.208.

<sup>11</sup> [19], p. 6.

<sup>12</sup> See the section "When Things Are Not Worth Mentioning" in [19].

which I call *Distal Context* – and local features of the context, corresponding to the variables of the examples (e. g. "way of cutting", variety, "quantity") – which I call *Proximal Context*. Given a particular Distal Context for a sentence, some specific features become relevant to the determination of the truth conditions of the sentence: Distal Context determines the relevant contrast set, the set of salient alternatives.

This determination is not automatic:  $C_2$  does not impose, *per se*, neither the interpretation "slice" of *cut*, nor the relevance of the feature "way of cutting". As I anticipated in § 3, as far as the third form of contextual dependence is concerned, the *mode* of dependence is not given, fixed independently of any context whatever. Distal Context will set the relevant dimensions of dependence, while giving birth to a form of *contextual meta-dependence*.

In specifying the truth conditions of an utterance, only a few features are mentioned. Features belonging to the Distal Context can be ignored as long as they are present in all contexts that may be taken into consideration (the set of alternatives). Those features do not allow to discriminate between contexts. Borrowing the expression from Amos Tversky, features in Distal Context have no *diagnostic value*: the diagnostic factors refer to the classificatory significance of features.<sup>13</sup> Context – and in particular the contrast set – affects the diagnostic value and the salience of features.

Let's go back to Searle: the Distal Context of a sentence represents features having a weak degree of diagnosticity – features appearing in all contexts, information weakly manifest.<sup>14</sup> A classification cannot be based on such features: therefore those features do not appear in the truth conditions of the sentence. The presence of a gravitational field, for example, is not part of the truth conditions of

(8) *The cat is on the mat*

if all the situations taken into consideration are on the Earth. Although they are extremely stable, those features can always be suspended: a variation in the Distal Context itself can modify their diagnostic value. If we consider contexts as "Interstellar space", the feature "presence of a gravitational field" loses its status of feature of the Distal Context of (8) – and becomes a feature of the Proximal Context of the sentence. That feature will then affect the application conditions of the predicate *being on*, and the truth conditions of the sentence (8).

## 4.2 Contextualism

An alternative approach to CP must then be defended: for reasons of space, in this paper I shall limit myself to a quick exposition of this approach, the contextualist

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<sup>13</sup> [30], p.342: "For example the feature 'real' has no diagnostic value in the set of actual animals since it is shared by all actual animals and hence cannot be used to classify them. This feature, however, acquires considerable diagnostic value if the object set is extended to include legendary animals, such as a centaur, a mermaid, or a phoenix"; cf. [22], pp. 9-10.

<sup>14</sup> For this notion, see [26].

approach. Contextualism is, more than a real paradigm, a research program<sup>15</sup>, which can be reconstructed within the cognitive current, in the models and the observations of linguists, psychologists or philosophers, like David Rumelhart, George Dunbar, Charles Fillmore, Lawrence Barsalou, Ronald Langacker, François Récanati and Douglas Hintzman.

The application of the contextualist approach in semantics blurs the semantics/pragmatics distinction: subjects make use of the pragmatic processor to determine the semantic core itself, i. e. to determine the truth conditions of any utterance. Two ways of integrating pragmatics to semantics are possible:

*Weak Contextualism* maintains the notion of the linguistic meaning of an expression, but stresses the distinction between this meaning and the semantic value that the expression takes in context;

*Strong Contextualism* abandons the very notion of linguistic meaning.

Weak Contextualism can be seen as the generalization of contextual expressions model to all linguistic expressions. In this model a verb like *open* or *cut* is assimilated to a contextual expression. A frame is associated to the verb, a frame specifying several roles, namely the agent, the object, the instrument, etc. The structure of the frame represents the *semantic* component: a fixed meaning, although a complex one. On the other hand, determination of the values of the roles is a *pragmatic* procedure, relying on linguistic and encyclopedic knowledge.

As far as a contextual expression is concerned, the addressee must instantiate always *the same variable*, encoded in the linguistic meaning of the expression; in Searle's examples, on the other hand, it is the context that points out the roles that the addressee must instantiate. The mode of dependence depends on context: Strong Contextualism develops the thesis of a contextual meta-dependence.

Operating a focalization in the frame associated to a verb like *cut*, context can activate roles which are unarticulated constituents of the utterance: a specific schema is then put in the foreground. This focalization is not necessarily constrained by linguistic material (the articulated constituents): the same linguistic material can force to instantiate - in different contexts - different variables, corresponding to different semantic roles belonging to the frame associate to the verb.

The main thesis of Strong Contextualism is that a word is not associated in a primitive way to a set of application conditions (as in a Fregean model) – its conventional meaning – but to a *set of applications*: meaning is built up from contexts of use. The semantic potential of a word *w* is the set of applications of *w* to situations, or objects, or contexts, applications accepted by the linguistic community. This set can be interpreted in different ways: set of objects<sup>16</sup>, set of real situations<sup>17</sup>, or of schemas of situations<sup>18</sup>, set of traces of cognitive episodes stored in the memory.<sup>19</sup>

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<sup>15</sup> For a detailed exposition, see [6].

<sup>16</sup> For Putnam: see [20].

<sup>17</sup> For Récanati: see [22].

<sup>18</sup> For Fillmore: see [9] and [10], or Langacker: see [14].

<sup>19</sup> For Hintzman: see [11].



## 5 Conclusion

Pure indexicals show a form of dependence that CP can handle without modifying its general structure. Determination of the truth conditions of an utterance containing an indexical expression, although indirect, is mechanical, functional, hence semantic.

Demonstratives and "contextual expressions" show a form of dependence more threatening for CP: the functional solution at work for pure indexicals cannot be applied to those kinds of expressions. A pragmatic processor is brought into play to identify the semantic level itself. Therefore, linguistic meaning *underdetermines* truth conditions of an utterance containing a demonstrative or a contextual expression.

- I said that CP can follow two types of strategies of self defense:
- a. the first one concerning the extension of underdetermination;
  - b. the second one concerning the form of underdetermination.

I hope I have shown that both strategies are wrong. Searle and Travis point out a form of contextual dependence affecting *all* linguistic expressions (contra a.), even after disambiguation and saturation of the variables corresponding to pure indexicals, demonstratives and contextual expressions. This kind of underdetermination is *top-down* (contra b.): context, and not only linguistic material, shows which variables must be instantiated, relying on context itself. The instantiation is here facultative, because linguistic meaning does not impose it in all contexts.

Top-down dependence generalizes the semantic underdetermination - which becomes a *property* of linguistic meaning in general: linguistic meaning underdetermines the truth conditions of any utterance.<sup>20</sup>

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<sup>20</sup> This kind of dependence corresponds to the "open texture" of empirical terms pointed out in the '40s by ordinary language philosophers, like Waismann or Austin: see [31] and [2].

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