

## Default Semantics

It is hardly contestable that in interpreting the speaker's utterance the addressee is frequently driven by the salience of some of the possible interpretations. This salience can be caused by a greater frequency of a certain meaning or by its simplicity, but ultimately it boils down to the knowledge of social and cultural conventions or to some cognitive principles that govern our thinking. Default Semantics concerns such cognitive defaults.

Before laying out the principles of Default Semantics, it is necessary to place the default-based views in the research on the semantics/pragmatics interface.

According to the traditional view, in addition to lexical and semantic ambiguities there are also semantic ambiguities such as that between the wide and narrow scope of negation in (1), represented in (1a) and (1b) respectively. 'KoF' stands for 'present king of France'.

(1) The present king of France is not bald.

(1a)  $\neg\exists x (\text{KoF}(x) \ \& \ \forall y (\text{KoF}(y) \supset y = x) \ \& \ \text{Bald}(x))$

(1b)  $\exists x (\text{KoF}(x) \ \& \ \forall y (\text{KoF}(y) \supset y = x) \ \& \ \neg\text{Bald}(x))$

The ambiguity position, held among others by Russell, has been successfully refuted. Instead, it has been proposed that such differences in meaning belong to what is implicated rather than what is said (Grice 1975), and subsequently that semantics can be underspecified as to some aspects of meaning and require pragmatic intrusion in order to arrive at the full propositional representation of the utterance (see e.g. Carston 1988, 2002). Standardly, we talk here about the *underdetermination* of sense and *underspecification* of the logical form. According to some post-Griceans, such

differences in meaning can be explained through default interpretations. The level of defaults has been conceived of in a variety of ways: either as belonging to (i) semantics (as in Discourse Representation Theory, Kamp and Reyle 1993 and its offshoots such as Segmented Discourse Representation Theory, Asher and Lascarides 2003); to (ii) pragmatics (Bach 1994); or as (iii) a fully-fledged social and cultural conventions, called presumptive meanings or generalized conversational implicatures (Levinson 2000). All of these default-based approaches advocate some degree of semantic underdetermination understood as conceptual gaps in the output of lexicon and grammar. In other words, the logical form, which is the output of the grammatical processing of a sentence, does not provide the totality of meaning of the proposition expressed by the speaker.

While this statement is certainly true, and it also seems to be true that some pragmatic contribution is often required in order to get the correct truth conditions of the utterance, it does not at the same time mean that such an underspecified or underdetermined representation need be distinguished as an epistemologically real level in utterance processing. In Default Semantics, there is no semantic ambiguity, but there is no underspecification either. The logical form as the output of syntactic processing interacts with the information coming from the property of mental states of *having an object, being about* something, called their *intentionality*. So, if we ask the question as to where meaning comes from, we can point at two sources of meaning: (i) compositionality of the sentence meaning and (ii) intentionality of the mental state that underlies this sentence. Both are equally basic and equally important and hence it would be incorrect to consider any information coming from intentionality as an additional, pragmatic level of utterance processing. They both belong to semantics. In dynamic approaches to meaning such as Discourse Representation Theory, such a

level of representation, called in Default Semantics an *intentionality-compositionality merger*, has been successfully implemented and seems to be more in the spirit of dynamic meaning than postulating any unnecessary underspecifications or ambiguities (see Jaszczolt 1999a,b; 2000).

Default Semantics is governed by three main principles: the Parsimony of Levels PoL), Degrees of Intentions (DI), and the Primary Intention (PI):

PoL: Levels of senses are not to be multiplied beyond necessity.

DI: Intentions in communication come in various degrees: they can be stronger or weaker.

PI: The primary role of intention in communication is to secure the referent of the speaker's utterance.

In PoL, the principle of parsimony with respect to the proposed levels of meaning is taken further than in other post-Gricean approaches. Instead of discerning an underspecified logical form and pragmatic intrusion, both sources of meaning are treated on an equal footing and they both contribute to a common level of representation (the intentionality-compositionality merger). DI and PI principles specify how intentionality contributes to the meaning representation. In agreement with the phenomenological tradition (Husserl 1900-01), we have defined intentionality as the property of beliefs, thoughts, doubts, etc, of being about an object. It is compatible with the definition of intentionality that this aboutness can be stronger or weaker. For example, a definite description 'the best Italian painter' can correspond to a thought about a particular individual, e.g. Michelangelo (and be used *referentially*), to a thought about a particular individual who does not correctly

undergo the description, e.g. Picasso (and be used with a referential mistake), or finally to a thought about whoever happens to undergo the description (and be used *descriptively*). In the first case, intentionality is in the strongest form: as a property of the mental state, it reaches, so to speak, a real object. In the middle case, it is weaker: a real object is intended but there is no such object corresponding to that description and hence it reaches a mental construct that is a composite of the real person and an incorrect description. In the final case, the intentionality is dispersed and does not reach an object.

Now, intentional mental states need vehicles of meaning, and language is one of such vehicles. As a result, linguistic expressions share the property of intentionality and hence we can talk about intentionality of utterances as well as intentionality of thoughts. On the level of utterances, this intending is realised as *intentions in communication*. Three types of such intentions are distinguished in Default Semantics: an intention to communicate certain content, to inform about certain content, and to refer to objects, states, events, and processes. In accordance with the DI and PI principles, information from the degree of intentionality of the mental state (or: the strength of intending, informativeness of an utterance) merges with the information from compositionality and produces the complete propositional representation that conforms to PoL. So, Default Semantics offers a more economical alternative to the approaches founded on underspecified semantics in that it implements Occam's razor (the methodological principle of not multiplying beings beyond necessity) 'one level up': the level of representation on which inferring such enrichments is founded is also disposed of. Semantic representation structures of Discourse Representation Theory have been implemented as formalizations for such intentionality-compositionality mergers (Jaszczolt 1999b, 2000, 2003a).

The DI and PI principles, in recognizing degrees and strengths of intentions, explain how default interpretations can arise. In the case of definite descriptions such as ‘the best Italian painter’, the hearer normally assumes that the speaker utters the description with a referential intention and that the description is used correctly. This assumption is further corroborated by the assumed intentionality of the speaker’s belief: the intentionality is the strongest when a particular, identifiable individual has been intended. By force of the properties of vehicles of thought discussed above, the stronger the intentionality, the stronger the speaker’s intentions. In the case of definite descriptions, the stronger the intentionality, the stronger the referential intention. There are three degrees of intentionality in the case of definite descriptions, corresponding to the three readings distinguished above: (i) the strongest, referential; (ii) intermediate, referential with a referential mistake; and (iii) the weakest, attributive. The strongest intentionality corresponds to the default reading. This default reading arises instantly, as a compositionality-intentionality merger. Only if the addressee has evidence from his/her knowledge base or from the context that this default is not the case, does the default interpretation *fail to arise*. This procedure is an improvement on other default-based approaches where defaults have to be *cancelled* or *overridden*. Cancellation of defaults is a costly process and should not be postulated lightly: if there is no evidence of such cancellation, it is better to do without it and assume a more economical model of utterance processing.

Similarly, cognitive defaults can be discerned for belief and other propositional attitude reports (see *Propositional Attitudes*). Sentence (1) can give rise to a report as in (2):

(1) The best Italian painter painted this picture.

(2) Mary believes that the best Italian painter painted this picture.

Using the representation of the Discourse Representation Theory (Kamp and Reyle 1993; Reyle 1993), we can represent the possible readings of (2) as in Fig. 1 (from Jaszczolt 1999b: 287):

<insert Figure 1 here>

Fig. 1

The discourse referent *y* is enclosed by a box drawn with a broken line which signals that *y* can belong to any of the three remaining boxes. If it belongs to the outermost box, the reading is *de re* (about a particular individual, say, Michelangelo). Placed in the middle box, it signals that Mary has a *de re* belief but is referentially mistaken, thinking, for example, of Picasso. Placing *y* in the innermost box corresponds to a belief about whoever undergoes the description, i.e. a belief in a proposition (*de dicto*) rather than about a particular individual. Analogously to the case of definite descriptions where referential use was the default, the *de re* reading of a belief report comes out as a default because it corresponds to the strongest intentions and the strongest intentionality. So, Fig. 1 comprises three possible representations (three possible compositionality-intentionality mergers).

In addition to definite descriptions in extensional and in propositional attitude contexts, the mechanism of the principles of Default Semantics has been applied to a variety of language expressions and constructions, including proper names (Jaszczolt

1999b), presuppositional expressions (Jaszczolt 2002a, b), expressions of temporality and modality, and tentatively to numerals and sentential connectives (Jaszczolt 2003b, forthcoming). Naturally, the PI principle will not always be relevant. The referential intention will not always be present and even when it is, it may not pertain to the assessment of the default or non-default status of various readings. For example, in assessing the default meaning of *will* from among the epistemic necessity *will* in (3), dispositional necessity *will* in (4), and a marker of future tense in (5), it is the intention to inform the addressee about a certain content that is graded from the strongest to the weakest:

- (3) Mary will be in the opera now.
- (4) Mary will sometimes go to the opera in her tracksuit.
- (5) Mary will go to the opera tomorrow night.

The Default-Semantic account of *will* also demonstrates that modal and temporal senses of *will* are traceable to one, overarching modal concept (akin to Grice's 2001 sentential operator of *acceptability*). And since *will* is modal, it follows that the assignment of defaults has to be reversed as compared with the examples previously discussed: the weakest intentionality corresponds to the default sense of *will*, and this, predictably, turns out to be the regular future marker in (5) (for a formal account see Jaszczolt 2003a).

Not all default interpretations are reducible to cognitive defaults. For example, the interpretation of possessives as in (6) is dependent on the addressee's background knowledge and the context rather than on the properties of mental states:

(6) Peter's book is about a glass church.

Similarly, inferences to a stereotype ('female nurse') such as in (7) are not the case of the strength of intending but rather stem out of the acquaintance with social and cultural practices:

(7) They employed a nurse to look after the patient.

Such default interpretations belong to the category of social and cultural defaults and as such are of a much less central interest to semantic theory.

The phenomenon of negative-raising, i.e. the tendency for negation on the main clause to be interpreted as negation on the subordinate clause, is not an obvious cognitive default but here the judgement has to be cautious. Neg-raising unpredictably applies to some relevant verbs but not to others, as (8) and (9) demonstrate:

(8) I don't think he is dishonest. (communicates, defeasibly: 'I think he is not dishonest.')

(9) I don't hope he will win. (does not communicate: 'I hope he will not win.')

The important question at this point is to ask about the scope of applicability of the theory. The question of the scope of applicability can be taken in the narrow and in the wide sense. In the narrow sense, we ask which default interpretations can be regarded as cognitive defaults, traceable to the properties of mental states. Cognitive defaults are rather wide spread. In addition to the examples mentioned above, numerals seem to default to the 'exactly' meaning, rather than being underdeterminate

between ‘at least’, ‘at most’ and ‘exactly’, or having an ‘at least’ semantics. The enrichment of some sentential connectives such as *if* (to ‘if and only if’) and *or* (to exclusive *or*) can also be traced to the strength of the informative intention and intentionality. This proposal concerning connectives and numerals is still highly programmatic and in need of further research. It is signalled here in order to shed some light on possible applications of cognitive defaults. In the wide sense, Default Semantics also comprises social and cultural defaults simply by assigning them an epistemological status that has nothing to do with the compositionality-intentionality merger.

To sum up: Default Semantics postulates a level of utterance interpretation called a compositionality-intentionality merger and thereby significantly decreases the role of underspecification in semantic theory. It distinguishes cognitive defaults and intention-based degrees of departures from these defaults, triggered by the addressee’s knowledge base and the context. The theory also acknowledges the existence of social and cultural defaults whose source lies beyond semantics proper.

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figure to p. 3

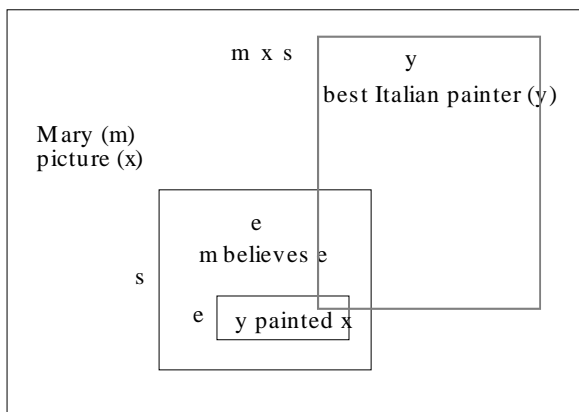


Fig. 1

key words:

Default Semantics

default interpretations

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Parsimony of Levels principle (PoL)

Degrees of Intentions principle (DI)

Primary Intention principle (PI)

## Default Semantics

### Abstract

The article introduces the problem of underdetermination of sense and underspecification of the logical form and discusses a solution to this problem called *Default Semantics*. The theory of Default Semantics postulates one level of semantic representation called an *compositionality-intentionality merger*, represented by using the formalism of Discourse Representation Theory. It accounts for salient interpretations by means of so-called *cognitive defaults* that rely on the property of intentionality exhibited by relevant mental states. In addition, it also distinguishes the category of *social-cultural defaults*. The discussion places Default Semantics in the context of current debates on the semantics/pragmatics interface.