I. The Beasts

Extensions and intensions are introduced as theoretical posits designed to serve as dimensions of a complex account of linguistic meaning that can do justice to the range of data that natural language provides.

A. Extension: an extension is a set of objects that satisfy a certain condition and is associated with a linguistic item. (Think of a referent as a singleton set.)

B. Intension: an intension (with an ‘s’) is (a) the condition, associated with a linguistic item, that determines the extension of that item, or (b) the condition, associated with a linguistic item, that determines the interaction of that item with other linguistic items.

Certain linguistic phenomena seem explicable in terms of extensions, while others require intensions. Thus, in certain phenomena, the linguistic devices contribute to the whole through their extensions, while in others they contribute through their intensions. Thus, there is reason to believe that a full account of meaning should make room for both. (This is a Fregean idea.)

II. The Data

A. Non-Truth Functional Operators

1. A truth-functional operator is an operator that returns a truth value as a function of inputs which are also truth values. For example, the operator ‘&’ returns the value T if you give it (T, T), but F if you give it (F, T), (T, F), or (F, F). Such an operator is a mathematical function of truth values—given one truth value, it will return one and only one truth value.

2. Truth-functionality is a hallmark of extensional phenomena, and certain devices (e.g., the sentential connectives) are seen as creating contexts in which evaluation should proceed truth-functionally.

3. Failure of truth functionality is a hallmark of intensional phenomena, and these phenomena are often associated with certain devices that create intensional contexts. For example, consider “it is possible that”. While it is truth that this operator will give you T if you give it T (i.e., if it is the case that P, then it is surely possible that P), it could give you either T or F for the value F. Thus, it is not a mathematical function of truth values, and so is not truth functional.
B. Free Substitution

1. Extensional contexts are those in which you can substitute co-extensional terms *salva veritate*. For instance, “shook hands with” is an extensional relation, since you can substitute in co-referring expressions without changing the truth value of the whole.

2. Intensional contexts are those in which you cannot make this kind of substitution. (E.g., “believes that”, “desires that”, etc.)

C. Empty Terms

1. In extensional contexts, emptiness is a threat to meaningfulness. E.g., “The present king of France is bald.” This is due to the fact that certain words and grammatical categories (i.e., the extensional ones) do not tolerate emptiness, e.g., subjects, certain verb phrases, etc.

2. Intensional contexts tolerate emptiness, e.g., “Michael wishes that Santa would remember he is alive.”

D. Quantification

1. In extensional contexts, you can quantify in.

2. You cannot quantify into intensional contexts.

III. Possible Worlds

A. We can use possible worlds to get at certain differences between intensionality and extensionality.

B. In particular, we can say that extensional contexts are about the way things are—they are about the actual world—while intensional contexts are about the way things might be in some sense. Possible worlds help us capture this sense.

IV. Structured Intensions

A. But aren’t possible worlds too rough an instrument to capture the nuances of intensional data?

B. Yes and no—we can modify them and supplement them and thereby do justice to this. E.g., use of categorical grammar.