Two contrasting representations of context:

CG-context, context as common ground: Context, in this sense, is an information state, the presumed common knowledge of the participants of the conversation that is taking place in the context. CG-context can be represented formally by a set of possibilities, the context set of possibilities that are compatible with the common ground. In order to represent the context of a conversation that may involve the communication of self-locating information, the possibilities that are the members of the context set will be a kind of centered possible world, where the center is a time and a sequence of agents, the participants in the conversation.

K-context, context as understood in David Kaplan’s semantics for demonstratives, and in David Lewis’s Context/Index framework: Context, in this sense, is the concrete situation in which an utterance event takes place. It can be represented formally by a centered possible world, where a center is a time and a place (the time and place at which the utterance occurs).

Lewis’s context/index (CI) semantic framework:

A CI semantics assigns to each sentence of the language being interpreted a function that takes a pair of abstract objects (each with its own complexity) to a truth-value. The first argument of the function is a K-context, and the second is an index, which is a sequence of co-ordinates such as time, place, possible world, perhaps a standard of precision, a sequence of individuals for the interpretation of quantifiers and bound variables. The specific list of co-ordinates will be determined by what is required for the interpretation of the language being interpreted.

The compositional semantic rules will define the semantic values (functions from context/index pairs to truth values) in terms of the semantic values of their parts. The general form of a rule for the interpretation of a modal, locative, or temporal operator, o, will be something like this:

$$||o\phi||_{c,i} = 1 \text{ if and only if } ||\phi||_{c,i^*} = 1 \text{ for some or all } i^*, \text{ where } i^* \text{ is defined in some specific way in terms of } c \text{ and } i.$$ 

For example:

$$||\text{Once } \phi||_{c,i} = 1 \text{ iff } ||\phi||_{c,i^*} = 1 \text{ for some } i^* \text{ that is like } i, \text{ except that } t_{i^*} < t_i.$$ 

$$||\text{Now } \phi||_{c,i} = 1 \text{ iff } ||\phi||_{c,i^*} = 1 \text{ where } i^* \text{ is like } i, \text{ except that } t_{i^*} = t_c.$$ 

The semantics gives us a truth-value, relative to an arbitrary context-index pair, but how do we get from this to the truth-value of an actual token utterance? That is, what is the particular c and i that are relevant to determining the truth-value of the token utterance? The relevant c is the actual context of utterance. The relevant i is an initial index, the index of the context. Each of the co-ordinates of the index will be an object of the kind that is determined by a context. For example, the index might contain place and time coordinates. In the index of the context, the place and time will be the place and time of the centered possible world that is the context. But the index coordinates may shift for the interpretation of clauses in the scope of an operator.

David Kaplan’s notorious remark on monsters:
My liberality with respect to operators on content, i.e. intensional operators (any feature of the circumstances of evaluation that can be well defined and isolated) does not extend to operators which attempt to operate on character. . . . indexicals always take primary scope. If this is true—and it is—then no operator can control the character of indexicals within its scope, because they will simply leap out of its scope to the front of the operator. I am not saying we could not construct a language with such operators, just that English is not one. And such operators could not be added to it.

The analogue of Kaplan’s ban on monsters in the CI semantics:

The general form of a compositional rule in the CI framework gives the truth-value of a complex expression, relative to $\langle c,i \rangle$ in terms of $\langle c,i^* \rangle$, where $i^*$ may differ from $i$, but the $c$ must remain the same.

Paolo Santorio’s monstrous story:

Rudolf Lingens and Gustav Lauben are two amnesiacs who each know that they are one of the two, but do not know which. They have been kidnapped and will be subjected to the following experiment:

First, they will be anesthetized. Then a coin will be tossed. If the outcome is tails, Lingens will be released in Main Library, Stanford, and Lauben will be killed. If the outcome is heads, Lauben will be released in Widener Library, Harvard, and Lingens will be killed. Lingens and Lauben are informed of the plan and the experiment is executed. Later, one of them wakes up in a library.

The utterances to be interpreted are the following two, where the context is one in which the coin landed tails, the actual speaker is Lingens, and the actual location of his utterance is Widener Library, Harvard:

(1) I might be in Main Library, Stanford.

(2) I might be in Widener Library, Harvard.

The ‘might’ is epistemic, and it seems clear that both of Lingens’s statements are true.

A monstrous rule for epistemic ‘might’:

$||\diamond\phi||_{c,i} = 1$ iff $||\phi||_{c^*,i^*} = 1$ for some $c^*$ and $i^*$ such that $w_{c^*} \in g(c)$, and $w_{c^*}=w^*$.

where $g(c)$ is the context set of the conversation taking place at K-context $c$.

(notation: $w_{c^*}$ is the world of the K-context $c^*$, and $w^*$ is the world of index $i^*$.)

An individual concept is a function taking possible worlds (or centered possible worlds) to individuals. An individual concept $f$ is an $I$-concept, relative to a given set of centered possible worlds, $G$ iff for all $c \in G$, $f(c)$ is the individual at the center of $c$. $I$-concepts may be non-rigid.

In the CI framework, the semantic rule for the first-person pronoun “I” will be this:

$||I||_{c,i} = a_c$

where $a_c$ is the individual at the place and time that defines the center of $c$. 

2