RESEARCH ARTICLE

Hereby explained: an event-based account of performative utterances

Regine Eckardt

Abstract   Several authors propose that performative speech acts are self-guaranteeing due to their self-referential nature (Searle 1989; Jary 2007). The present paper offers an analysis of self-referentiality in terms of truth conditional semantics, making use of Davidsonian events. I propose that *hereby* can denote the ongoing act of information transfer (more mundanely, the utterance) which thereby enters the meaning of the sentence. The analysis will be extended to cover self-referential sentences without the adverb *hereby*. While self-referentiality can be integrated in ordinary truth conditional semantic analysis without being a mystery, the resulting account shows that self-referentiality in this sense is a necessary but not a sufficient condition for performative utterances. I propose that the second ingredient of performative utterances consists in an act of the speaker *defining* her utterance to be an act of the respective kind. The final theory can successfully predict the performativity, or lack thereof, of a wide range of performative sentences, and leads to an explicated interface between compositional sentence meaning and speech act.

Keywords   Truth conditional semantics · Event semantics · Speech acts · Performative utterances

1 The performative mystery

Verbs like *promise* can be used to describe certain facts, but also to perform a non-assertive speech act, as illustrated in (1) and (2). Moreover, a sentence like (2) can be used in a descriptive sense as well as a performative sense.

R. Eckardt (✉)
University of Göttingen, Göttingen, Germany
e-mail: reckard@gwdg.de

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(1) *Peter promised Susan to come and see her.*

(2) *I promise you to come and see you.*

The descriptive sense of (2) shows up, for instance, when the sentence is used to describe habitual promises, like in *Whenever I make a phone call to you, I promise you to come and see you* (a variant of Searle 1989, p. 538; also Jary 2007). A simple check of verbs, tense, signal words or other linguistic parts of an utterance alone can not predict whether or not an assertion is performative. Still, we would say, there is something about the meaning of (2) that turns it into an eligible candidate for performative utterances that (1) lacks. I will adopt Searle's terminology (1989) and call verbs like *promise* 'performative verbs'. I use 'performative sentence' for sentences like (2) which can potentially be used to issue a speech act. If an utterance is indeed a speech act of the respective kind (e.g. a promise), it is called a 'performative utterance'.

Examples like (1) and (2) give rise to a number of questions concerning the interaction between semantics and speech act.

- Do performative sentences denote propositions when they are used in a performative utterance?
- Specifically, truth conditional semantics offers an explicit way to compose such propositions. Is any of these the denotation of the sentence, if used in a performative utterance?
- Are performative acts primarily statements of a proposition, which then bring about the performative act (as claimed e.g. by Bach and Harnish 1992)?
- Or is there a primary performative act? How does it relate to the proposition?
- How can the very same sentence, with the same meaning, figure sometimes as a statement, and sometimes as a performative utterance?

Several authors propose that self-referentiality might be the key to understanding performativity (Jary 2007). Searle (1989) assumes that performative utterances are statements about themselves, and their logical structure is made explicit by the use of adverbial *hereby*. He proposes that self-referentiality, together with a 'declarative act' which establishes new linguistic facts, suffices to derive performativity. At the outset of the paper, Searle promises that his attempt to understand how performatives work is not just "a fussy exercise in linguistic analysis" but the key to understand human communication.

In this paper, I will add more "fussy exercise in linguistic analysis" to Searle's picture and spell out more precisely how the truth conditional denotation of sentences helps to derive their performative use, a project that has been formulated as early as Szabolcsi (1982, p. 531). I propose a Davidsonian analysis of performative verbs which assumes that they take an event argument. Utterances *are* events, and hence we can explicate in what sense a performative utterance ε talks about itself. The second ingredient to performativity consists in what I will call *definition*. In making a performative utterance, the speaker in (2) not only describes her utterance ε as a PROMISE but expresses the intention that ε be an instance of this kind: "*I define my utterance to be a promise*". This second ingredient obviously

corresponds to Searle's 'declaration'. However, his term caused substantial confusion and I believe that a new label will benefit the account.[1]

Even though my truth conditional analysis takes up proposals of Searle (1989), it substantially extends range and quality of his theory.

First, his prose rendering of the analysis was still open for interpretation. For instance, the version of his theory that Bach and Harnish (1992) reconstruct and criticize can perhaps be read into the formulations in Searle (1989). However, I do not think that their interpretation does justice to the original proposal. I specify a fully explicit syntax–semantics interface for performative utterances which should exclude many misunderstandings that hindered reception of Searle's account.

Second, Searle in 1989 could not afford himself of semantic operations at LF which are standardly used in contemporary semantic analysis. For instance, we know that arguments of the verb can be saturated by several processes like existential binding, indexical instantiation in context, or saturation by an explicit syntactic constituent. We will see how such choices can explain different uses of performative sentences. The choice between various possible LFs of performative sentences does not depend on lexical ambiguity of the performative verb, unlike what Bach and Harnish assume in their critique.

Third, it can be shown that the analyses by Searle, and by Bach and Harnish are mutually consistent parts of one overarching analysis. There is independent linguistic evidence in favour of two types of logical structure that achieve self-referentiality. One of these structures shows all properties that seem to underlie Searle's work in Searle (1989). The other structure, however, fits Bach and Harnish's characterisation of how performatives come about. The two logical structures come about by two different ways to instantiate the event argument of the performative verb: existential closure in one case, and instantiation by utterance ε in the other. Neither Searle nor Bach and Harnish took such operations into account. Consequently, they perceived their analyses as mutually exclusive, and most likely one correct and the other incorrect. As an exciting consequence of the present fussy exercise in linguistic analysis, it turns out that both analyses are possible, and both warranted by linguistic data.

For some philosophers, it seems dangerous to attempt to derive self-referentiality from the truth conditional meaning of an utterance. Bach and Harnish take a very reserved stand with respect to such an enterprise.

> To suppose that the self-referentiality of performative utterances is a consequence of the semantics of performative sentences would be to posit **a linguistic anomaly**, whereby the first person present tense form "I order" would have a semantic feature different in kind from other forms, such as "You order" or "I ordered", indeed one that is not compositionally determined by the meanings of the words "I" and "order". (Bach and Harnish 1992, 100, fn. 14)

Given that this position is still echoed in Jary (2007), a semantic account of performative sentences which is fully normal in all linguistic respects and still derives self-referentiality on basis of meaning should substantially enrich the debate.

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[1] See Bach and Harnish (1992, Sect. 4).

The paper is structured as follows: Sect. 2 reviews a number of linguistic and philosophical observations about the use of performative verbs, performative utterances and *hereby* which must be captured in the semantic analysis of performative sentence and utterances. The observations from the philosophical side are mostly known and standard since Austin (1955), the linguistic point of view brings a few contrasts to the fore that have to do with scope taking elements in performative utterances, and shed new light on earlier analyses. Section 3 spells out the basic assumptions of a Davidsonian analysis of performative verbs, *hereby* and self-referentiality. Section 4 turns attention to negation and quantified subjects in performative sentences. The latter block performative uses, unless *hereby* is used. This entails that a missing *hereby* cannot be captured as a tacit indexical and leads us to the second way to achieve self-referential readings, namely by specific existential uses of the sentence. In Sect. 5, I turn to the question why performative sentences can be used in a truly non-performative sense. Related, there are other self-referential utterances which can be true, but are clearly not performative in the sense of non-assertive speech acts. I argue that an additional act of *definition* by the speaker is what turns a self-referential statement into a performative. This section requires a closer look at the lexical content of performative and other verbs. Not any old event ε and verb VERB are such that speakers can attempt to define "ε be of kind VERB". The resulting picture takes up and clarifies many remarks to this point in Searle (1989), Bach and Harnish (1992) and later literature. To make or not to make the *definition* defines the boundary between descriptive and performative uses of performative sentences. Section 6 closes the paper with a comparison to earlier analyses of explicit performative sentences. I will streamline and survey how the debate between Searle and Bach and Harnish locates in the present analysis. In addition, I relate the approach to a few recent semantic analyses of various kinds of speech acts, including work by Kaufmann (former Schwager), Condoravdi and Lauer, Portner, and Truckenbrodt. These complement rather than compete with the present analysis, and taken together, promise a comprehensive understanding of speech acts on basis of truth conditional semantics.

2 Observations about performative sentences and utterances

In the present section, I list a number of empirical observations about performative sentences and utterances. Most of these, and specifically the philosophically relevant ones, have been discussed in earlier literature. The linguistic perspective brings a few new data to the fore which may have been noted earlier but, to my knowledge, have not been hosted in any theory.

2.1 Diversity of performative utterances

Explicit performatives typically share a number of linguistic features. The subject is in the first person, they are in the present tense, they contain a performative verb as well as '*hereby*' in the matrix clause. (3) shows such a typical exemplar.

(3) *I (hereby) promise to bring beer.*

However, none of these indicators is a necessary and sufficient criterion to reinforce a performative utterance. The following sentences can be used in a performative sense even though they fail to show one or more of the typical linguistic indicators. Performative utterances can have third person subjects, have verbs in the future tense or fail to show *hereby*.

(4) *Mr. Jones hereby withdraws from all activities in connection with the planned soul festival.*

(5) *King Karl hereby promises you a cow.*

(6) *All your credit card debts will hereby be forgiven.*

(7) *King Karl promises you a cow.*[2]

The list echoes a similar set of examples in Searle ([1989](#), 536ff) which he offers to illustrate the same point.

Interestingly, sentences with quantified subjects are borderline candidates for performative utterances. Here, the presence or absence of *hereby* is criterial for the possibility of a performative use of the sentence. (8) is marginally possible in a performative utterance when uttered by an authorized representative of a group of students. The speaker refers to that particular group but doesn't want to specify them more precisely (e.g. by listing them all). In contrast, it is not possible to devise any such situation where (9) could seriously be used as a performative utterance.[3] Whenever a speaker utters (9), she reports on individual tacit vows of individual students.

(8) *Most students hereby promise to refrain from the use of drugs.*

(9) *Most students promise to refrain from using drugs.*

In Sect. [4](#), I discuss the consequences of such subtle distinctions for the semantic analysis of performative verbs and sentences.

Although minimal pairs like (8)/(9) seem to confirm the performative power of the word *hereby*, even *hereby* can be used in non-performative descriptive sentences.

(10) *The Congo River hereby was a prime target for this new conquest by the European nations.* (hereby = in a "scramble for raw materials" in Africa)

(11) *So that hereby was fulfilled what has been spoken in effect by several of the prophets…* (hereby = that Jesus came from Nazareth)

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[2] I grant that performative utterances like (7) might require a special "solemn" prosody which I do not count as an interpreted linguistic element.

[3] The distinction was confirmed by audiences on several occasions where I presented these examples.

All examples taken together confirm that there are no simple linguistic signals, features or feature bundles that characterize performative utterances. Eventually, comprehension of the literal content of a sentence is mandatory to decide whether that sentence, under suitable circumstances, can be used in a performative sense. Hence the lack of semantic analyses of performative utterances is all the more surprising. In the first part of the paper, I investigate the meaning of *hereby* and its interaction with other parts of the sentence. We will spell out which LF structures and links to context make an utterance self-referential and performative.

2.2 A few facts about the syntactic position(s) of 'hereby'

The adverb *hereby*, when used in performative sentences, is restricted to the modifier position of the performative verb. Unlike other speech act related words, it is not restricted to the matrix clause but can occur in embedded clauses.

(12) *I am happy to <u>hereby</u> declare you the winner of the race.*

(13) **I am <u>hereby</u> happy to declare you the winner of the race.*

(14) *I am awfully sorry to <u>hereby</u> announce my resignation.*

(15) **I am <u>hereby</u> awfully sorry to announce my resignation.*

If the function of *hereby* solely consisted in drawing attention to the ongoing utterance, we'd expect that it should be allowed in all syntactic positions that are permitted for adverbials. (13) and (15) illustrate that this is not the case. This cannot be explained by any theory which views *hereby* as an uninterpreted speech act indicating device. In other cases, *hereby* can occur optionally in the matrix or embedded clause, like in (16) and (17).[4]

(16) *I inform you that you are <u>hereby</u> sacked.*

(17) *I <u>hereby</u> inform you that you are sacked.*

Taking all these observations together, it seems hard to derive the restrictions on *hereby* from syntax. A more attractive line of analysis should start from the syntax–semantic interface and build on the intuition that *hereby* refers to the ongoing utterance ε. The denotation of *hereby* instantiates the event argument of its sister verb. While some verbs (like *inform* and *promise*) can take utterances as arguments, others (like *be sorry*) cannot, for evident semantic reasons: An utterance simply never is a state of being sorry.

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[4] I want to thank an anonymous reviewer who drew attention to these examples.

2.3 The lexical meaning of performative and other verbs

Performative verbs have a meaning that makes them suited to occur in performative utterances. Jary proposes that a performative is "a verb denoting an act which can be performed by communicating the intention to perform that act" (Jary 2007, p. 225). While this characterization is certainly plausible, it seems to cover cases where we'd hesitate to talk about performative verbs and utterances. Consider the following sentence.

(18) *I hereby utter a sentence consisting of nine words.*

"uttering X" is something that is typically done by uttering X. (18) also seems to be self-referential (it talks about itself). Still, (18) is an assertion. It can be true or false, and it makes sense to wonder whether it is true or false. What this example shows is that being self-referential and being a performative utterance are not the same. A similar example is offered in (19).

(19) *I hereby bore you.*

Even if (19) is true, it is not a performative utterance. What is it in the meaning of *bore* and *utter* that allows for self-referential uses but lacks the potential for performativity? We will return to this issue in Sect. 5. It is related to a number of other observations which I add for completeness.

(20) *I hereby promise to marry you.*

If (20) is uttered in a situation where *hereby* refers to the speaker signing a written proposal of marriage, it is not performative and neither self-referential.

(21) *I promise to visit you.*

As discussed earlier, (21) can be uttered in a performative sense but also in a descriptive sense. How do the interpretations of (21) in either sense differ? Finally, why can embedded sentences of the form (21) much rarer be used in a performative utterance? E.g. why can (22) never be used in a performative sense?

(22) *John thinks that I (hereby) promise to visit you.*

A closer investigation of these cases is included in Sect. 5 where two crucial lexical ingredients of performative verbs are distinguished: Surrounding circumstances on one side, and the speaker's will to *define* on the other side. Their joint satisfaction in the here-and-now leads to a performative utterance, failure of one or both to an utterance which is a statement (or meaningless). Verbs like *bore* or *utter* in (18) or (19) lack speaker's *definition* as part of their lexical meaning. This makes them unsuited for performative utterances.

Note that the present paper restricts attention to sentences which contain a performative verb in a potentially self-referring way. Hence, I will not analyse cases like '*The collection is hereby yours*' where the ongoing utterance serves as a

state-changer but doesn't explicitly say so. I believe that such examples are well within the range of the present analysis, but deserve a separate article.

2.4 The yes/no issue

Performative utterances differ from assertive utterances in that they cannot be denied by responding *No*.[5] Likewise, it seems inappropriate to agree to a performative utterance. Incoherent discourses like those in (23) are often used to test the performativity of an utterance (Austin 1955 [1962]; Searle 1969; Jary 2007, a.o.).

(23) *I invite you to come to my party tonight.—#No, that's not true.*
      I invite you to come to my party tonight.—#Yes, correct.

In the following, I will refer to the effect in (23) as the *yes/no test* for performative utterances. For some authors, the *yes/no* test is taken as conclusive evidence against the feasibility of a truth conditional analysis of performatives in general. Before moving on to Sect. 3, let me revisit positive and sceptical votes. Philosophers like Austin concluded, on basis of examples like (23), that the meaning of performative utterances cannot be modelled by propositions in truth conditional semantics. This is why: If a performative utterance denoted a set of worlds, we would need to be able to determine which set of worlds that must be. Given that sentences in general denote the set of those worlds where the sentence is true, we'd have to conclude that the performative utterance must be true in all worlds in its denotation. But if it doesn't even make sense to ask whether a performative utterance is true, then this criterion is void. Hence, it cannot denote a proposition (see Schwager 2006, Chap. 4, for a similar reconstruction of the argument).

Jary (2007) counters this claim and proposes the following explanation of the *yes/no-issue*: A felicitous performative utterance of an explicit performative sentence describes itself. Therefore, as Jary argues, a hearer witnessing such an utterance can hardly disagree with its claim that a *promise*, *invitation*, etc. has been issued, given that this is exactly what the hearer has just observed. More fundamentally, Jary claims, there is no point in agreeing to something self-verifying. Jary suggests that the *yes/no-issue* is more a fact about the discourse properties of performatives, and less an observation about the ontological status of their denotation.

While Jary is hence optimistic that (23) does not preclude propositional content, he still assumes that the *performative* act goes beyond the statement made. This second level of meaning is pragmatically more complex (Jary 2007) and secondary. Hearers can guess this secondary sense because the assertion reading is simpler but irrelevant in many situations. Resorting to Relevance Theory, Jary assumes that this new level of communication is derived by relevance—whatever the new level may consist of.

Jary's optimism was shared by an early defendant of an explicit formal interface between assertive meaning and performative meaning (Szabolsci 1982). Szabolsci models performative utterances in Montague semantics by assuming that the

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[5] For the sake of simplicity, I will reserve the term *performative utterances* for non-assertive performative utterances.

utterance of a performative leads to a change of the facts in the world at the time of the utterance. The analysis rests on the *world-to-word fit* of commissive and directive acts (Searle 1969). What is problematic about this approach is the unclear separation between meaning and change-of-fact. While a successful performative utterance will indeed change the facts of the world, the meaning should not be identical to the change. Otherwise, we cannot account for misfired performative utterances or even investigate under what circumstances the utterance of a performative sentence will succeed as a performative utterance. On a more technical side, the Montagovian format of Szabolsci (1982) does not integrate well with current syntax–semantics interfaces (Heim and Kratzer 1998). Likewise, she does not refer to events in her semantic analysis, whereas events will be at the heart of the present proposal. While the architecture of the present proposal hence deviates from Szabolsci's, I take up her spirited vision of an interface between meaning and speech act in terms of truth conditional semantics.

3 A Davidsonian account of self-referentiality

3.1 The basic account

The analysis starts from a Davidsonian analysis of verbs, including performative verbs like *request*, *promise*, *resign*, *declare* etc. These, like all other verbs, have an event argument (Davidson 1980). I moreover assume that the event argument is the one-but-last argument of the verbal predicate, with the subject argument being the last one. This offers us a clear starting point for semantic composition in a framework where the order of syntactic constituents codes their thematic role (Beaver and Condoravdi 2007; Eckardt 2009). Several alternative mappings of syntax to semantics are available but for the sake of exposition here, I will omit those steps in semantic composition that do not bear on the case at hand.[6] I will moreover present the denotations of verb plus object phrases without spelling out all computational steps below VP. Consider the sentence in (24). (25) shows a part of this sentence, and its truth-conditional denotation.[7]

(24) *I (hereby)* [*promise to clean the kitchen*]$_{\text{VP}}$

(25) $[\![$*promise to clean the kitchen*$]\!]$ =
$\lambda e \lambda x.$PROMISE$(x, e, \lambda w'.$CLEAN$(x, \text{THE.KITCHEN}, w'), w_o)$

Following standard assumptions in semantics, like Heim and Kratzer (1998), von Fintel and Heim (2007), semantic composition of verb and infinitival complement denotes the binary relation between those events **e** and individuals **x** such that **x** makes a promise about the proposition 'that **x** will clean the kitchen' in **e** (= 25).

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[6] I decided not to use extra phrasal levels to introduce agentive arguments, even though I think that the present claims are in principle compatible with this type of analysis (Kratzer 2003).

[7] The representation is again simplified in that the promised proposition "*x* clean the kitchen" should contain another existentially bound event argument which is located after the time of utterance.

The relation is parametrized by the world w_o of evaluation. The denotation hence allows for intensionalization (von Fintel and Heim 2007).

It can easily be checked that this denotation is adequate in descriptive utterances. (26) shows a present progressive descriptive example, and (27) a simple past use of the verb phrase. Tense and aspect are represented in a Reichenbachian format (Reichenbach 1966, extended in Kamp and Reyle 1993). While this is again a simplification, it allows to separate temporal reference times from the world parameter w_o and likewise from the event argument of the verb which can then easily and independently be manipulated.

(26) a. *Peter is promising to clean the kitchen.*
  b. $\exists e[\text{PROMISE}(\text{PETER}, e, \lambda w'.\text{CLEAN}(\text{PETER}, \text{THE.KITCHEN}, w'), w_o)$
      $\wedge\ R \subseteq \tau(e) \wedge R = S]$
      "There is an event e which is going on at reference time R which is the speech time S (i.e. it is going on now) and which consists in Peter making a promise about the proposition 'that Peter will clean the kitchen'."

It is part of the content of PROMISE to ensure how the happening of the promise will ideally shape further conduct of Peter, whether the proposition is suitable to be the object of a promise, etc. Searle (1969) is the first and most comprehensive attempt to explicate these aspects of the content of performative verbs.

(27) a. *Peter promised to clean the kitchen.*
  b. $\exists e\ [\text{PROMISE}(\text{PETER}, e, \lambda w'.\text{CLEAN}(\text{PETER}, \text{THE.KITCHEN}, w'), w_o) \wedge$
      $\tau(e) \subseteq R \wedge R < S]$
      "There is an event e which happens in reference time R which is before speech time S (i.e. e is a past event) and which consists in Peter making a promise about the proposition 'that Peter will clean the kitchen'."

The meaning of (27) leaves it open whether Peter cleaned the kitchen in the meantime, which is correct. Examples like these confirm that performative verbs allow for a Davidsonian analysis like most other verbs do. To this point they do not seem to be semantically anomalous in the sense of Bach and Harnish. So far, performative verbs are just like any other verb.

Let us now address the literal meaning of (28) in a performative utterance. The missing semantic ingredients are spelled out in (29b)–(29d) where (29c) codes the main assumption: the word *hereby* deictically refers to the ongoing act of information exchange ε. The meanings of *I* and *hereby* depend on the utterance context c which specifies the speaker of the utterance, the addressee, utterance time S and—as I will assume—the ongoing act of information exchange in the utterance situation c. The result of composition is shown in (29d).

(28)   *I hereby* [*promise to clean the kitchen*]$_{\text{VP}}$

(29) a. $[\![\textit{promise to clean the kitchen}]\!]^{w,c} =$
      $\lambda e \lambda x.\text{PROMISE}(x, e, \lambda w'.\text{CLEAN}(x, \text{THE.KITCHEN}, w'), w_o)$
  b. $[\![I]\!]^{w,c} = \mathbf{sp}$ (the speaker in c)

c. $[\![hereby]\!]^{\mathbf{w,c}} = \boldsymbol{\varepsilon_{28}}$ (the ongoing act of information exchange in *c*)

d. $[\![\text{simple present}]\!]^{\mathbf{w,c}} = \lambda e.\ \tau(e) \subseteq R \wedge R = S$ (the temporal anchor of *c*)

e. $\lambda w_o[\text{PROMISE}(\mathbf{sp}, \boldsymbol{\varepsilon_{28}}, \lambda w'.\text{CLEAN}(\mathbf{sp}, \text{THE.KITCHEN}, w'), w_o)$
$\wedge\ \tau(\boldsymbol{\varepsilon_{28}}) \subseteq R \wedge R = S]$

The sentence denotes the set of all those worlds w_o and utterance contexts *c* where the actual ongoing act of information exchange $\boldsymbol{\varepsilon}$ in *c* constitutes a promise by **sp** to the addressee. The *promised content* is that the speaker cleans the kitchen.[8] The content in (29e) is self-referential: It is the semantic content of the sentence uttered in ε_{28} in *c*, and it predicates about the utterance ε. The utterance event is part of the world we talk about (like **Peter** and the **kitchen**). The linguistic *form* of the utterance, its words, its syntax etc. can nevertheless be subject to semantic evaluation—which is what is shown in (29).

We can also ask when (29e) is true in a context *c* where (28) is uttered. Our main source of information will be our introspective judgments about the extension of *promise* in English. Consulting this source, we'd say that (29e) does hold true in an utterance situation *c* and world *w* under the proviso that we have no reason to doubt the speaker's intention to make a promise ("that s/he is not joking, lying etc."). We will return to the speaker's intentions in Sect. 5 and take a closer look at what this intention really amounts to. For the remainder of this and the next section, we will just list it as one of the factors that must be given in order for the performative sentence to be true (and perhaps, performative) in *c*. (28) differs from self-verifying sentences like "*I am here now*" exactly in that the speakers' intentions matter for the former, but not the latter sentence.

Before we turn to further cases which refine the analysis, I'd like to clarify what is *not* a prerequisite for successful semantic analysis. In adopting the truth conditional framework, we also adopt its standard perspective on word meaning. While the analysis of verbs like *promise*, *order* etc. has to be faithful to the compositional potential of the word, a full specification of the verb's extension and intension is *not* part of the enterprise. This is relegated to the observable and consensual intuitions of speakers of English who decide whether an actual act constitutes a promise (order, resigning etc.) or not. Searle's (1969) characterization of the meaning of performative verbs is hence replaced by "the set of social practices that establish the extension and intension of *promise*, *order*, *resign*, …". Truth conditional semantics does not attempt to *define* but only to *represent* the lexical meaning of performative verbs. Interestingly, results in psycholinguistics suggest that it is also an empirically adequate move. Astington (1988), working on the acquisition of performative verbs, reports that not only children but also adult subjects offer judgments about the use and extension of *promise* and other performative verbs which are not in line with the definitions proposed by Searle (1969). Her data suggest that speakers show similar vagueness, uncertainties and variation when talking about the extension of *promise* as they do for other content words like *game*, *mug*, or *chair*.

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[8] Searle (1969) uses the term *propositional content* for my *promised content*. In the present paper, Searle's term is misleading because we also consider the propositional content of the performative utterance as a whole.

There is just one part of the lexical meaning of performative verbs that matters for its linguistic behaviour and hence needs to be explicated. It is the part about *speaker intention* that was mentioned earlier. Section 5, where we will model the difference between true self-referential utterances and (true) performative utterances, is devoted to this lexical aspect of performative verbs.

3.2 What is the event at stake?

So far, I alternatingly referred to ε as "the utterance" and "the event of ongoing information transfer". This was more than just striving for variety. While in many cases, the utterance event is the most natural candidate talked about, this is not always so. The present section aims to delineate the events at stake, based on a standard test for event individuation. One important assumption about event ontology in linguistic literature is the *uniqueness of roles*. If an event e has an agent, then the agent X of e is unique. X may be a plurality of entities, i.e. X consists of many, but even then this plurality should be unique (Landman 2000, see Champollion for a comprehensive account of event ontology in linguistics). In many cases, *uniqueness of roles* offers the main argument to distinguish two events. For instance, most linguists would assume that each trade of goods gives rise to an event e_1 of selling and an event e_2 of buying. e_1 and e_2 are distinct because they have different agents. The present case of performative verbs gives rise to a similar distinction which, interestingly, echoes Austin's classic distinction between *locutionary act* and *illocutionary act*.

Our point of departure are cases where speakers speak on behalf of someone else. For instance, if someone makes a promise on behalf of someone else, the speaker of the utterance and agent of the promise are different. Our judgments about the social nature of such acts suggest that it is not the physical act of uttering that is at stake, but a more abstract act of information transfer.

(30) Messenger A: *King Karl hereby promises you a cow*. (to farmer Burns)

Here are some appropriate and inappropriate paraphrases and entailments:

(31) Appropriate:
      The king promised Burns a cow
      A announced the king's promise
      Inappropriate:
      A promised Burns a cow. (A is not responsible for providing the cow.)
      A caused the king to promise Burns a cow.
      A caused that the king promised Burns a cow.

If we analyze (30) along the lines suggested in Sect. 3.1, we will get (30b). It remains to be discussed which event ε should instantiate the event argument.

(30) b. [PROMISE(**KING**, ε, $\lambda w'$.GIVE(**KING**, **COW**, **BURNS**, w'), w_o)
          $\wedge\ \tau(\varepsilon) \subseteq R \wedge R = S$]

If we identify ε with the physical utterance act, we run into trouble. Agent of the act of uttering is speaker *A*. The agent of the promise is not *A* but the King. Hence, in the case of (30), utterance **u** and promise ε are distinct, or else we will violate uniqueness of agent.

The paraphrases in (31) likewise suggest that no causal relation between the utterance and the promise is at stake.[9] This precludes a lexical decomposition in terms of "*A* causes *King Karl* to do …" which might offer room for various acting parties. In order to account for the difference between utterance and act, I refer to ε as "the act of information transfer". This somewhat pale terminology avoids hasty identification between utterance and act, but also leaves it completely open whether ε is a speech act or just something else, a failure, some inappropriate instance of information transfer, etc. In the example in (30), ε_{30} consists in the information transfer between **King Karl** and **Burns** that is established by the actual physical utterance. The transfer only counts as felicitous if the speaker has order or permission to speak on behalf of the King. The King delegates the speaker to inform on his behalf. Delegation can happen instance by instance, or generally. "Licence to talk" can be given in cases where the King does not even know that some utterance is taking place. For example, in Spanish universities the dean has license to assign the final Bachelor and Master degrees with the words: "*hereby assigned by the King of Spain*" even though the King never knows any of the students or their scholarly achievements.[10]

The distinction between utterance and act of information transfer is not only motivated by linguistic considerations. In fact, it coheres well with Austin's distinction between locutionary act (= the physical utterance) and illocutionary act (= the mutual agreement between two parties), made on basis of independent arguments. Speech acts with inclusive plural subject *we* offer another case of delegated speech.

(32) a. *We hereby promise to clean our desks.*
b. [PROMISE($\mathbf{SP}, \varepsilon_{32}, \lambda w'.$CLEAN($\mathbf{SP}, \sum x.\exists a(a < \mathbf{SP} \land$ DESK-OF$(x,a)), w'), w_o$)
$\land \tau(\varepsilon_{32}) \subseteq R \land R = S$]
with $\mathbf{SP}$ = the plurality denoted by *we*,
$\sum x.\exists a(a < \mathbf{SP} \land$ DESK-OF$(x,a))$ = 'the sum of all *x* which are a desk owned by one of the plurality of speakers'

This can be paraphrased as 'the ongoing informing ε_{32} is a promise by plurality $\mathbf{SP}$ to the end that this plurality will be agent in an act of cleaning the sum of all desks of members in $\mathbf{SP}$'. I deliberately refrain from any further claims about the internal structure of such collective promises and other collective commitments, and specifically will not assume that the collective promise (32) must always break down into individual promises by individual persons about their individual desks. The proposition in (32b) is true if there is a collective commitment by $\mathbf{SP}$ to the

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[9] Natural language paraphrases might not always be reliable when it comes to diagnose causal relations. A more modest diagnosis could be: paraphrases do not immediately create the necessity to include causal relations into the semantic analysis.

[10] I thank Paula Menendez-Benito for this example.

hearer about the future state of a plurality of desks. (32b) leaves it open who will be responsible for which desks and whether individual commitments have been established, and all more detailed claims will require empirical exploration of our intuitions about collective action. It seems clear, however, that one physical speaker can be authorized to speak on behalf of a specific group of persons. This assumption will be corroborated by borderline instances of speech acts that we will investigate in Sect. 4.

3.3 *Hereby* in various syntactic positions

The present section takes a closer look at performative sentences with *hereby* in different syntactic positions. Two questions will be investigated:

- How does syntax determine the verb that takes *hereby* as its event argument?
- How can embedded performative sentences sometimes, but not always, lead to successful performative utterances?

Let us first compare the following two sentences. Both can be used to successfully open the exhibition.

(33) *I hereby open the exhibition.*

(34) *I am pleased to hereby open the exhibition.*

This observation offers further support for the idea that *hereby* refers to the act of information transfer. Both sentences contain the proposition $p = \lambda w.\text{OPEN}(\mathbf{sp}, \mathbf{exhibition}, \boldsymbol{\varepsilon}, w)$ as part of the information conveyed. Sentence (33) denotes this proposition, but an update of information by (34) rests on the presupposition that p is true. Given that p can not be part of the common ground before, it has to be accommodated. This offers evidence for the assumption that the event $\boldsymbol{\varepsilon}$ of information transfer includes presupposition accommodation as part of the information transferred. Hence, the information transfer ε_{33} in (33) as well as the transfer ε_{34} in (34) include the information 'that $\mathbf{sp}$ opens the exhibition' and are hence suited to make a true self-referential statement.

Matters are different in the following example.[11]

(35) *John thinks that I hereby open the exhibition.*

The sentence in (35) cannot possibly serve to open any exhibition. In view of (34), the reason cannot simply consist in the fact that the performative sentence occurs in an embedded position. However, (34) and (35) differ in yet another, semantic aspect. The information content of (34) has the proposition $p =$ 'that I open the exhibition' as its part (by way of accommodation). However, if we look at the information package conveyed in (35), it does not cover this proposition. While (35)

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[11] I want to thank an anonymous reviewer for bringing up this type of example. The original was *John thinks that I promise to return the book*. However, the version in (35) aligns better with the overall series of examples.

makes reference to the proposition $p = $ 'that I open the exhibition' as argument of the attitude verb *think*, the sentence as a whole neither asserts nor presupposes that p is true. If we spell out the logical structure of (35), this is what we get.

(36) $\lambda w.\exists s(\text{THINK}(\textbf{John},s,w, \lambda w^*(\text{OPEN}(\textbf{ sp, exhibition}, \varepsilon_{35}, w^*))) \wedge \tau(s) \text{ o } S)$
      where ε_{35} is the act of information transfer when uttering (35)

(36) states that John thinks that **sp**, by uttering (35), opens an exhibition. If we update the common ground with (36), there is no part of the message which asserts that ε_{35} indeed *is* an opening of the exhibition. Hence, one ingredient is missing that has so far been present in all examples of performative utterances: It must be part of the message conveyed in ε that ε be an act of the respective kind. (What more is needed to turn the assertion into a performative will be investigated in Sect. 5.) Given that (35) does not convey the proposition "this information transfer is an opening of the exhibition", we'd predict that it can not be used in a performative utterance of opening the exhibition. This is empirically justified.

A second set of examples shows that the position of *hereby* is restricted to positions adjacent to the performative verb.

(37) *I am happy to <u>hereby</u> declare you winner of the race.*

(38) **I am <u>hereby</u> happy to declare you winner of the race.*

The proposed syntax–semantics mapping for *hereby* can naturally predict the syntactic limitations of the word. It has to be placed in a position where its referent—the ongoing act of information transfer—can instantiate the event argument of a suitable verb. The denotation of (37) contains the predication DECLARE(**sp, ad**, ε_{37}, WINNER) where ε_{37} is attributed the property DECLARE. This is sortally reasonable. No matter whether ε_{37} is or is not a declaration, it is of an ontological kind that could in principle be one. (38) includes the predication HAPPY(**sp**, ε_{38}, …) which states that the act of information transfer is a state of happiness. This is not only false, as we learn from (38), but semantically ill-formed in a way that causes inacceptability. The minimal contrast in (37)/(38) and similar examples shows that the adverb *hereby* is not allowed to move at LF and position itself next to more appropriate verbs. It would be interesting to explore further syntactic tests that could back up this assumption on syntactic grounds.

Finally, let us consider the semantic structure in cases where both positions of *hereby* are possible. The examples in (39) and (40) show that the same act of information transfer ε can be classed either as an act of informing or as an act of sacking.

(39) *I <u>hereby</u> inform you that you are sacked.*

(40) *I inform you that you are <u>hereby</u> sacked.*

I will assume that the extension of SACK and INFORM are disjoint: an illocutionary act can either be a sacking or an act of informing (which may indirectly lead to an act of sacking). (40) states that it is part of the information transferred in ε_{40} that ε_{40} is a

SACKING of **addressee** by **speaker**. The addressee is sacked directly, so to speak. A serious utterance of (39) states that ε_{39} is an act of INFORMING the addressee of q where q = 'you are sacked'. The information package of ε_{39} also contains q as a part. If we assume that q was not known before, then the common ground will also newly be updated with q. The corresponding subclause in (39) does not contain the adverb *hereby* any more. The syntactic form of the subclause '*you are sacked*' leaves it open which eventuality instantiates the event argument of the verb *sack*. Hence, this special case leads us to the more general question: *What is the logical structure of performative sentences without 'hereby'?* This question will be addressed in Sect. 4.

The data discussed in Sect. 3.3 show that *hereby* is much more than a performativity "flag". They challenge the view voiced in Jary (2007) who assumes that the word *hereby* simply serves as an attention raising device (perhaps similar to *damn* or *fuck*). He proposed that *hereby* alerts the hearer to search for meaning beyond the 'statement' meaning of the sentence. The data, however, convincingly show that *hereby* is not flagging anything. It denotes acts of information transfer that can be predicted from the semantic and presuppositional contents of the sentence. *Hereby* instantiates the event argument of syntactically predetermined verbs. Semantic composition leads to denotations which can be true, false, sortally ill-formed, or give rise to performative utterances. Before we turn to performativity, Sect. 4 will reveal a second way in which sentences can be self-referential. We will take a look at performative sentences without *hereby*.

4 Explicit performatives without *hereby*

In this section, I take a closer look at performative sentences like (41). The sentence does not contain *hereby*. It can be used in a performative utterance, and in a self-referential way. (41b) shows the denotation of the verbal predicate which we get by semantic composition.

(41) *I promise to come.*
       b. $\lambda e\lambda x.$PROMISE$(x, e, \lambda w'.$COME$(x, w'), w_o)$

At this point, we will have to decide how the event argument gets instantiated in such examples. Two strategies could be pursued.

- We could assume a tacit *hereby* where a silent event PRO is interpreted like overt *hereby*: PRO could refer to the relevant ongoing act of information transfer and instantiate the event parameter of the verb. Making this assumption, we'd expect no semantic or pragmatic differences between (41) and its variant with *hereby*.
- We could alternatively assume that the event argument of *promise* in (41) undergoes existential closure. The sentence denotes an existential proposition.

The second analysis could still allow for self-referentiality. It could arise in an indirect manner, e.g. by obvious reference to a suitable exemplar that verifies the

existential statement. Similar uses of nominal indefinites can be found in examples like the following:

Mother (smelling at her son): '*Someone needs a bath here.*'

In the present section, I will run a number of standard linguistic tests to decide which of the two is the more appropriate analysis. Under the existential analysis, we would expect that the event argument of the performative verb shows interaction with other scope-bearing operators, because it is no longer an indexical. Under the PRO-analysis, we expect no such interaction. In order to decide between the two possible analyses, we have to explore possible differences between performatives with and without *hereby*. I will discuss two detectable differences in Sects. 4.1 (Negation) and 4.2 (Quantified subjects). They will establish scope interactions and therefore offer arguments in favor of the existential closure analysis.

4.1 Negation

The first difference between performative sentences with *hereby* and without arises in negative sentences.

(42) *I do not promise anything. / I am not promising anything.*

(43) *#I hereby do not promise anything.*

The utterances in (42) convey that the speaker wants to refrain from all binding utterances that could count as a promise. (43) is less clear and essentially makes a strange statement: The speaker seems to say that this utterance is not a promise. This is void: the speaker can easily ensure that any utterance of hers is not a promise, simply by not intending it to be one (see also Sect. 5). At the same time, it is not very informative: the speaker could indeed *give* a promise with her very next utterance. To state that some particular utterance is not a promise does not offer much information. In the present analysis, (43) denotes the following proposition (with ε_{43} the respective information transfer).

(43) b. $[\neg \exists q(\text{PROMISE}(\text{SP}, \boldsymbol{\varepsilon_{43}}, q, w_o) \wedge \tau(\boldsymbol{\varepsilon_{43}}) \subseteq R \wedge R = S]$

(43b) can be paraphrased as "w_o is a world and $\boldsymbol{\varepsilon_{43}}$ is an event in which no proposition q whatsoever is promised by the speaker". This denotation does justice to the quizzical message "the ongoing act of information transfer $\boldsymbol{\varepsilon_{43}}$ isn't a promise."[12]

In search of differences, we diagnose that (42) but not (43) is a reasonable utterance. This contrast suggests that we should allow existential closure of the event argument as one possible option. Existential closure is one of the standard ways to treat event parameters, and standardly takes narrow scope (Diesing 1992;

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[12] I am aware of the fact that an actual utterance of (43) might be charitably re-interpreted so as to mean "with this utterance *e* I will declare that I will refrain from making any promises (about the subject at hand)". In this re-interpretation, it is a promise-not-to-promise. I do not intend to explain such secondary ways to make sense of the use of *hereby* and will restrict attention to the quizzical reading in (43b).

Parsons [1991]). (42) then results in the following representation (in the simple present tense version).

(42) b. $[\neg\exists e\exists q(\text{PROMISE}(\text{SP}, e, q, w_o) \wedge \tau(e) \subseteq R \wedge R = S]$
"at the moment, there are no actions or propositions q such that I, by this action, would promise q"

While this non-existence claim is still restricted to events at S, it is at least more general than (43) in that it negates the existence of promises in general instead of simply denying the ongoing utterance the status of a promise. Possibly, the utterance also relies on futurate interpretations of present tense forms and thereby achieves to deny the existence of upcoming events of promising, too. I will not explore these interpretative options here (see Copley [2002] for a recent discussion of futurate uses of various tense/aspect forms).

Facts about negated performative sentences suggest that existential closure of the event parameter of the performative verb is a possible semantic operation. The question is: does it always take place when *hereby* is missing?

4.2 Quantified subject DPs

This section reviews performative verbs with quantified DPs in subject position. The data will be somewhat tricky, but we will find more differences between performative sentences with and without *hereby*. We start from the observation that plural and third person subjects are possible in delegated performative utterances. Sentences with or without *hereby* can felicitously be used in a performative sense.

(44) Messenger: "*The king hereby promises to give you a cow.*"

(45) *We promise to refrain from using drugs.*

(46) Messenger: "*The king promises to give you a cow.*"

(47) *The students of South Park Elementary promise to refrain from using drugs.*

While the use of *hereby* "boosts" the performative intention, utterances of (45)–(47) can also be performative. So far, there is no difference between the *hereby*-variants and the ø-variants.

If the sentence contains a quantified subject DP and *hereby*, performative utterances are still possible. The following sentences offer test material.

(48) *Most students hereby promise to refrain from using drugs.*

(49) *Several villages hereby declare themselves car-free zone.*

Let us consider in detail what a performative use of (49) might look like. Imagine that the issue of car-free villages as a means to attract tourists has been around for a while. There is rumour that some local administrations are thinking to go in this

direction. One day, a local representative enters the major's office and utters (49). To my intuition, the speaker has to have a specific group of villages in mind for which she is authorized to speak. This group covers more than two villages and can therefore correctly, if somewhat unspecific, be characterized as "several villages". She is making her declaration on behalf of this group, and she achieves a new state which was not established before.

Intuitions differ when *hereby* is missing. These are the ø-versions of our test sentences.

(50) *Most students promise to refrain from using drugs.* (descriptive only)

(51) *Several villages declare themselves car-free zone.* (descriptive only)

Imagine that (51) is uttered under the same circumstances as before. To my intuition, the representative can only report that individual declarations are being made elsewhere. (The simple present tense in fact suggests (51) as an eye-witness report on TV.) We should not be distracted by the fact that the resulting state of affairs is very similar to the one after (49) where the promise was achieved by the utterance.

The following minimal pair illustrates the same difference in German, where I have a better active command for matrimonial ceremony.

(52) *Einige Ritter halten hiermit um Ihre Hand an, mein Fräulein.*
     '*Several knights hereby propose to you, My Highness*'

(53) *Einige Ritter halten um Ihre Hand an, mein Fräulein.*
     '*Several knights propose to you, My Highness*'

While (52) can constitute a valid multiple proposal, (53) strangely presupposes that proposals can be made by filling forms, or writing letters. Making this assumption, we can understand (53) to report that several knights have handed in such documents.

This is the descriptive generalization that emerges from the data.

- If a sentence with a performative verb and quantified subject in addition contains *hereby*, it can serve as a performative utterance.
- Sentences without *hereby*, with performative verbs and quantified subjects can only be used in descriptive utterances.

I take this as the starting point for the following analysis. In making this decision, I am aware of the fact that there is a vast range of vague utterances where the proposed difference is blurred, mostly because it may be difficult to localize the actual point of social commitment. For instance, how can we ever be certain that the no-drug commitment in (50) is reported while (48) serves to establish it at the time of speech? Can the speaker in (48) announce this promise without individual promises having been made before? Different performative verbs give rise to different intuitions, too. Such vagueness no withstanding, I will proceed to an account for the main difference in the following sections.

4.3 Existential statements and self-referentiality

Let me start by an analysis for felicitous, self-referential utterances of performative sentences without the adverb *hereby*. The event argument of the performative verb undergoes existential closure, as shown in the following example.

(54)   *I promise to bring beer.*
     b. $\lambda e \lambda x.\text{PROMISE}(x, e, \lambda w'.\text{BRING}(x, \text{BEER}, w'), w_o)$
     c. $\exists e(\text{PROMISE}(\mathbf{sp}, e, q(\mathbf{sp}), w_o) \wedge \tau(e) \subseteq R \wedge R = S]$
         with $q(\mathbf{sp}) = \lambda w'.\text{BRING}(\mathbf{sp}, \text{BEER}, w')$

I propose that utterances like (54) denote existential statements that are verified by offering a sample. Let ε_{54} be a (sincere) utterance of (54). Then

$$[\![\exists e(\text{PROMISE}(\mathbf{sp}, e, \mathbf{q}(\mathbf{sp}), w_o) \wedge \tau(e) \subseteq R \wedge R = S]\!]^{M,g} = 1 \text{ because}$$

$$[\![(\text{PROMISE}(\mathbf{sp}, e, \mathbf{q}(\mathbf{sp}), w_o) \wedge \tau(e) \subseteq R \wedge R = S]\ ]\!]^{M,g(e/\varepsilon_{54})} = 1$$

for assignment $g(e/\varepsilon_{54})$ like g except that e is mapped to ε_{54}. Both speaker and addressee should be aware of this reason for (54) being a true utterance.[13] Hence, a sincere utterance of (54) is self-referential in an indirect way. It does not denote a proposition where it literally occurs as one of the arguments of the verb. Instead, the utterance denotes a proposition about the existence of a certain kind of event and, at the same time, *might be* such an event. This formalization comes close to what Jary (2007) had in mind when stating that performative utterances are undeniably true because you just see the thing happen. It likewise comes close to Bach and Harnish's Step (4) in their hearer-based account of performatives: 'If [the speaker] is promising beer, it must be his utterance that constitutes the promise (what else could be?)'.

     I will leave the analysis at this—somewhat technically uninvolved—version of specific existential statement. I do not assume that performatives like (54) are instances of specific event indefinites in the sense that was proposed in semantic literature "proper" (by Fodor and Sag 1982 as indexicals; Reinhart 1997; Kratzer 1998; Matthewson 1999 and others as choice functions). When applied, these accounts can be shown to make false predictions for the examples discussed above, and in part are tailored to generate intermediate scope readings that are not needed for the present case.

     Still, our very basic analysis can help to model the differences between performative sentences with and without *hereby*. Under the present analysis of (54), it denotes an existential proposition. Given that the existential quantifier takes low scope if required by LF, we get a starting point to explain why quantified subjects block performative uses of sentences without *hereby*.

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[13] … unlike in the case of specific indefinites, where it is assumed that only the speaker has to know the intended referent.

4.4 Low scope existentials

The examples in (50)/(51) provide evidence that quantified subjects block performative uses if the word *hereby* is not part of the sentence. I will use (50), repeated below, as my test case. If we compute its denotation, we arrive at the proposition in (50b). Existential closure of the event takes narrow scope below the subject, and the subject quantifier is interpreted in the standard way (i.e. not as referring to specific groups).

(50) *Most students promise to refrain from drugs.*
    b. $\lambda w.\text{MOST}[\ \lambda x.\text{STUDENT}_w(x);$
        $\lambda x \exists e(\text{PROMISE}(x, e, \lambda w'.\textbf{No-Drugs}(x,w'), w) \wedge \tau(e) \subseteq R \wedge R = S)]$
        "most of the students are such that they are agents in some promising event which is about x taking no drugs, and which happens now"

In Sect. 4.2, we pinpointed the intuition that wherever these events may happen, they can not be the ongoing utterance of (50). This intuition fits well with *agent uniqueness* as a principle of event individuation. If the ongoing utterance (or any single event) were an event where several students individually promise something, then each of these students would count as the agent of this event. However, we follow the standard assumption that each event has exactly one agent. Hence, a *plurality* of students could be promising something in ε_{50} but not several students individually.

The logical form of (50), however, does not offer access to a plurality of students but involves quantification over individuals. Therefore, any form of accepting (50b) as true in a sense where the existential statements (one per student) are made true by ε_{50} is bound to fail. It can not be true, because it violates agent uniqueness.

What remains to be fit into the picture is the fact that the same sentence, with *hereby* added, can successfully be used in a performative utterance. The sentence, together with its denotation, is given in (55).

(55) *Most students <u>hereby</u> promise to refrain from drugs.*
    b. $\lambda w.\text{MOST}[\lambda x.\text{STUDENT}_w(x);$
        $\lambda x(\text{PROMISE}(x, \boldsymbol{\varepsilon_{55}}, \lambda w'.\textbf{No-Drugs}(x,w'), w) \wedge \tau(\boldsymbol{\varepsilon_{55}}) \subseteq R \wedge R = S)]$
        "most of the students are such that they are agents in the ongoing event of information transfer $\boldsymbol{\varepsilon_{55}}$ which is a promise about x taking no drugs, and which happens now"

Obviously, (55b) violates agent uniqueness as well as (50b) did. Unlike (50), example (55) forces this violation by explicit form (the presence of *hereby*). Unlike for (50), the hearer doesn't have the option of simply sorting out a senseless semantic representation.

I propose that, under these circumstances, the hearer adopts a charitable reinterpretation of the quantified subject DP. She assumes a pluralic reading of quantified subject in the sense of '*some given group of **most students***'.

(50) c. $\lambda w.\exists X(\text{STUDENT*}(X) \wedge$ 'X is a majority of students' $\wedge$
        $(\text{PROMISE}(X, \varepsilon_{55}, \lambda w'.\text{NO-DRUGS*}(X,w'), w) \wedge \tau(\varepsilon_{55}) \subseteq R \wedge R = S)$
        'There is some group of students X who can be described as 'most
        students'. This plurality promises not to take drugs, by ε_{55}.'

I assume that such coercions are costly and only accessible if necessitated by overt
material in the sentence. The presence of *hereby* forces coercion, as no other
consistent interpretation is available. Hearers apply charitable interpretive strate-
gies, assuming that the speaker would not bother to make a self-referential utterance
which is necessarily false. The analysis also meets the intuition that (55) in a
performative use presupposes some specific group of students at stake. This is how
hereby can force performative uses of sentences like (55).

Let me summarize what we got so far. Section 3 introduced a semantic
treatment of *hereby* and performative verbs which captures the observation that
performative utterances refer to themselves (Bach and Harnish 1992; Jary 2007;
see Reichenbach's 1966 notion of token reflexivity as a predecessor). The
present section introduced a second way to achieve self-referential readings. In
explicit performative statements without *hereby*, the event argument is existen-
tially bound, but the utterance is self-referential by alluding to itself as a suitable
sample.

Sentences with and without *hereby* show different interactions with other scope-
taking elements in the sentence. The data suggest that sentences without *hereby* are
not interpreted as if they contained a tacit *hereby*, an inaudible indexical element
which denotes the ongoing act of information transfer. The differences between
hereby- and ø-versions stand against tacit *hereby*. Without an explicit adverb
hereby, the event argument of the performative verb is saturated like most other
event arguments in action sentences get saturated: by narrow scope existential
binding. Sections 4.3 and 4.4 analysed the subtle differences in performative
sentences with quantified subjects.

I will end this part of the paper by presenting one example in all readings that are
predicted by the analysis so far. The example *I (hereby) promise to come* was
already discussed in Searle (1989, p. 544) and can hence serve as a point of
comparison between the present and former analyses. The versions with and without
hereby will be discussed separately.

(56)   *I hereby promise to come*
        uttered and giving rise to an act of information transfer ε_{56}
    a. Verbal predicate (including simple present tense):
        $\lambda e \lambda x(\text{PROMISE}(x, e, w, \lambda w'.\text{COME}(x, w')) \wedge \tau(e) \subset R \wedge R = S)$
    b. $[\![hereby]\!]^c = \varepsilon_{56}$ if used to refer to the ongoing act of info transfer
    c. $[\![hereby\ promise\ to\ come]\!]^c =$
        $\lambda e \lambda x(\text{PROMISE}(x, e, w, \lambda w'.\text{COME}(x, w')) \wedge \tau(e) \subset R \wedge R = S) (\varepsilon_{56})$
        $= \lambda x(\text{PROMISE}(x, \varepsilon_{56}, w, \lambda w'.\text{COME}(x, w')) \wedge \tau(\varepsilon_{56}) \subset R \wedge R = S)$
        by function application of the verbal predicate to the event denoted by
        hereby

d. $[\![I]\!]^c = \mathbf{sp}$, the speaker in c

e. $[\![I\ hereby\ promise\ to\ come]\!]^c$
$= \lambda x(\text{PROMISE}(x, \varepsilon_{56}, w, \lambda w'.\text{COME}(x, w')) \wedge \tau(\varepsilon_{56}) \subset R \wedge R = S)\ (\mathbf{sp})$
$= (\text{PROMISE}(\mathbf{sp}, \varepsilon_{56}, w, \lambda w'.\text{COME}(\mathbf{sp}, w')) \wedge \tau(\varepsilon_{56}) \subset R \wedge R = S)$
by intentional abstraction: $\lambda w(\text{PROMISE}(\mathbf{sp}, \varepsilon_{56}, w, \lambda w'.\text{COME}(\mathbf{sp}, w')))$[14]
'the information transfer is a promise by $\mathbf{sp}$ to come'

In this interpretation, the utterance is self-referential. Whether or not this is sufficient for it to be self-verifying will be discussed in Sect. 5. It makes sense to assume that this is the logical structure that Searle (1989) had in mind.

(57)   *I hereby promise to come*
         uttered and giving rise to an act of information transfer ε_{57}
         but with deictic reference to other event η, e.g. signing a contract to come
    a. Verbal predicate and $[\![I]\!]^c$ as before
    b. $[\![hereby]\!]^c = \eta$, the act referred to, e.g. the signing of a contract to come.
    c. $[\![I\ hereby\ promise\ to\ come]\!]^c$
       $= \lambda w(\text{PROMISE}(\mathbf{sp}, \eta, w, \lambda w'.\text{COME}(x, w')) \wedge \tau(\eta) \subset R \wedge R = S)$
       'the signing η is an ongoing promise by $\mathbf{sp}$ to come'

In this analysis, (57) is not self-referential. Whether it is true or not depends on the legal nature of event η. If η counts as a promise, then the speaker made a true descriptive statement. If he incidentally signed something wrong, the speaker made a false descriptive statement. The difference between (56) and (57) is a difference in reference for *hereby*.

(58)   *I promise to come*
         uttered and giving rise to an act of information transfer ε_{58}
    a. verbal predicate:
       $\lambda e \lambda x(\text{PROMISE}(x, e, w, \lambda w'.\text{COME}(x, w')) \wedge \tau(e) \subset R \wedge R = S)$
    b. $[\![I]\!]^c = \mathbf{sp}$, the speaker in c
    c. existential closure of event argument (Parsons 1991; Kratzer 2003, as well as most other literature on event semantics):
       $\lambda x.\exists e(\text{PROMISE}(x, e, w, \lambda w'.\text{COME}(x, w')) \wedge \tau(e) \subset R \wedge R = S)$
    d. $[\![I\ promise\ to\ come]\!]^c$
       $= \lambda w.\exists e(\text{PROMISE}(\mathbf{sp}, e, w, \lambda w'.\text{COME}(x, w')) \wedge \tau(e) \subset R \wedge R = S)$
       'there is an ongoing promise by $\mathbf{sp}$ to come'

The speaker who asserts (58) will request the hearer to believe that (58c) holds true in the actual world w_o. It is an existential statement. In order for it to be true, there needs to be a variable assignment g which maps e onto some suitable eventuality ε such that

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[14] The proposition is derived by final lambda abstraction over the open world variable, see von Fintel and Heim (2007).

(PROMISE(**sp**, e, w_o, $\lambda w'$.COME(x, w')) $\wedge \tau(e) \subset R \wedge R = S)$ is true
with $g(e) = \varepsilon$.

One obvious candidate for g to map e to is ε_{58}, the current information transfer that the hearer has just witnessed. If the hearer has reason to believe that this is the true-maker the speaker had in mind (see Sect. 5 for details), she will update her belief state by (58c) on basis of the stronger belief

(58d) (PROMISE(**sp**, e, w_o, $\lambda w'$.COME(x, w')) $\wedge \tau(e) \subset R \wedge R = S)$ is true
with $g(e) = \varepsilon_{58}$. 'the information transfer is a promise of **sp** to come'

This stronger belief is identical in structure to (56d), the denotation of the performative sentence with *hereby*. While (56) denotes this proposition directly, (58) only indirectly gives rise to the corresponding belief. The step from (58c) to (58d) looks very much like a formal rendering of Bach and Harnish's famous condition (4) in assessing the speech act quality of an utterance (Bach and Harnish 1992, p. 99). Applied to our case, their condition spells like 'If he is promising me to come, it must be his utterance that constitutes the promise (what else could be?)'. This closely corresponds to the step from (58c) to (58d).

Finally, the sentence can be uttered without any indications of being self-referential. This is the resulting logical structure:

(59)   *I promise to come*
        uttered and giving rise to an act of information transfer ε_{59}
    a. Verbal predicate:
        $\lambda e \lambda x$(PROMISE(x, e, w, $\lambda w'$.COME(x, w')) $\wedge \tau(e) \subset R \wedge R = ?)$
    b. $[\![I]\!]^c = $ **sp**, the speaker in c
    c. $[\![I \text{ promise to come}]\!]^c$
        $= \lambda w.\exists e$(PROMISE(**sp**, e, w, $\lambda w'$.COME(x, w')) $\wedge \tau(e) \subset R \wedge R = ?)$

One possible difference between (58) and (59) is the temporal location of the event in question. Whereas (58) was interpreted in simple present tense, (59) in the present analysis leaves the temporal anchoring of R open. In a habitual context, R might be one of a recurring type of time point ("*Whenever I call you, I promise to come*"). It might also be anchored to the present. But what all descriptive uses of the example have in common is the fact that the inference from $\exists e \Phi(e)$ to $\Phi(\varepsilon_{59})$ is not warranted. An utterance in this sense is not self-referential (and hence at least potentially performative) but descriptive.

Our resulting vista of readings for *I (hereby) promise to come* embraces two self-referential denotations: one that comes close to Searle's analysis of performative utterances, and a second that mirrors Bach and Harnish's prose description. This suggests that the differences might not have been as insurmountable as philosophers thought at the time. However, there is one part of Searle's account which is not singled out in Bach and Harnish's paper: Searle postulates an additional *declarative act* to which Bach and Harnish fiercely objected (1992, Sect. 4). In the next section, I investigate this ingredient as an *act of definition by the speaker*.

5 The last step: define

How does self-referentiality relate to performative utterances? So far, my implicit assumption was that utterances of the specific kind of sentences at stake can not be performative unless they are self-referential, which they can be in two ways (see (59) and (61)). Hence, self-referentiality is a necessary requirement for perform-ativity. Jary (2007) suggests that self-referentiality is also sufficient in order to go beyond assertions. His notion of self-referentiality was unexplicated. We now possess a truth conditional notion of self-referential utterance and can ask:

- Is self-referentiality in the truth conditional sense sufficient to characterize performative utterances?
- Are all self-referential utterances performatives?

A brief survey of data reveals that this is not so. Something is missing still.

First, we find sentences that give rise to self-referential utterances which are intuitively *true* and can be agreed to. Consider (60).

(60) *I hereby utter a sentence with eight words.*

Faced with an utterance of (60), you'd first of all start counting the number of words uttered, and then lean back with a sense of relief: It's true, the number was right. I take this as evidence that the categories *true/false* are appropriate for (60). Yet, it makes sense to interpret *hereby* as referring to the utterance, and take it as an argument of the verb *utter*. The sentence is self-verifying in that it can never fail to hold in any situation where it is uttered. However, it is not a performative utterance. There also are utterances that are self-referential but false. (61) offers an example.

(61) *I hereby utter a sentence in Chinese.*

Whenever (61) is uttered self-referentially, it will be false. This is what the event-based semantic analysis of self-referentiality would also predict.

We have seen another variety of sentences in Sect. 4.2 that could be self-referential and true but are still weird.

(62) *I hereby do not promise to buy you ice-cream.*

If this sentence is used in a self-referential utterance, the content of the utterance denies the utterance a certain property ("being a promise"). While the content of the utterance is undeniably true, it is dubitable whether it is a performative utterance.

Another puzzling case is posed by sentences which correctly describe their own effect on the hearer but can not be used in a performative sense.

(63) *I hereby bore you.*

(63) can be used to make a true, self-referential statement—certainly, we can bore everyone by repeating (63) long enough—and yet, there is an intuition that the boring effect of (63) does not derive from a performative use.

Finally, lack of sincere intention can also lead to self-referential but infelicitous utterances. Imagine a situation where A has been joking around for some time and hearer B is almost dying with laughter.

(64) *B: (gasps) Stop it! You are killing me!*
      A: (laughing): Ok. I hereby promise to never be funny again.

In this context, it is clear that *A* does not intend his utterance to be understood as a promise. This is different from an insincere promise: B fully understands that A does not seriously promise to never be funny again. Even though A's utterance shows all features of a self-referential performative sentence, it is not performative. Again, what is missing?

Let us return to a self-referential true performative utterance like (56) in Sect. 4, repeated here.

(65) *I hereby promise to come.*

As shown above, the utterance describes its own act of information transfer as a PROMISE. Is this description correct? In view of (64), we see that two kinds of conditions need to be met.

  i.   The content of the promise has to be appropriate, in the speaker's reach, desirable for the hearer, not something the speaker would do anyway, etc.
  ii. The speaker *in addition* must want the information transfer ε to be a PROMISE.

Let us elaborate on this want of the speaker. I propose that the speaker "wants ε to be of a certain type" in a sense that is analogous to other acts of creation where the creator has the power to define. Imagine a painter who draws a nice and realistic picture of a frog. There is no doubt that the picture shows a frog, form and colour are appropriate. However, does the picture show a he-frog or a she-frog? If both sexes look alike, the painter has the authority to decide the sex of the depicted frog. If the painter intends the picture to show a she-frog, then that is so. Otherwise it isn't. Psycholinguistic studies of categorization reveal that the intention of the creator ranks highly when people categorize an artifact (Bloom 1996, 1998). The creator has the first vote in categorizing her artifact. To put it simply, if somebody creates a small fluffy object and calls it "*Rabbit I*", we are more likely to accept that object as a rabbit than if no such definition had taken place.

Performative utterances pose a similar case. The speaker is the creator of her own utterances. As a creator, she has the definitional power to decide to what category her creation ε belongs. Like in the case of other artifacts, the power is not unlimited.

A picture shows a she-frog if

  i.   The picture generally is of the right kind: it depicts an animal, shape and colour of the animal appropriate, it has four extremities, it doesn't have a fur, the animal's eyes are positioned on top of the head etc.
  ii. The painter *in addition* defines the picture to show a she-frog.

Similarly, an act of information transfer ε is a PROMISE if[15]

    i.   The information content is generally of the right kind: it is self-referential, it describes itself as a PROMISE, the content of the promise is suitable, speaker and hearer are in a suitable constellation to each other etc.

   ii.   The speaker *in addition* defines the information transfer ε to be a PROMISE.

The analogy to another, philosophically less loaded domain of defining should make it clear that criterion (ii) is independent of, and adds to the criteria in (i). Not *any* picture can show a she-frog, but eventually the picture only does when the painter defines so.[16] Likewise, not *any* utterance could be a promise, but eventually the utterance only is when the speaker defines so.

In summary, I propose that explicit performative utterances are characterized by two things: They are self-referential *and moreover* comprise the speaker's act of defining the category of the utterance. This act is not more of a mystery than the painter's declaration that "this be a picture of a she-frog". In the absence of evidence to the contrary, hearers believe that the speaker is making this definition. Once the definition succeeds, the performative act has come about. Without the definition, there is no performative utterance. I think that this view is a faithful explication of Searle's 'declaration' in Searle (1989). My terminology, as well as the analogy, avoids mistaking this act as the 'declarative' in conventional speech acts (see Bach and Harnish 1979). In the final section, the present account will be aligned and contrasted with the competing work by Searle and Bach and Harnish in more detail.

This approach also can explain why a sentence like *I hereby bore you* can never be used in a performative sense. The lexical meaning of performative verbs like '*promise*' comprises two (sets of) criteria which are decisive for whether an information transfer is a PROMISE. The lexical meaning of '*bore*' rests alone on the set (i) of descriptive criteria, most importantly the criterion that ε is a BORE if it makes the addressee yawn with boredom. If this happens, then ε is truly described as a BORE. If ε consists in the transfer of (63), and the hearer yawns, then (63) is true. There is no second criterion (ii) which refers to the definitional intentions of the speaker. Whether or not the speaker defines ε to be anything is simply not relevant for the truth of (63).

Likewise, when speaker A makes her joking (non-)promise in (64), her information transfer ε_{64} has all the properties that are necessary for a promise (ε_{64} looks like a she-frog in all respects). Still, ε_{64} does not meet the second criterion for PROMISE-HOOD: that the speaker defines ε_{64} to be one (the creator decides that ε_{64} be a he-frog this time). Therefore, ε_{64} fails to be a promise. This kind of failure to be performative differs from the descriptive uses of performative sentences that were discussed in Sect. 4. The end of Sect. 4 presented logical forms for performative sentences that do not lead to self-referential propositions in the first place. In the

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[15] Emphatically, this is not the only way to issue a promise, as we know from research into indirect speech acts. I restrict attention to performative sentences.

[16] We are considering species where nothing in even the best picture (including frogs of the other sex for comparison) could show the difference. Note that some frogs can change their sex as an adult animal.

present section we were concerned with the more subtle case where utterances are self-referential and still fail to be performative.

A performative sentence is uttered performatively iff

[self-referentiality]: the sentence uttered in ε denotes a proposition that describes the act of information transfer ε as something performative (a PROMISE, an OFFER, an ORDER, an INVITATION, …),

[of the right shape]: ε fulfills all descriptive criteria of the respective kind of performative act

[and defined to be one]: and the speaker *defines* ε to be an instance of the respective kind of act.

The present section started from a truth-conditional analysis of self-referentiality. This analysis systematically predicted the range of possible readings of sentences, including self-referential and other readings. A closer inspection of truth-conditional denotations revealed that performativity needs self-referentiality *plus* a second thing. The present section described that second thing as an act of defining.

6 Earlier analyses of performativity

6.1 Searle (1989)

The present analysis overlaps largely with the account proposed in Searle (1989), as has become clear at several points in the paper. Searle however lacked a full explication in terms of truth conditional semantics, something that he may have dismissed as "fussy exercise in linguistic analysis". I hope that the present paper demonstrates that there is a lot to be gained by this fussy exercise. First, the analysis elucidates several sources of ambiguity between the (surface) form of a sentence and its literal meaning. It can settle the debate on whether a theory which derives performativity from meaning is obliged to claim that performative verbs are ambiguous (one version for the performative utterance, and another for the non-performatives). Obviously, this is not the case. There are much more sources for ambiguity at the syntax–semantics interface than just lexical ambiguity.

Second, a careful consideration of data in Sect. 4 showed that *hereby*-free performative sentences have an existential meaning, not one with a silent *hereby* tacitly understood (Searle 1989, p. 553). This existential meaning can be used in a self-referential way and corresponds most likely to Bach and Harnish's core ideas about the meaning of performative sentences. Unlike what authors in the debate thought at the time, the two approaches are compatible at least in this respect.

Finally, in lack of a clear notation which renders the literal meaning of sentences, Searle's prose doesn't always cleanly distinguish between utterance content and other aspects of the utterance. This becomes clear when we compare the present analysis of a sentence like *I hereby order you to leave* and Searle's eight-step analysis (p. 553). According to the present analysis, a performative utterance of "*I hereby order you to leave*" establishes an act ε, describes this act as an ORDER to

leave, and needs the definitional act by the speaker *in addition* to be true, i.e. to become a successful order. My definitional act fits well with Searle's own intuition that "(declarations) create new facts, but in these cases, the facts created are linguistic facts" (Searle 1989, p. 549). How does Searle proceed? In step (1) of his eight-step analysis, he requires that the sentence must be uttered *v*. In step (2), he claims that the "*literal meaning of the utterance is such that by that very utterance the speaker intends to make it the case that he orders me to leave.*" If we consider the propositional content of the sentence, this is simply not true. The propositional content only states that *v* is an ORDER to leave. The intention to order is modelled in a separate part of the present theory, in the act of defining. Strikingly, Searle also isolated it as an extra act of declaration in his general prose. If it wasn't an extra, then we, and Searle, could not explain non-performative self-referential uses of *I hereby order you to leave* (see our (64) for a similar case). Searle's eventual eight-step program does not make use of his crucial insight that self-referential content *plus* something extra is needed to make a performative utterance. Somewhat tragically, this made his paper victim to two points of critique, first 'that he'd use declaratives in an unwarranted sense' and second, 'that he could not model non-performative uses of performative sentences' (both raised in Bach and Harnish 1992). With a little bit of fussy formal semantics, these criticisms can easily be answered. I refrain from a further page-by-page discussion of the paper but hope to have substantiated my claim that the present approach builds on and extends Searle's.

6.2 Bach and Harnish (1992)

Bach and Harnish assume that all sentences have truth conditional content and are always used to convey this content. Performative utterances come about because the speaker's communicative intentions add to the propositional content in a suitable manner. Given that all communication rests on communicative intention, they conclude that no special analysis of performativity is needed at all.[17] While I agree with them that performativity comes about by propositional content plus something about the speaker's intention, I do not think they are justified in claiming that these intentions are covered by the Gricean intentions (Grice 1957) they refer to. Grice's reflexive communicative intentions involve mutual understanding of communication, i.e. the speaker intends the hearer to recognize that the communicative activity is directed to the hearer, with the intention for the hearer to understand and decode it as such, etc. Recent research in primates has offered striking evidence for Grice's claim that this mutual understanding is essential to communication, see Tomasello's (2007) clear argument on "Why Apes don't point". Tomasello argues that chimpanzees can not make sense of gestures of pointing *because* they lack the expectation that another chimp or human makes this gesture *with a communicative intention*, i.e. with the aim to be seen and interpreted by the partner. This kind of intention is indeed prevalent in human communication,

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[17] They refer to this assumption as "null hypothesis". I find it somewhat disturbing to see "null hypothesis" used as a label to refuse proper analysis.

yet much more basic than the "intention of the speaker to define her utterance as being a Promise" as needed in the present account. Basic communicative intentions are certainly in play in the little dialogue in (64) which contains a non-serious promise. Bach and Harnish might claim that (64) is uttered with *some* communicative intention which is simply of the wrong type for an act of promising. However, this would seem to be over-extending the notion of "intention" in a way which leads to a self-verifying theory. The present account models the speaker's intention as her act of defining. It is what turns an otherwise suitable utterance into a performative utterance in a clear way which is much more specific than the general communicative intentions of Grice.

Bach and Harnish also find fault in Searle's use of *declarative*. They want to reserve the term 'to declare' for acts that change social reality, like baptizings, or declarations of war. Searle clearly stated that he intended to use the term *declarative* in a social and in a linguistic sense. Hence Bach and Harnish's objections (1992, 105f a.o.) are objections against terminology, not content. However, I took up their warning and use the label *definition* to avoid confusion.

Finally, Bach and Harnish believe that lexical ambiguities are the only possible sources of ambiguity at the sentence level (1992, p. 108). This leads them to believe that an analysis which derives performativity from meaning is bound to claim that all performative verbs are ambiguous. The present paper has shown that this is not true. Bach and Harnish's greatest merit may be their insistence that we need to be able to model the difference between descriptive and performative uses of sentences. Examples like (64) turn out to pose the greatest challenge for any theory of performativity and one which allows to test a theory's descriptive adequacy.

6.3 Recent analyses of speech acts in formal semantics

In recent years, the meaning of non-assertive utterances has gained interest in formal semantics, and a number of authors address performative sentences/utterances. I see these accounts as complementary rather than competing to the analysis defended here. Authors like Truckenbrodt, Kaufmann (f. Schwager), Condoravdi, Lauer and Portner offer an modal analysis of what Searle (1995) called the *Social Contract* established by speech acts. The present account models the linguistic impact of the action by which a social contract comes about. It remains to be investigated how action and agreement relate to each other.

Truckenbrodt (2009) proposes that performative sentences denote and establish joint *plans*. Plans, in turn, can be viewed as a particular type of proposition about the future. When a performative sentence is uttered, the common ground gets updated by the respective proposition about the future. If speaker and hearer accept this future proposition, they not only agree about the truth of certain statements about the future but also commit themselves to act so as to make the proposition true ('behave according to plan'). The paper is presented as a formal spell-out of Searle's (1995) view of speech acts as social contracts. For instance, an utterance of (66) contributes the propositional content that is paraphrased below.

(66) *I hereby bequeath you my golden watch*
       Propositional content: All future worlds are such
       that you get my watch after I die and no one challenges you;
       or else worlds in which something has gone wrong, relative to my current
       plans.

The self-verifying nature of performatives is attributed to the fact that an agreement is agreed on as soon as everyone believes the content of the agreement. The semantic analysis of Truckenbrodt does not make use of Davidsonian event arguments and hence falls short of explicating self-referentiality, the backbone of Jary's and Searle's analysis.

Kaufmann (f. Schwager) elaborates a modal analysis for sentences in the imperative mood in her dissertation (Schwager 2006; Kaufmann 2011) as well as subsequent papers. She assumes that imperative mood introduces the skeleton of modal necessity statements. Independent linguistic and contextual factors serve to spell out the modal base and ordering source of the modal statement and hence can predict the wide range of root and embedded uses of the imperative mood. In the simplest cases, imperatives express what is true in all those possible worlds that are closest to the worlds that the speaker would find ideal. The following three sentences are predicted to be similar in truth conditional content.

   Open the window!
   You must$_{speaker-buletic}$ open the window.
   I wish you'd open the window.

The use of *hereby* is prohibited in all sentences in the imperative mood. Examples like the following are completely bad.[18]

(67) **Hereby clean your room!*
       *Hereby take a rain coat, or you'll get wet!

In Kaufmann's analysis, the social contract between speaker and hearer comes about because the speaker informs the hearer about her preferences, and the hearer takes this information as a (possible) reason to change her plans and actions. In terms of Stalnaker's theory of information transfer, the coming-about of the contract (and hence, the happening of the ORDER) could best be located at the point where information update by the content of the imperative takes place. Kaufmann's analysis leaves it open how sentences in the imperative mood relate to explicit performatives like *I order you to open the window* and to descriptive sentences like *He ordered her to open the window*.

For the sceptic, it may be interesting to know that Kaufmann's analysis reconciles the *yes/no* issue of performative utterances with a truth conditional analysis (see Sect. 2). She proposes that the non-deniability of performative utterances follows from what she calls the *Authority presupposition*: "Speaker is presupposed to be an authority on facts that determine the truth of the imperative."

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[18] These data are predicted by the event-based analysis of self-referentiality. The predictions of non-formal analyses of the function of *hereby* for this observation are unclear.

These facts concern the speaker's desires and preferences, and are facts to which the speaker has privileged access. Comparable cases of privileged access have been proposed for speaker oriented adverbs and personal taste predicates. All give rise to propositions that can not be agreed to or objected to. The reason for this, Kaufmann proposes, lies in the fact that the hearer can not possibly know anything about the content of these utterances because he fails to have privileged access to those facts in the world that determine the truth of such statements. This shows that not only acts of *defining* can not properly be answered with "*yes*" or "*no*" but certain statements are likewise unsuited for this type of discourse move (see Eckardt 2011 for a related modal analysis of imperatives).

The analyses of *Portner* (2005, 2007) as well as *Condoravdi and Lauer* (2010, 2011) are based on truth conditional semantics but include components that go beyond the truth conditional content of descriptive statements. These serve to keep track of the public commitments that are at stake. Condoravdi and Lauer (2010, 2011) assume that the content of an imperative will feed the "preference list" of the addressee. This list of propositions is used to predict the truth and falsity of modal statements (Kratzer 1981), but is also a list of propositions that the addressee should strive to make true. Lists are under public surveillance and there is a moral obligation for all agents to favor actions that bring about states of affairs that are high on their preference list. Portner's theory includes a To-Do list for all agents. Again, the content of directive utterances will feed the To-Do list and public moral pressure motivates agents to work down their To-Do lists.

These accounts, like Truckenbrodt's, take their departure from plans and future actions entailed by a successful speech act. Modal analyses of Searle's (1995) notion of social contract as a web of interconnected future courses of the world do seem feasible and attractive. If speaker **A** utters *I promise to come* to hearer **B**, she conveys information about what she intends to do in the future (namely, to come) and what **B** is allowed to do if **A** doesn't (be disappointed, reduce trust, talk badly about **A**). Speech acts like *promise* change the world minimally in that this information turns into mutual knowledge of **A** and **B**.

How does this notion of speech act align with the performative events that were discussed in this paper? In an explicit performative utterance *I promise to come,* the speaker describes/defines her own information transfer ε as a Promise. If this is mutually accepted, then ε causes further updates: The speaker is publicly committed to have the proposition 'speaker will come' on her To-Do list. The addressee updates that speaker has 'speaker will come' on her To-Do list. The addressee likewise updates the degree to which the speaker is bound to this plan. Was it a solemn promise, a vague offer, a loose intention? The speaker, in turn, will also expect the addressee to know this, and to act accordingly. A minimal way to reconcile plan-based theories of speech act (Truckenbrodt 2009) and an event-based analysis of performatives like the present one might run along these lines: The event of promising is ontologically distinct from the change of plans but inseparably *causes* them to happen.

Perhaps, there is also an ontologically more involved way to fuse the two kinds of theories. Possibly, the acts ε in the present account have an internal structure which consists of the necessary plan updates. At present, I can not tell whether this is a feasible option. Any elaboration of the present account will be entirely in the spirit

of my proposal. Eventually, the two ways to analyse performative utterances should be merged in one overarching theory.

Finally, *Searle and Vanderveken* attempted to develop an axiomatic logic of illocutionary acts in a series of papers and monographs (Searle and Vanderveken 1985; Vanderveken 1990). Their axioms offer an interesting way to address entailment relations between various kinds of acts. Given that their axiomatization at present lacks an established model theoretic counterpart, their results can not easily be integrated in a syntax–semantics mapping of the kind that I have been pursuing here. I therefore did not make explicit mention of their work in developing the present account.

7 Conclusion

The present paper offers an analysis of self-referential statements and performative utterances in terms of Davidsonian event semantics and a syntax–semantics interface in the spirit of Heim and Kratzer (1998) and von Fintel and Heim (2007). After revisiting some basic observations about performative verbs, sentences and utterances in Sect. 2, Sect. 3 offers the basic ingredients for a semantics of performative sentences that include *hereby*. I assumed that *hereby* can refer to the ongoing activity of the speaker. While one might be tempted to think that this activity is simply the utterance, further semantic tests revealed that a more abstract entity needs to be addressed which I dubbed as "the ongoing act of information transfer". Section 3.3 offered more evidence about the nature of this act, notably that it comprises both presupposition accommodation and the literal content of the sentence. *Hereby* in different syntactic positions will instantiate the event argument of different verbs in the sentence, and depending on the lexical content of the verb leads to acceptable or inacceptable semantic content. Section 4 was devoted to sentences without *hereby*. On basis of different effects of scope-taking operators in the performative sentence, I argued that there is no tacit *hereby* in such sentences. Instead, self-referential statements can come about by specific existentials. At the end of Sect. 4, I summarize all possible readings that we get with the present account for any performative sentence with, and without the use of *hereby*. Section 5 addressed the observation that not all self-referential statements are performative utterances. This shows that the mere assertion of a self-referential sentence, even if that sentence turns out to be true, is not tantamount to performativity. I proposed the following architecture of performative utterances ε: The literal content of the sentence is about ε and describes it as a kind of performative. In addition, the speaker signals that she *defines* ε to be such an event. She may do this because she is the creator of the event. All other lexical requirements (of being a promise, an order, etc.) being met, it is the speakers definition or its absence which decides whether the act is a performative utterance or not. As a consequence, this also decides whether the self-referring utterance is true or not. Performative utterances are self-referential utterances which are true *because* a suitable definition was made by the speaker. It's for this reason that they can not be objected to by *no*, or agreed to with *yes*. You can not agree to a definition in the same sense in which you can agree to an assertion.

Verbs that do not have a content which rests on executing such a definition can be used in self-referential utterances which are not performative acts. Examples include verbs like *bore, entertain, insult, flatter* but also more mundane ones like *utter a sentence with 8 words* or *speak English*.

We achieve an overall semantic analysis which seamlessly covers the meaning of ordinary verbs, performative verbs, performative sentences and performative utterances. Performative sentences receive a semantic analysis which is of the same kind as the semantics of assertive sentences, including descriptive uses of performative verbs and descriptive uses of performative sentences. Self-referentiality is neither a mysterious extra nor a linguistic anomaly, as Bach and Harnish would have it, but can be straightforwardly covered with the tools of truth conditional semantics. The act of defining, although also being linguistic in nature, was the only ingredient that goes beyond truth and falsity.

I hope that this fussy exercise in linguistic analysis was worth its while.

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