Completing and Unifying Relevance with Dynamic Imperative Updates *

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1 Introduction

Theories of Relevance make predictions about whether an utterance will make a fruitful contribution at a certain point in a certain discourse. While these theories necessarily idealize discourses and utterances, they should cover the vast majority of natural language conversations and constructions. However, imperatives, a crosslinguistically major clause type (Portner 2004), are frequently omitted from definitions of Relevance, significantly limiting their empirical coverage. Given that "Relevance can be characterized in terms of logical relations between the [Question Under Discussion] and the semantic content of a new utterance" (Roberts 2012), the best way to incorporate imperatives into a theory of relevance is to model their content in such a way that they interact transparently with discourse representations. In §2, I show that defining Relevance individually for the three major syntactic clause types — declarative, interrogative, and imperative — is the first step towards solving this problem. I propose a definition of command Relevance based on separating propositional and illocutionary content (Cormany to appear), and I argue that

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the full paradigm of Relevance divides content in the same way.

In §3, I introduce the dynamic preference semantics of Starr (2010; 2012), and then use it to formalize Relevance for imperatives in §4. In this system, both discourse contexts and utterance contents are represented with *preference structures*, and the dynamic semantics provides update rules that specify how these structures are composed. In §5, I propose a filter on preference structures that computes Relevance for commands. Since the contents of assertions, questions, and commands are all represented as formally similar preference structures, the computation of Relevance extends directly and equally to all of the major clause types. The result is that the dynamic definition of command Relevance serves as an initial definition of Relevance for any utterance, regardless of clause type, eliminating the need for type-specific definitions.

2 Relevance and the QUD

The major approaches to Relevance have evolved from Grice's (1989) conversational maxim of Relation. The maxim itself is not detailed — it simply states, "Be relevant" — but the discussion of this simple principle provides several lines of inquiry:

> …questions about what different kinds and focuses of relevance there may be, how these shift in the course of a talk exchange, how to allow for the fact that subjects of conversation are legitimately changed, and so on. (Grice 1989:27)

The Gricean view is a purely pragmatic one, and other approaches are distinguished by their alignment to other fields. Sperber and Wilson (1986) place relevance within cognitive and planning theory, applying it to a much broader domain than just natural language discourse. On the other hand, Roberts (1996) treats Relevance as a linguistic matter, allying Gricean pragmatics with formal semantics.

I adopt the Roberts-type system, which determines Relevance with respect to the discourse's Question Under Discussion (QUD), "a semantic question (i.e. a set of alternative propositions) which corresponds to the current discourse topic." (Simons et al. 2011:7). Computing relevance in these systems involves comparing the several alternative propositions determined by the QUD to the proposition(s) indicated by the content of an utterance. However, since the canonical contributions of imperatives are non-

propositional, the formal representations of both QUD and utterance must be altered to accommodate command meanings.

2.1 Assertions and Questions

Relevance, as formulated in Roberts (1996), focuses on two types of conversational moves: *setup* and *payoff moves*. Questions qualify as setup moves because they delineate the possible directions of the discourse by introducing alternative propositions. Assertions are payoff moves because they eliminate alternatives, constraining the discourse topic. An assertion can either provide a partial answer by eliminating some alternatives, or a complete answer by eliminating all but one alternative (Simons et al. 2011:7).[1] Early semantic definitions of Relevance are stated in terms of these two possibilities.

(1) **Relevance to the QUD (Roberts 1996)**

A move m is Relevant to the question under discussion q iff m either introduces a partial answer to q (m is an assertion) or is part of a strategy to answer q (m is a question).

The later formulation of Relevance in Simons et al. (2011) splits (1) into two definitions, according to utterance type.

(2) **Relevance for assertions (Simons et al. 2011)**

An assertion is relevant if it contextually entails a partial or complete answer to the QUD.

(3) **Relevance for questions (Simons et al. 2011)**

A question is relevant if it has an answer which contextually entails a partial or complete answer to the QUD.

[1] Defined in this way, complete answers are a sub-class of partial answers, since the elimination of all but one alternative entails eliminating some alternatives. When a complete answer is provided, a new question must be designated as the QUD in order for the discourse to continue. This may either be a broader, previously-introduced QUD or a more specific QUD introduced by a new setup move. See Roberts (1996) and Roberts (2004) for further details on the operation of a push-down stack mechanism for organizing QUDs. See §4 for discussion of how dynamic preference semantics flattens the QUD stack into a single representation.

The definition for assertions in (2) does not require the utterance's content to be a partial answer to the QUD, but is relaxed to allow for contextual entailment of an answer. Additionally, the definition for questions in (3) formalizes being "part of a strategy to answer [the QUD]" as having an answer which provides an answer to the QUD.[2]

2.2 Imperatives

Previous semantic accounts of imperatives are not especially well-suited to composing discourse and utterance content. For example, under the view that imperatives encode properties (Portner 2004; 2007), the content of the imperative cannot be used to directly compute relevance, since the alternatives under consideration are propositional. It is possible to derive propositions from imperative properties, but this involves a step of type conversion that requires access to pragmatic information. Other accounts avoid this extra machinery by assimilating imperative meaning to propositional meaning (Kaufmann 2011), but do not capture subtle semantic and pragmatic differences between declaratives and imperatives.

The absence of a suitable model for the propositional content of imperatives is a significant stumbling block to explaining their Relevance. Neither Roberts (1996) nor Simons et al. (2011) formulate a definition of Relevance for commands. Since commands are the canonical contributions of imperative clauses, a major class of utterances go unexplained in terms of Relevance. The first definition of Relevance that explicitly includes commands or imperatives is given in Roberts (2004), which classifies them as setup moves.

(4) **Relevance to the QUD (Roberts 2004), emphasis added**

A move m … is Relevant to the question under discussion q iff m either introduces a partial answer to q (m is an assertion) or is part of a strategy to answer q (m is a question subordinate to q or *an imperative whose realization would plausibly help to answer* q).

Although (4) specifies the relationship that must hold between the imperative's content and the QUD, it

[2]Through the remainder of the paper, I use the phrase "provides an answer" as shorthand for "contextually entails a partial or complete answer".

is not a precisely defined semantic relationship. (2) and (3) target a proposition — the (entire) content of an assertion or an element of the content of a question — and compare that content to the alternative propositions introduced by the QUD. Leaving a formal notion of "plausibility" aside, the realization or satisfaction of an imperative is not necessarily part of its semantic content.

I have proposed a definition of Relevance for commands (5) based on the concept that imperatives introduce preferences (Starr 2010; 2012). One way to formalize preferences is by having a preference relation Pref(p) that takes a propositional argument. Under this approach, the propositional content of an imperative is transparently retrievable; it is simply p. In (5), this propositional content is compared to the alternatives introduced by the QUD.

(5) **Relevance for commands (Cormany to appear)**

A command is relevant if what it prefers contextually entails a partial or complete answer to the QUD.

An alternative, which I present in §3, is to employ a dynamic semantic model that can represent propositional and preferential content with the same formal object (Starr 2012).

2.3 Propositional and Illocutionary Content

Relevance for commands completes the paradigm of Relevance for the three major utterance types. It provides a semantically tractable way of evaluating imperatives in discourse and contributes to "… a more general definition of Relevance, wherein behavior is Relevant to a goal to the extent that it potentially contributes to achieving that goal." (Roberts 2012). Although Roberts (2012) appeals to both *domain goals* and *linguistic goals* (the QUD), I focus on the propositional content present in all utterance types (Cormany to appear).

Semantically and pragmatically, clause types vary in terms of their *illocutionary relations*, functions that takes the discourse context and a proposition, and return an updated, structured context (Murray 2010). The illocutionary relations present in major clause types produce the effects of asserting, questioning, and commanding. The definitions of Relevance presented in (2), (3), and (5) vary in a parallel fashion.

(6) a. An assertion is relevant if it provides an answer to the QUD.

Declaratives canonically perform set intersection (asserting).

b. A question is relevant if it has an answer which provides an answer to the QUD.

Interrogatives canonically impose a partition or cover (questioning).

c. A command is relevant if what it prefers provides an answer to the QUD.

Imperatives canonically impose a preference (commanding).

Each definition of Relevance is categorized by the discourse effect of the utterance. However, in order to compare an utterance to the potential answers to the QUD, its propositional content must be isolated. That propositional content is simply the argument of the clause's illocutionary relation. There is no need to "undo" any pragmatic process, and the locus of propositional content is parallel across clause types. I exploit this parallelism to compose a unified definition of Relevance.

(7) **Unified Definition of Relevance**

An utterance is relevant if the propositional argument of its illocutionary relation provides an answer to the QUD.

To this point, the content and function of utterances has been treated in an informal way. I now turn to preference semantics (Starr 2010; 2012), which formalizes illocutionary relations as dynamic update rules and represents clausal contents as preference structures, which have transparently accessible propositional components.

3 Imperative Preferences

3.1 Preference Semantics

Illocutionary relations differentiate clause types based upon how they relate propositional content to the discourse context. Starr (2012) has a similar view of variation between clause types, namely that "…declaratives provide information by eliminating worlds…interrogatives introduce alternatives by grouping those worlds into sets, *imperatives order alternatives*." (emphasis original). He captures these differences in a pref-

erence semantics, which is an extension of inquisitive semantics (Groenendijk and Roelofsen 2009). In Starr's (2012) formalization, propositions, questions, and preferences are all represented together in a *preference state* R.

The simplest preference state contains a single preference, which is an ordered pair of propositions, e.g. $\langle\{w_0, w_1\}, \{w_2, w_3\}\rangle$. For ease of reading in more complex preference states, alphabetical labels can stand in for the sets of worlds denoted by the propositions: $\langle p, q\rangle$. Additionally, a proposition may be preferred to the *absurd state* $\varnothing$, in which no worlds are under consideration, e.g. $\langle\{w_0, w_1\}, \varnothing\rangle$. Alone, a preference of the form $\langle a, \varnothing\rangle$ is equivalent to a single alternative, and when several are collected together they are equivalent to a question. A preference of the form $^*\langle\varnothing, a\rangle$ is always ill-formed and cannot be part of a discourse preference state, as it indicates that ruling out all possible worlds is preferable to a being true. However, the null preference $\langle\varnothing, \varnothing\rangle$ is acceptable, as it is tautologous and contributes no information.

When representing a discourse with a preference state, all of the mutually assumed preferences are members of the set R. The benefit of this formal structure is that R may simultaneously represent alternatives and preferences. This captures the intuitive notion that at a given point of a discourse, the participants can be tracking both the Question Under Discussion and potential strategies for answering it.

3.2 Updating With Preferences

The manner in which preference states are generated and modified is via a set of update rules defined by the dynamic semantic system. These rules are sensitive to utterance type and are designed such that they take a scope proposition and perform a given update on R.[3] The update rules are thus the formal representation of illocutionary relations.

Update rules vary considerably depending on the type of illocutionary relation they are encoding. For

[3]I contend that this type-sensitivity is with respect to an illocutionary operator, which is morphosyntactically encoded. Every matrix clause has both a propositional constituent (roughly equivalent to Tense Phrase or Finiteness Phrase), and an illocutionary operator that specifies the update rule. See Cormany (in preparation) for further details on this aspect of the syntax/pragmatics interface. This contrasts with approaches that do not encode illocutionary information in the clause, but rely on conventionalized, holistic evaluation of the clause to determine its pragmatic function (e.g. Condoravdi and Lauer 2012).

the purposes of exploring command relevance, I will only cover the general properties of these rules and the specifics of the imperative update rule as proposed by Starr (2012). One commonality of all update rules is that they introduce at least one new preference, and that preference must be of the form $\langle p, \varnothing \rangle$ or $\langle p, \neg p \rangle$. The latter type, which prefers a proposition to its complement, is fundamental to imperative meaning. There does not seem to be any illocutionary operator that creates a preference relationship between unrelated propositions: $\langle p, q \rangle$.[4] Update rules may also modify one or both terms of a preference already included in R, for example transforming $\langle a, \varnothing \rangle$ into $\langle a \cap p, \varnothing \rangle$.

The imperative update rule, as defined in Starr (2012), composes its output in three steps:

(8)
1. Admit all of the preferences in R.
2. Introduce a global preference for all p-worlds over all $\neg p$-worlds: $\langle p, \neg p \rangle$.
3. Introduce local preferences within already-present alternatives: $\langle a \cap p, b - p \rangle$.

Admitting all of R's preferences simply enforces that the rule performs an update and does not discard any previous discourse information. The global preference is the new information provided by the imperative. Finally, the local preferences ensure consistency within the new preference state. For each existing alternative of the form $\langle a, \varnothing \rangle$, a preference of the form $\langle a \cap p, \varnothing \rangle$ is added. If $a \cap p \neq \varnothing$, this more specific preference will have the effect of superseding the prior, more general preference. In the case that $a \cap p = \varnothing$, the result is the null preference $\langle \varnothing, \varnothing \rangle$, which contributes no information and is effectively not added to R.

A simple example of an imperative update is to start with a preference state that only specifies what worlds are considered live options, and contains no additional information about those worlds' relationships to one another. The utterance of a command then updates R as follows:

(9) R_0: $\{\langle \{w_0, w_1, w_2, w_3\}, \varnothing \rangle\}$ *initial preference state*

[4] There is no ban on preferences of the form $\langle p, q \rangle$ being part of the preference state R. However, they must be introduced by non-operator elements, e.g. *rather* in English. Additionally, information about the relationships between alternatives, such as mutual exclusivity and exhaustivity, can be used to generate $\langle p, q \rangle$ preferences via pragmatic reasoning; see (20) for one such example.

Jump! prefers $j = \{w_1, w_2, w_3, w_4\}$ *imperative content*

R_1: $\{\langle\{w_0, w_1, w_2, w_3\}, \varnothing\rangle, \langle\{w_1, w_2, w_3\}, \{w_0\}\rangle\}$ *updated preference state*

In this case, only the first two clauses of the update rule (8) apply. The end result is a state in which the new preference indicates that w_1, w_2, and w_3 are preferred to w_0 and the persistence of the original preference indicates that all four worlds originally under consideration still are. Note that the fact that j contained a world that had already been eliminated from consideration had no effect on R.

4 Preferences and QUDs

The contribution of an imperative is to effect a change on the preference state R, which is representative of the information currently assumed for the purpose of the discourse. R also contains information about the possible directions of future discourse, since it typically contains several alternatives (the toy example in (9) above is an exception). The alternatives of the form $\langle a, \varnothing\rangle$, taken together, can represent the Questions Under Discussion.[5] All utterances, including commands, are sensitive to the QUD (Cormany 2012; in preparation). The alternatives under consideration determine the utterance's Relevance and, at least in part, its felicity. In the examples below, I show how the preference semantics for commands permits or rules out imperative utterances relative to a specified R. This will lead to a formal, dynamic definition of Relevance for commands, which will be generalized to all clause types in §5.

4.1 Successfully Addressing the QUD

Consider the alternatives (obliquely) introduced by the following utterance:

(10) A: I don't know where to go for lunch today.

The alternatives correspond to all of the possible propositions describing where A will go to lunch. For the sake of this example, assume that A and his interlocutor know that there are only three possible places

[5]Since R may contain alternatives of coarser or finer grain, the entire set of QUDs is represented in a single object. All of these alternatives should, in theory, be directly accessible. Contrast the push-down QUD stack of Roberts (1996; 2004).

that A could get lunch — the cafeteria, the hot dog stand, or the taco place — and that A will get lunch at exactly one place. That is to say, A's utterance introduces the alternatives {*A goes to the cafeteria for lunch*, *A goes to the hot dog stand for lunch*, *A goes to the taco place for lunch*}, and these alternatives are exhaustive and mutually exclusive. We can represent the preference state after (10) is uttered as follows:

(11) $R_0 = \{\langle c, \varnothing\rangle, \langle h, \varnothing\rangle, \langle t, \varnothing\rangle\}$

c = *A goes to the cafeteria for lunch*

h = *A goes to the hot dog stand for lunch*

t = *A goes to the taco place for lunch*

A's interlocutor can then introduce a preference for one of these alternatives, say t, by uttering an imperative. (B can optionally provide a rationale for this preference.)

(12) B: Go to the taco place! (They have a special today.)

This imperative performs all three steps of dynamic update described in §3.2 above, producing a new preference state R_1.

(13) a. Admit R_0 preferences: $\{\langle c, \varnothing\rangle, \langle h, \varnothing\rangle, \langle t, \varnothing\rangle\}$

b. Add a global preference: $\{\langle c, \varnothing\rangle, \langle h, \varnothing\rangle, \langle t, \varnothing\rangle, \underline{\langle t, \neg t\rangle}\}$

c. Add local preferences:

$\{\langle c, \varnothing\rangle, \langle h, \varnothing\rangle, \langle t, \varnothing\rangle, \langle t, \neg t\rangle, \underline{\langle c \cap t, \varnothing\rangle, \langle h \cap t, \varnothing\rangle, \langle t \cap t, \varnothing\rangle}\}$ intersect each a with t

d. Perform pragmatic reasoning:

$\{\langle c, \varnothing\rangle, \langle h, \varnothing\rangle, \langle t, \varnothing\rangle, \langle t, \neg t\rangle, \langle \underline{\varnothing}, \varnothing\rangle, \langle \underline{\varnothing}, \varnothing\rangle, \langle \underline{t}, \varnothing\rangle\}$ alternatives are mutually exclusive

$\{\langle c, \varnothing\rangle, \langle h, \varnothing\rangle, \langle t, \varnothing\rangle, \langle t, \underline{c \cup h}\rangle, \langle \varnothing, \varnothing\rangle, \langle \varnothing, \varnothing\rangle, \langle t, \varnothing\rangle\}$ alternatives are exhaustive

$\{\langle c, \varnothing\rangle, \langle h, \varnothing\rangle, \langle t, \varnothing\rangle, \langle t, c \cup h\rangle\}$ remove null and redundant preferences

Because of the additional information about the relationship between the three alternatives, R_1 differs from R_0 only in the global preference $\langle t, c \cup h\rangle$. This preference contributes new information about one of the alternatives present in R_0, namely $\langle t, \varnothing\rangle$; we can therefore say that B's imperative utterance successfully

addressed the QUD.

4.2 Failing to Address the QUD

Since an imperative that contributes new information about an alternative under consideration is Relevant, one that fails to do so should be considered not Relevant, and therefore not felicitous. Consider the same situation as in (11), with $R_0 = \{\langle c, \varnothing\rangle, \langle h, \varnothing\rangle, \langle t, \varnothing\rangle\}$. Suppose that, instead of an imperative preferring $\langle t, \neg t\rangle$, B utters a different imperative:

(14) B: Bring me a sandwich!

This imperative establishes a preference for the proposition b over its complement: $\langle b, \neg b\rangle$. The imperative update rules proceed in the same manner; they are not sensitive to the fact that R_0 does not contain an alternative $\langle b, \varnothing\rangle$.

(15) a. Admit R_0 preferences: $\{\langle c, \varnothing\rangle, \langle h, \varnothing\rangle, \langle t, \varnothing\rangle\}$

b. Add a global preference: $\{\langle c, \varnothing\rangle, \langle h, \varnothing\rangle, \langle t, \varnothing\rangle, \underline{\langle b, \neg b\rangle}\}$

c. Add local preferences: $\{\langle c, \varnothing\rangle, \langle h, \varnothing\rangle, \langle t, \varnothing\rangle, \langle b, \neg b\rangle, \underline{\langle c \cap b, \varnothing\rangle, \langle h \cap b, \varnothing\rangle, \langle t \cap b, \varnothing\rangle}\}$

Since there is no contextually specified relationship between b and any of c, h, t, no further pragmatic reasoning takes place, and $R_1 = \{\langle c, \varnothing\rangle, \langle h, \varnothing\rangle, \langle t, \varnothing\rangle, \langle b, \neg b\rangle, \langle c \cap b, \varnothing\rangle, \langle h \cap b, \varnothing\rangle, \langle t \cap b, \varnothing\rangle\}$. Thus this update contributes more information to R than the successful update in (13) above — four new preferences as compared to one — but none of these new preferences provide new information about the alternatives present in R_0. Put differently, the new information does not contain any preference that would help A decide where he should go to lunch. Thus we can say that B's utterance in (14) is not Relevant, and therefore not felicitous.

5 Unifying Relevance Under Preferences

In the above examples, Relevance was determined by whether an imperative update contributed new information about an alternative under consideration. Since the dynamic preference semantics permits direct

comparison of imperative, interrogative, and declarative content, this restriction can be stated in terms of the elements of R prior to and after update with a given utterance. Not only imperative relevance, but relevance for all clause types can be determined by examining the context change effected by a given utterance.

5.1 All Utterance Types in Preference Semantics

Dynamic preference semantics has representations for all utterance types, and freely mixes them within preference states. To have an effect on a context, alternatives and preferences must be contributed by update rules, which represent illocutionary relations. The three major clause types and their characteristic effects in dynamic preference semantics, can be summarized as follows.

(16) a. Assertions use a singleton alternative to filter possible worlds: $\langle p, \varnothing \rangle$

b. Questions introduce multiple alternatives: $\{\langle p, \varnothing \rangle, \langle q, \varnothing \rangle, ...\}$

c. Imperatives prefer a proposition over its complement: $\langle p, \neg p \rangle$

The formal similarity between all three clause types is that their contribution is based on a preference which is of the form $\langle p, x \rangle$. Since all of the representations in (16) are generated by illocutionary operators that scope over a propositional constituent, we can say that it is characteristic of these operators that they place their scope proposition as the first element of a preference. This formal similarity can be exploited to create a definition of Relevance not just for imperative utterances, but for all matrix clause utterances.

5.2 Towards a Formalization

A unified definition of relevance should apply to the common character of different types of utterances: the first member of the preferences that they introduce. Thus I propose that to be Relevant, an utterance must satisfy two criteria:

(17) a. The utterance must introduce a preference whose first element entails an element of one of the alternatives under consideration.

b. The utterance must alter the preference state R.

(17a) is the core of what it means to be relevant. (17b) ensures that Relevant utterances must not only be compatible with R, but provide new information; i.e. re-assertion, re-statement of the QUD, and re-iteration of commands are not Relevant contributions.

Both of these criteria can be captured by examining the change between the preference state prior to and following the utterance. In the definition below, the notation $R[U]$ is to be read "the preference state R updated with utterance U".

(18) **Relevance in Preference Semantics**

An utterance U is Relevant iff

$\exists \langle p, x \rangle \in R[U] - R : p \subseteq a \;\&\; (\langle a, a' \rangle \in R \vee \langle a', a \rangle \in R)$

Note that this is the actual context change brought about by U, not an abstract context change potential. Existentially quantifying over $R[U] - R$ also enforces (17b), since if the utterance effects no change on the context, $R[U] - R = \varnothing$ and the quantificational restriction will necessarily be false, deeming the utterance not Relevant.

The definition in (18) can be used to predict the Relevance facts for (12) and (14); these results are summarized below.

(19) A: I don't know where to go for lunch today.

B1: Go to the taco place!

B2: #Bring me a sandwich!

(20) **Computation of Relevance for *Go to the taco place!***

$R = \{\langle c, \varnothing \rangle, \langle h, \varnothing \rangle, \langle t, \varnothing \rangle\}$

$R[U] = \{\langle c, \varnothing \rangle, \langle h, \varnothing \rangle, \langle t, \varnothing \rangle, \langle t, c \cup h \rangle\}$

$R[U] - R = \{\langle t, c \cup h \rangle\}$

$t \subseteq t \;\&\; \langle t, \varnothing \rangle \in R$, therefore Relevant.

(21) **Computation of Relevance for *Bring me a sandwich!***

$R = \{\langle c, \varnothing\rangle, \langle h, \varnothing\rangle, \langle t, \varnothing\rangle\}$

$R[U] = \{\langle c, \varnothing\rangle, \langle h, \varnothing\rangle, \langle t, \varnothing\rangle, \langle b, \neg b\rangle\}$

$R[U] - R = \{\langle b, \neg b\rangle\}$

$b \not\subseteq c, b \not\subseteq h, b \not\subseteq t$, therefore not Relevant.

An interesting property of Relevance as defined in (18) is that it can be combined with the Cooperative Principle (Grice 1989). This can lead to an acceptable interpretation of (21), even if it is strictly speaking not Relevant. If A assumes that B's utterance must be a cooperative attempt at communication, A will try to infer a reason why b does in fact entail one of c, h, t. One such scenario would be that A and B both know that the cafeteria is the only place that sells sandwiches. Through this additional pragmatic reasoning, A could conclude that B was indirectly establishing a preference for c. The mechanics of this reasoning lie outside of dynamic semantics, illocutionary update rules, and the computation of Relevance, but are nevertheless important factors in the rational behavior of discourse participants. There are also utterances which have no place in the discourse, even when taking additional reasoning into account. For example, if B uttered *Stand on your head!*, its contribution would have no inferable tie to any of the alternatives under consideration, and it would be ruled both not Relevant and not felicitous.

6 Conclusion

This paper set out to show that for any theory of Relevance to be complete, it must account for as many discourses as possible, including ones that contain imperatives. Building upon previous models of Relevance (Roberts 1996; 2004; Simons et al. 2011), this theoretical gap was filled by adding a new definition of command Relevance. This definition was framed in terms of the illocutionary and propositional content of imperative utterances, the latter being important for comparison with the potential answers of Questions Under Discussion.

Formalizing the contribution of various utterance types is best accounted for in a dynamic preference semantics (Starr 2010; 2012), since this system allows transparent access to propositional content without forcing imperatives to encode propositions. Propositional content is consistently represented in preference structures: it is the first member of preferences of the form $\langle p, \varnothing\rangle$ or $\langle p, \neg p\rangle$. The formal definition

for command Relevance only has to make reference to p, and is therefore extensible to other clause types without modification. Determining the Relevance of imperatives is not a special case, but simply an application of the general, unified criteria of Relevance.

The unified definition of Relevance is still preliminary, and while it accounts for multiple types of utterances, it does not account for certain nuances that may be expressed within those utterances. Many of the possible refinements of unified Relevance were already outstanding issues for non-unified approaches, and include accounting for effects of information-structural movement (Cormany 2012), probabilistic answers to QUDs (Simons et al. 2011: fn. 3), and modality in both QUDs and responses. These issues require further attention, but, like basic issues of Relevance, they should be addressed in a dynamic semantics, without recourse to clause-specific rules.

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