Russian Imperfective Imperatives[*]

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1 Introduction

Recent research has provided some evidence that the 'flavor' of a speech act conveyed by an imperative–whether a command, a request, or an invitation–is partially determined by semantic, rather than pragmatic, factors. This research has generally located the semantic factors contributing to speech act type in the modal underspecification of the imperative. This paper argues that Russian imperatives provide an alternative locus of semantic contributions to speech act type: a degree variable associated with grammatical aspect.

Russian verbs carry an obligatory aspect, perfective or imperfective. This obligatory aspect marking carries over to Russian imperatives. Normally, Russian imperatives are in the perfective aspect, following the cross-linguistic trend (Kaufmann, 2012). However, Russian imperatives used to offer invitations, advice, and permission are often in the imperfective aspect.

This paper provides evidence that the speech act conveyed by a Russian imperative depends, at least in part, on the degree semantics associated with aspect. First, I present the data on aspect usage in Russian imperatives, including the relevant semantic background on both Russian aspect and imperatives. Second, I survey prior theories of imperative invitations and permissions, showing how they make incorrect predictions about Russian. Finally, I present an account of the Russian imperfective imperative that combines insights from previous imperatives research with insights from research on the semantics of aspect. The resulting theory demonstrates that aspectual degree semantics contribute to the flavor of the speech act in Russian.

2 Russian imperfective imperatives

This section provides a brief background on Russian aspect, imperative usage, and their interaction.

2.1 A brief outline of Russian aspect

Traditional grammars claim that Russian verbs come in imperfective/perfective pairs, like *pisat'*_{impf}/*napisat'*_{pf} 'to write.' *See, for example*, Timberlake (2004). However, this pairing is not always morphologically transparent. Prefixation, suffixation, and suppletion all play into aspectual pairings, and some verbs are not paired at all, like *rykhnut'*_{pf} 'to collapse' and *borot'sya*_{impf} 'to struggle' (Forsyth, 1970).

In the majority of cases, though, the aspectual pairing corresponds to a semantic distinction: perfective verbs denote an event that has 'completed' in some sense, and imperfective verbs denote an event that is 'in progress.' *See* Timberlake (2004), Forsyth (1970). The intuitive distinction is captured in (1) and (2).

(1)   Ivan napisal domašnee zadanije.
       Ivan wrote_{pf} home   work
       'Ivan did his homework.'

(2)   Ivan pisal   domašnee zadanije.
       Ivan wrote_{impf} home   work
       (roughly) 'Ivan was doing his homework.'

Importantly, both aspects may appear in the imperative (3).

(3)   a. Otkrojte okno!
            open_{pf}   window
            'Open the window!'

      b. Otkryvajte okno!
            open_{impf}   window
            'Open the window!'

The aspectual contribution to the difference in meaning between the imperatives in (3a) and (3b) is the subject of this paper. I return to more Russian imperatives data in section 4.

2.2 Some general facts about imperatives

The theories of imperatives that I will later survey observe several cross-linguistic facts about imperatives that also hold for Russian. Understanding these facts, especially so-called 'functional heterogeneity,' is necessary to understanding the Russian data.

First, cross-linguistically, imperatives typically appear in a special mood (called 'imperative mood'), often with special morphology. Sadock and Zwicky (1985) classified the imperative 'sentence type' as one of three clause types with robust cross-linguistic realization. In English, for example, only certain verbal morphology is compatible with the imperative clause type (4a). The Russian imperative is subject to similar restrictions (4b).[1]

(4)   a. {Open/*Opens/*Opening/*Opened/*Will open} the window!

      b. {Otkrojte/*Otkrojet/*Otkryl}   okno
            {open.2D.PL/open.3D.SG/open.MASC.PAST.SG} window
            'Open the window!'

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[1]While example (4b) demonstrates that Russian verbs have special imperative morphology, I will not represent this morphology in the glosses for ease of exposition.

Second, imperatives do not clearly have truth values (5). As Kaufmann notes, echoing many others, "[I]mperatives simply don't feel true or false–they may feel justified, or inappropriate, and they may feel related to certain courses of events." (Kaufmann, 2012:2). Imperatives mainly speak to how the world should be, not how it is (Portner, 2007, Han, 2000).

(5)   a. A: Open the window! *B: That's false!

    b. A: Otkrojte okno!   *B: Ne pravda!
          open$_{pf}$ window   not truth
       'A: Open the window! *B: Not true!'

Third, imperatives are action-guiding with respect to future actions of the addressee. As Portner notes straightforwardly, "[I]mperatives represent actions which the addressee should take" (Portner, 2004). Part of this action-guiding quality is a presupposition that the action represented by the imperative is not already complete (6). For example, Kaufmann defines an Epistemic Uncertainty Constraint under which the speaker assumes, among other things, that the action expressed by the imperative is still possible (Kaufmann, 2012).

(6)   * The window is already open. Open the window!

Fourth, imperatives require retraction in the face of an inconsistent imperative (Portner, 2007). Uttered in the same context, the sequence of imperatives in (7) indicates that the speaker as changed her mind.

(7)   Open the window!
    Leave it shut!
    → The first imperative has been revised by the second, so now you should leave the window shut.

Finally–and most importantly for this paper–imperatives display 'functional heterogeneity.' This is the ability of imperatives to be associated with a wide variety of speech acts (8). *See* Condoravdi and Lauer (2010b) citing Schmerling (1982).[2]

(8)   a. (Mother to child) Go to bed   ORDER
    b. Have a cookie   INVITATION
    c. Go ahead   PERMISSION
    d. Take more vitamins   ADVICE
    e. Please, don't rain   ABSENT WISH
    f. Get well soon   WELL WISH
    g. Die   THREAT
    h. Don't go to the party   PROHIBITION
    i. . . .   . . .

2.3   Functional heterogeneity in the Russian imperative

In the imperative form, Russian expresses most speech acts in the perfective aspect, following the cross-linguistic trend (9) (Kaufmann, 2012). However, for some speech acts expressed by

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[2]Here and below, I represent speech acts with small caps.

the imperative, Russian speakers prefer the imperfective aspect. These speech acts include INVITATIONs and PERMISSIONs (10) (Timberlake, 2004).

(9) Otkrojte okno!
open$_{pf}$ window
'Open the window!'   COMMAND

(10)   a. Vkhodite i   sadites',   požalujsta!
           enter$_{impf}$ and sit.down$_{impf}$, please
           'Please come in and sit down!'   INVITATION

       b. ?? sjadte,   požalujsta!
              sit.down$_{pf}$, please
           'Please sit down!'   ??INVITATION, more likely COMMAND

       c. Otdykhajte v derevne!
           rest$_{impf}$ in country
           'Rest in the country!'   ADVICE

       d. A: *Možno otkryt' okno?* ('may I open the window?')
           B: Konečno, otkryvajte!
              of.course, open$_{impf}$
           'Of course, you may open it!'   PERMISSION[3]

Notably, imperfective imperatives may also be used to command the addressee to perform a repeated action (11) or to insist on an immediate action in the face of hesitation (16).

(11)   Po utram   otkryvaj okno!
       by morning open$_{impf}$ window
       'Please open the window in the morning'   Repeated Action (Timberlake, 2004)

(12)   Berite, ne somnevajtes'!
       take$_{impf}$ not hesitate$_{impf}$
       'Go ahead and take some, don't hesitate!'   Hurried Action (Timberlake, 2004)

   Russian speakers also prefer the imperfective in negated imperatives, or PROHIBITIONS (17).

(13)   Ne   otkryvajte dver'!
       NEG open$_{impf}$ door
       'Don't open the door!'   PROHIBITION

However, negated perfective imperatives are possible with a slightly marked meaning: these imperatives warn against an undesirable result that the speaker considers imminent (18).

(14)   U vas est' pistolet? Ne vzdumajte   zastrelit'sya!
       by you is   pistol   not think.about$_{pf}$ shoot.self
       'So you have a pistol? Don't even think about shooting yourself!'   (Timberlake, 2004)

As demonstrated below, the association of different aspects with different speech acts also explains the distribution of aspect in negative imperatives.

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[3] Adapted from http://malenkiy.ru/forum/lofiversion/index.php?t1764.html.

3   Three theories of the imperative

ADVICE, INVITATION, and especially PERMISSION readings–precisely those that Russian expresses with imperfective imperatives–have presented a challenge to recent theories of the imperative. This section surveys two of these theories, those of Kaufmann (2012) and Portner (2007), to demonstrate the challenge that the Russian data presents. The Russian challenge motivates the adoption of a theory of imperatives put forth by Condoravdi and Lauer (2010b).

3.1   Portner's theory of imperatives

In a series of works, Paul Portner has developed a theory of imperatives in which imperatives denote properties that are added to the addressee's TO-DO LIST. *See* Portner (2004, 2007, 2009). For Portner, this treatment falls out naturally from a theory of clause types and their dynamic semantic analyses: for assertions, there is the Stalnakerian notion of the common ground; for questions, there is the 'Question Under Discussion Stack;' and for imperatives, Portner creates the To-Do List.

The To-Do List keeps track of an agent's obligations in a context. Then, the 'canonical discourse function of an imperative clause' is to add the property denoted by the imperative to the To-Do List of the addressee, $T(addressee)$:

(15) $T + [\![\phi_{\text{imp}}]\!] = T[addressee/(T(addressee) \cup \{[\![\phi_{\text{imp}}]\!]\})]$

The operation in (19) is thus a dynamic update operation on the list of properties inhabiting the addressee's To-Do List.

While Portner distinguishes his 'dynamic' account from 'modal' accounts, Portner's semantics for imperatives still takes advantage of the intuitive connection between imperatives and modals. In particular, the To-Do List imposes an ordering on worlds compatible with the Common Ground, thus functioning like a Kratzerian ordering source to the Common Ground's modal base. This ordering determines the actions an agent is committed to take, such that an agent is not 'cooperative' or 'rational' unless he takes actions compatible with the ordering.

In addition, Portner's semantics captures the variety of ordering sources available in modal theories. Portner does this by dividing up the To-Do List into sections corresponding to the different flavors of obligation–deontic, boletic, teleological–that traditionally characterize modal subtypes (Kratzer, 1981). These different sections of the To-Do List are then responsible for functional heterogeneity in imperatives: ORDERs add an obligation to the deontic section of the To-Do List, INVITATIONs add to the boletic section, etc.

The problem for this treatment of INVITATIONs, however, is that Portner predicts that the speaker informs the addressee of the addressee's desires and directly alters them.[4] In addition, Portner treats PERMISSIONs as arising from 'permission sentences' that add an inconsistent property to the To-Do List (Portner, 2009). While this approach may explain the 'hurried action' imperatives expressed by the imperfective imperative (as in (16), repeated from above), it does not explain why imperfectivity would be associated with 'permission sentences' in the first place.

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[4]We could revise this slightly and only discuss instances in which the addressee has accepted the speaker's imperative (silently or by saying something like 'Ok'). But then an invitation is only an invitation when the addressee has accepted it. This doesn't seem right.

(16)   Berite, ne somnevajtes'!
       take$_{impf}$ not hesitate$_{impf}$
       'Go ahead and take some, don't hesitate!'   Hurried Action (Timberlake, 2004)

3.2   Kaufmann's theory of imperatives

In her book *Interpreting Imperatives*, revising an earlier work published under the name Schwager, Kaufmann defends the idea that imperatives are modal assertions combined with certain presuppositions. Expositing Kaufmann's careful and detailed treatment would go beyond the scope of this paper, and therefore I present a greatly simplified version of Kaufmann's proposal below.

In Kaufmann's account, imperatives are modals. Like other modals, they come with a modal base (usually the common ground in imperatives) and an ordering source. The modal force of the imperative is always universal.[5] Unlike other modals, however, imperatives presuppose three things. First, the speaker is an 'Authority' with respect to the modal base and the ordering source. This means the speaker cannot be wrong about which worlds are optimal in the modal calculus.[6] Second, the speaker takes the non-modalized proposition within the imperative–and its negation–to be possible. Kaufmann dubs this presupposition 'Epistemic Uncertainty.' Third, imperatives presuppose the 'Ordering Source Restriction,' which limits the types of ordering sources available in imperatives.

While the details of the 'Ordering Source Restriction' are not relevant here, Kaufmann notes that two ordering sources satisfying this restriction include 'what the speaker orders' (for COMMANDs) and 'what the addressee desires' (for PERMISSIONs and INVITATIONs). Thus, an imperative like *Get up!* receives the interpretation in (17).

(17)   ⟦Get up!⟧ = 1 iff for all worlds *w* that are optimal with respect to a modal based defined by the common ground and an ordering source defined as 'what the speaker commands,' the addressee gets up in *w*

As with Portner's treatment of PERMISSIONs and INVITATIONs, however, Kaufmann's account relies on an implausible view of the speaker's power. The Authority presupposition, in conjunction with the ordering source 'what the addressee desires,' produces the anomalous result that the speaker cannot be wrong about what the addressee desires. Additionally, Kaufmann's account requires an additional presupposition for PERMISSIONs and INVITATIONs: that the addressee wants to do the thing permitted. As noted by Condoravdi and Lauer (2010a), this presupposition is probably too strong, at least with respect to invitations.

3.3   Condoravdi & Lauer's theory of imperatives

Portner's account and Kaufmann's account run into similar problems in the analysis of PERMISSIONs and INVITATIONs: both proposals allow the speaker to dictate to the addressee the addressee's own desires. Yet both proposals also tie–convincingly, in my view–the imperative's functional heterogeneity to a semantic feature, the modal ordering source. This subsection presents a theory of imperatives that avoids the problems of Portner and Kaufmann's accounts. However,

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[5]See Grosz (2009) for an underspecificational account of modal force in imperatives.

[6]For Kaufmann, this presupposition explains why, even though imperatives have truth conditions, imperatives may not be challenged as false.

this account also avoids the insight regarding the semantic nature of functional heterogeneity. The next section modifies this account to capture this insight.

In Condoravdi & Lauer's account of performatives, advanced in several works, imperatives express speaker preferences of a particular kind. First, the authors define a *preference structure* as a ranking of preferences over an information state. Formally, this looks something like (18).

(18)   A preference structure relative to an information state W is a pair $\langle PS, \leq \rangle$ where $PS \subseteq \mathscr{P}(W)$ and $\leq$ is a weak partial order on PS

A individual may have more than one preference structure, corresponding to different types of preferences. Thus, the information state W functions much like the modal base in Kaufmann's account, while the preference structure PS functions much like an ordering source.

In order to resolve the conflicts among many types of preferences an agent may have, and thereby distinguish the preferences on which an agent should act, the authors introduce a distinguished, consistent preference structure for an agent (Condoravdi and Lauer, 2010b). This preference structure is called the 'effective preference structure,' and it consolidates the agent's many preference structures into a consistent whole, as defined in (19) over the set of an agent's preference structures $\mathbb{P}$.[7]

(19)   The effective preference structure for agent A is $\langle P_A, \leq_{P_A} \rangle$, where $P_A \subseteq \bigcup \mathbb{P}$

With the notion of effective preference structure in place, it is possible to define the semantics of imperatives for a speaker S as in (20).

(20) $[\![\text{IMP}(\phi)]\!]^c = \{w \mid \phi \text{ is a maximal element of } P_S \text{ at } w\}$

Thus, an imperative denotes those worlds where the speaker is committed to act as though ϕ is a maximal element of her effective preference structure.[8]

Functional heterogeneity falls out from contextual factors like socio-cultural circumstances and assumptions about speaker and addressee desires. An expression of speaker preference comes out as an ORDER, for example, where the speaker has socially recognized authority over the addressee. The same expression of preference is interpreted as a request when there is no socially recognized authority over the addressee, as between colleagues.

While this account eschews a semantic approach to functional heterogeneity, PERMISSION and INVITATION uses are still problematic. INVITATIONs like (21), for example, require implicit conditionalization of an *if-you-like* variety, at least where the addressee's preference is not known in advance. This follows because the speaker does not unconditionally desire that the addressee have a cookie; rather the speaker desires that the addressee have a cookie if the addressee wants.

(21)   Have a cookie (if you like)

Russian imperfective imperatives provide an additional challenge to this account. By divorcing functional heterogeneity from a semantic explanation, this account cannot explain the use of a grammatical form like imperfective aspect to systematically express PERMISSION and INVITATION

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[7] I have omitted the operations intended to ensure consistency, but I assume a consistent effective preference structure in what follows.

[8] And in some contexts, the authors note, an imperative commits the speaker to act as if she prefers that the addressee prefer ϕ.

uses. And as the next section demonstrates, the use of marked grammatical forms to express these uses is not unique to Russian.

4   Russian imperfective imperatives

In this section, I motivate a semantic solution to the problem of functional heterogeneity. Then, I modify Condoravdi & Lauer's account to accommodate a degree-based semantics of aspect. This modification cashes out at least some imperative functional heterogeneity as a consequence of aspect choice, accounting for the Russian data.

4.1   Motivating a semantic solution to functional heterogeneity

In languages like Russian, Badiotto,[9] and German certain grammatical forms appear frequently or exclusively with certain types of imperatives.

(22)   Russian

    a.   sadites',   požalujsta!
        sit.down$_{impf}$, please
        'Please sit down'   INVITATION

    b.   sjadte,   požalujsta!
        sit.down$_{pf}$, please
        'Please sit down'   ??INVITATION, more likely COMMAND

(23)   Badiotto   (Portner, 2007:378)

    a.   Tète   **ma** n dè   de vacanza
        take-yourself ma a day of vacation
        'Take a day off for vacation'   ADVICE

    b.   * Puzeněime **ma** ciamo i   cialzà!
          clean-me   ma yet   the shoes
        'Polish my shoes!'

    c.   Puzeněime **mo** ciamo i   cialzà!
        clean-me   ma yet   the shoes
        'Polish my shoes!'   COMMAND

(24)   German   (Grosz, 2009)

    a.   Iss #bloß/ #JA / ruhig den Spinat! Das stort   mich nicht.
        eat #BLOß #JA   RUHIG the spinach that disturbs me   not
        'Eat [#bloß/ #JA / ruhig] the spinach! That doesn't disturb me.'   PERMISSION

    b.   Iss bloß/ JA / #ruhig den   Spinat! Sonst wirst   du bestraft.
        eat BLOß JA #RUHIG or.else will.be you   punished
        'Eat [bloß/ JA / ruhig] the spinach! Or else you'll be punished.'   COMMAND

In Badiotto, for instance, Portner suggests that *ma*-imperatives require an interpretation with respect to the addressee's bouletic or teleological ordering source, while *mo*-imperatives require

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[9]A central Rhaetoromance language.

an interpretation with respect to the addressee's deontic ordering source. In German, Grosz argues that *ruhrig* is available in the imperative when the imperative's modal operator bears existential force–the type of force needed in PERMISSIONs. The Russian data, as explained in section 2.3, suggest an association between imperfective aspect and PERMISSION interpretations. All three languages thus correlate a grammatical form with a range of speech acts, pointing to a potential semantic source for PERMISSION and INVITATION imperative interpretations.

Neither Portner's nor Grosz's semantic solution to the correlation of grammatical form with speech act is viable for Russian. Portner's suggestion for Badiotto translates to the following suggestion for Russian: imperfective imperatives require an interpretation with respect to the addressee's bouletic or teleological ordering source, while perfective imperatives require an interpretation with respect to the addressee's deontic ordering source. However, this is unlikely to be correct since Russian imperfectives may also express COMMANDs, which affect the addressee's deontic ordering source (25).

(25)   Ukhodite vy   otsjuda
       leave$_{impf}$ you from.here
       'Get out of here!'   COMMAND

For similar reasons, Grosz's explanation for German does not account for Russian: imperfectives may express COMMANDs as well as PERMISSIONs, and therefore imperative aspect does not correlate with existential modal force. For Russian, a different semantic source of PERMISSION and INVITATION interpretations is needed.

4.2   The semantics of aspect in imperatives

The semantics of the imperfective aspect itself generates PERMISSION and INVITATION interpretations in the imperative. Moreover, the semantics of imperfective aspect still allow for COMMAND interpretations of the imperfective imperative in some contexts.

I assume a semantics of degree for aspectual composition following Condoravdi (2009). This analysis is in the spirit of Piñón (2008) and Kennedy and Levin (2008), and it assumes that certain verbal predicates have argument positions for a contextual variable d corresponding to the degree of completion of the event. The variable can range in value $0 < d \leq 1$, with a 'complete' event represented by $d = 1$ and an incomplete event represented by $d < 1$. Thus, the degree-theoretic account of aspectual composition is suited to the representation of Russian aspect: perfective predicates have 'completed,' and therefore the value of their degree argument is 1, while imperfective predicates are 'incomplete,' and their degree argument takes a value below 1.

One of the insights of Condoravdi's analysis is that the contextual degree variable d is evaluated relative to a contextual standard d_c. If the degree of completion exceeds the contextual degree standard, the predicate is licensed. For Condoravdi's analysis of the English progressive, this degree-theoretic approach solves many problems, including the imperfective paradox. To capitalize on these benefits, I have slightly modified Condoravdi's analysis in accounting for the Russian imperfective (26), which suffers many of the same problems.[10]

(26)   IMPF$(e, P) = 1$ in world w and context c with contextual standard d_c iff

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[10]The semantic equivalence of the English progressive and the Russian imperfective is not exceptionless. However, Condoravdi's analysis provides a plausible starting point that captures many of the core cases (Forsyth, 1970).

    a. for some d, $P(e,w,d)$ and $d_c < d$ and

    b. the event e would culminate at some reasonable world[11]

Combining this semantics of the imperfective with Condoravdi & Lauer's preference structure notion suggests that the expression of PERMISSION and INVITATION speech acts is a function of the degree variable. To see how, assume the semantic representation of the imperative in (27) is (28).

(27)   otkryvajte okno,   požalujsta!
          open$_{impf}$ window, please
          'Open the window, please'   PERMISSION

(28)   IMP(IMPF(e, w, open))

This is simply a combination of the degree-theoretic account of aspect with Condoravdi & Lauer's account of imperatives. In PERMISSION and INVITATION interpretations of the imperfective imperative, the intuition–shared by Portner, Schwager, and Condoravdi & Lauer–is that the addressee may engage in as much or as little of the event as he wants. This effect is captured by setting the contextual standard d_c to 0 (29).

(29)   =IMP(open(e,w,d)), where $0 < d$
        = \{v | open(e,w,d) is a maximal element of P_S at v\}, where $0 < d$

Then (29) expresses the speaker's preference that the addressee open the window, to any degree above 0. Given this expressed preference, the addressee pragmatically infers that the degree of opening is up to him. This derives the implicit conditionalization (*Open the window (if you like)*) that Condoravdi & Lauer rely on for INVITATIONs and PERMISSIONs.

    However, that's not quite right: the implicit conditionalization approach allows the speaker to express a preference that the action is performed to some degree or to no degree at all. The approach in (29) suggests that the expressed preference requires the action to be performed to some non-zero degree.

    There are two fixes to this problem. First, one could change the requirement $0 < d$ to $0 \leq d$. However, this means that the declarative use of the imperfective may denote an event that does not happen at all, $d = 0$. This is clearly incorrect.[12] The second fix involves biting the bullet of requiring non-zero performance. Therefore, this approach needs to postulate some action for addressee to perform that is compatible with the addressee not opening the window at all (for example). The action necessary is a 'mental action.'

    I opt for the second fix because there are independent reasons to represent mental actions in the semantics of certain verbs and because there is evidence from Russian that mental actions figure in the semantics of imperfective imperatives. Grano (2010) and Sharvit (2003) include mental actions in the semantics of English *try*. Their underlying assumption is that events are decomposable into four stages–preparatory, inner stage, endpoint, and result. Preparatory stages correspond to mental

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[11]Condoravdi explains her notion of 'reasonable world,' but the (interesting) details are unimportant to this analysis. In the remainder of this section, I will ignore this second requirement.

[12]A slight alteration of this approach, requiring $0 \leq d$ only in imperative environments, posits a difference semantics for the imperfective in declarative and non-declarative environments. I avoid this approach because it is ad hoc.

actions in volitional events. Intuitively, a preparatory stage is an act of consciously considering whether to perform an action.

Including mental actions in the semantics of imperfectives also predicts the behavior of negated imperatives. Negated imperfectives covey PROHIBITIONs (30, repeated from above).

(30) Ne otkryvajte dver'!
     NEG open$_{impf}$ door
     'Don't open the door!'   PROHIBITION

Negated perfective imperatives, however, convey WARNINGs against performing an action unintentionally (31), what Forsyth (1970) calls 'apprehensive warnings.'

(31) Ne razbej butylku!
     NEG break$_{pf}$ bottle
     'Don't break the bottle!'   WARNING (Forsyth, 1970)

Thus, when the negated action involves the addressee's volition, Russian speakers use the imperfective imperative. When the negated action does not involve volition, Russian speakers use the perfective imperative. This suggests that Russian imperatives are sensitive in their choice of aspect to mental actions–acts of consciously considering whether to perform an event.

These two pieces of evidence indicate that 'mental actions' are among the things tracked by the degree-of-completion variable d. This move derives the correct interpretation of negated imperfective imperatives (32).

(32) IMP(NEG(IMPF(e, open)))
     = IMP(NEG(open(e, w, d))), where $0 < d$
     = $\{v \mid \neg \text{open}(e, w, d)$ is a maximal element of P_S at $v\}$, where $0 < d$

The imperative in (32) denotes those worlds where the speaker maximally prefers that the addressee not open the door–not to any degree. Thus, (32) includes those worlds where the addressee does not even *consider* opening the door. This is the correct result for PROHIBITIONs.

Finally, the use of preparatory stages also captures the intuition that achievability–whether the directed action is achievable by the addressee–is important to the meaning of imperatives (Wilson and Sperber, 1988). It does this because preparatory stages are not likely to exist for impossible acts. That is, in most cases, the addressee will not consider performing an action that is impossible for her to perform. Therefore, by including preparatory stages in the semantics of imperatives, this account derives something like Kaufmann's Uncertainty presupposition.

4.3 Deriving functional heterogeneity

None of the three accounts discussed above treat functional heterogeneity as a function of the *strength* of an imperative. On those accounts, functional heterogeneity emerges from the choice of ordering source (Portner and Kaufmann) or from the socio-cultural relationship between addressee and speaker. However, as Portner notes, implicit in the concept of an ordering source is gradability (Portner, 2009). This subsection advances an understanding of functional heterogeneity in terms of an imperative's strength, where strength is a gradable notion dependent on the degree-of-completion variable d.

The difference between some functions of the imperative, like COMMANDs and REQUESTs, is a matter of degree. Condoravdi & Lauer capture this insight by locating the source of functional

heterogeneity in language-external socio-cultural factors like the degree of authority the speaker has over the addressee. A REQUEST as uttered to a colleague might be a COMMAND as uttered to a subordinate, though the same imperative is expressing the same speaker's preference. Similarly, the difference between imperative interpretations will not always lie in a difference between ordering sources. For example, COMMAND and PERMISSION readings are both associated with deontic ordering sources, at least as analyzed by Portner and Kaufmann. And in many cases, the speech acts associated with imperatives may fall along a scale of strength (33).

(33)   INVITATIONs $<$ $_{\text{strength}}$ REQUESTs $<$ $_{\text{strength}}$ COMMANDs

Therefore, a theory of imperatives must account for both the semantic source of functional heterogeneity and the varying strength of the associated speech act.

In the present account, these effects fall out from the contextual degree variable d_c associated with imperfective aspect. The same imperfective may express a COMMAND or an INVITATION, depending on context (34).

(34)   a.   (Said to a vistor)
              sadites',   požalujsta!
              sit.down$_{\text{impf}}$, please
              'Please sit down!'   INVITATION
        b.   (Said to a group of children who keep leaving their chairs)
              sadites'!
              sit.down$_{\text{impf}}$
              'Sit down!'   ??INVITATION, more likely COMMAND

Notably, the difference between the imperatives in (34a) and (34b) tracks the difference in how much the speaker cares that the action is completed in each context. In (34a), for instance, the speaker likely does not care too much about whether the addressee sits down; in (34b), however, the speaker likely cares a great deal about whether the sitting action is completed. Thus, in the context of (34a), the contextual standard variable d_c might be set at 0 (36a), whereas in the context of (34b), d_c might be set at 1 (36b).

(35)   a. $=$IMP(sit.down(e,w,d)), where $0 < d$
              $= \{v \mid$ sit.down(e,w,d) is a maximal element of P_S at $v\}$, where $0 < d$
        b. $=$IMP(sit.down(e,w,d)), where $1 \leq d$[13]
              $= \{v \mid$ sit.down(e,w,d) is a maximal element of P_S at $v\}$, where $1 \leq d$

This suggests that the contextual standard d_c determines the difference between INVITATION and COMMAND readings. When $d_c = 0$, the imperfective imperative receives an INVITATION interpretation; when $d_c = 1$, the imperfective imperative receives a COMMAND interpretation.

Finally, this approach suggests slightly different results for achievements and accomplishments. In achievements, like the imperfective imperatives in (34), the contextual standard for degree of completion can either be $d_c = 0$ or $d_c = 1$, since achievements have no intermediate degrees of completion (Vendler, 1957).[14] For accomplishments, the value of d_c should be able to take the full

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[13]In order to ensure that this does not derive a degree of completion greater than 1, the inequality must be changed to $d_c \leq d$ when $d_c = 1$. Alternatively, when $d_c = 1$, this could trigger the implication that $d = 1$ since $0 < d \leq 1$.

[14]Note, however, that this analysis requires even achievements to have preparatory stages.

range of values $0 < d_c \leq 1$. Therefore, this theory predicts that some speech acts lying between INVITATIONs and ORDERs, like REQUESTs, might result from a setting of d_c in the range $0 < d_c < 1$.

(36) Otkryvajte   okno! $(0 < d_c < 1)$
      open$_{impf}$.IMP window
      'Open the window!'   REQUEST

More research is required to determine if this prediction holds.

5 Conclusion

The distribution of the Russian imperfective imperative suggests two things: that functional heterogeneity is semantic in origin, and that this semantic origin is related to degrees. Previous accounts of the imperative have recognized either the semantic origin (Portner and Kaufmann) or the scalar nature of functional heterogeneity (Condoravdi & Lauer, at least in terms of the degree of authority the speaker has over the addressee), but not both. In the present analysis, I have united both insights to account for the case of Russian imperfective imperatives.

The upshot of this proposal is that the semantics of aspect in Russian involves degrees of completion, and that the modification of the desired degree of completion in an imperfective imperative modifies the strength of the imperative. If functional heterogeneity is often a matter of strength, then this approach accounts for functional heterogeneity in many cases.

Throughout this paper, however, I have assumed that some cases of functional heterogeneity lie outside the scope of variable strength. For example, this approach inherits the awkwardness of Condoravdi & Lauer's account with respect to ABSENT WISHes like (37).

(37) Please be blond!

Moreover, this account's most ambitious prediction is also its weakest: how does a speaker's preference that the address perform an action half-way, for example, translate into a REQUEST? My initial response is that degrees of completion *within a preference structure* correlate with how much the speaker cares about addressee performing the action. But it does not seem possible that a speaker could COMMAND an addressee to open a window half-way by uttering (38).

(38) Otkryvajte   okno! $(d_c = .5)$
      open$_{impf}$.IMP window
      'Open the window!'   COMMAND

Rather, some measurement of the aperture (like 'half-way') is required in the imperative.

Finally, I expect functional heterogeneity to depend on a variety of language-specific factors. Therefore, functional heterogeneity in English may not depend on degrees. In the Russian case, though, there is strong evidence that degrees of completion play a significant role in deriving functional heterogeneity.

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