Neutrality vs. Ambiguity in Resolution by Syncretism: Experimental Evidence and Consequences*

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1.   Introduction

Across languages and constructions, syntactic *feature conflicts* can be resolved by *syncretism*. This is illustrated in (1) and (2) for Russian Right Node Raising (RNR).

(1)   **Russian RNR with different case requirements and no NOM-ACC syncretism:**

    *On ne ostavil, tak kak emu nadoela,   tarelk-u/a   s   chërnoj
    he not *kept$_{acc}$*, as   him **sick.of$_{nom}$**, plate-*ACC*/**NOM** with black
    kaëmkoj.
    border

    'He didn't keep, as he was sick of, the plate with a black border.'

(2)   **Russian RNR with different case requirements and NOM-ACC syncretism:**

    On ne ostavil, tak kak emu nadoelo,   bljudc-e   s   krasnoj
    he not *kept$_{acc}$*, as   him **sick.of$_{nom}$**, saucer-***ACC&NOM*** with red
    kaëmkoj.
    border

    'He didn't keep, as he was sick of, the saucer with a red border.'

    The verb in the fist clause of each of the examples above assigns accusative case (ACC) to the raised noun phrase, as seen in (3a). The verb in the second clause assigns nominative case (NOM) to the raised noun phrase, as (3b) shows.

(3)   a. **Accusative:**

    On ne ostavil   tarelk-u/bljudc-e.
    he   not kept$_{acc}$ plate-ACC/saucer-ACC

    'He didn't keep the plate/saucer.'

   b. **Nominative:**

    Emu nadoel-a/o   tarelk-a/bljudc-e.
    him   sick.of-f/n$_{nom}$ plate-NOM/saucer-NOM

    'He's sick of the plate/saucer.'

When the RNRed noun is not syncretic for the two cases assigned (ACC and NOM), as in (1), the construction is ungrammatical. On the other hand, when the raised noun is syncretic for NOM and ACC, as in (2), the sentence is grammatical. These examples illustrate a *feature conflict* (a noun being assigned two different cases) that leads to ungrammaticality in (1) but is *resolved* by a syncretic form in (3). Resolution by syncretism is well-documented in the literature. Examples from English are given in (4) and (5); see also Voeltz (1971), Eisenberg (1973), Groos and Van Riemsdijk (1981), Borsley (1983), Zaenen and Karttunen (1984), Pullum and Zwicky (1986), Levy (2001), Citko (2005), Dalrymple et al. (2009)for other languages and constructions.

(4)   **Resolution by syncretism in English – subject agreement (from Pullum and Zwicky (1986)):**

   a. *Either they or I are/am/is going to have to go.
   b. Either they or you are going to have to go.

(5)   **Resolution by syncretism in English – verb form (from Pullum and Zwicky (1986)):**

   a. *I certainly will, and you already have, clarify/clarified the situation with respect to the budget.
   b. I certainly will, and you already have, set the record straight with respect to the budget.

Section 2 presents an overview of the issues involved with resolution by syncretism. Section 3 contains a discussion of three types of syncretism – *neutrality*, *morphological ambiguity*, and *phonological ambiguity* – and how they are instantiated in Russian. In section 4, I discuss the experiment I conducted to evaluate what types of syncretism resolve feature conflicts, with the conclusion that only neutrality does so. In section 5, I propose an extension of Distributed Morphology that captures the syncretism data.

2.   Background

In this section, I discuss the implications of resolution by syncretism for theories of syntax and morphology. I also introduce the debate as to what kinds of syncretism (neutrality vs. both neutrality and ambiguity) resolve feature conflicts.

2.1 Implications of Resolution by Syncretism for Theories of Grammar

Resolution by syncretism presents two challenges for any theory: *ruling out* examples like (6), where conflicting case requirements make the sentence ungrammatical, and *allowing* examples like (7), where syncretism makes it possible for conflicting case requirements to be satisfied.

(6)   **Russian RNR with different case requirements and no syncretism (= (1)):**

*On ne ostavil, tak kak emu nadoela,   tarelk-u/a   s   chërnoj
he not *kept$_{acc}$*, as   him **sick.of$_{nom}$**, plate-*ACC*/**NOM** with black
kaëmkoj.
border

'He didn't keep, as he was sick of, the plate with a black border.'

(7)   **Russian RNR with different case requirements and syncretism (= (2)):**

On ne ostavil, tak kak emu nadoelo,   bljudc-e   s   krasnoj
he not *kept$_{acc}$*, as   him **sick.of$_{nom}$**, saucer-***ACC&NOM*** with red
kaëmkoj.
border

'He didn't keep, as he was sick of, the saucer with a red border.'

The fact that (6) is ungrammatical means that case assignment (and feature assignment more generally) is not optional – the example is somehow ruled out by the excess of features on the raised noun. On the other hand, the syntax must allow an item to bear contradictory features for (7) to go through. Examples (6) and (7) are distinguished by the morphology on the RNRed noun, which means that the morphological system is not "fail-safe", but can rule out inputs such as (6). The last point is a problem for Distributed Morphology and any other system which assumes that a default form is always available.

2.2 What Kinds of Syncretism are Relevant?

Two types of syncretism have been discussed in the literature – *neutrality* and *ambiguity*. A *neutral* form is one that is *underspecified* for a certain feature. For example, English past tense verbs (other than *be*) are neutral for person and number: the past tense morpheme *-ed* simply does not encode person or number features. An *ambiguous* form is one that does not have an underspecified representation. Rather, two sets of features are *accidentally* represented in the same way. Syncretism between the English noun plural suffix *-z* and verbal present tense 3rd person singular suffix *-z* is an instance of ambiguity.

There is no consensus in the literature as to whether only neutral forms resolve feature conflicts (Zaenen and Karttunen (1984), Ingria (1990), Dalrymple et al. (2009)), or whether ambiguous forms do so as well (Pullum and Zwicky (1986)).[1] In order to clar-

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[1]For Zaenen and Karttunen (1984) and Ingria (1990) feature conflict must additionally be semantically irrelevant in order for resolution to be possible. For Pullum and Zwicky (1986) resolution by an ambiguous form requires that the feature involved be "syntactically imposed".

ify the situation, I conducted an experiment to determine what kinds of resolution by syncretism are possible. The experiment involved gathering judgments systematically within a limited domain – case syncretism in Russian RNR constructions. The possibilities considered were resolution by neutrality, and resolution by two types of ambiguity – morphological ambiguity and phonological ambiguity. The next section shows how these three types of syncretism are instantiated in the Russian nominal system. The experiment demonstrates that only neutral forms resolve feature conflicts.

3.   Syncretism Types in Russian

I consider three ways in which a morpheme can be syncretic for two sets of features (α and β): *neutrality*, *morphological ambiguity*, and *phonological ambiguity*. *Neutrality* is when a single morpheme is compatible with both α and β. *Ambiguity* is when α and β are treated differently by the morphological system and identity of outputs is accidental. I further break down ambiguity into *morphological ambiguity* and *phonological ambiguity*.

(8)   *Morphological ambiguity:* The underlying phonological representations corresponding to α and β are (accidentally) the same.
       Phonological ambiguity: The underlying forms for α and β are distinct, but the surface forms are identical due to the phonology of the language.

The experiment presented below shows that (at least in Russian RNR constructions) only *neutral* forms resolve feature conflicts. In this section, I establish that the three types of syncretism are found in Russian.

3.1   Neutrality

NOM-ACC syncretism in Russian is an instance of neutrality, where a single morpheme is compatible with two sets of features. In particular, my experiment uses NOM-ACC syncretism for neuter (declension class Ib) nouns such as *bljudc-e* ('saucer'-NOM/ACC). Morphological analyses of Russian have consistently treated NOM-ACC syncretism as an instance of neutrality. (Jakobson (1958), Neidle (1988), Wiese (2004), Müller (2004), Dalrymple et al. (2009)) Important reasons for this analysis include *metasyncretism* (Williams (1994)) and the syntactic connection between NOM and ACC.

        Metasyncretism is the presence of the same type of syncretism across different paradigms. For example, NOM-ACC syncretism is found throughout the Russian declension system. NOM and ACC are syncretic in Russian for all singular non-feminine inanimates (including nouns, adjectives and demonstratives), for plurals (again, including nouns, adjectives and demonstratives), as well as for class III (feminine) nouns. Metasyncretism motivates treating nominative and accusative as forming a category.[2]

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[2]It has been argued that metasyncretism is actually best handled by rules of *impoverishment* – deletion of features. (Bobaljik (2001), Harley (2008)) This possibility is discussed in greater detail in section 5.4.

If NOM and ACC *share* a feature (or features), each instance of syncretism can be systematic. On the other hand, if NOM and ACC *do not share* a feature, each instance of syncretism is accidental. If each occurrence of NOM-ACC syncretism is an accident, we should be very surprised to find it showing up again and again in Russian.

Grouping NOM with ACC in Russian is well-motivated syntactically. NOM and ACC are structural cases. Additionally, nominative and accusative environments pattern together in Russian in allowing the genitive of negation. (Babby (1980), Pesetsky (1982)) Paucal numeral data also distinguish NOM and ACC from other cases – paucal numerals combine with genitive singular nouns in nominative and accusative environments, but with plural nouns in the appropriate case form in all other environments.

3.2   Morphological Ambiguity

A form is *morphologically ambiguous* when the underlying phonological representations corresponding to two sets of features are *accidentally* the same. A subset of masculine (class Ia) nouns is syncretic for partitive-dative (PART-DAT) in Russian, and this syncretism is an instance of morphological ambiguity. PART-DAT syncretism has been treated as ambiguity by Jakobson (1958), Neidle (1988), and Wiese (2004). This is practically necessitated by the fact that syncretic PART and DAT morphemes show up in different environments. Additionally, there is a strong syntactic connection between PART and *genitive* (GEN), and not PART and DAT.

PART and DAT -*u* endings appear on different sets on nouns. DAT -*u* shows up on all class Ia and class Ib nouns, whereas PART -*u* only appears on a lexically specified subset of class Ia nouns. Consequently, if a single rule were to insert both the PART and the DAT -*u* morphemes, we would have to make some highly undesirable stipulations.[3]

Furthermore, PART is morphologically and syntactically tied to GEN, and not to DAT. Russian exhibits PART-GEN metasyncretism – PART is syncretic with non-partitive GEN in all parts of the declension system other than a subset of singular class Ia nouns. Furthermore, GEN case marking is permitted in environments where PART can be used, as the following example illustrates.

(9)   **Partitive and genitive:**

  Nalej mne sok-u/sok-a.
  pour   me   juice-PART/juice-GEN
  'Pour me some juice.'

3.3   Phonological Ambiguity

Phonological ambiguity is found when underlying forms for two sets of features are distinct, but the surface forms are identical due to the phonology of the language. Russian

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[3]One way to analyze PART-DAT syncretism as neutrality is to propose a genitive insertion rule that is lexically specified to apply to all nouns *other* than those that have a special partitive ending, and precedes the rule inserting -*u*. Another way is to treat the syncretism between *dative* forms of nouns with partitive -*u* and *dative* forms of nouns without partitive -*u* as accidental. Neither approach is tenable.

exhibits phonological ambiguity in accusative-prepositional (ACC-PREP) syncretism for neuter (class Ib) nouns with unstressed endings. ACC and PREP neuter forms are distinct when the ending is stressed, as seen in (10a). However, there is a general process of vowel reduction in Russian: *unstressed o, e → i after a palatalized consonant*. Consequently, unstressed ACC and PREP endings after a palatalized consonant yield the same surface phonological form, as (10b) shows.

(10)   a.   sedl-ó   – sedl-é   b. pól-i
              saddle-ACC – saddle-PREP   field-ACC/PREP

3.4   Summary

In this section, I have presented three types of syncretism found in the Russian nominal declension system, as summarized in (11). In the next section, I describe an experiment based on these three syncretism types.

(11)   **Neutrality:** NOM-ACC (neuter, class Ib)
        Morphological ambiguity: PART-DAT (masculine, class Ia)
        Phonological ambiguity: ACC-PREP (neuter with unstressed ending, class Ib)

4.   Experiment

I conducted an experiment with the goal of determining what types of syncretism resolve feature conflicts. In particular, I evaluated three types of syncretism found in Russian (as discussed in the previous section) – neutrality, morphological ambiguity, and phonological ambiguity. The experimental results show that neutrality resolves feature conflicts, but ambiguity (of either type) does not. I tentatively assume that the results of this experiment carry over to other languages and constructions. In this section, I present the experimental setup and findings.

4.1   Stimuli

The three test conditions for the experiment were neutrality, morphological ambiguity, and phonological ambiguity. The paradigm used was Russian RNR constructions where the raised noun phrase is assigned one case in the first clause, and a different case in the second clause. A test sentence and a control sentence were presented for each experimental condition. In the test sentences, the RNRed noun is syncretic for the cases assigned by the two clauses. In the control sentences, the RNRed noun is not syncretic for the cases assigned by the two clauses. Rather, it bears the case assigned by the second clause.[4] Controls were constructed to be minimally different from the test sentences. The only difference between a test sentence and the corresponding control is the RNRed noun phrase, as (12) and (13) illustrate.

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[4]Sentences where the RNRed noun bears the case assigned by the first clause instead are markedly worse (according to my own judgments and those of two other informants).

(12)　　**NOM-ACC syncretism (neutrality) (= (2)):**

　　　*On　ne　ostavil,　tak kak　emu　nadoela,　　　tarelk-u/a　　s　　chërnoj
　　　he　not　*kept$_{acc}$*, as　　　him　**sick.of$_{nom}$**, plate-*ACC*/**NOM**　with　black
　　　kaëmkoj.
　　　border

　　　'He didn't keep, as he was sick of, the plate with a black border.'

(13)　　**NOM-ACC syncretism (neutrality) control (= (1)):**

　　　On　ne　ostavil,　tak kak　emu　nadoelo,　　　bljudc-e　　　s　　krasnoj
　　　he　not　*kept$_{acc}$*, as　　　him　**sick.of$_{nom}$**, saucer-***ACC&NOM***　with　red
　　　kaëmkoj.
　　　border

　　　'He didn't keep, as he was sick of, the saucer with a red border.'

　　　Note that there in all instances of syncretism used, including phonological syncretism, the two relevant forms have the same spelling. For example, the underlying *lózh-o* ('bed-ACC') and *lózh-e* ('bed-PREP'), which are both pronounced [lózh-i] due to vowel reduction, are spelled identically as "lozhe". The written form thus provides no indication that different case suffixes are required in the two clauses.

　　　RNR examples where the same case is assigned in both clauses were used as a baseline. The fillers used involve case assignment across an intervening parenthetical, and are of comparable length with the RNR sentences. There was a mix of fillers with correct and incorrect case forms. Sample sentences for each condition can be found in appendix 1. It is predicted that test sentences are more acceptable than the corresponding controls if, and only if, the type of syncretism involved (neutrality, morphological ambiguity, phonological ambiguity) can resolve feature conflicts.

4.2　Setup and Participants

The experiment was conducted online through Amazon Mechanical Turk. Russian speakers (as opposed to other Turk users) were identified by their answers to preliminary free-response questions. Results from 41 participants were used. The sentences were presented in written form.[5] The participants were asked, "Can you say this?" (presented in Russian); the possible responses were "yes" or "no". Each participant judged up to five sets of sixteen sentences. Each set included one test sentence of each type (neutrality, morphological ambiguity, phonological ambiguity), one control for each type of test sentence (with closest conjunct agreement), two RNR sentences with the two clauses assigning the same case, and eight filler sentences.

4.3　Results

The key result of this experiment is that sentences with neutrality are significantly more acceptable than the corresponding controls, whereas sentences with ambiguity are not.

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[5] Audio recordings were used in a pilot for this experiment.

(14)   **Results at-a-glance:**

Condition	# accepted	# total	% accepted
Fillers (grammatical)	191	261	73%
Fillers (ungrammatical)	52	235	22%
RNR, no case conflict	66	124	53%
Neutrality	41	62	66%
Neutrality controls	20	62	32%
Morphological ambiguity	27	62	44%
Morphological ambiguity controls	23	62	37%
Phonological ambiguity	32	62	52%
Phonological ambiguity controls	41	62	66%

The acceptance rate for examples of RNR with no case conflict is surprisingly low. However, it is not necessarily appropriate to compare results across paradigms, as the items are non-minimally different. I continue to assume that RNR examples with no case conflict are "grammatical". This is supported by the pilot study, in which RNR examples with no case conflict were accepted a larger fraction of the time than any other type of RNR. The experimental results are analyzed using a mixed effects logistic regression with maximum likelihood fitting. The model includes the following factors:

(15)   • paradigm (neutrality, morphological ambiguity, or phonological ambiguity)
        • neutral form? (yes/no)
        • morphologically ambiguous form? (yes/no)
        • phonologically ambiguous form? (yes/no)
        • random effect: participant ID

The significant factors ($p < .05$) are whether the form is neutral ($p < .001$), and whether the sentence is part of the phonological ambiguity paradigm ($p < .001$).[6] Whether the form is ambiguous (morphologically or phonologically) is not significant. A likelihood ratio test for the significance of the three experimental conditions further demonstrates that only neutrality yields a significant improvement over the corresponding controls.

(16)   **Significance of neutrality, morphological ambiguity, phonological ambiguity:**

Condition	χ^2	$p\,(\chi^2)$	significant?
Neutrality	13.6	$< .001$	yes
Morphological ambiguity	2.1	.146	no
Phonological ambiguity	3.4	.064	no

Neutrality contributes significantly to explaining the data, whereas ambiguity does not. (Note that the trend with phonological ambiguity is for the controls to actually be better than the test sentences, but this is not a significant result.) Thus, out of the three conditions,

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[6]I do not have much to say about why sentences in the phonological ambiguity paradigm were significantly better than sentences in the other paradigms. This point highlights the fact that we do not have minimal comparisons across paradigms; I restrict the analysis to intra-paradigm effects.

only *neutrality* significantly raises acceptability. I conclude that neutral forms resolve feature conflicts, whereas ambiguous forms do not. I suppose that my experimental results carry over to other languages and constructions, but further investigation is warranted.

5.   Theoretical Implications and Analysis

The experimental results indicate that neutrality is different from ambiguity in an empirically and theoretically significant way. Neutral forms permit feature conflict (NOM and ACC case assignment), whereas ambiguous forms do not. The assignment of two features that are spelled out by different rules (i.e. without neutrality) to a single item must therefore be banned in certain circumstances.[7]

In this section, I show that a system with underspecification and defaults, such as Distributed Morphology (DM), will never fail to find a form to match any set of features. This is problematic for explaining the syncretism data. I then present an analysis of the experimental data based on an elaborated version of DM. I show how the right feature sets can be generated by multidominant structures. Finally, I summarize the theoretical implications of my proposal. I also discuss, but ultimately reject, an alternative analysis based on feature impoverishment.

5.1   Distributed Morphology as-is

The syncretism data discussed present a problem for Distributed Morphology, and any morphological system that shares its key properties. In particular, any system with disjunctively ordered rules of insertion and with underspecification cannot rule out an input based on the presence of "too many" features. Consider, for instance, an item with the features [PART, DAT]. In a system like DM, such an item could be spelled out by one of four types of rules.[8]

(17)   **Possible rules:**
      1.   PART, DAT $\rightarrow$ a
      2.   PART $\rightarrow$ b
      3.   DAT $\rightarrow$ c
      4. $\rightarrow$ d

Presumably there is no rule like 1 in the morphological system. But [PART, DAT] can be spelled out by rule 2 or 3 (whichever one applies first) or by the default rule 4. If there is a way to spell out [PART] or [DAT] on its own, then there is a way to spell out [PART, DAT] together. As discussed above, the morphology must rule out certain (non-syncretic and ambiguous) forms, so this property of DM is highly problematic.

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[7]Dalrymple et al. (2009) propose an HPSG-based account of resolution by neutrality, with the assumption that lexical items are part of the syntactic structure. On this view, a number of the issues discussed in this section do not arise.

[8]For convenience, simple privative case features are used throughout much of this discussion. The same points would carry over to a more elaborate analysis of the case system.

5.2 Modifying Distributed Morphology

How can a morphological system like DM rule out forms with conflicting features? I propose that in constructions that display resolution by syncretism a single (syncretic or non-syncretic) item bears a set of *two feature structures*.[9] The derivation crashes if the two feature structures are not spelled out by the same rule. For example, when an RNRed noun gets case from two clauses, the two case features are not spelled out together. Rather, they become part of two separate features structures that must be spelled out by a single rule. What exactly causes an item to bear two feature structures is discussed in section 5.3.

In this section, I show that my proposal correctly predicts that non-syncretic and ambiguous forms do not resolve feature conflicts, whereas neutral ones do. Recall that when a form is ambiguous, two different rules accidentally insert identical suffixes. When a form is neutral – for example, for NOM and ACC case – the same rule inserts the suffix in nominative and accusative environments. For the sake of concreteness, I propose that NOM and ACC are subtypes of the **non-oblique** feature. The syncretic NOM-ACC class Ib suffix *-o* is then inserted by the following rule:

(18)   non-oblique, singular, class Ib → -o

No syncretism   In the following Russian example, the RNRed noun phrase receives PART from the first clause and DAT from the second clause.[10]

(19)   **No syncretism; PART/DAT case:**
    *On ne sosedu   podlil,   a   naoborot poradovalsja, moloku
    he not neighbor-dat *poured$_{part}$*, but opposite **was.glad$_{dat}$**, milk[Ib]-**DAT**
    s   saxarom i   likёrom.
    with sugar   and liqueur
    'He didn't pour some to his neighbor, but rather was glad of, milk with sugar and liqueur.'

Following the proposal above, the RNRed noun *moloko* ('milk') has two feature structures, one from each clause, as shown in (20a). The PART (= GEN) suffix for this noun is *-a* and the DAT suffix is *-u*, so the two case features would be spelled out as in (20b).[11] I propose that example (19) is ungrammatical because the two feature structures on the RNRed noun are spelled out by two different rules.

(20)   a.   {[**PART**, singular, class Ib], [**DAT**, singular, class Ib]}
        b.   (i)   **GEN**, singular, class Ib → -a
             (ii)   **DAT**, singular, class Ib → -u

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[9]Why I am proposing a set of feature *structures*, as opposed to a set of feature *sets*, is discussed in section 5.3.

[10]The examples used in this section (5.2) were all used as experimental stimuli.

[11]I assume that PART is a subtype of GEN.

Ambiguity   In the following Russian example, the RNRed noun phrase receives PART from the first clause and DAT from the second clause, as in the previous section.

(21)   **Ambiguity; PART/DAT case:**
  *On ne sosedu   podlil,   a   naoborot poradovalsja,
  he   not neighbor-dat *poured*~part~, but opposite **was.glad**~dat~,
  chaju   so   sgushchënym molokom.
  tea[Ia]-***PART/DAT*** with condensed   milk
  'He didn't pour some to his neighbor, but rather was glad of, tea with condensed milk.'

This time, the RNRed noun *chaj* ('tea') has an ambiguous PART/DAT form. The two feature structures it bears are spelled out by two separate rules that happen to yield identical suffixes, as shown in (22). Just as for the non-syncretic form, since the two feature structures are spelled out by two different rules, the result is ungrammatical.

(22)   a.   **PART**, singular, class Ia $\rightarrow$ -u[12]
     b.   **DAT**, singular, class Ia $\rightarrow$ -u

Identity   In the example below, the same case (ACC) is assigned to the RNRed noun in the two clauses.

(23)   **Identity; ACC/ACC case:**
  On ne soxranil, a   vybrosil,   pechen'e   iz   poezdki v Angliju.
  he   not **kept**~acc~, but **discarded**~acc~, cookie-**ACC** from trip   to England
  'He did not keep, but rather threw out, cookies from a trip to England.'

The RNRed noun *pechen'e* ('cookie') receives ACC from both clauses, and thus bears two copies of the same feature structure. These two identical structures are of course spelled out by the single rule given in (24).[13] Since a single rule can spell out all the feature structures on the RNRed noun, example (23) is grammatical.

(24)   **non-oblique**, singular, class Ib $\rightarrow$ -o

Neutrality   In the following example, the RNRed noun receives ACC from the first clause and NOM from the second clause.

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[12]As mentioned in section 3.2, this rule applies to a lexically specified subset of class Ia nouns.
[13]The underlying suffix *-o* systematically surfaces as *-e* after a palatalized consonant, as in *pechen'e* ('cookie'), *bljudce* ('saucer').

(25)   **Neutrality; ACC/NOM case:**

On ne   ostavil, tak kak emu nadoelo,   bljudce   s
he   not *kept*$_{acc}$, as   him **sick.of$_{nom}$**, saucer[Ib]-***ACC&NOM*** with
krasnoj kaëmkoj.
red   border
'He didn't keep, as he was sick of, the saucer with a red border.'

The RNRed class Ib noun *bljudce* ('saucer') bears the two feature structures shown in (26a). As discussed above, class Ib nouns are neutral for NOM and ACC. The suffix corresponding to the two feature structures in (26a) is thus inserted by the single rule given in (26b). Since a single rule spells out all the feature structures on the neutral RNRed noun, (25) is grammatical.

(26)   a.   { [ACC, singular, class Ib], [NOM, singular, class Ib]}
        b.   **non-oblique**, singular, class Ib $\rightarrow$ -o

Summary   I have proposed that in constructions where syncretism effects are found, some item bears more than one feature structure. If an item bears two feature structures, both structures must be spelled out by the same morphological insertion rule. This allows neutral forms to be assigned conflicting features so long as these features are spelled out by the same rule. When a form is non-syncretic or ambiguous, feature conflicts are prohibited, as no single rule can spell out all the feature structures assigned. Standard DM does not capture the fact that that non-syncretic and ambiguous forms are ruled out by feature conflicts, in contrast to neutral forms.

5.3   Where Multiple Sets of Features Come From

When does an item bear more than one feature structure? I propose that multiple features of the same type can be assigned in a multidominant structure. Multiple feature structures are then generated when an item is assigned two features for the same feature category. For example, a noun assigned case twice will have two feature structures associated with it.

Multidominance   Consider the following example or RNR in Russian, where the raised noun is ambiguous for the two cases (PART and DAT) assigned to it. A multidominant structure has been proposed for RNR constructions such as (27) (McCawley (1982), Wilder (1999)), as illustrated in (28).

(27)   **Morphological ambiguity:**

*On otlil,   no poradovalsja, chaju.
he   *poured*$_{part}$, but **was.glad$_{dat}$**, tea[Ia]-***PART/DAT***
'He poured off, but was glad of, the tea.'

(28)   **Multidominant structure for RNR:**

on
he

                otlil   no   *poradovalsja*   *chaju*
         poured$_{\text{part}}$ but   *was.glad*$_{dat}$ *tea*
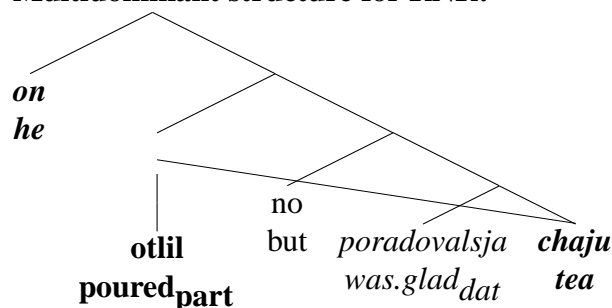
The RNRed noun *chaj* ('tea') simultaneously receives partitive case from *otlil* ('poured') in the first clause and dative case from *poradovalsja* ('was glad') in the second clause. It thus bears multiple case features. Pinning on multidominance the possibility of an item receiving multiple features of the same type is quite plausible. Multidominance has been proposed for most of the constructions where syncretism effects have been observed, including RNR (McCawley (1982), Wilder (1999)), ATB movement (Citko (2005)), and free relatives (Riemsdijk (2000)).

Feature structures   What happens when an item receives more than one case feature? I propose that when an item is assigned two features from the same feature hierarchy, a split into two separate feature structures occurs. For example, [DAT] and [PART] are both in the feature hierarchy for case. If both are assigned to a single noun, that noun ends up bearing two separate feature structures. My account is inspired by the proposal of Bjorkman (2009).

Suppose that every lexical item is associated with a feature matrix. For Russian nouns, this matrix contains declension class, number, and case. Consider the following RNR example.

(29)   **Morphological ambiguity (= (27)):**
        *On otlil,   no poradovalsja, chaju.
         he *poured*$_{part}$, but **was.glad**$_{\text{dat}}$, tea[Ia]-***PART/DAT***
         'He poured off, but was glad of, the tea.'

The RNRed noun *chaj* ('tea') is inherently class Ib and singular, as shown in (30).

(30) $\begin{bmatrix} \text{CLASS} & \text{Ib} \\ \text{NUMBER} & \text{singular} \end{bmatrix}$

Chaj is assigned case by *otlil* ('poured') and *poradovalsja* ('was glad') in (29). *Otlil* assigns PART case to the RNRed noun. Now, when *poradovalsja* assigns DAT case, DAT cannot be inserted in the same matrix, as the CASE slot is already filled. Consequently, a new feature matrix is created. All non-conflicting values (in this instance, class and number) are preserved, but a new value is inserted for case. The RNRed noun in (29) thus bears both of the feature matrices in (31):

$$(31) \quad \begin{bmatrix} \text{CLASS} & \text{Ib} \\ \text{NUMBER} & \text{singular} \\ \text{CASE} & \textbf{PART} \end{bmatrix} \qquad \begin{bmatrix} \text{CLASS} & \text{Ib} \\ \text{NUMBER} & \text{singular} \\ \text{CASE} & \textbf{DAT} \end{bmatrix}$$

All the feature structures an item bears must be spelled out. As proposed above, the derivation crashes when two different rules are used to spell out the feature sets on a single item (as in the PART/DAT example). Two feature structures on a single item do not result in a crash so long a they are spelled out by a single rule (as in examples of NOM/ACC syncretism).

5.4   Feature Impoverishment

As mentioned briefly in section 3.1, it has been argued that metasyncretism is best accounted for by rules of *impoverishment*, i.e. feature deletion. (Bobaljik (2001), Harley (2008)) An impoverishment account of NOM-ACC syncretism in Russian simplifies the analysis proposed in the previous section, but runs into problems with other instances of resolution by syncretism.

NOM-ACC syncretism is prevalent in Russian. On an impoverishment analysis of metasyncretism, NOM and ACC features on syncretic forms are deleted prior to vocabulary insertion. Restricting our attention to NOM-ACC syncretism for class Ib forms, the following impoverishment rule applies:[14]

(32)   [{ACC, NOM}, class Ib] →[class Ib]

An RNRed noun assigned ACC in one clause and NOM in the other clause ends up bearing the following set of feature structures, where [non-oblique] comes for free with [NOM] and [ACC]:

(33)   {[ACC, non-oblique, singular, class Ib], [NOM, non-oblique, singular, class Ib]}

The impoverishment rule in (32) deletes NOM and ACC features, making the two feature structures in (33) identical. If the feature structures on a noun are truly in a *set*, bearing two identical structures is equivalent to bearing one copy of that structure. After feature impoverishment, the set of features in (32) is thus reduced to:

(34)   {[non-oblique, singular, class Ib]}

By contrast, an ambiguous or non-syncretic form that is assigned multiple case features will retain multiple feature structures after impoverishment, for example:

(35)   {[PART, singular, class Ib], [DAT, singular, class Ib]}

If Russian NOM-ACC syncretism comes about through impoverishment, a simple proposal will account for the experimental results:

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[14]To account for metasyncretism, the rule should really apply to multiple declension classes and/or parts of speech, but this is beyond the scope of our discussion.

(36)   Multiple feature structures on a single item can *never* be spelled out.

If all instances of feature resolution by neutral forms involve a sufficient amount of impoverishment, this proposal will capture the syncretism facts in general. However, resolution by syncretism is found in paradigms that cannot be effectively analyzed with standard impoverishment rules. For example, the feature conflict-resolving form *are* in (37b) is straightforwardly analyzed as a default:

(37)   **Resolution by syncretism in English – subject agreement (from Pullum and Zwicky (1986)) (= (4)):**
      a.   *Either they or I are/am/is going to have to go.
      b.   Either they or you are going to have to go.

In order for the second person singular *are* form and plural *are* forms to bear identical sets of features, all of their person and number features must be impoverished. It is plausible that person features are impoverished in the plural:

(38)   [{person features}, plural] → [plural]

However, the [plural] feature would also need to be impoverished in order to match the 2nd person singular form. This move is *not* motivated; there is no systematic singular-plural syncretism to account for. An alternative is to assume that there is no plural feature (only [singular]), and to allow rules to refer to the *complement* of a specifiable class:

(39)   {person features} → ∅ *unless* [singular]

In addition to the rule in (39), we would need only to impoverish the [singular] feature on the 2nd person singular form. This impoverishment rule *is* motivated, as Modern English never distinguishes 2nd person singular from 2nd person plural. However, as far as I am aware, rules like (39) have not been argued for in the literature. I thus tentatively conclude that the analysis proposed in section 5.2 is to be preferred over an impoverishment-based analysis.

5.5   Summary

In this section, I have argued that feature conflicts are permitted by the syntax (for neutral forms). Feature conflicts are *resolved* when the morphology treats the features assigned in the same way, as for neutral forms. Feature conflicts are *not resolved* by accidentally syncretic forms. The fate of an item with conflicting feature specifications is thus determined at the intermediate level of morphological spellout, which is where neutral and ambiguous forms are distinguished.

6.   Conclusion

In this paper, I have presented experimental evidence showing that *neutral* forms resolve feature conflicts, whereas *ambiguous* forms do not. Since neutrality vs. ambiguity is a

morphological distinction, we learn that a failure in morphological insertion can result in ungrammaticality. A standard Distributed Morphology system never crashes, and thus cannot capture the resolution by syncretism data. I thus propose that DM be modified with the idea that an item can sometimes bear multiple feature structures. These structures must be spelled out by a single rule. Multiple feature structures on a single item are generated when that item is shared in a multidominant structure and receives two values for the same type of feature. My proposal successfully accounts for the fact that only neutral forms resolve feature conflicts.

1.   Appendix: Sample Stimuli

1.1   Neutrality (NOM-ACC)

Experimental sentences: neuter (class Ib)
Control sentences: feminine (class II)

(40)   **Neutrality:**

On ne ostavil, tak kak emu nadoelo,   bljudce   s
he not *kept$_{acc}$*, as   him **sick.of$_{nom}$**, saucer[Ib]-***ACC&NOM*** with
krasnoj kaëmkoj.
red   border

‘He didn't keep, as he was sick of, the saucer with a red border.’

(41)   **No syncretism; second conjunct agreement:**

On ne ostavil, tak kak emu nadoela,   tarelka   s   chërnoj
he not *kept$_{acc}$*, as   him **sick.of$_{nom}$**, plate[II]-**NOM** with black
kaëmkoj.
border

‘He didn't keep, as he was sick of, the plate with a black border.’

1.2   Morphological ambiguity (PART-DAT)

Experimental sentences: masculine (class Ia)
Control sentences: neuter (class Ib)

(42)   **Morphological ambiguity:**

On ne sosedu   podlil,   a   naoborot poradovalsja,
he not neighbor-dat *poured$_{part}$*, but opposite **was.glad$_{dat}$**,
chaju   so   sgushchënym molokom.
tea[Ia]-***PART/DAT*** with condensed   milk

‘He didn't pour some to his neighbor, but rather was glad of, tea with condensed milk.’

(43) **No syncretism; second conjunct agreement:**
On ne sosedu podlil, a naoborot poradovalsja, moloku
he not neighbor-dat *poured_part*, but opposite **was.glad_dat**, milk[Ib]-**DAT**
s saxarom i likërom.
with sugar and liqueur
'He didn't pour some to his neighbor, but rather was glad of, milk with sugar and liqueur.'

1.3 Phonological ambiguity (ACC-PREP)

Experimental sentences: neuter (class Ib), unstressed ending
Control sentences: neuter (class Ib), stressed ending

(44) **Phonological ambiguity:**
On ne nastupil, a sidel, na lózhe s serym
he not *stepped_acc*, but **sat_prep**, on bed[Ib]-*ACC/PREP* with gray
pokryvalom.
bedspread
'He did not step on, but sat on, the bed with a gray bedspread.'

(45) **No syncretism; second conjunct agreement:**
On ne nastupil, a sidel, na vedré s bol'shoj
he not *stepped_acc*, but **sat_prep**, on bucket[Ib]-**PREP** with big
dyrkoj.
hole
'He did not step on, but sat on, the bucket with a big hole.'

1.4 Other

(46) **Baseline – RNR without case conflict:**
On ne soxranil, a vybrosil, pechen'e iz poezdki v Angliju.
he not **kept_acc**, but **discarded_acc**, cookie-**ACC** from trip to England
'He did not keep, but rather threw out, cookies from a trip to England.'

(47) **Filler – grammatical:**
On vchera vybrosil, ponimaja chto postupaet glupo, tarelku
he yesterday **discarded_acc**, realizing that acts stupidly, plate-**ACC**
iz tonkogo fajansa.
from thin faience
'He threw away yesterday, realizing that he's acting stupidly, a fine faience plate.'

(48) **Filler – ungrammatical:**
∗On vchera vybrosil, ponimaja chto postupaet glupo, tarelka
he yesterday **discarded_acc**, realizing, that acts stupidly, plate-*NOM*
iz tonkogo fajansa.
from thin faience

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