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"Metamorphosis – The Metamorphosis Formula " p. /104

Mathematics of the information of letters / Matematica informațiilor literelor / Μαθηματικά των πληροφοριών των γραμμάτων
Algorithmic operations (chromatic-grammatical-mathematical)
Operațiile algoritmice (cromatico-gramatice-matematice)
Οι αλγοριθμικές λειτουργίες (χρωματικά-γραμματικές-μαθηματικές)

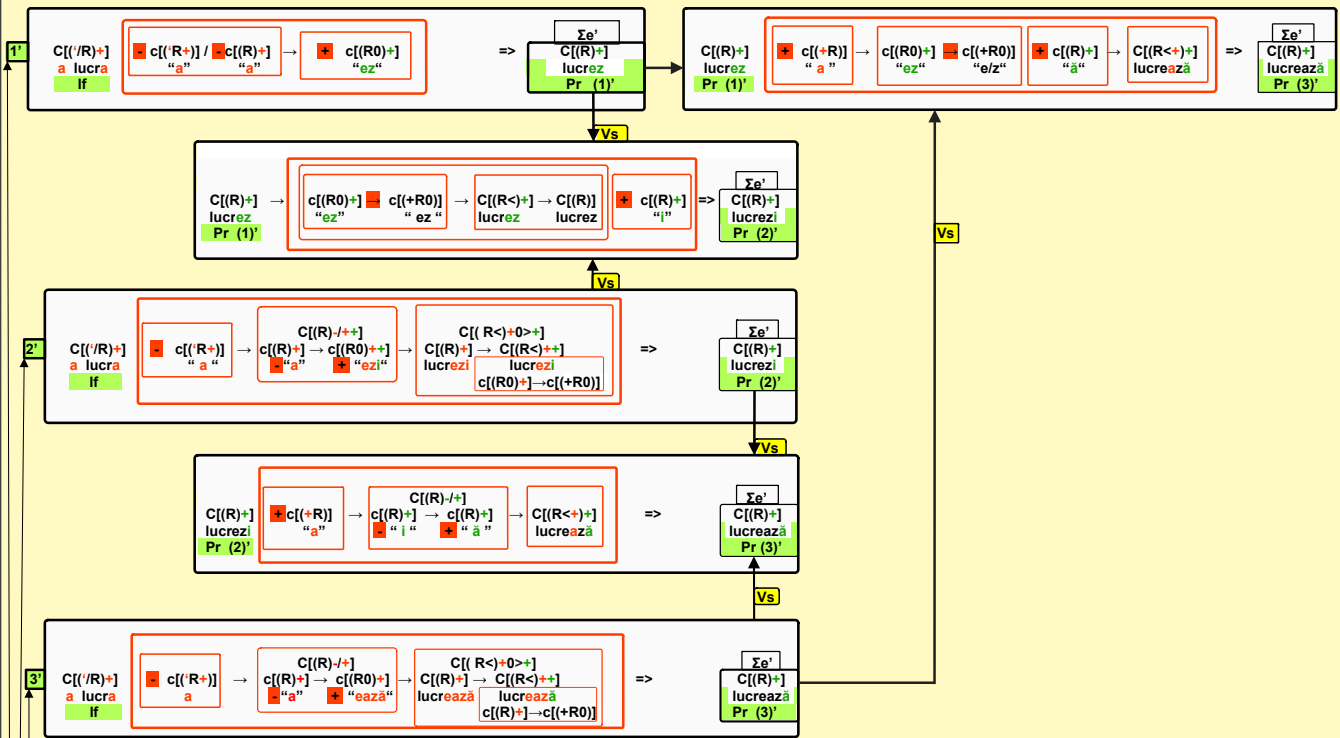|	
eng	The mathematics of information emphasizes the application of the metamorphosis formula, also known as the color algorithm, where the relevance of chromatology is highlighted, as well as the fact that each piece of information is associated with a mathematical formula. Through the use of algorithmic mathematics, an organized structure is outlined for carrying out mathematical-grammatical operations. The discussed example illustrates not only the sequence of necessary operations but also their practical application, both in the basic form of "infinitive" and in the comparison of verb persons, highlighting a distinct algorithmic approach. This generates an integrated vision of the interaction between mathematics and grammar, demonstrating how each grammatical element can be analyzed from a mathematical perspective, thereby facilitating a deeper understanding of the structure and functioning of language. In the first part **"a)"** , an algorithmic classification of the verb in the Romanian language is carried out, emphasizing the letters that contain essential information, which allows for a detailed analysis of the transformation of information based on person and number, underscoring the morphological complexity of verbs. In the second part **"b)"**, we focus on the application of the Metamorphosis Formula and its associated concepts, using a selected verb from the Romanian language. This approach provides an in-depth understanding of the structural and semantic changes of the verb as a result of applying the formula, offering a perspective on linguistic dynamics. Thus, the theoretical aspects of the study of the verb are highlighted, integrating algorithmic analysis with a practical application of linguistic concepts, emphasizing the complexity and beauty of the relationship between mathematics and language. These algorithmic operations can also be applied in other scientific fields that highlight metamorphosis. Through specific formulations, the method and process of transformation can be tracked.
rum	Matematica informațiilor subliniază aplicarea formulei metamorfozei, cunoscută și sub denumirea de algoritmul culorilor unde se evidențiază relevanța cromatologiei, precum și faptul că fiecare informație este asociată cu o formulă matematică. Prin utilizarea matematicii algoritmice, se conturează o structură ordonată pentru desfășurarea operațiunilor matematico-gramaticale. Exemplul discutat nu doar ilustrează secvența operațiunilor necesare, ci și aplicarea lor practică, atât în cazul formei de bază „infinitiv", cât și în comparația persoanelor verbelor, evidențiind o abordare algoritmică distinctă. Aceasta generează o viziune integrată asupra interacțiunii dintre matematică și gramatică, demonstrând cum fiecare element gramatical poate fi analizat dintr-o perspectivă matematică, facilitând astfel o înțelegere mai profundă a structurii și funcționării limbajului. În prima parte **"a)"** , se realizează o clasificare algoritmică a verbului în limba română, punând accent pe literele ce conțin informații esențiale, ceea ce permite o analiză detaliată a transformării informației în funcție de persoană și număr, subliniind complexitatea morfologică a verbelor. În a doua parte **"b)"**, ne concentrăm pe aplicarea Formulei Metamorfozei și a conceptelor asociate, utilizând un verb selectat din limba română. Această abordare oferă o înțelegere aprofundată a modificărilor structurale și semantice ale verbului ca urmare a aplicării formulei, oferind o perspectivă asupra dinamicii lingvistice. Astfel, se subliniază aspectele teoretice ale studiului verbului, integrând analiza algoritmică cu o aplicare practică a conceptelor lingvistice, evidențiind complexitatea și frumusețea relației dintre matematică și limbaj. Aceste operații algoritmice pot fi aplicate și în alte domenii științifice care evidențiază metamorfoza. Prin intermediul formulărilor specifice, se poate urmări modul și procesul de transformare.
eln	Η μαθηματική των πληροφοριών τονίζει την εφαρμογή του τύπου της μεταμόρφωσης, γνωστού και ως αλγόριθμος των χρωμάτων, όπου αναδεικνύεται η σημασία της χρωματολογίας, καθώς και το γεγονός ότι κάθε πληροφορία συνδέεται με έναν μαθηματικό τύπο. Μέσω της χρήσης αλγοριθμικών μαθηματικών, διαμορφώνεται μια οργανωμένη δομή για την εκτέλεση των μαθηματικών-γραμματικών λειτουργιών. Το συζητούμενο παράδειγμα όχι μόνο απεικονίζει τη σειρά των απαραίτητων λειτουργιών, αλλά και την πρακτική τους εφαρμογή, τόσο στην βασική μορφή «απαρέμφατο», όσο και στη σύγκριση των προσώπων των ρημάτων, αναδεικνύοντας μια ξεχωριστή αλγοριθμική προσέγγιση. Αυτό δημιουργεί μια ολοκληρωμένη οπτική σχετικά με την αλληλεπίδραση μεταξύ μαθηματικών και γραμματικής, αποδεικνύοντας πώς κάθε γραμματικό στοιχείο μπορεί να αναλυθεί από μια μαθηματική προοπτική, διευκολύνοντας έτσι μια βαθύτερη κατανόηση της δομής και της λειτουργίας της γλώσσας. Στο πρώτο μέρος **"a)"** , πραγματοποιείται μια αλγοριθμική ταξινόμηση του ρήματος στη ρουμανική γλώσσα, δίνοντας έμφαση στα γράμματα που περιέχουν ουσιώδεις πληροφορίες, γεγονός που επιτρέπει μια λεπτομερή ανάλυση της μετατροπής των πληροφοριών ανάλογα με το πρόσωπο και τον αριθμό, υπογραμμίζοντας την μορφολογική πολυπλοκότητα των ρημάτων. Στο δεύτερο μέρος **"b)"**, εστιάζουμε στην εφαρμογή του Τύπου της Μεταμόρφωσης και των σχετικών εννοιών, χρησιμοποιώντας ένα επιλεγμένο ρήμα από τη ρουμανική γλώσσα. Αυτή η προσέγγιση προσφέρει μια εις βάθος κατανόηση των δομικών και σημασιολογικών αλλαγών του ρήματος ως αποτέλεσμα της εφαρμογής του τύπου, προσφέροντας μια προοπτική για τη γλωσσική δυναμική. Έτσι, υπογραμμίζονται οι θεωρητικές πτυχές της μελέτης του ρήματος, ενσωματώνοντας την αλγοριθμική ανάλυση με μια πρακτική εφαρμογή των γλωσσικών εννοιών, αναδεικνύοντας την πολυπλοκότητα και την ομορφιά της σχέσης μεταξύ μαθηματικών και γλώσσας. Αυτές οι αλγοριθμικές διαδικασίες μπορούν να εφαρμοστούν και σε άλλους επιστημονικούς τομείς που αναδεικνύουν τη μεταμόρφωση. Μέσω συγκεκριμένων τύπων, μπορεί να παρακολουθηθεί ο τρόπος και η διαδικασία μετασχηματισμού.

a)

Limba Română rum (Romanian language / Ρουμανική γλώσσα)

- the categories of the lexical meaning of the present grammatical tense — categoriile sensul lexical al timpului gramatical prezent — οι κατηγορίες της λεξιλογικής σημασίας του ενεστώτα γραμματικού χρόνου
- ! This is a semantic-algorithmic restructuring — ! Aceasta este o restructurare semantico-algoritmică — ! Αυτή είναι μια σημασιολογικο-αλγοριθμική αναδιάρθρωση

- the infinitive form preposition + verb (infinitive form)	- the group infinitive	- present form VPr (1)'	- the present group depending on thedeclination	- the present group + the infinitive form	- endings depending on person, number and connecting vowel (active diathesis)			- terminațiile în funcție de persoană,număr și vocala de legătură (diateză activă)		- καταλήξεις ανάλογα με το πρόσωπο, τον αριθμό και το συνδετικό φωνήεν (ενεργητική διάθεση)
- forma de infinitiv prepoziție + verb (formă infinitiv)	- grupa infinitivului	- formă de prezent VPr (1)'	- grupa prezentului in funcție de declinare	- grupa prezentului + forma infinitivului	singular / ενικό				plural / πληθυντικό	
- ο αόριστος τύπος πρόθεση + ρήμα (αόριστος τύπος)	- η ομάδα απαρέμφατο	- παρούσα μορφή PEv (1)'	- η παρούσα ομάδα ανάλογα με την απόκλιση	- η παρούσα ομάδα + ο αόριστος τύπος	(1)'	(2)'	(3)'	(1)"	(2)"	(3)"
c[('R+)]	C[(R)+]			C[(R)+]		c[(R/0)+]	c[(R/0)+]	c[(R/0)+]	c[(R/0)+]	c[(R/0)+]	c[(R/0)+]
a	lucra		lucrez (I work) (δουλεύω)	x	x	- ez c[(R0)+]	- ezi c[(R0)+]	- ează c[(R0)+]	- ăm c[(R0)+]	- ați c[(R0)+]	- ează c[(R0)+]
a	Invita	A (-a) c[(R)+]	invit (învăt) (I invite) (καλώ)	y 1	y1	- t / Ø c[(R)+]	- ți c[(R0)+]	- ă c[(R)+]	- ăm c[(R0)+]	- ați c[(R0)+]	- ă c[(R)+]
a	aştepta		aştept (I wait) (περιμένω)	y2	y2	- t / Ø c[(R)+]	- ți c[(R0)+]	- ă c[(R)+]	- ăm c[(R0)+]	- ați c[(R0)+]	- ă c[(R)+]
a	umbla		umblu (I walk) (περπατάω)	z1	z1	- u / Ø c[(R)+]	- i c[(R)+]	- ă c[(R)+]	- ăm c[(R0)+]	- ați c[(R0)+]	- ă c[(R)+]
a	întârzia		întârzii (I delay) (καθυστερώ)	z2	z2	- i / Ø c[(R)+]	- i c[(R)+]	- e c[(R)+]	- em c[(R0)+]	- ați c[(R0)+]	- e c[(R)+]
a	plăcea	B (-ea) c[(R0)+]	plac (I like) (αρέσει)	x	x	- c / Ø c[(R)+]	- i c[(R)+]	- e c[(R)+]	- em c[(R0)+]	- eți c[(R0)+]	- c / Ø c[(R)+]
a	vrea		vreau (I want) (θέλω)	y	y	- eau c[(R0)+]	- ei c[(R0)+]	- ea c[(R0)+]	- em c[(R0)+]	- eți c[(R0)+]	- or c[(R0)+]
a	creşte	C (-e) c[(R)+]	cresc (I grow) (μεγαλώνω)	x	x	- esc c[(R0)+]	- eşti c[(R0)+]	- eşte c[(R0)+]	- eştem c[(R0)+]	- eşteți c[(R0)+]	- easc c[(R0)+]
a	pierde		pierd (I lose) (χάνω)	y	y	- d / Ø c[(R)+]	- zi c[(R0)+]	- e c[(R)+]	- em c[(R0)+]	- eți c[(R0)+]	- d / Ø c[(R)+]
a	pune		pun (I put) (βάζω)	z	z	- n / Ø c[(R)+]	- i c[(R)+]	- e c[(R)+]	- em c[(R0)+]	- eți c[(R0)+]	- n / Ø c[(R)+]
a	iubi	D (- i) c[(R)+]	iubesc (R- /+) (I love) (αγαπώ)	x1	x1	- esc c[(R0)+]	- eşti c[(R0)+]	- eşte c[(R0)+]	- im c[(R0)+]	- iți c[(R0)+]	- esc c[(R0)+]
a	construi		construiesc (R<+) (I build) (χτίζω)	x2	x2	- esc c[(R0)+]	- eşti c[(R0)+]	- eşte c[(R0)+]	- im c[(R0)+]	- iți c[(R0)+]	- esc c[(R0)+]
a	veni		vin (I come) (έρχομαι)	y	y	- n / Ø c[(R)+]	- i c[(R)+]	- e c[(R)+]	- im c[(R0)+]	- iți c[(R0)+]	- n / Ø c[(R)+]
a	izvorî	E (- î) c[(R)+]	izvorăsc (I spring) (πηγάζω)	x	x	- ăsc c[(R0)+]	- ăşti c[(R0)+]	- ăşte c[(R0)+]	- âm c[(R0)+]	- âți c[(R0)+]	- ăsc c[(R0)+]
a	coborî		cobor (I descend) (κατεβαίνω)	y1	y1	- r / Ø c[(R)+]	- i c[(R)+]	- ă c[(R)+] +c[(R+)]"o"	- âm c[(R0)+]	- âți c[(R0)+]	- ă c[(R)+] +c[(R+)]"o"

| group columns: 1 / 1(A), 2 / 2(B), 3 / 3(C), 4 / 4(D), 5 / 5(E) |

Terminatiile standard a tuturor verbelor ce conțin persoană si numărul de referință (Standard endings for all verbs containing person and reference number.) (Τελειώσεις προτύπου για όλα τα ρήμα που περιέχουν πρόσωπο και αριθμό αναφοράς.)

| | | | | | Ø | - i /-ți | - a /- ă (- e) | - m | - ți | - Ø |

! The table does not include verbs that have endings only for certain persons. / Tabelul nu include verbele care au terminații doar la anumite persoane. / Ο πίνακας δεν περιλαμβάνει ρήματα που έχουν καταλήξεις μόνο σε ορισμένα πρόσωπα.

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ex / π.χ   Lucrez

VPr / PEv - prezent / present / ενεστώτας categoria / category / κατηγορία 1(Ax)	persoana / person / πρόσωπο + numar / number / αριθμό		limba română (rum)		~ english language (eng)		~ ελληνική γλώσσα (eln)	
	()' singular singular ενικό	(1)'	- lucrez	C[(R)+]	- I work	C[('/R0+)]	- δουλεύω	C[(R)+]
		(2)'	- lucrezi → lucrezi	C[(R)+]	- You work	C[('/R0+)]	- δουλεύεις	C[(R)+]
		(3)'	- lucrează → lucrează	C[(R)+]	- he / she / it works	C[('/R)+]	- δουλεύει	C[(R)+]
	()" plural plural πληθυντικό	(1)"	- lucrăm → lucrăm	C[(R)+]	- we work	C[('/R0+)]	- δουλεύομε	C[(R)+]
		(2)"	- lucrați → lucrați	C[(R)+]	- you work	C[('/R0+)]	- δουλεύετε	C[(R)+]
		(3)"	- lucrează → lucrează	C[(R)+]	- they work	C[('/R0+)]	- δουλεύουν	C[(R)+]

1'

$C[(^/R)+]$ a lucra — lf

$-\ c[(^{:}R+)]\ /\ -c[(R)+]$ "a" "a" $\rightarrow$ $+\ c[(R0)+]$ "ez" =>

$\Sigma e'$ $C[(R)+]$ lucrez Pr (1)'

$C[(R)+]$ lucrez Pr (1)' $+\ c[(+R)]$ " a " $\rightarrow$ $c[(R0)+]$ "ez" $\rightarrow$ $c[(+R0)]$ "e/z" $+\ c[(R)+]$ "ă" $C[(R<+)+]$ lucrează => $\Sigma e'$ $C[(R)+]$ lucrează Pr (3)'

$C[(R)+]$ lucrez Pr (1)' $\rightarrow$ $c[(R0)+]$ "ez" $\rightarrow$ $c[(+R0)]$ " ez " $C[(R<)+]\rightarrow C[(R)]$ lucrez lucrez $+\ c[(R)+]$ "i" => $\Sigma e'$ $C[(R)+]$ lucrezi Pr (2)'

2'

$C[(^/R)+]$ a lucra lf

$-\ c[(^{:}R+)]$ " a " $\rightarrow$ $C[(R)-/++]$ $c[(R)+]\rightarrow c[(R0)++]$ -"a" +"ezi" $C[(R)+]\rightarrow C[(R<)++]$ lucrezi lucrezi $c[(R0)+]\rightarrow c[(+R0)]$ => $\Sigma e'$ $C[(R)+]$ lucrezi Pr (2)'

$C[(R)+]$ lucrezi Pr (2)' $+\ c[(+R)]$ "a" $\rightarrow$ $C[(R)-/+]$ $c[(R)+]\rightarrow c[(R)+]$ -" i " +" ă " $C[(R<+)+]$ lucrează => $\Sigma e'$ $C[(R)+]$ lucrează Pr (3)'

3'

$C[(^/R)+]$ a lucra lf

$-\ c[(^{:}R+)]$ a $\rightarrow$ $C[(R)-/+]$ $c[(R)+]\rightarrow c[(R0)+]$ -"a" +"ează" $C[(R)+]\rightarrow C[(R<)++]$ lucrează lucrează $c[(R)+]\rightarrow c[(+R0)]$ => $\Sigma e'$ $C[(R)+]$ lucrează Pr (3)'

$\Sigma e''$ $C[(^/R)+]$
rum (= prepoziție + verb infinitiv) / (= preposition + infinitive verb) / (= πρόθεση + ρήμα απαρέμφατο)
a lucra
(να δουλεύω)
(to work)

1''

$C[(^/R)+]$ a lucra lf

$-\ c[(^{:}R+)]$ "a" $\rightarrow$ $C[(R)-/++]$ $c[(R)+]\rightarrow c[(R0)++]$ -"a" +"ăm" $C[(R<)++]$ => $\Sigma e'$ $C[(R)+]$ lucrăm Pr (1)''

$C[(R)+]$ lucrăm Pr (1)'' $\rightarrow$ $C[(R)--/+]$ $c[(R0)+]\rightarrow c[(R0)+]$ -"ăm" +"ează" $C[(R<)+0>+]$ $C[(R)+]\rightarrow C[(R<)++]$ lucrează lucrează $c[(R0)+]\rightarrow c[(+R0)]$ => $\Sigma e'$ $C[(R)+]$ lucrează Pr (3)''

$C[(R)+]$ lucrăm Pr (1)'' $\rightarrow$ $C[(-/+R)]$ $c[(+R)]\rightarrow C[(R<+)]$ -"ă" +"a " $C[(R)-/+]$ $c[(R)+]\rightarrow c[(R0)+]$ -"m" +"ți" => $\Sigma e'$ $C[(R)+]$ lucrați Pr (2)''

2''

$c[(^/R)+]$ a lucra lf

$-\ c[(^{:}R+)]$ " a " $\rightarrow$ $+\ c[(R0)+]$ "ți" $\rightarrow$ $C[(R<)++]$ "a" lucrați => $\Sigma e'$ $C[(R)+]$ lucrați Pr (2)''

$C[(R)+]$ lucrați Pr (2)'' $\rightarrow$ $C[(R)-/+]$ $c[(R0)++]\rightarrow c[(R0)+]$ -"ați" +"ează" $C[(R<)+0>+]$ $C[(R)+]\rightarrow C[(R<)++]$ lucrează lucrează $c[(R0)+]\rightarrow c[(+R0)]$ => $\Sigma e'$ $C[(R)+]$ lucrează Pr (3)''

3''

$c[(^/R)+]$ a lucra lf

$-\ c[(^{:}R+)]$ a $\rightarrow$ $C[(R)-/+]$ $c[(R)+]\rightarrow c[(R0)+]$ -"a" +"ează" $C[(R<)+0>+]$ $C[(R)+]\rightarrow C[(R<)++]$ lucrează lucrează $c[(R0)+]\rightarrow c[(+R0)]$ => $\Sigma e'$ $C[(R)+]$ lucrează Pr (3)''

Vs