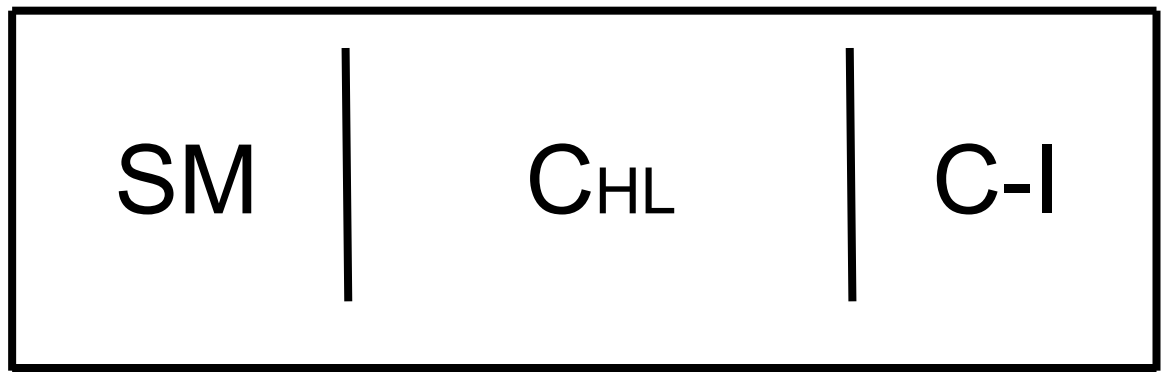
Information Structure Across Frameworks

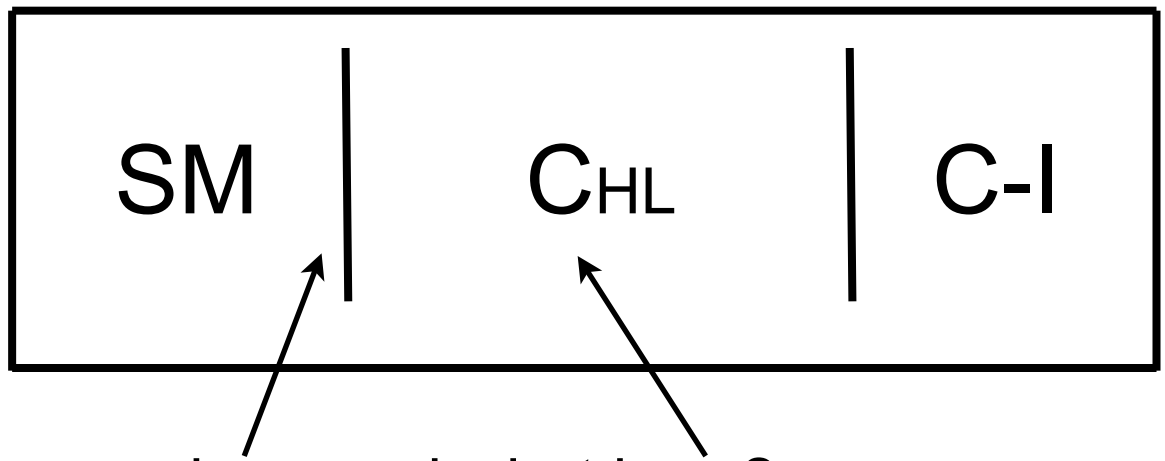
Part II: Syntax and prosody

Natalia Slioussar
HSE, Moscow, and St.Petersburg State University
slioussar@gmail.com

Architecture of the grammar



Architecture of the grammar



What happens here and what here?

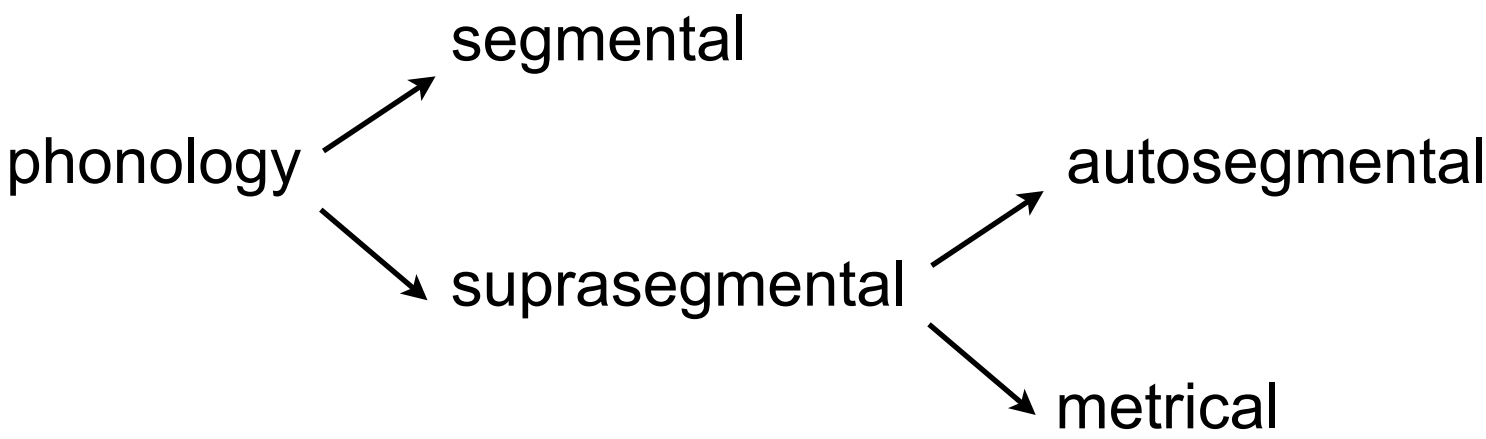
Canonical model: phonology at the SM (PF) interface.

NB: nobody thinks that there are no independent phonological operations. Idea: no independent access to meanings.

1. Are *all* phonological phenomena derived from syntax?

2. To the extent they are, how exactly?

What's in phonology?



Some examples

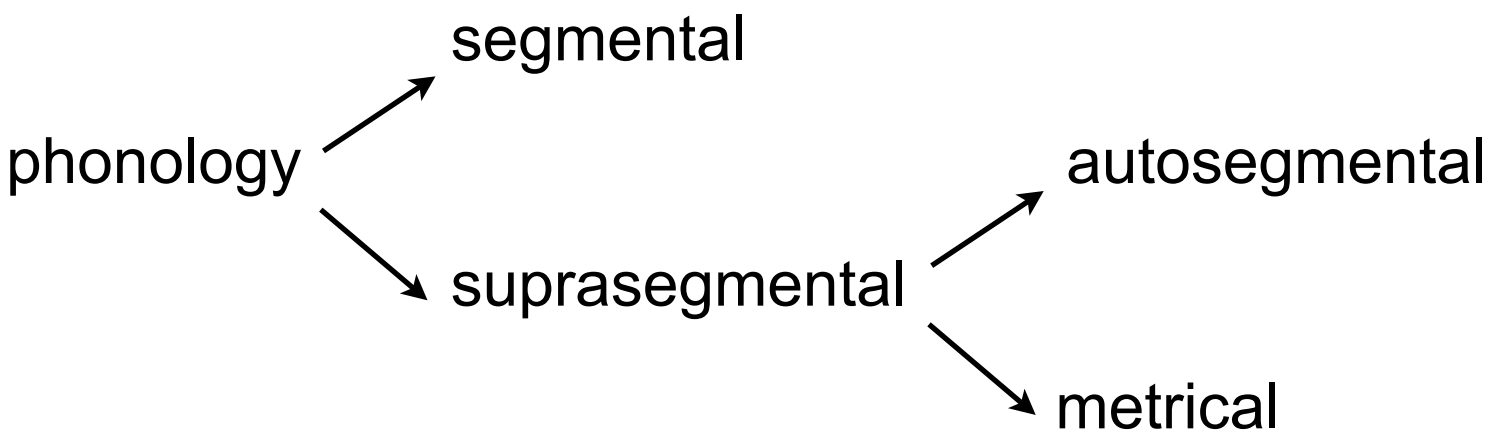
(1) a. *Vanina sestra \POČINILA toster.*
Vanya's sister repaired toaster

b. *Vanina sestra /POČINILA toster.*

c. *Vanina sestra počinila \TOSTER.*

d. *Vanina sestra počinila /TOSTER.*

What's in phonology?



Also paralinguistic intonational phenomena.

Metrical phonology

Metrical phonology: syntax-prosody relations well studied by syntacticians.

First of all, numerous parallels between syntactic and prosodic structures.

Just one example:

(2) *[The* POLICEMAN*] [saw the spy with the BINOCULARS].*
⇒ the spy had the binoculars

(3) *[The* POLICEMAN*] [saw the* SPY*] [with the BINOCULARS].*
⇒ the policeman had the binoculars.

Metrical phonology

Obviously, prosodic structures cannot be identical to syntactic structures: they also depend on SM factors (speech rate, rhythm...).

If this is it, metrical phonology is part of the interface.

Metrical phonology

Obviously, prosodic structures cannot be identical to syntactic structures: they also depend on SM factors (speech rate, rhythm...).

If this is it, metrical phonology is part of the interface.

But... At least, *prima facie* independent phenomena:

(4) *The boy is building a DESK.*

Many contexts: What is this noise? / What is the boy doing? / What is the boy building?..

(5) *The BOY is building a desk.*

Subject new / in focus: Who is building a desk?

Autosegmental phonology

Autosegmental phonology: a lot of work by phonologists, but syntax-prosody relations studied by syntacticians more superficially.

E.g. different intonational contours:

Statement: *The boy is building a desk.*

Yes/no question: *Is the boy building a desk?*

Wh-question: *What is the boy building?*

But what exactly in the syntactic tree triggers them? Also more complicated cases like Russian VSO sentences.

What needs to be done?

1. Describing syntax-prosody parallels in metrical phonology (existing theories run into problems).

2. Accounting for exceptional cases.

3. Describing syntactic counterparts of autosegmental phenomena.

All these questions are more or less closely connected with the study of IS.

Is prosody derived from syntax?

The main question: is prosody derived from syntax?

(i) Yes! Then explain how IS-related stress shift is derived.

(ii) No! Then explain syntax-prosody parallels.

Is prosody derived from syntax?

The main question: is prosody derived from syntax?

(i) Yes! Then explain how IS-related stress shift is derived.

(ii) No! Then explain syntax-prosody parallels.

(i) The most widespread solution: F feature <=> main stress. Various problems (existence of IS features, types of suprasegmental morphemes etc.).

(ii) Most linguists who do not use IS features + many linguists for independent reasons (e.g. Jackendoff 1997). The main problem: very uneconomical...

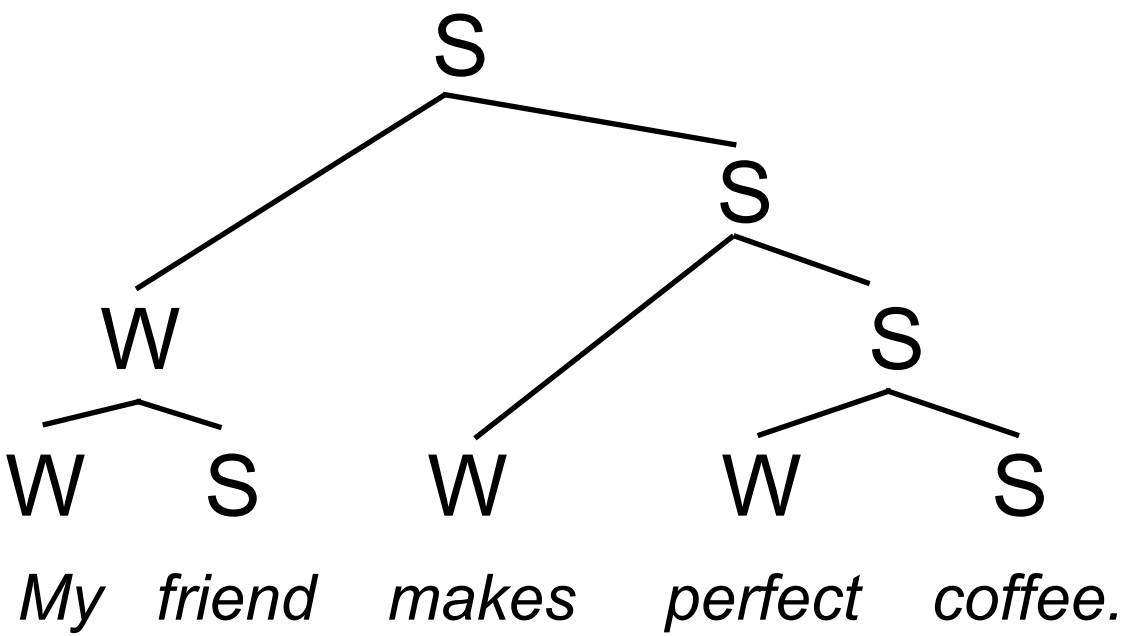
Models of prosodic structure

Two types of models:

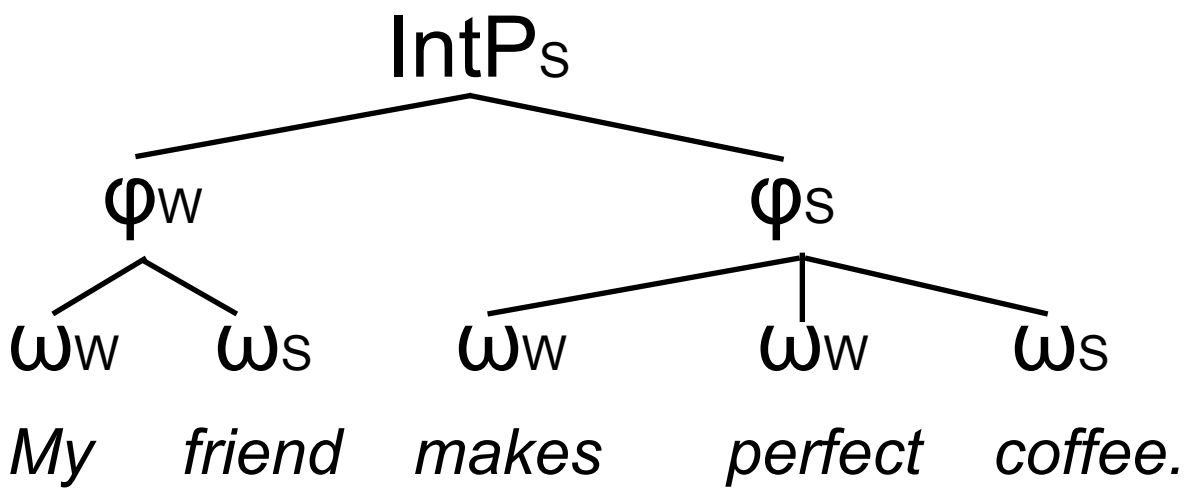
- binary branching models (Liberman 1979; Liberman and Prince 1977 etc.)

- three level models (Selkirk 1984, 1986; Nespor and Vogel 1986 etc.)

Binary branching model



Three level model



Models of prosodic structure

Pluses and minuses (Ladd 1996 etc.):

- On one hand, it is indeed sensible to introduce three level in prosodic trees, no less and no more.

Models of prosodic structure

Pluses and minuses (Ladd 1996 etc.):

- On one hand, it is indeed sensible to introduce three level in prosodic trees, no less and no more.

- On the other hand, different divisions into prosodic phrases are often possible depending on speech rate etc. They are all implicit in the binary branching structure

- Different prosodic boundaries are not always equal:

(6) *Džon zvonit materi po sredam, a Meri po pjatnicam.*
John calls mother on Wednesdays and Mary on Fridays

Models of prosodic structure

Pluses and minuses (Ladd 1996 etc.):

- On one hand, it is indeed sensible to introduce three level in prosodic trees, no less and no more.

- On the other hand, different divisions into prosodic phrases are often possible depending on speech rate etc. They are all implicit in the binary branching structure

- Different prosodic boundaries are not always equal:

(6) *Džon zvonit materi po sredam, a Meri po pjatnicam.*
John calls mother on Wednesdays and Mary on Fridays

An option (I would like to explore it in my own work): going from binary branching to three levels.

Deriving syntax-prosody parallels

Two types of models:

- models mapping certain syntactic constituents into phonological phrases

(Gussenhoven 1984, 2004; Selkirk 1984, 1986, 1995, 2000, 2005; Truckenbrodt 1995, 1999; Büring 2006, a.o.).

- models relying on the nuclear stress rule (NSR)

NSR was proposed in (Chomsky & Halle 1968), modified in (Cinque 1993), used in (Reinhart 1995, 2006; Neeleman & Reinhart 1998; Zubizarreta 1998, a.o.).

Mapping models

Mapping models:

- focus projection rules

(Gussenhoven 1983; Selkirk 1984, 1995; Rochemont 1986; von Stechow and Uhmann 1986 etc.)

- Büring's (2006) system that gets rid of them

Other attempts: (Schwarzschild 1999 etc.)

Mapping models: Selkirk (1995)

Selkirk (1995):

F-features and FOC (= focus of a sentence)

F interpretation:

a. F-marked constituent, but not FOC: new in the discourse

b. constituent without F-marking: given

FOC: an F-marked constituent not dominated by any other F-marked constituent.

FOC interpretation: through question-answer test.
A *wh*-question expression focuses a constituent, and an appropriate answer to a *wh*-question must focus the same constituent.

Mapping models: Selkirk (1995)

What does the model do? Accent patterns => possible distributions of Fs (and, to a certain extent, <=).

(i) Basic Focus Rule: An accented word is F-marked.

(ii) Focus Projection:

a. F-marking of the head of a phrase licenses F-marking of the phrase

b. F-marking of an internal argument of a head licenses the F-marking of the head

Mapping models: Selkirk (1995)

What does the model do? Accent patterns => possible distributions of Fs (and, to a certain extent, <=).

(i) Basic Focus Rule: An accented word is F-marked.

(ii) Focus Projection:

a. F-marking of the head of a phrase licenses F-marking of the phrase

b. F-marking of an internal argument of a head licenses the F-marking of the head

(7) a. *Did John give a book to Bill?*
b. *No, he grew a pot of NARCISSUS for him.*

(i) - *narcissus*, (iib) - *pot*, (iia) - object NP, (iib) - V, (iia) - VP

Mapping models: Büring (2006)

Büring (2006) gets rid of focus projection rules.

i. Any subconstituent can project focus:

(8) Q: *Why did Helen buy bananas?*
A: *[Because JOHN bought bananas]*$_{FOC}$.

(9) Q: *What will she do if she her call doesn't go through?*
A: *She'll [call him AGAIN]*$_{FOC}$.

(10) Q: *I know that John drove Mary's red convertible. But what did Bill drive?*
A: *He drove [her BLUE convertible]*$_{FOC}$.

Mapping models: Büring (2006)

Why then no accent e.g. on the verb in (11b)?

(11) a. *What did he do?*

b. *He ate an APPLE.*

Focus projection before: object - V - VP.

Now: object - VP. The verb has no accent => must be given...

Mapping models: Büring (2006)

ii. F-marked constituent => ~~accented~~ maximally prominent

A larger constituent is F-marked => all words cannot be maximally prominent => default prominence.

Mapping models: Büring (2006)

ii. F-marked constituent => ~~accented~~ maximally prominent

A larger constituent is F-marked => all words cannot be maximally prominent => default prominence.

Why is this rule better than focus projection rules? It works in the absence of focus.

Important: IS-related and ‘default’ prosody separated, as in Reinhart and Neeleman’s model!

Mapping models: Büring (2006)

ii. F-marked constituent => ~~accented~~ maximally prominent

A larger constituent is F-marked => all words cannot be maximally prominent => default prominence.

Why is this rule better than focus projection rules? It works in the absence of focus.

Important: IS-related and 'default' prosody separated, as in Reinhart and Neeleman's model!

A sample system to describe default prominence:

Rule in (ii) >> Adj=AD >> *Stress Pred >> XP=AD

AD = accent domain

Some examples

English: VO
(12) *...that Natalia* SLIOUSSAR *read a BOOK.*

Dutch: OV
(13) *...dat Natalia* SLIOUSSAR *een BOEK las.*

Some examples

English: VO
(12) *...that Natalia* SLIOUSSAR *read a BOOK.*

Dutch: OV
(13) *...dat Natalia* SLIOUSSAR *een BOEK las.*

Dutch: argument
(14) *...dat Natalia* SLIOUSSAR *op een BANKJE wacht.*

Dutch: adjunct
(15) *...dat Natalia* SLIOUSSAR *op een* BANKJE *WACHT.*

NSR-based models

Chomsky and Halle (1968):

	Mary	*ate*	*ice*	*cream.*
Word stresses	1	1	1	1
Compound stresses	1	1	[1	2]
NSR	1	[2	[1	3]]
NSR	[3	[2	[1	4]]]

NSR-based models

Chomsky and Halle (1968):

	Mary	*ate*	*ice*	*cream.*
Word stresses	1	1	1	1
Compound stresses	1	1	[1	2]
NSR	1	[2	[1	3]]
NSR	[3	[2	[1	4]]]

Cinque (1993): the most embedded element receives the main stress.

NSR-based models

Chomsky and Halle (1968):

	Mary	*ate*	*ice*	*cream.*
Word stresses	1	1	1	1
Compound stresses	1	1	[1	2]
NSR	1	[2	[1	3]]
NSR	[3	[2	[1	4]]]

Cinque (1993): the most embedded element receives the main stress.

Btw: antisymmetric syntax? Implications discussed in my thesis (Slioussar 2007).

NSR-based models

Dutch:

(16) *...dat hij wilde helpen VERVEN.*

German:

(17) *...daß er MALEN helfen wollte.*

Interim conclusions: theories of default prosody

Pluses and minuses:

- NSR-based models predict only the main stress

- Mapping models are extremely inflexible (depending on the number and length of words, speech rate etc. there can be more or fewer stresses in similar constructions, but there is no way to account for this).

Interim conclusions: theories of default prosody

Pluses and minuses:

- NSR-based models predict only the main stress

- Mapping models are extremely inflexible (depending on the number and length of words, speech rate etc. there can be more or fewer stresses in similar constructions, but there is no way to account for this).

Current work (e.g. Wagner): formulate NSR-like rules for the whole prosodic structure. Also my current project.

My idea: first generate a binary-branching tree on the basis of the syntactic tree, then convert it into a three-level tree taking speech rate etc. into account.

IS-related prosody

Previous lecture:

IS-related phenomena: syntactic and prosodic

- Rizzi (1997) and similar feature-based models: syntax is primary
- Configurational models by Reinhart, Neeleman, Szendrői: prosody is primary
- Other options: e.g. Zubizarreta (1998) combines features and prosodically motivated movement
- In some models, the relation is not specified (e.g. Neeleman and van de Koot 2008)

IS-related prosody

Some arguments from Russian for the primacy of syntax

1. (18-19): some IS-related reorderings are not associated with any prosodic effects

2. Neeleman and Titov (2009):
Fronted foci pass through the most embedded position.
(20a-b): they reconstruct into this position for scope.
(21a-c) illustrate the fact that Russian normally has surface scope.

IS-related prosody

(18) a. *Vse pozdravljali Natašu i Olju.*
'Everybody congratulated Natasha and Olja.'

b. *PAŠA otdal PODAROK NATAŠE ešče UTROM,*
P.NOM gave present.ACC N.DAT already in the morning
(tak čto teper' emu ostavalos' pozdravit' Olju).
'Pasha gave his present to Natasha already in the morning,
(so now he only had to congratulate Olja).'

(19) a. *Vse pozdravljali Natašu.*
'Everybody congratulated Natasha.'

b. *PAŠA otdal NATAŠE PODAROK ešče UTROM,*
P.NOM gave N.DAT present.ACC already in the morning
(tak čto teper' stojal v storonke).
'Pasha gave Natasha his present already in the morning,
(so now he was standing aside).'

IS-related prosody

(20) a. *Odin mal'čik ljubit každu DEVOČKU.* ∃ > ∀; *∀ > ∃
[one boy].NOM loves [every girl].ACC

b. *Odnu devočku ljubit každyj MAL'ČIK.* ∃ > ∀; *∀ > ∃
[one girl].ACC loves [every boy].NOM

c. *Každu devočku ljubit odin MAL'ČIK.* ∀ > ∃; *∃ > ∀
[every girl].ACC loves [one boy].NOM

IS-related prosody

(21) a. *Každuju DEVOČKU$_1$ ja xoču čtoby odin mal'čik ljubil*
[every girl].ACC I want that [one boy].NOM loved

t_1 *(a ne každuju babušku).*
and not [every grandma].ACC ∃ > ∀; *∀ > ∃

'I want one boy to love every girl.'

b. *Každomu STUDENTU ja xoču čtoby ty predstavil*
[every student].DAT I want that you introduced

odnogo učitelja t_1 *(a ne každomu professoru).* ∃ > ∀;
[one teacher].ACC and not [every professor].DAT *∀ > ∃
'I want you to introduce one teacher to every student.'