The rise of Optimality Theory in mid-twentieth century London

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The structure of this talk
1. Introduction, aims and intentions
2. What is FT?
3. What is OT?
4. Shared ideas, commitments and problems
5. A kind of conclusion

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1. Introduction, aims and intentions
The rise of OT to centre stage in some branches of formal linguistics has naturally brought with it a focus on certain types of metatheoretical ideas. Many of these ideas were not seen as central in linguistics in directly pre-OT times, but some of them are far from new. Dresher (1996) argues, for example, that **constraint-ranking**, the central plank of OT, has long been with us (although, we may counter, this doesn't mean that it shouldn't be the basis for a linguistic theory).

This talk argues that some classical, and some recent directions within OT can be seen to have precursors in the work of the 'London School' of linguistics, which crystallised around the ideas of **J.R. Firth** and which flourished around the middle of the twentieth century
* it is thus intended as a contribution to (the strange continuity of) the history of linguistic ideas.

I will **not** be arguing that:
(i)   fully-fledged OT was practised by the London School
(ii)   nor that Firthian ideas had a direct influence of the developers of OT
(iii)   nor, indeed, that FT and OT shared their most fundamental ideas
(iv)   nor, by any means, that 'OT is right/wrong', nor that 'FT is right/wrong'

Rather, by the end of this talk I aim to have persuaded you that...
(v)   there are at least three ways in which the ideas and problems to which OT may commit itself echo recognisable antecedents in the features of London School linguistics
(vi)   these similarities are perhaps surprising, given (i) and, especially, (ii)

So... a more realistic (if less snappy) title might be...
The rise of [some facets of] OT [and its implications] in mid-twentieth century London [sort of...]

To be able to do this, I will first rapidly sketch out what I see as the key characteristics of both approaches; this will need to consider the view of the whole of language and linguistics
that the proponents of both are committed by the logical working of the two models

This throws up the first (interesting but co-incidental) similarity between FT and OT:
* both models have been initially and/or mainly illustrated in the domain of **phonology**
  * however, both have substantial hinterlands with implications for the whole of linguistics

FT mostly focused on phonology because:
- phonology was generally the pilot science of linguistics at the time (1940s/1950s)
- Firth was influenced in part by the English School of Phonetics (Hart, Bell, Sweet, *etc*...)

OT initially focused on phonology because:
- Prince and McCarthy are interested in phonology...
- 'mainstream' phonology was (most?) ready for the move from ordered rules that syntax had made years previously
- the problems of (i) dealing with conspiracies and (ii) with integrating constraints *and* rules were (most?) apparent in phonology

But that is not the subject of this talk...

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2. What is FT?

2.1 Firth himself, the London School and the FT cannon
Firth (*b.* 1890, *d.* 1960) was the UK'S first Professor of General Linguistics (1944, SOAS)
- professor of English at the University of the Punjab, Lahore (1920-1928)
- senior lecturer at University College London (1928-1938)
- senior lecturer, reader and Professor at SOAS, University of London (1938-1956)

He developed an identifiably '**Firthian**' approach to linguistics, although many of the ideas in 'Firthian Phonology' (aka 'Prosodic Analysis') were worked out and written about by others: Firth's co-workers, who mostly were or had been colleagues at SOAS
- together, they formed the '**London School**'
- this included Sydney Allen, Jack Carnochan, Eugenie Henderson, F.R. Palmer, R.H. Robins, Eileen Whitley

The ideas discussed here as 'FT' (≈'Firthian Theory') are those subscribed to by Firth and the other members of the London School concerning the whole approach to (i) how language works and (ii) how linguists should approach its analysis.

Many of Firth's own publications are programmatic, stylistically idiosyncratic and lack substantial exemplification. It is widely recognised that many of Firth's ideas have not had a long-lasting impact and influence, and these failings in his writing, along with a sometimes mind-numbing repetitiveness, has often been seen as at least partly responsible for this, even by some of Firth's closest co-workers and supporters (Robins and Palmer). Important works include:
- Firth, J.R. (1930) *Speech*. London: Benn's Sixpenny Library.
- Firth, J.R. (1935) 'The technique of semantics'. *Transactions of the Philological Society* 1935. 36-72.
- Firth, J.R. (1937) *The Tongues of Men*. London: Watts & Co.
- Firth, J.R. (1948) 'Sounds and prosodies'. *Transactions of the Philological Society* 1948. 127-152.
- Firth, J.R. (1957) *Papers in Linguistics 1934-1951*. London: Oxford University Press.
- Firth and other member of the London School (1957) *Studies in Linguistic Analysis*. Oxford: Blackwell.
- Many articles by members of the London School in the *Bulletin of the School of Oriental and African Studies*.

There are also a fair number of subsequent texts which investigate and describe FT, including:
- Robins, R.H. (1961). 'John Rupert Firth: Obituary'. *Language* Vol. 37. 191-200.
- Lyons, J. (1966) 'Firth's Theory of "Meaning"' In C.E. Bazell, J.C. Catford, M.A.K. Halliday & R.H. Robins (eds.) *In Memory of J.R. Firth*. London: Longmans.
- Mitchell, T.F. (1975). *Principles of Firthian Linguistics*. London: Longman.
- Ogden, Richard & Local, John (1994). 'Disentangling autosegments from prosodies: a note on the misrepresentation of a research tradition in phonology'. *Journal of Linguistics* Vol. 30. 477-498.
- Joseph, J., Love, N. & Taylor, T. (2001). *Landmarks in Linguistic Thought II: the Western Tradition in the Twentieth Century*. London: Routledge.
- Honeybone, P. (to appear) 'J.R. Firth'. In Chapman, S. & Routledge, P. (eds) *Key Thinkers in Linguistics and the Philosophy of Language*. Edinburgh: Edinburgh University Press.

2.2 What is FT's intellectual background?

Many of the ideas in FT were not developed in a direct line from those of the linguistic mainstream of the time. There is overt acknowledgement of some influence from:

- The 'English School of Phonetics' (see eg, Firth 1946) – led to an insistence on close observation and acoustic investigation on the phonetic level (as distinct from the phonological level)
- European and American Structuralist work – had little influence: FT rejects the classical phoneme, for example, one of the most crucial ideas in such work
- Malinowski – had considerable influence, in contrast: a social anthropologist, who placed great importance on the social context and effect of acts of language use

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2.3 Key characteristics of 'FT'

As noted above, there was practically no FT analytical work on the syntax of languages; nonetheless, the place that syntax was thought to take in language was described by Firth, as briefly explained below

- There **is** 'neo-Firthian' Hallidayan syntax, of course, but I do not consider this here, because it is not work done by 'the London School', the group in focus here

Some important general characteristics:

(1) much of Firth's own writing is based around the idea that the study of '**meaning**' and '**context**' should be central in linguistics
- this is fundamental to his conception of language, as he considered the analysis of the meaning of utterances to be the main goal of linguistics
- it forms part of a rejection of any model of language which adopts a distinction between 'langue' and 'parole', 'competence' and 'performance', 'I-Language' and 'E-language'

(2) in FT, language was not an autonomous entity, and was not to be studied as a mental system

(3) rather, in keeping with the behaviourist psychology which FT assumed, language is conceived of as a **set of events** which speakers uttered and could be directly observed by the linguist

(4) utterances all occur in a real-life context, and FT argues that their meaning derived just as much from the particular situation in which they occur, and from the 'real world' objects around which they occur, as from the string of sounds which were uttered
- these integrationist ideas, which combine language with the objects physically present during the situation of a conversation, for example, in order to ascertain the meaning involved, are often referred to as a 'contextual theory of meaning' or as a theory of '**context of situation'**, a phrase which Firth consciously borrowed from Malinowski
- this understanding of 'meaning' is more clearly linkable with contemporary pragmatics (and discourse analysis) than with semantics, although FT does not recognise the desirability (or possibility) of distinguishing between the two

(5) Firth also extended the use of the term 'meaning' – he wrote about the phonological meaning of phonemes and the grammatical meaning of constituents – because of his overarching adoption of the definition of meaning as the function or effect of an item in a particular context

(6) this usage, or understanding of 'meaning' allows FT to perceive a **fundamental unity** among the levels of linguistic analysis, all linked through the fact that the linguist should seek **statements of meaning** at each level in terms of the contexts in which those entities which the analyst needed for a linguistic description at that particular level occurred

(7) given the general **anti-mentalist** view of language in FT, the London School adopted an **instrumentalist** approach to linguistics; this meant that there was no expectation that a linguist was describing the uniquely 'true' (or 'psychologically real') form of a language; the analytical categories assumed in linguistic analysis were not thought to have ontological status, and linguists were perfectly free to make use of whatever set of theoretical constructs were necessary to make an economical and effective description of a particular linguistic feature

- "analytic concepts exist only within the descriptive system of the linguist and not in the language itself" (Robins 1990, 246)

(8) although FT allows an analyst to focus on any 'linguistic level' (phonology, syntax, meaning, discourse, *etc*...) in a description of a piece of data, in part thanks to (7), and yet in keeping with (6), there is no idea that these levels are distinct modules which cannot interact or have an effect on each other. Indeed, in principle, because of (7), there is no limit on this; an FT notion of the '**congruence of levels**' insists that linguistic levels all be able to refer to each other

(9) FT sees it as perfectly proper to focus on the description of only one small subsystem of a language, ignoring other subsystems if it makes descriptive sense to do so. This principle of analysis, which allows the mixing of information from different linguistic levels, is sometimes referred to as 'polysystemacity'

Specifically phonological points:

(10) importantly, FT rejects purely segmental, 'linear', phonemic analysis

(11) some notion of a segment still exists in the approach (named 'phonematic units') this is very different from the phonemes which practically all others working in phonology at the time; they certainly are not assumed to have 'intrinsic' or obvious phonetic content

(12) features of phonetic form can also be assigned to '**prosodies**', which are nonsegmental entities which can be tied to any level or aspect of phonological – 'spread' over a whole word, or root, or syntactic unit, or a syllable, or a part of a syllable, for example. The metaphor 'spread' is not to be taken dynamically, however, as no notion of 'phonological process' is countenanced; rather, a phonologist should describe the domain of a prosody as best befits its behaviour

(13) prosodies are not limited to those phonological features which can have a domain-span over more than one phonematic unit. Anything which is described with reference to syntagmatic, rather than paradigmatic structure can be a prosody, thus including 'juncture' phenomena which serve to mark out linguistic boundaries, and those features which are restricted to particular positions in a syllable

(14) FT assumes a clear separation between the pronounced form of an utterance and its phonological analysis (between 'phonetics' and 'phonology'); they must be accompanied by 'exponency' statements which state formally how a particular piece of phonological structure maps onto the phonetics; this is not simply the same as phonological processes which map phonemic representations onto allophonic ones, as any one prosody can be 'exponed' phonetically in very different ways in different parts of a phonological structure (and the same phonetic feature may, in two different phonological contexts, be the exponent of two different prosodies)

(15) 'polysystematicity' means that an FT phonologist is free to recognise a phonological system in any piece of linguistic structure. Thus, for example, there is no necessary expectation that the same phonological entities, systems and generalisations should be relevant in both syllable onsets and in syllable rhymes, or in both function words and lexical words, or in all lexical strata, or in both Noun Phrases and Adverb Phrases, for example.

While some of these features of FT may now appear odd, in the perspective of contemporary formal linguistic models, others were clearly quite prescient

- the rejection of the classical phoneme
- at least talking about meaning (even if from an unclear perspective)

These are aspects of FT which most frameworks now share with it, and are not limited to OT; the points to be discussed below link the models more closely than this.

3. What is OT?

3.1 The rise of OT and the OT cannon
Optimality Theory was first proposed at the start of the 1990s by Alan Prince & Paul Smolensky; the third figure in the typically recognised OT triumvirate in John McCarthy. As with FT, it is, naturally, not the individual people who are of interest here, but the ideas, and what they and, crucially, others, have done with them.

As we have already seen, it started as a way of doing phonology, and also for understandable reasons, prosodic morphology. The rest, was history...
- it has been described as "is *the* linguistic theory of the nineties" (Archangeli & Langendoen 1997) – and shows no sign of dying out in the noughties
- after gaining wide-spread acceptance in phonology, it has been taken up in other areas of linguistics, as we will see below
- the basic model has also been taken up by linguists who do not necessarily share the background assumptions of those who originated it, such that there is hardly *one* 'OT school'

The ideas discussed here as 'OT' are essentially those subscribed to by the mainstream current in OT, in the work of the originators of the model and their close collaborators, concerning the whole approach to (i) how language works and (ii) how linguists should approach its analysis.

Canonical texts include:
- Prince, A. & Smolensky, P. (1993) *Optimality Theory: Constraint Interaction in Generative Grammar*. Ms. Rutgers University and the University of Colorado at Boulder [also available at http://roa.rutgers.edu/view.php?roa=537]
- McCarthy, J. & Prince, A. (1995) 'Faithfulness and Reduplicative Identity' In Jill Beckman, Suzanne Urbanczyk, Laura Walsh (eds.) UMOP-18: Papers in Optimality Theory [also available at http://roa.rutgers.edu/view.php3?roa=60]
- Kager, R. (1999) *Optimality Theory*. Cambridge: CUP.
- McCarthy, J. (2002) *A Thematic Guide to Optimality Theory*. Cambridge: CUP.

3.2 What is OT's intellectual background?
There are clearly novel aspects to the model, but like all ideas, the intellectual traditions from which they sprang shaped them:
- It's very clear that OT springs essentially from the **mentalist, generative** tradition
  - the subtitle of the first manuscript is *Constraint Interaction in Generative Grammar*
  - Prince & Smolensky (to appear) affirm this in their opening paragraph
    - this shapes the general picture of how language is thought to work
- previous long-standing work on the role of constraints in phonology – this meant an approach which only used constraints received a sympathetic hearing in phonological circles
- the general move towards the reduction in derivational power and extrinsic rule ordering in phonology – this meant that an approach which abandoned rule-ordering was welcome
- work on connectionism – this provided the idea that constraints can be 'soft' and conflicting

The generative background into which OT was born provides a model of the grammar, as in one of these, (illustrations from Jackendoff 2002, although he doesn't endorse them...)

This implies that modules such as **phonology**, and **pragmatics** are **ordered after** morphosyntax and that these different linguistic levels therefore do not interpenetrate or interact with each other
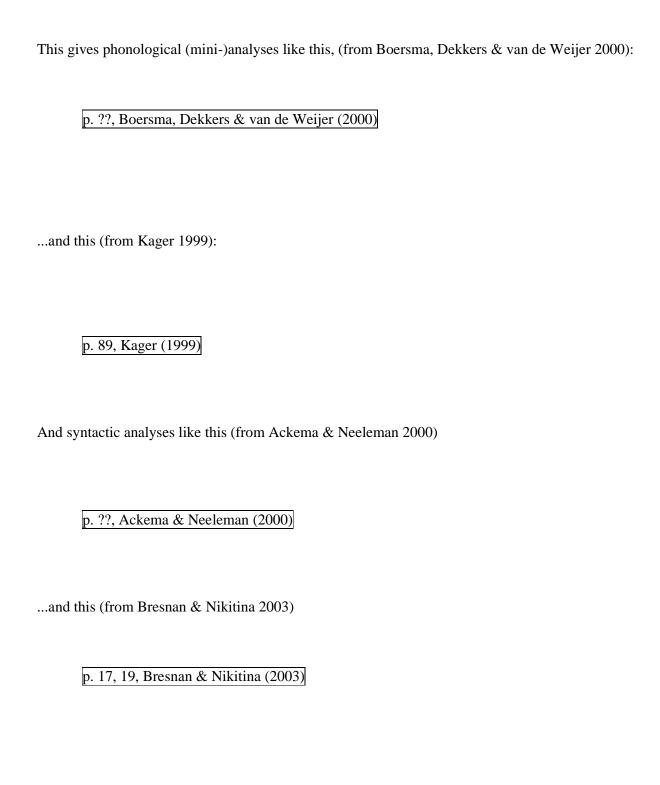
- importantly, this was also underpinned by the mainstream assumption that the formal properties of these different levels are entirely different
  - For example, the well-known:
    - Bromberger & Halle (1989) 'Why phonology is different' *Linguistic Inquiry* **20**, 51-70
    - this argues explicitly for a rule-based phonology with extrinsic ordering, while generative syntax was being done on very different lines
  - if there are such differences between modules, there can be no straightforward interactions, as a matter of principle; this is both built into the model of language and into the sanctioned ways of doing linguistics

In some ways, this can be seen as very **unlike** the FT position of the 'congruence of levels'.

3.3 What is OT?
Some important general characteristics:
(16) the only formal entities in OT are **constraints** on the well-formedness of outputs from the grammar
- this set OT immediately aside from most (but not all) other theories of phonology, which used both constraints and rules; and, if 'less is best', then using only constraints is better than using both constraints and rules
- the constraints needed are naturally of several different kinds, both 'YOUMUSTHAVE/DOTHIS' and 'YOUMAYNOTHAVE/DOTHIS', and enforce various kinds of compliance

(17) all constraints are innately endowed by UG (essentially reaffirmed by Prince & Smolensky to appear and McCarthy 2002), as part of a universal constraint component CON
- ideally, therefore, constraints will be shown to be simple and general

(18) constraints frequently **conflict** with each other in their demands on linguistic forms, and in order to reconcile this, with their constraint-like nature, all constraints are 'soft', ie, **violable**

(19) given (18), constraints can be **ranked** by the grammar of a language in order of importance
- so, clearly, a language which has no surface syllable codas has a high-ranking constraint NOCODA, and one with many codas has NOCODA ranked very low

(20) all possible realisations of an input ('underlying representaion') compete with each other, and then one which violates the least worst constraints is chosen by the grammar as the output
- a function GEN maps all the candidate outputs on the input
- a function EVAL evaluates the constraint violations

(21) given that all candidates are evaluated simultaneously, and that there is only ever one mapping from input to output, OT has been described as an essentially non-derivational phonological theory (Kager 1999)
- this is firmly tied in with the idea that constraints, the only main formal entity in OT, all **refer to properties of outputs**; they describe how they now be, not how they 'get there'
  - they don't invoke or predict segmental change or spreading

This gives phonological (mini-)analyses like this, (from Boersma, Dekkers & van de Weijer 2000):

p. ??, Boersma, Dekkers & van de Weijer (2000)

...and this (from Kager 1999):

p. 89, Kager (1999)

And syntactic analyses like this (from Ackema & Neeleman 2000)

p. ??, Ackema & Neeleman (2000)

...and this (from Bresnan & Nikitina 2003)

p. 17, 19, Bresnan & Nikitina (2003)

4. Shared ideas, commitments and problems
The two frameworks considered above clearly differ from each other in certain fundamental ways
- they start from different conceptions of *what language is*: behaviourism *vs* mentalism
- they work with different conceptions of *what linguistics is*: instrumentalism *vs* realism

So where's the similarity?

I will argue that there are three ways in which connections between the two can be seen; this is not a coherent group of ideas which add up to a fundamental conceptual similarity, but they do represent real FT precursors of OT. I address them under these headings:
- 4.1 The static description of structure: non-derivationality
- 4.2 The 'mixing of linguistic levels'
- 4.3 The danger of unfalsifiability

4.1 The static description of structure: non-derivationality
This may be the most obvious connection, and is not something which *exclusively* links FT and OT, but...

4.1.1 FT and non-derivationality
As may be clear from (12) and (14), the linguistic entities in FT are assumed to be static, not dynamic
- importance is, indeed, placed on both syntagmatic relations as well as on paradigmatic ones,
    - these are crucially important in the notion of the 'prosody'
- but these syntagmatic relations are static ones
- the imperative is to **describe spans of structure**

This is naturally clearest in the FT work on phonology:
- indeed, even 'process' terminology is sometimes rejected: the notion of a 'phonological process' is appropriate for historical phonological change, but not for synchronic description
- this was quite unlike the Structuralist terminology: [t] → [d] / V__V (Joos 1942)
- and very unlike the lengthy synchronic derivations of standard Generative Phonology, and derived models such as Lexical Phonology
- and unlike any derivation model of syntax which moves and merges, for example

FT does not really work with constraints, but it does work purely with the **description of static structure**; it is clear that:
- "Prosodies are elements of structure; they do not 'spread' over other units, they just **are** at places in structure and may have exponents over extents of varying size." (Ogden & Local 1994, 484)
- "There are in FPA no levels intermediate between phonology and phonetics, unlike in generative phonology" (Ogden & Local 1994, 486)

Robins' (1957) visionary piece on nasal harmony shows a nasal prosody simply 'in place': it does not 'spread'

Robins, 1957

4.1.2 OT and non-derivationality

While OT does not have these properties is exactly the same way as FT, it is essentially the same in this regard:

- constraints typically refer to the **static shape** of outputs
- no constraints refer only to the input
- the input-output mapping is indeed considered in faithfulness constraints, but only in an evaluative relationship - one is not derived from the other
- the role of GEN (20) in mapping inputs to outputs is unclear
  - all that is needed is a vast set of output candidates...

There is no clear spreading metaphor in OT, as there was in earlier generative models

- assimilation can be forced by feature-agreement constraints
- indeed, the whole feature geometry approach, which was mostly derived from spreading-type argumentation, has no clear status in OT (see, eg, Yip, to appear)
- alignment constraints can also be called on in assimilation
  - [the basic alignment template is ALIGN(Cat_1, Cat_2, Edge)]
  - but alignment, too, describes static structure, simply demanding that structures coincide in space, it does not refer to dynamic movement

- each constraint **describes how a particular span of structure must be (or must not be)**

∴ FT and OT have in common their lack of derivationality

4.2 The 'mixing of linguistic levels'

In certain past linguistic models, the mixing of information from different linguistic levels was a cardinal sin; in somewhat different, but important and intriguing ways, both FT and OT reject this.

This is more than the 'standard' generative rejection of this position – as is well-known...

- certain American Structuralist strands of thinking demanded a strict separation of linguistic levels
- generative linguistics rejected this formal separation, to allow phonological rules to refer to morpho-syntactic information (in this direction only)
- further aspects of the syntax-phonology interface have been dealt with by the use of the prosodic hierarchy
- as shown in section **3.2**, however, the standard generative model still keeps most linguistic levels distinct and separate, in part by model of language assumed, and in part by the assumption that syntax and semantics and phonology *etc* are different (Bromberger & Halle 1989)

4.2.1 FT and level mixing

It is notable that FT was at the forefront of the challenge to the autonomous (and level-separating) phoneme, although with little influence outside of the UK. From its outset, Firth argued that linguistics should make use in an analysis of whatever kind of information they feel necessary

- this is connected with the instrumentalist approach
- while distinct levels **were** recognised as existing self-expanatorily, there was nothing to stop the analyst from mixing in information from any linguistic level in an analysis of other level

It may be that the "levels were weakly hierarchic, in that phonological abstractions could serve mediately as exponents of grammatical abstractions while themselves having phonetic exponents in the phonic data" (Robins 1966/94 p246)
- but "exponency could also be taken directly as the relation between grammatical or lexical abstractions and the phonic data" (Robins 1966/94 p246)
- there could be reference between all levels
    - and as language is 'behaviour' in FT, 'all levels' includes pragmatics, the lexicon, discourse...

Furthermore, Firth declared that all linguistic research aimed to make 'statements of meaning'
- this implies that all kinds of linguistic statements are, or should be, the same kind of thing
- this is also a facet of the **congruence of levels** which FT insists on – all levels must be compatible in a description.

4.2.2 OT and level mixing
OT may be outgrowing its 'standard' generative background, as outlined above. The maintenance of a separation between levels/modules is now far less clear.

Recent work has extended the OT model to take in work in **semantics** and **pragmatics**
- Hendriks, P. & de Hoop, H. (2001) 'Optimality Theoretic Semantics' *Linguistics & Philosophy* 24, 1-32.
    - "Our approach takes as a point of departure total freedom of interpretation in combination with the parallel application of soft constraints on possible interpretations. These constraints can be contextual, intonational or syntactic in nature. The integration of pragmatic and syntactic/semantic information in a system of ranked constraints is proposed to correctly derive the optimal interpretations in cases of nominal anaphorization..."
- Sanford, D. (2003) '*Tell* and *Say*: Towards an OT Model of Lexical Choice' Manuscript, ROA, [http://roa.rutgers.edu/view.php3?id=857]
- *etc*.....

Sanford (2003):

p. 18, Sanford (2003)

Hendriks & de Hoop (2001)
- AVOIDCONTRADICTION
- DOAP: Don't Overlook Anaphoric Possibilities. Opportunities to anaphorize text must be seized.
- PRINCIPLE B: If two arguments of the same semantic relation are not marked as being identical, interpret them as being distinct.

p. 21, Hendriks & de Hoop (2001)

If this extension of OT into semantics, and aspects of pragmatics is successful, then the formalisms for all linguistic levels become compatible – the levels are **congruent**
- this removes the 'why phonology is different' argument
- this direction is not a necessary one for OT to take
  - but it seems a possible avenue for the framework
  - the is nothing in the model to forbid it
    - in fact, the logic of the model is that if there are linguistic constraints in any module/level, we should assume them to be soft and to be potentially conflicting and interacting

In fact, the direction of OT seems to imply that there need be only **one** constraint hierarchy...

/whole utterance/	EPP	COMPLEXONSET	AVOID CONTRADICTION	*VERB + PATIENT
[potential utterance 1]	!*			
[potential utterance 2]				*
[potential utterance 3]	!*	**		
[potential utterance 4]			!*	

While this is a leap forward into a potential future for OT which is of questionable plausibilty, the spread of the use of the model throughout linguistics means that linguistic levels become eminently mixable. Arguably the structure of the model itself points in this direction (even if analysts would rather not go there).

∴ Thus FT and OT have in common their potential for the unconstrained mixing and interaction of information from all linguistic levels; in both models linguistic levels are congruent.

4.3 The danger of unfalsifiability
In general, the currently prevailing philosophy of linguistics holds that falsifiability is an important issue. Care needs to be taken when considering this point, especially from the perspective of OT, as it only holds in a tightly circumscribed sense
- it's important to bear in mind that, both FT and OT are not simple 'theories'
  - FT is a general understanding of 'what language is' and of how linguists should proceed
  - OT is a framework within which theories can be set up - theories of constraints, of possible types of interaction *etc*...

Whole **frameworks** are not expected to be falsifiable in a simple way:
- they can be **supported** by the accretion of a body of persuasive analyses
- or they can prove to be not fit for purpose if
  - there are too many phenomena which can't be accommodated
  - all phenomena can be simply described without difficulty, in unrelated, unexplanatory, uninsightful ways

However, standard demands for falsifiablity and scientific worthiness require that
- the analyses and hypotheses that are expressable within the framework should be falsifiable within the bounds/presumptions of the framework
- results must be **replicable** and hence falsifiable by others – the framework should restrict the types of analyses which can be postulated for any given piece of data, so that, with the same set of data, analysts are able to come to the same kind of analysis
  - the ability to know how to analyse something should not be overly dependent on the analyst

4.3.1 FT and unfalsifiability
Given FT's commitment to instrumentalism, it is no surprise that practitioners did not care about falsification
- Firth and others frequently stated that the analyses that they presented at any particular point was not intended to be the only possible one – others could be just as valid
  - indeed, it was typically claimed that the analysis was not intended to be the 'right' one
  - this does not mean that the work is worthless, but it may well have contributed to the **failure** of FT to hold its place in linguistic theorising
    - there is no right way to do FT – how can those not tutored (by Firth himself?) know how to work in the model
    - maybe not unconnectedly with this point, no guide or textbook to FT was ever produced

Can an FT analysis be wrong?
- No – not even if it is taken as face value, because any evidence which could falsify an analysis could be simply discounted thanks to the principle of polysystemacity
  - "well, that bit of data is not what I'm interested in..."

Can FT analyses be replicated?
- No – they are entirely dependent on the analyst
  - analysts are free to focus on whatever aspect of structure the choose
  - analysts are free to use **whatever theoretical devices** they choose

4.3.2 OT and unfalsifiability
As we saw above, OT comes from (generative) academic traditions which place high importance on criteria of falsification
- OT is intended to be a mental-realist representation of a native speaker-hearer's knowledge of language

Can an OT analysis be wrong?
- Yes – given a firm set of constraints and a firm constraint ranking, an analysis can very clearly produce the wrong result, as is clear from the existence of such work as this (from Ito & Mester 2001), where '☹' indicates that the 'wrong' candidate is selected as optimal (at this point in their analysis)

p. 248, Ito & Mester (2001)

Can OT analyses be replicated?
- the conditions above are important: 'given a firm set of constraints and a firm constraint ranking'
  - if these are not firm, problems can creep in
- the problem is a general one:
  - where does an analyst get their constraints from?
  - to the extent that they are 'simple and general' (17), this problem does not arise
    - but, in concrete analyses, constraints can become very specific
    - McMahon (2000) refers to these as 'language-specific constraints' and gathers several from the OT literature
      - FREE-V: word-final vowels must not be parsed (in the nominative)
      - $*K^w]_\sigma$
      - $*VkV$
      - RAISING: maximize vowel height (in verbs when occurring with certain tense and aspect affixes)
      - $*æC]_\sigma$
    - such constraints can 'get the analyst out of a problem' in an easy way
      - they are made up on the spot
      - different analysts might make up different constraints

There are good responses to these problems
- for example McCarthy's (2002) section on "Positing new constraints"
- this problem need not arise in core OT when done in line with such guidlines
  - there are two good potential 'constraints on constraints'
    - the factorial typology approach
    - groundedness

These points are important, or else OT becomes perhaps worryingly reminiscent of FT in this regard
- are analyses replicable if the choice of which constraints exists is dependent on the analyst?
  - this is very different from the position in a model such as Government Phonology, where an analyst is (perhaps overly) constrained as to what kind of analytic decisions they can make

∴ Thus FT and OT **may** have in common a degree of analyst-dependence which could compromise their credentials in terms of falsifiability.

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5. A kind of conclusion
As we have seen above, FT and OT are very different frameworks
- what they do **not** share is doubtless more important than what they do have in common
- and yet, as I hope to have shown, they can be seen to share both potentially positive and negative characteristics and ideas

Differences spring from, among other things...
- the different underpinnings of instrumentalism in FT *vs* realism in OT
- the assumption of a competence/performance distinction in OT and its rejection in FT
- the assumption of violable constraint ranking in OT *etc.*

Nonetheless, I conclude by repeating something from the start of this talk...

I would **not** be arguing that:
(i)   fully-fledged OT was practised by the London School
(ii)   nor that Firthian ideas had a direct influence of the developers of OT
(iii)   nor, indeed, that FT and OT shared their most fundamental ideas
(iv)   nor, by any means, that 'OT is right/wrong', nor that 'FT is right/wrong'

Rather, by the end of this talk I hoped to have persuaded you that...
(v)   there are at least three ways in which the ideas and problems to which OT may commit itself echo recognisable antecedents in the features of London School linguistics
(vi)   these similarities are perhaps surprising, given (i) and, especially, (ii).

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