DISTINCTIVE FEATURES: Notes

1. General assumption: possibly the smallest number of features should be able to account for phonological generalizations (e.g. contrasts) in the world’s languages. Consequently, features are binary, i.e. appear in two values: plus and minus.
Example:
There is no need to introduce the feature [±front], because [±back] is sufficient: [-back] vowels are front, [+back] vowels are back. Central vowels appear to create a problem, which we will discuss later.

2. Argument for features: it makes no sense to write separate Final Devoicing rules for each obstruent, such as

- chleb ‘bread’:  b → p / — #
- próg ‘threshold’:  g → k / — #
- wóz ‘cart’:  z → s / — #
- rów ‘ditch’:  v → f / — #

Rather, we use features:  [+obstr] → [-voiced] / — #

3. Features (simplified)

[±nasal]

[+nas] the airflow goes through the nose (nasal consonants and nasal vowels are [+nas])

[±lateral]

[+later]: the airflow goes on the sides of the tongue (l sounds are [+later])

[±obstruent] or [±sonorant] (same thing, but the value is reversed):
Obstruents are pronounced with obstruction in the vocal tract: closure = total obstruction (stops) or narrowing = partial obstruction (fricatives).
Obstruents: stops affricates and fricatives.

[±coron]
coronals are pronounced with the tip or the front part the tongue
[+coron]: interdentals, dentals, alveolars, postalveolars, palatoalveolars
prepalatals (= alveolo-palatals). Other sounds are [-coron].

[±anterior]
labials, labiodentals, interdentals, dentals, and alevolars are [+anter]. Other sounds are [-anter].

[±continuant]
[−cont] are sounds during the production of which the air flow over the tongue is blocked for a moment.
[-cont]: stops, affricates, nasals and laterals.

[±strident], it is an acoustically defined feature; roughly [+strid] sounds are noisy sounds
[+strid]: all affricates and some fricatives – [f v s š ʃ ʒ ɕ ʑ]
[−strid]: interdental and velar fricatives, stops, nasals liquids [l r], semivowels and Vowels

The other features for consonants are self-explanatory: [±voiced], [±cons], [±syllabic].

[±high]
[+high]: the tongue is raised from the neutral position (the position for schwa)
High vowels are [+high].
[−high]: the tongue is lowered from the neutral position (the position for schwa)
Low vowels are [+low].

Mid vowels are [-high,-low].

[±tense]: tense vowels are pronounced with tension of the tongue
[+tense]: upper high, upper mid, ‘backer’ low
[−tense]: lower high, lower mid, ‘fronter’ low; [−tense] vowels are also called lax vowels.

[±round]: vowels pronounced with lip rounding are [+round]

[±back]
Problem: where is the cutoff between [-back] vowels and [+back] vowels.
The question is relevant for central vowels, for example, Polish [a] and [i]: are they
[-back] or [+back]?
Answer: they are [+back] because they function phonologically with back vowels.
The test here is Palatalization. Back vowels and central vowels do not cause Palatalization.

“function together” means “behave in the same way phonologically”: segments that either undergo rules together or constitute a context for rules, e.g. obstruents in Final Devoicing.

Segments that behave phonologically in the same way constitute a natural class.

Exercise:

Define stops as a natural class = group stops together to the exclusion of all the other underlying segments in a given language:

(1) [+obstr] excludes all vowels, semivowels, nasals, and liquids (= r and l). Still need to excluded: fricatives and affricates
(2) [-contin] excludes fricatives
(3) [-strid] excludes affricates

Final answer: [+obstr,-contin,-strid]