Principles of Phonemic analysis

These are principles to guide the analysis of phonemic system of languages

Phonetic similarity: When sounds are not found to be in contrast, but in complementary distribution, grouping of sounds into phonemes must be based on their phonetic similarity.

>For instance, analysing English we know that [p], [t] and [k] contrast among themselves.
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>[pit], [kit], [tæp], [kæp]etc.
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>/p/, /t/, /k/ however have the variants $[p^h]$, [p] and [p'], i.e. aspirates, unaspirates and unreleased unaspirates depending on the position of the word they occupy.

Eg. $[p^hin]$, [spin], [lip']; $[k^hin]$, [skin], [kræk'] ; $[t^hin]$, [stil], [pit']

Basing on Complementary Distribution $[p^h]$ is not only in complementary distribution with [p] and [p'], but also with [t] and [t'] or [k] and [k']. But we choose to unite $[p^h]$ with [p] and [p'] , as they are all phonetically similar and dissimilar from [t] and [t'] or [k] and [k'].

Another factor to be borne in mind while deciding on the form of the phoneme is to choose such an allophone which has wider distribution. Because then the more restricted allophones could be predicted from its environment. On the other hand, if we chose a restricted allophone as representative of the phoneme, then predicting the form of the allophone with the widest restriction is more difficult. So economy criterion for writing of rules deriving allophones would prefer the option of choosing the least restricted allophone to represent its phoneme too.

For instance, in Hindi, the phoneme /n/ is represented by three allophones [n], [ ] and [ ] whose distribution is as follows:

[ ] when occurring before palatal stops, as in [pa jaa], [a cal]

[ ] when occurring before velar stops, as in [ta khaa], [a ga]

[n] elsewhere, as in [santaan], [sanlaap], $[sanst^haa]$, [naam], [kaan]

The allophone [n] can be noticed to occur in the most number of phonetic environments while the other two allophones are restricted to a particular phonetic context, i.e either before palatal or velar consonants.

Hence choosing /n/ as the phoneme helps to account for the other allophones in a straightforward way. Had we chosen any other alternant as the phonemic form, predicting the other allophones would have been more cumbersome and difficult to state.

Process naturalness would also lead one to the same conclusion. That is, stating the allophones for a phoneme should be possible given what are phonologically natural tendencies in languages.

For nasal phoneme to be conditioned by the place of articulation of its neighbouring sound segments is quite natural across languages. Ex. Witness English forms like indecent, important, incongruent etc.

Pattern symmetry: Phonological systems in general across languages show evidence for them being symmetrical in pattern. That is, gaps in patterns are rarer to find. For instance, a vowel system of the following type as found in Hindi, is symmetrical, where length distinction is available only for the highest and lowest of vowels in the vowel chart.

         i   u

           e   o

                  a

Suppose, one is analysing a language, and has found data supporting contrasts in vowels to form a vowel system somewhat as given above for Hindi.   But, the data gathered has not yet provided evidence to separate a phoneme /o/, though /e/ was found. This sort of gap must be viewed as unexpected, and must lead the investigator to suspect that they have perhaps missed out on crucial data, either due to faulty transcription in certain cases or due to not having collected relevant data so far.   So in such cases the linguist must try to re-examine the data or verify with further data.

To illustrate another case, suppose the linguist has found evidence in a language for a stop sytem with contrasts of voicing at two places of articulation but not at the third place of articulation.

Let us say it is something like the following:

 /p/   /t/   /k/

/b/   __   /g/

Here the voiceless stop at the alveolar place of articulation has a missing voiced partner. This gap should also make us suspect to have missed out on hearing the data properly or the data collected being incomplete. So efforts should be directed to eliminate such gaps if possible. Because by and large phonological systems obey pattern symmetry.